TENDER COPY

Sinclair Knight Merz
Brisbane River Flood Study
Final Report

June 1998
Vols 1 & 2

SINCLAIR KNIGHT MERZ

Brisbane City Council
June 1998

Brisbane River Flood Study

FINAL REPORT
Volume 1

Sinclair Knight Merz Pty Ltd
A.C.N. 001 024 095
49 Annand Street
PO Box 839
Toowoomba QLD
Australia 4350
Telephone: (07) 4639 8400
Facsimile: (07) 4639 8490

Contents

BCC.121.0385

Tables

Appendices

Figures

Appendix G

Appendix H

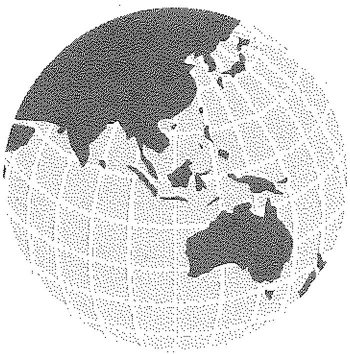
Appendix J

Acknowledgments

Sinclair Knight Merz would like to thank the following organisations for their assistance throughout this study.

Department of Natural Resources (DNR)
Bureau of Meteorology (BOM)
South East Queensland Water Board (SEQWB)

In particular, we would like to thank Terry Malone (BOM), John Ruffini (DNR) and Garry Grant (SEQWB) for without their help and supply of information our task would have been much more difficult.



Executive Summary

Executive Summary

Sinclair Knight Merz were commissioned on the 5 November 1996 by Brisbane City Council to undertake a flood study of Brisbane River.

The **primary objectives** of the study were;

- to provide technically based flood development levels along the length of the Brisbane River within the confines of the Brisbane City Boundary, and
- develop a Flood Forecasting Model.

The **secondary objectives** of the study were to;

- set flood regulation lines, and
- to develop a revegetation strategy compatible with hydraulic constraints.

The modelling and investigation undertaken in this study will form the basis for a floodplain management strategy for the Brisbane River.

The study involved the collection and analysis of available rainfall, survey and hydrographic data. Using this data a hydrologic and hydraulic model was developed, calibrated and tested using four historical flood events. These floods were;

- January 1974
- May 1996
- June 1983 and
- Late April 1989

Following calibration, the models were then verified against the following historical events:

- February 1931
- March 1955
- Early April 1989 and
- July 1973

Data for the February 1931 and March 1955 historical events was not available during the calibration/verification phase of the study and verification of these events was performed at a later date.

The hydrologic modelling has been carried out using the XP-RAFTS hydrologic model. This model converts rainfall to runoff after considering catchment storage effects and losses.

The MIKE 11 hydrodynamic hydraulic model was selected for the hydraulic analysis.

Calibration of the hydrologic and hydraulic models has been carried out in parallel to ensure the river storage in the two models is consistent. Parameters within the hydrologic model were adjusted until a good match between continuous historical streamflow records and predicted streamflows were achieved. These flows were then used in the hydraulic model and calibration was conducted until predicted flood levels provided a good match between continuous historical flood level data and peak flood levels. The discharge hydrographs routed through MIKE 11 were then compared to the discharge hydrographs produced by RAFTS. This process was repeated until the peak discharges of the hydrographs produced by each model were consistent to within 10%.

The MIKE 11 hydraulic model was calibrated to recorded historical flood levels primarily through variation of Manning's n roughness parameters along the river.

Good calibration of both the hydrologic and hydraulic models have been obtained. These results were achieved on the basis of;

- maintaining realistic rainfall loss rates over the entire catchment
- maintaining realistic river roughness parameters representative of the current river configuration and
- obtaining a satisfactory hydraulic performance of the major structures.

An analysis of design storm events was then performed to establish design flood characteristics in the Brisbane River using the calibrated hydrologic RAFTS model and the hydraulic MIKE 11 model. A range of varying average recurrence intervals from 2 year ARI through to Probable Maximum Precipitation were analysed.

The hydrologic analysis was performed for existing catchment conditions to determine inflow hydrographs for the calculation of design flood profiles for the Brisbane River. These design events were analysed assuming simplified operations of Wivenhoe and Somerset Dams as RAFTS cannot model the complex operations associated with these dams. The design flood profiles have been prepared using MIKE 11. The tabulated results from these profiles provide peak flood levels and discharges at each cross section within the extent of the hydraulic model (river mouth to upstream city boundary).

Major hydraulic structures along the Brisbane River were assessed individually and it was found that three of these structures generated affluxes in excess of the 150 mm for the 100 year ARI flood event. It was concluded that no upgrades of these structures should occur due to the high costs involved in undertaking such a project.

The waterway management component of this study required application of the hydraulic model of the Brisbane River to delineate flood regulation lines, determine a revegetation strategy and to assess stream rehabilitation.

Regulation Line Strategy
Regulation lines are used by Council as a control on development encroaching onto the floodplains of major rivers and creeks. They are set to ensure that works such as placement of fill does not compromise existing flood immunity.

As no interim regulation lines were in place for the Brisbane River, regulation lines were set using the calibrated hydraulic MIKE 11 model. This work was principally based on the 'worst case' design scenario of the 100 year ARI flood event with regulation lines and revegetation strategy in place.

Revegetation Strategy
A revegetation strategy for the Brisbane River (river mouth to upper city boundary) has been developed which complies with the current Strategic Plan for the Management of Brisbane Waterways. The testing was conducted using the 100 year ARI design flood.

The approach taken was generally to adhere to the interim Waterway Corridor widths for the Brisbane River. These widths are generally practical in terms of width of river corridor to private property boundaries. They also provide a sufficient width to act as wildlife corridors.

The proposed revegetation strategy applies to areas both within and beyond the waterway corridors. Tree planting has been proposed and tested for areas beyond the waterway corridor as private landholders may revegetate these areas. It has been assumed that this will create the worst case scenario.

All proposed revegetation has been tested by adding 0.15 to existing case Manning's n roughness parameters as this was assumed to be the worst case tree planting density. The maximum increase in flood levels throughout the reach due to proposed revegetation was predicted to be 20 mm.

In some reaches several solutions to the regulation line location and the revegetation strategy satisfy the hydraulic constraints. In these areas the most practical solution was adopted considering planning, environmental and economic criteria.

A flood forecasting model has also been developed for the Brisbane River in conjunction with an assessment of possible escape routes and areas within the city boundary that become isolated during flood events. Since the Brisbane River system is effected by tidal influences, a hydrologic and hydraulic model had to be developed. These models will form an integral part of the PROPHET flood warning system that will enable the forecasting of flood levels at key locations on the Brisbane River. These models require rainfall information from radio telemetry gauges within the confines of the city boundary and inflow hydrographs provided by the DNR at the upstream Brisbane City Boundary and Bremer River inflow points. These hydrographs account for the complex dam operations that cannot be simply modelled by the RAFTS hydrologic model.

A flood contouring exercise was conducted using MIKE 11 predicted flood levels and super-elevation formula to produce a two dimensional flood surface along the hydraulic reach of the Brisbane River. Initially it was proposed that the two dimensional hydrodynamic model FastTABS would be used to post process one dimensional results generated by MIKE 11 to produce these contours however due to the size of the river, FastTABS was unable cope with the amount of digital terrain data that was required to complete this process.

Finally a community consultation process was conducted during the course of the study. An Information Bulletin/Questionnaire was distributed to 13 community groups offering these groups the opportunity to respond to a survey which was primarily concerned with the revegetation and rehabilitation of the river corridor. The response from the community groups was considered to be poor however 100% of the respondents agree with revegetation of the river corridor.

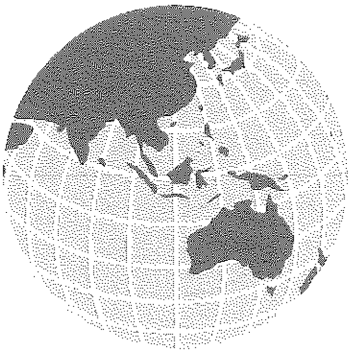
1. Introduction

1. Introduction

The Brisbane River Flood Study is a major initiative of the Brisbane City Council to establish design flood levels along the lower reach of Brisbane River. Additional outcomes of the investigation shall be the setting of flood regulation lines, a revegetation strategy compatible with hydraulic constraints and a flood forecasting model.

This is the final report which comprises the four (4) progress reports generated throughout the study. These progress reports consisted of:

- Calibration Report
- Design Event Report
- Waterway Management Report
- Flood Mapping Report.



2. Catchment Description

2. Catchment Description

The extent of the Brisbane River catchment is shown in **Figure 2-1 - Locality Plan**. It covers an area of 13 570 square kilometres and is bounded to the west by the Great Dividing Range and by a number of smaller coastal ranges to the east and north. Most of the catchment comprises of forest and grazing land, with the exception of the Brisbane - Ipswich metropolitan areas and numerous small rural townships.

Cooyar Creek, Emu Creek and Cressbrook Creek are the main tributaries of the upper Brisbane River and have headwaters in the Great Dividing Range. Cooyar Creek is the most northerly of the upper Brisbane River tributaries and tends to have the lowest annual rainfalls recorded within the catchment.

The Stanley River is the only major tributary of the Brisbane River that flows westwards and its source is the Conandale and D'Aguilar Ranges near the coast. This part of the Brisbane River catchment is relatively steep and receives the highest rainfall.

Lockyer Creek is the largest tributary of the Brisbane River in terms of catchment size, with a total area of 2 600 square kilometres. The lower floodplains of the Lockyer Valley are used for intensive agriculture, including vegetables and small crops. The hilly upper parts of the catchment to the south and west is mainly forest.

The Bremer River occupies the south west corner of the Brisbane Valley and has its headwaters in the Little Liverpool Range. Its catchment is generally hilly and lightly forested. A major tributary of the Bremer River is Warrill Creek. The lower reaches of the Bremer River flow through the City of Ipswich.

The Brisbane River and its major tributaries are regulated by several dams and reservoirs. A list of major dam structures is given in **Table 2-1 - Major Dams in the Brisbane Valley**. The largest storages are associated with Somerset Dam and Wivenhoe Dam.

Table 2-1 - Major Dams in the Brisbane Valley

Damsite	River/Creek	Year of Completion	Capacity at Full Supply Level (ML)
Wivenhoe	Brisbane	1985	1 150 000
Somerset	Stanley	1959	369 750
Cressbrook	Cressbrook	1982	78 300
Perseverance	Perseverance	1965	30 300
Atkinson	Buaraba	1970	31 300
Lake Manchester	Cabbage Tree	1916	25 700
Mt Crosby Weir	Brisbane	1901	2 590
Moongerah Dam	Reynolds	1961	92 500
Enoggera Creek	Enoggera	1866	4 500

Somerset Dam is a multi-purpose dam owned by the South East Queensland Water Board and operated by Brisbane City Council. It supplies water for Brisbane, Ipswich and adjacent shires, has a limited power generation capacity and is also used for recreation purposes. A major role of the dam is for flood mitigation and a temporary flood storage of 524 000 ML is available.

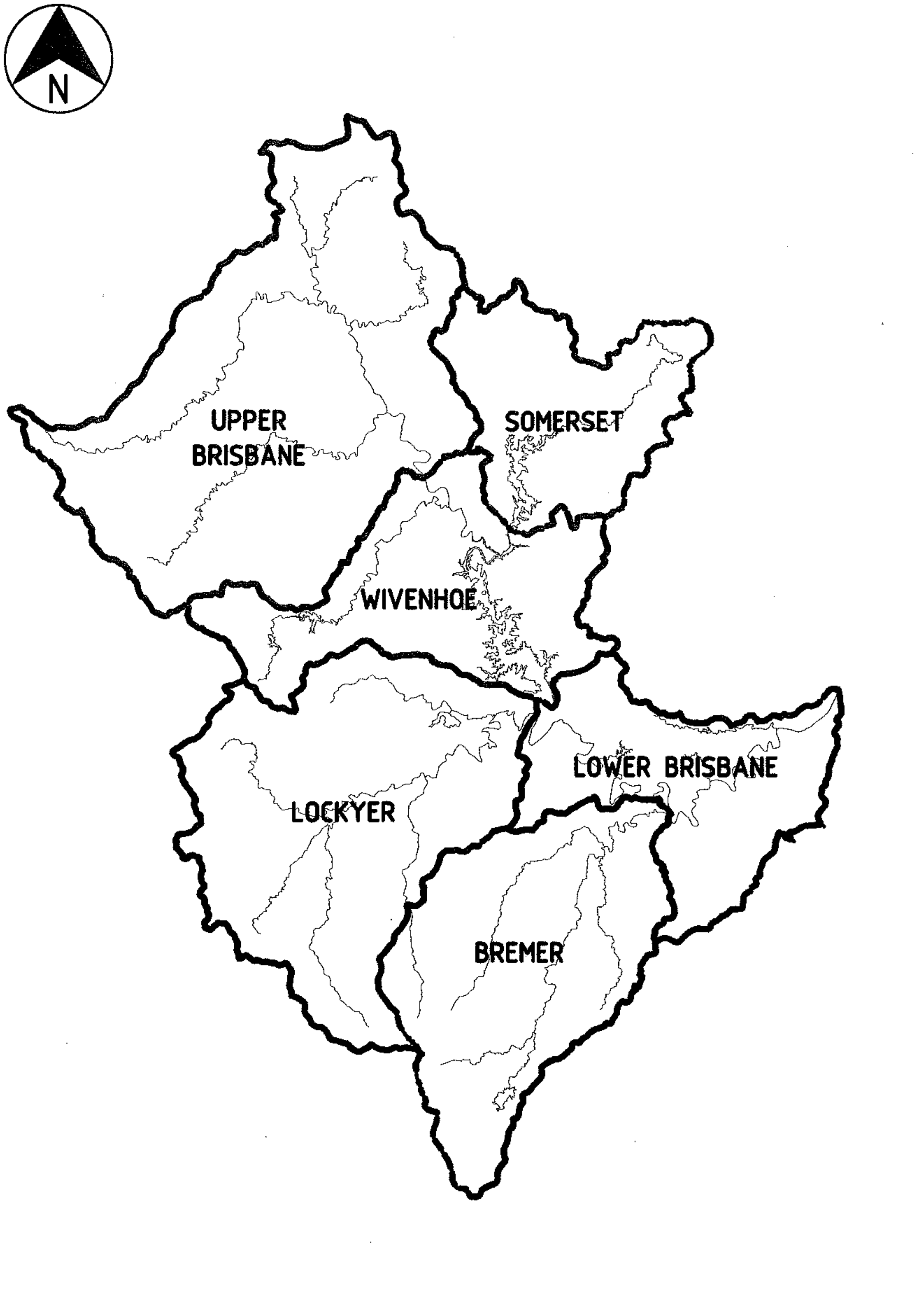
Wivenhoe Dam is the largest dam structure in the Brisbane Valley and commands about half of the total Brisbane River catchment. It has a major effect on river hydrology due to its large flow regulation capacity. About 1 450 000 ML of flood storage is available at the dam.

For the purpose of hydrologic modelling the Brisbane River catchment can be divided into six broad subcatchments. The boundary of each subcatchment; defined as Upper Brisbane, Somerset, Wivenhoe, Lockyer, Bremer and Lower Brisbane, are shown in **Figure 2-2 - Brisbane River Subcatchments**

SINCLAIR KNIGHT MERZ

FIGURE 2.2

BRISBANE RIVER FLOOD STUDY
BRISBANE RIVER SUBCATCHMENTS



FILE NAME. 04157..R PLOT SCALE: 1=1000 DISK N°. D:\DWG\BRISB... N°. T00457 DATE. 15-3-97

3. Available Data

3. Available Data

3.1 Stream Gauges

Available Stream Gauges

Recorded flood hydrographs at key locations in the Brisbane River system are required for the purpose of hydrologic model calibration.

The network of stream gauges associated with the Brisbane River catchment is shown in **Figure 3-1 - Stream Gauge Locations** and detailed in **Table 3-1 - Brisbane River Stream Gauge Summary**. Several stream gauges have historical records extending over a period of more than eighty years. The majority of stream recorders were installed during the post 1960 period. Some gauges have been decommissioned including Brisbane River at Middle Creek, Cressbrook Creek at Damsite (both due to dam construction) and Warrill Creek at Kalbar.

Table 3-1 - Brisbane River Stream Gauge Summary

Number	Stream	Site	Record	% Catchment Area
Upper Brisbane River				
143015	Cooyar Creek	Damsite	1968 - date	7
143007	Brisbane River	Linville	1964 - date	15
143010	Emu Creek	Boat Mtn	1976 - date	7
143009	Brisbane River	Gregors Creek	1962 - date	29
143002	Brisbane River	Fulham Vale	1920 - 1965	29
Somerset and Wivenhoe				
143305	Stanley River	Somerset Dam	1935 - date	10
143008	Brisbane River	Middle Creek	1962 - 1982	49
143036	Brisbane River	Wivenhoe Dam	1986 - date	52
143901	Stanley River	Woodford	1918 date	2
143303	Stanley River	Peachester	1927 - date	1
143013	Cressbrook Creek	Damsite	1965 - 1981	2
143006	Tinton	Cressbrook Ck	1928 - 1980	3
143302	Stanley River	Silverton	1919 - 1968	10

Table 3-1 - Brisbane River Stream Gauge Summary (Continued)

Lockyer				
143203	Lockyer Creek	Helidon	1926 - date	3
143212	Tenthill Creek	Tenthill	1968 - date	3
143225	Laidley Creek	Showground	1984 - date	2
143210A	Lockyer Creek	Lyons Bridge	1909 - date	19
143210B	Lockyer Creek	Rifle Range	1988 - date	19
143907	Brisbane River	Lowood	1909 - date	77
143905	Lockyer Creek	Glenore Grove	1955 - date	16
143904	Lockyer Creek	Gatton	1929 - date	12
143204	Lockyer Creek	Wilsons Weir	1953 - 1982	12
143206	Brisbane River	Brightveiw Weir	1953 - 1973	18
Bremer and Lower Brisbane				
143001	Brisbane River	Savages Cross	1909 - date	78
143003	Brisbane River	Mt Crosby	1900 - date	78
143110	Bremer River	Adams Bridge	1968 - date	1
143107	Bremer River	Walloon	1961 - date	5
143102	Warrill Creek	Kalbar	1912 - 1973	3
143108	Warrill Creek	Amberley	1961 - date	7
143113	Purga Creek	Loamside	1973 - date	2
143911	Bremer River	David Trumpy	1893 - date	14
143915	Brisbane River	Moggill	1965 - date	94
143982	Brisbane River	Jindalee	1974?	95
143919	Brisbane River	Port Office	1841 - date	100
143101	Warrill Creek	Mudtapilly	1914 - 1953	6

Note: % catchment area estimated as proportion of total Brisbane River Catchment (equal to 13 570 km^2) upstream of the stream gauge.

Several stream gauges are located in the upper tributaries of the Brisbane River system and command a relatively small fraction of the total catchment draining to the City of Brisbane. About ten gauges have drainage areas less than 5 percent of the total Brisbane Valley catchment and are of secondary importance in the RAFTS model calibration process.

The primary stream gauges used for model calibration purposes include:

- Brisbane River at Linville - includes Cooyar Creek and headwaters of Brisbane River.

- Brisbane River at Gregors Creek - downstream of Linville and includes streamflows from Emu Creek, Maronghi Creek and Ivory Creek.

- Brisbane River at Middle Creek - is sited downstream of the Stanley River confluence and was closed in August 1982 due to the construction of Wivenhoe Dam. Records since 1959 include the flow regulation effects of Somerset Dam,

- Brisbane River at Lowood - is sited downstream of the confluence of Brisbane River and Lockyer Creek.

- Brisbane River at Savages Crossing and Mt Crosby - are both long term stream gauge sites and are important in isolating flow travel times and channel routing effects along the mid-reach section of the Brisbane River (between the Lockyer Creek and Bremer River junctions).

- Brisbane River at Moggill, Jindalee and Post Office Gauge are downstream of the Bremer River and are located within the coverage of the Brisbane River MIKE 11 model.

- Lockyer Creek at Glenore Grove - accounts for about 85% of the Lockyer Creek catchment (which in turn is of the order of 20% of the total Brisbane River catchment).

- Lockyer Creek at Lyons Bridge and Rifle Range are sited near the Brisbane River. Gauge heights are subject to backwater effects associated with Brisbane River floodwaters.

- Warrill Creek at Amberley measures streamflows at a major tributary of the Bremer River catchment.

- Bremer River at David Trumpy Bridge is located near the Brisbane River and gauge heights are affected by the incidence of flooding within the Brisbane River. The Bremer River catchment contributes to about 15 percent of the total Brisbane River catchment area.

A series of telemetric alert gauges have been established within the catchment for flood warning purposes and are utilised by the Department of Natural Resources and the Bureau of Meteorology. Most of these stream gauges have been installed in the last five years and are also shown in **Figure 3-1 - Stream Gauge Locations**. A listing of selected gauges is given in **Table 3-2 - Brisbane River Flood Alert Gauges**.

Table 3-2 - Brisbane River Flood Alert Gauges

Alert Number	Stream	Site
Upper Brisbane		
6709	Brisbane River	Devon Hills
6515	Brisbane River	Gregors Creek
Somerset and Wivenhoe		
6554	Cressbrook Creek	Rosentreters Bridge
6575	Brisbane River	Caboonbah
Lockyer		
6634	Lockyer Creek	Lyon
21019	Laidley Creek	Thornton
7078	Laidley Creek	Mulgowie
7167	Laidley Creek	Warrego Highway
Bremer and Lower Brisbane		
21025	Western Creek	Kuss Road
7020	Bremer River	Rosewood
6572	Warrill Creek	Harrisville
6740	Purga Creek	Washpool

Note: This table excludes alert stations located in Brisbane metropolitan area.

Stream Gauge Rating Curves

Stage discharge curves are available at the majority of stream gauges and were supplied by the Hydrology Section, Bureau of Meteorology. These rating curves are presented in **Figure 3-2 - Brisbane River Catchment Rating Curves**. All original rating curves were used in the RAFTS hydrological model except where identified on **Figure 3-2**.

Somerset Dam and Wivenhoe Dam Discharges

Inflow and outflow hydrographs associated with Somerset Dam and Wivenhoe Dam for several floods were supplied by Surface Water Assessment, Department of Natural Resources. The inflows are synthetic hydrographs derived from historical lake level data and storage outflow records.

3.2 Rainfall Data

Daily rainfall data and representative pluviograph data is required to describe the areal and temporal distribution of rainfall associated with historical flood events.

A total of about 60 rainfall stations were applied in this flood study and the coverage of these stations within and adjacent to the catchment is shown in **Figure 3-3 - Rainfall Station Locations**. A listing of stations is compiled in **Appendix A**.

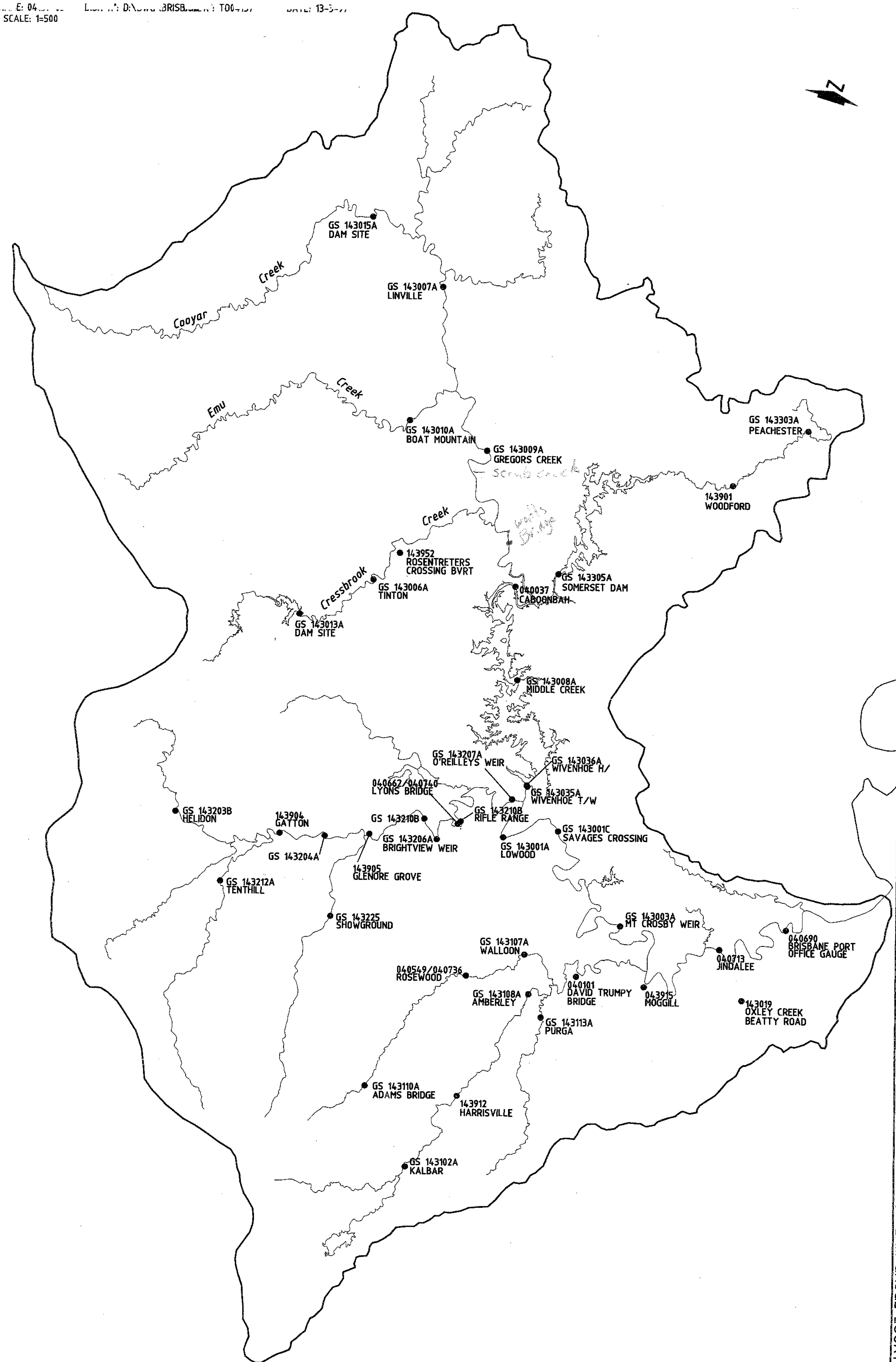
Pluviometers, which record the temporal variation of rainfall during a storm, are distributed within the catchment as indicated on **Figure 3-4 - Pluviometer Locations**. These recorders are owned and operated by various authorities including the Bureau of Meteorology, Department of Natural Resources, Brisbane City Council, Toowoomba City Council and CSIRO. Several pluviometers have been recently installed as part of a flood alert system for the Brisbane River. A listing of pluviometers is also compiled in **Appendix A** along with pluviograph data overlaid onto IFD curves for each event at representative locations.

FIL... E: 04... D:\DWG\BRISB... T004... DATE: 13-3-...
PLOT SCALE: 1=500

LEGEND

● STREAM GAUGE LOCATION

SINCLAIR KNIGHT MERZ



0 5 10 15 20 25 km

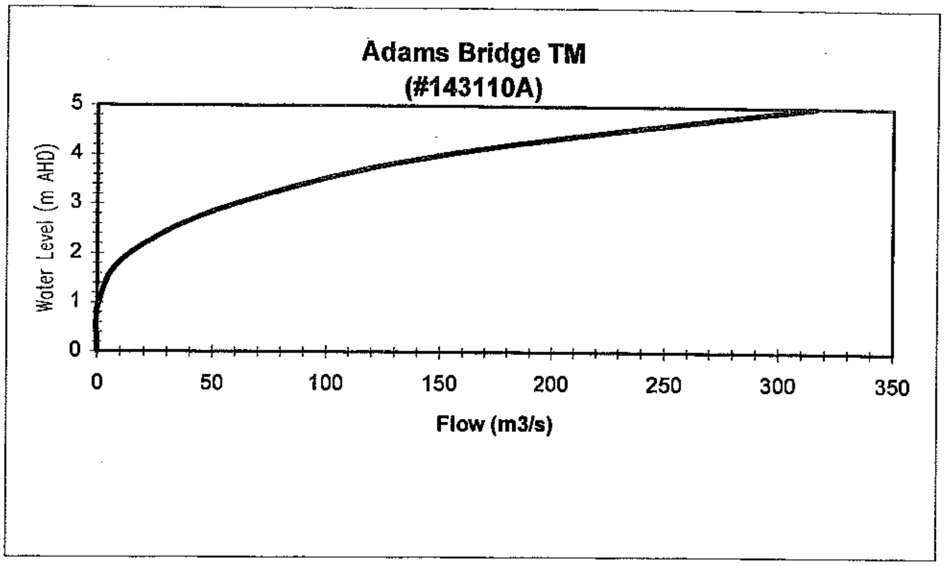
FIGURE 3.1
BRISBANE RIVER FLOOD STUDY
STREAM GAUGE LOCATIONS

BCC.121.0414

Figure 3.2 - Brisbane River Catchment Rating Curves

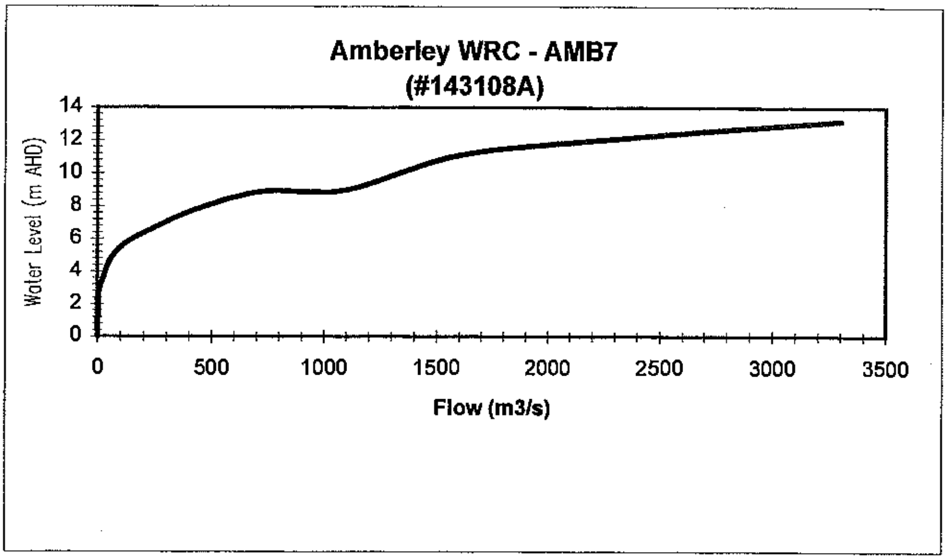
Bremer River at ADAMS BRIDGE TM - WAL4

Level (m)	Discharge (m^3/s)
0	0
1	0.5
2	14
3	60
4	150
5	316



Warrill Creek at Amberley WRC - AMB7

Level (m)	Discharge (m^3/s)
0	0
1.8	1
2.8	5
3.8	30
4.8	60
5.8	130
6.8	265
7.9	450
8.9	730
9	1100
11.1	1600
12.1	2300
13.2	3300



Warrill Creek at Amberley - CBM

Level (m)	Discharge (m^3/s)
1	0
2	5
3	30
4	60
5	130
6	265
7	450
8	730
9	1100
10	1600
11	2300
12	3300

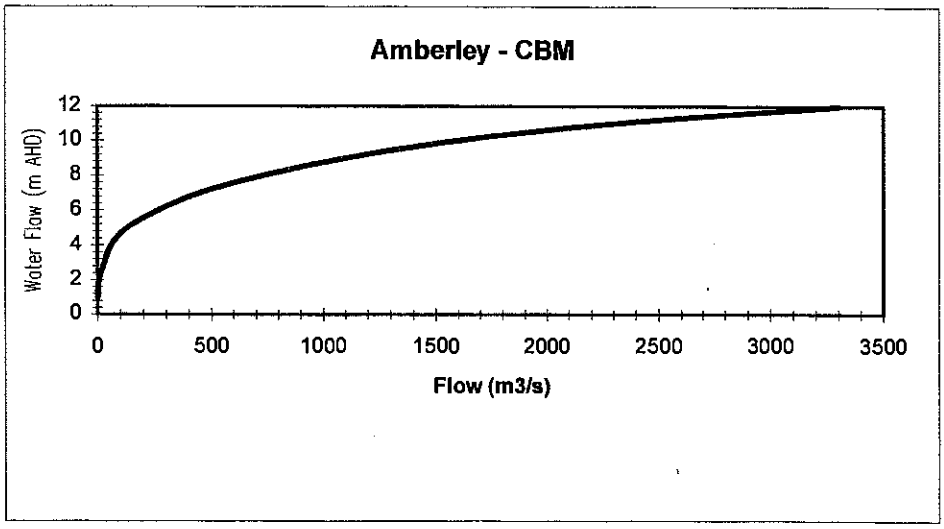
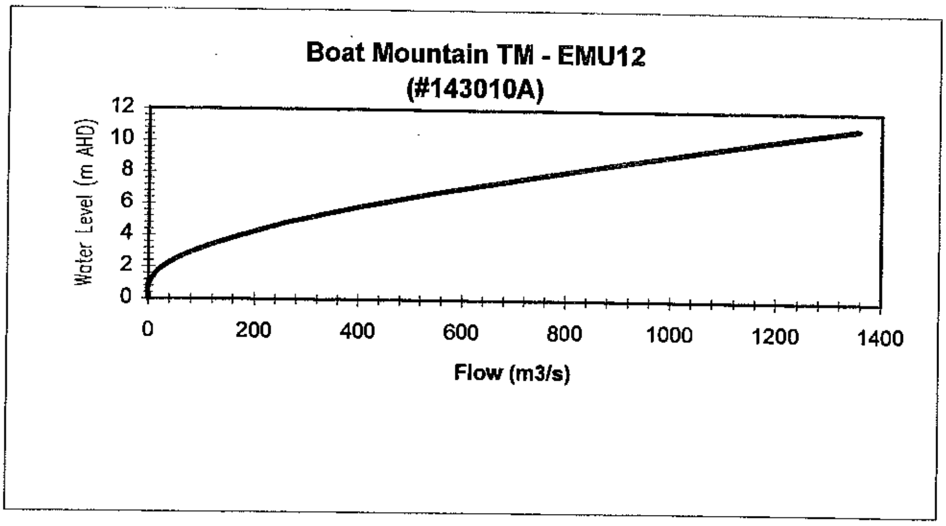


Figure 3.2 - Brisbane River Catchment Rating Curves

Emu Creek at BOAT MOUNTAIN TM - EMU12

Level (m)	Discharge (m^3/s)
0	0
1	1
2	27
3	83
4	172
5	284
6	427
7	592
8	775
9	958
10	1150
11	1356

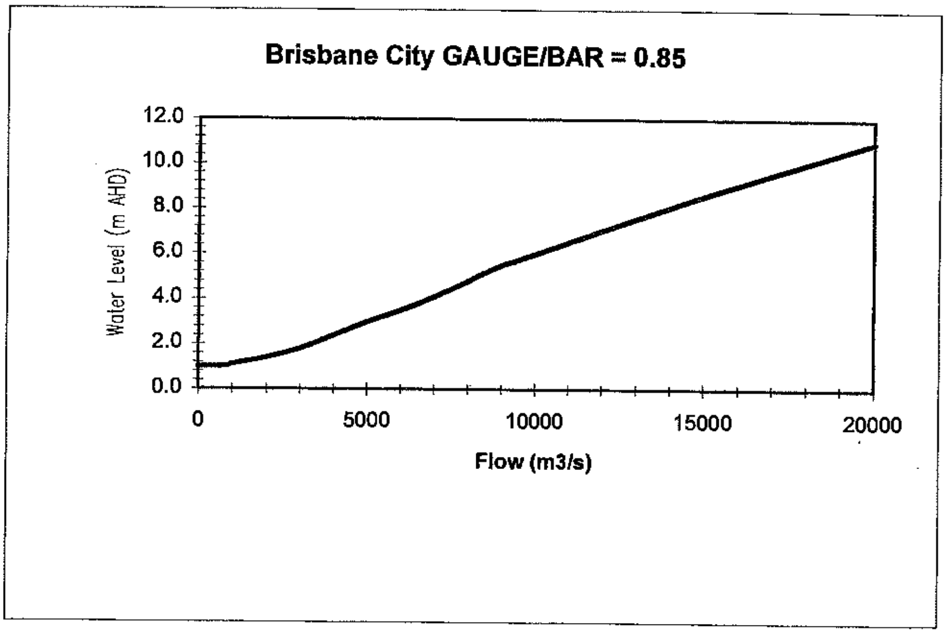


Brisbane City GAUGE

BAR = -1.15

AHD=GAUGE D

Level (m)	Discharge (m^3/s)
-0.9	0
-0.7	500
-0.4	1000
0.3	2000
1	3000
1.6	4000
2.3	5000
2.9	6000
3.5	7000
4.2	8000
4.9	9000
5.5	10000
8.6	15000
11	20000



Brisbane City GAUGE

BAR = 0.15

AHD=0.15

Level (m)	Discharge (m^3/s)
0	0
0.01	500
0.2	1000
0.8	2000
1.4	3000
2	4000
2.5	5000
3.2	6000
3.8	7000
4.5	8000
5.2	9000
5.7	10000
8.6	15000
11	20000

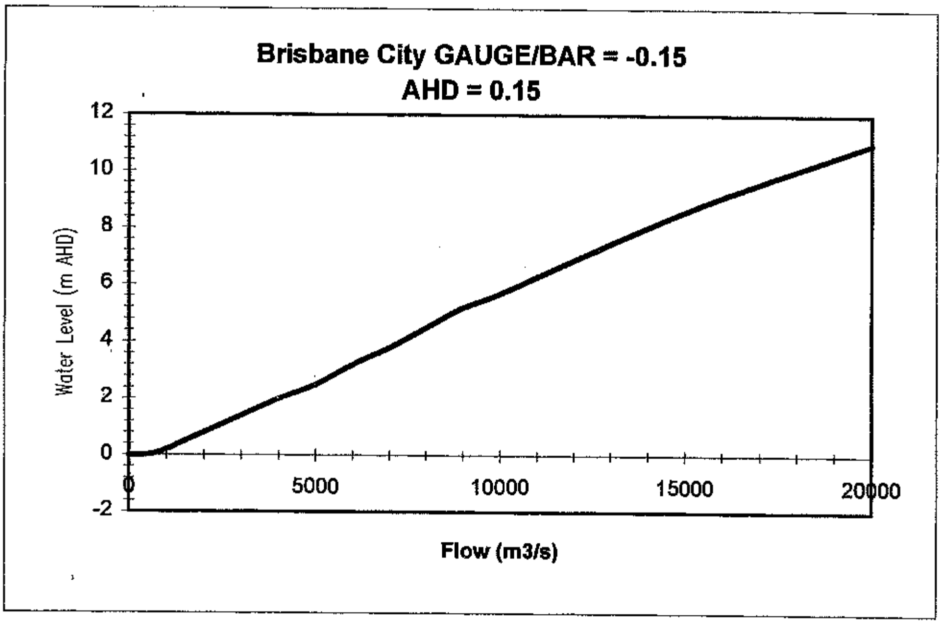
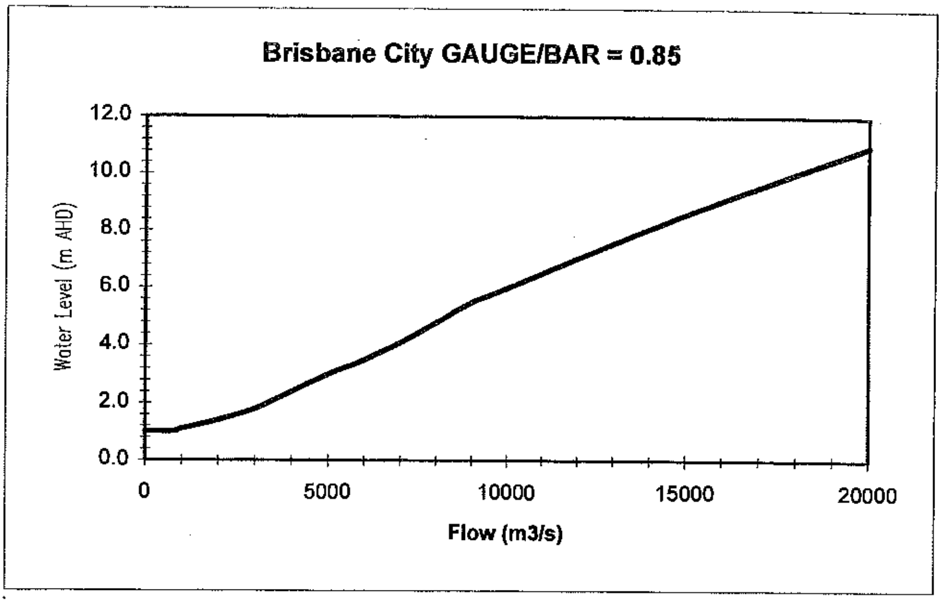


Figure 3.2 - Brisbane River Catchment Rating Curves

Brisbane City GAUGE

BAR = 0.85

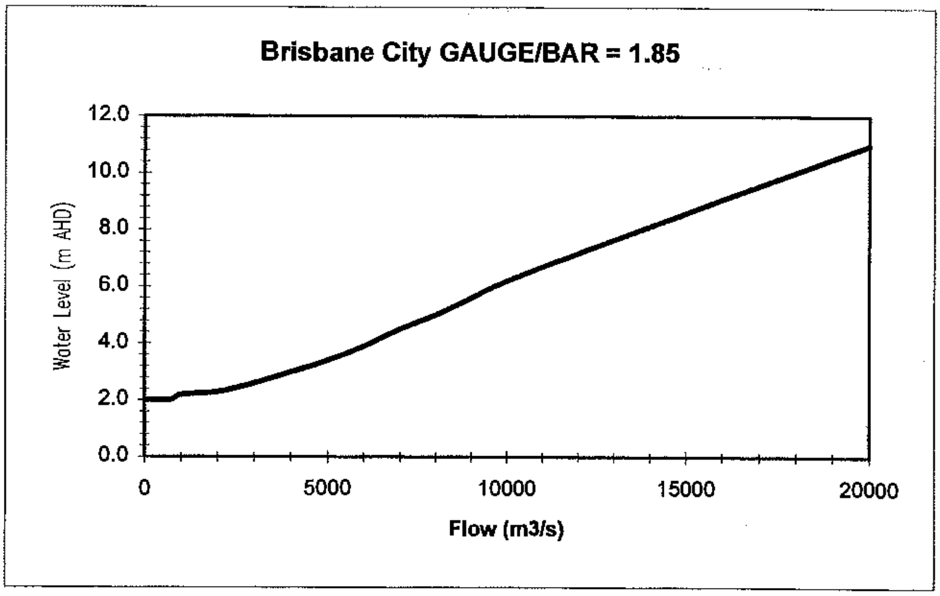
Level (m)	Discharge (m^3/s)
1	0
1.01	800
1.1	1000
1.4	2000
1.8	3000
2.4	4000
3	5000
3.5	6000
4.1	7000
4.8	8000
5.5	9000
6	10000
8.6	15000
11	20000



Brisbane City GAUGE

BAR = 1.85

Level (m)	Discharge (m^3/s)
2	0
2.01	700
2.2	1000
2.3	2000
2.6	3000
3	4000
3.4	5000
3.9	6000
4.5	7000
5	8000
5.6	9000
6.2	10000
8.6	15000
11	20000



Brisbane City GAUGE

BAR = 2.85

Level (m)	Discharge (m^3/s)
3	0
3.01	800
3.1	1000
3.2	2000
3.4	3000
3.5	4000
3.8	5000
4.3	6000
4.8	7000
5.3	8000
5.9	9000
6.4	10000
8.6	15000
11	20000

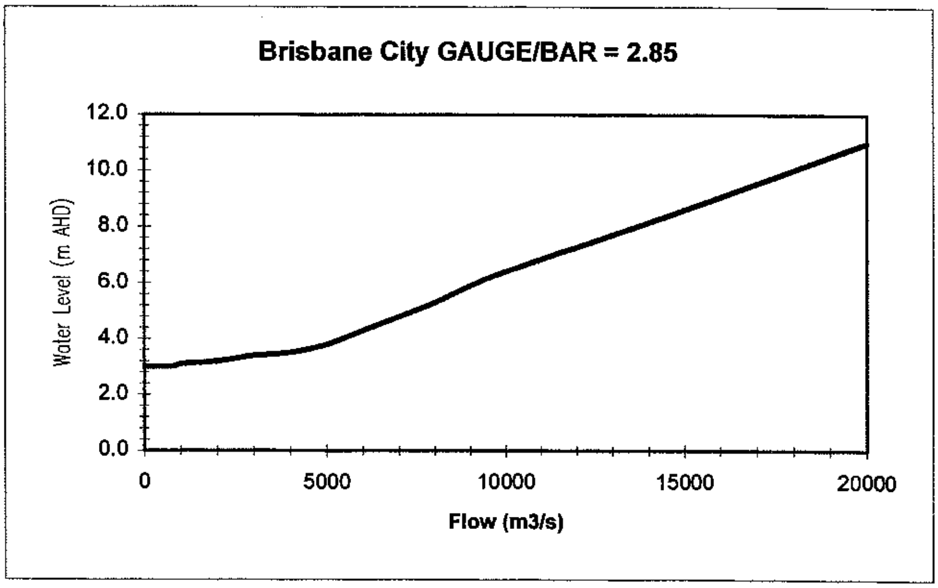
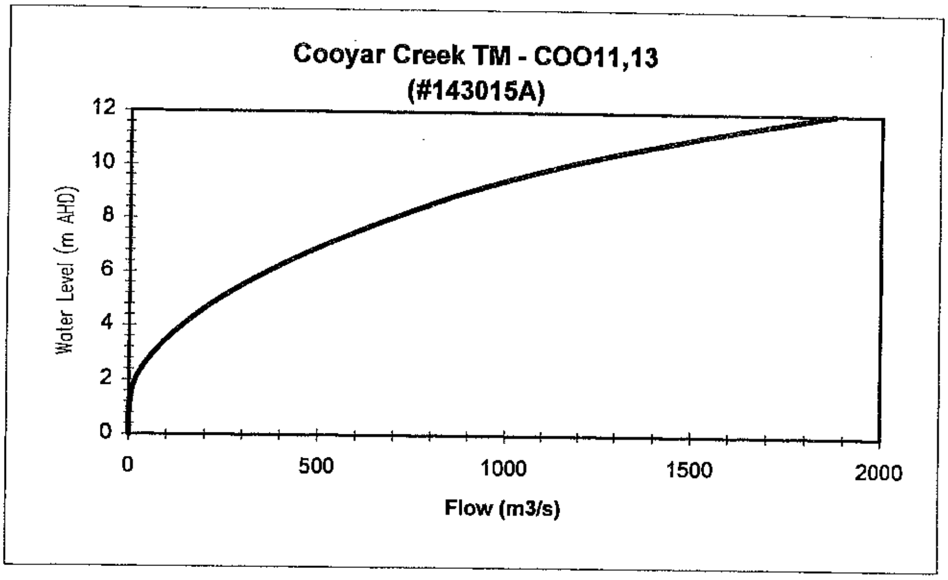


Figure 3.2 - Brisbane River Catchment Rating Curves

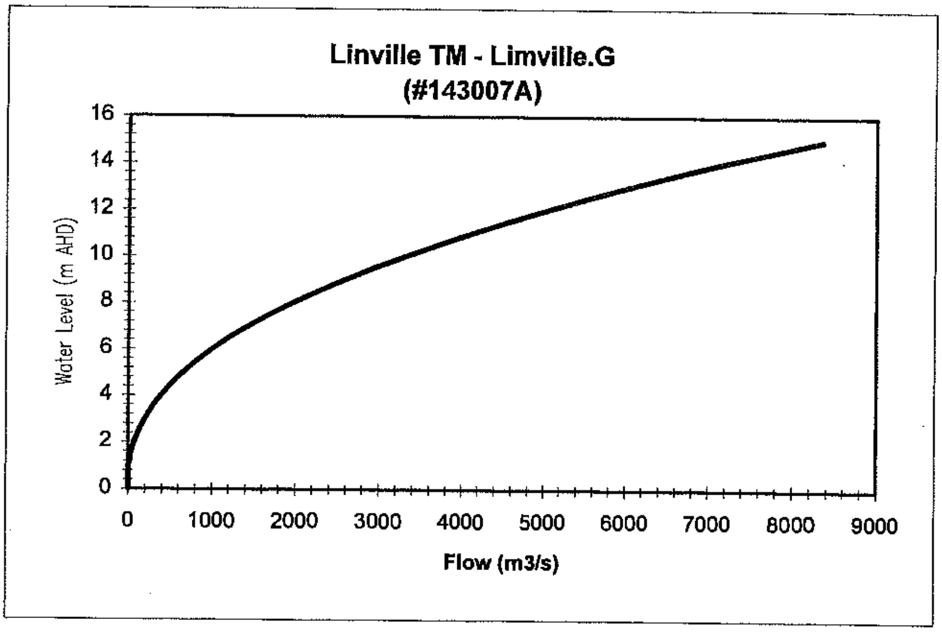
Cooyar Creek at COOYAR CREEK TM - COO11,13

Level (m)	Discharge (m^3/s)
0	0
1	1
2	15
3	65
4	139
5	237
6	361
7	511
8	687
9	889
10	1149
11	1484
12	1873



BRISBANE at LINVILLE TM - LIMVILLE.G

Level (m)	Discharge (m^3/s)
0	0
1	3
2	64
3	195
4	390
5	657
6	1000
7	1439
8	1966
9	2586
10	3299
11	4108
12	5016
13	6024
14	7134
15	8348



LOCKYER CREEK at GATTON - GAT10

Level (m)	Discharge (m^3/s)
0	0
1	5
2	15
3	40
4	60
5	80
6	140
7	180
8	260
9	400
10	630
11	860
12	1125
13	1350
14	1550
15	2500
16	3000

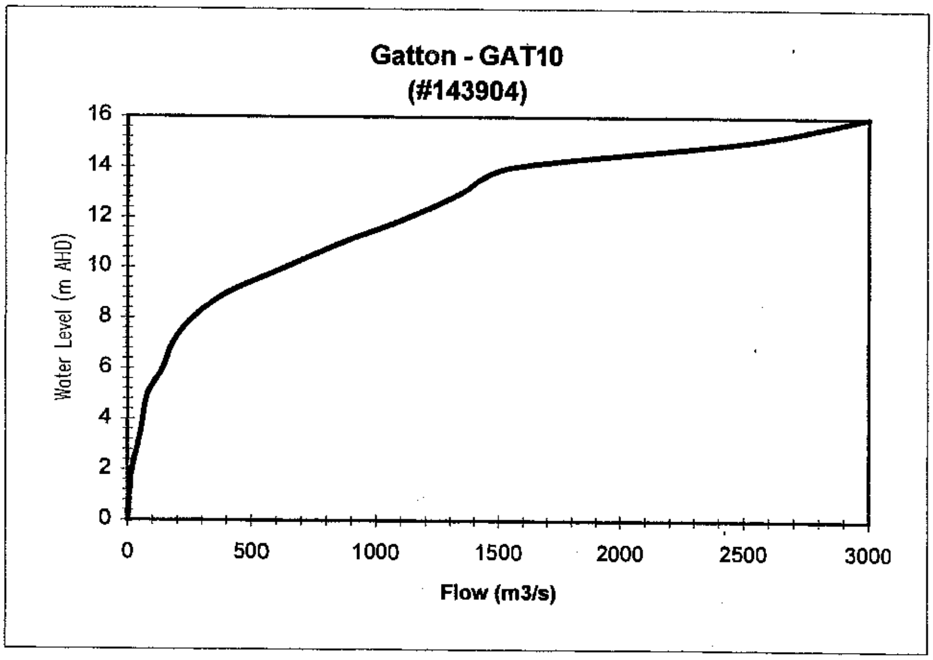
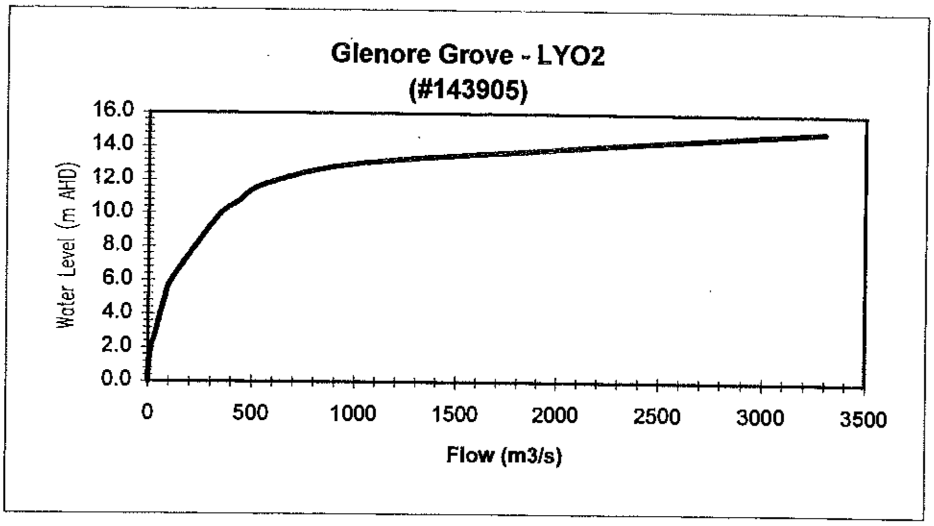


Figure 3.2 - Brisbane River Catchment Rating Curves

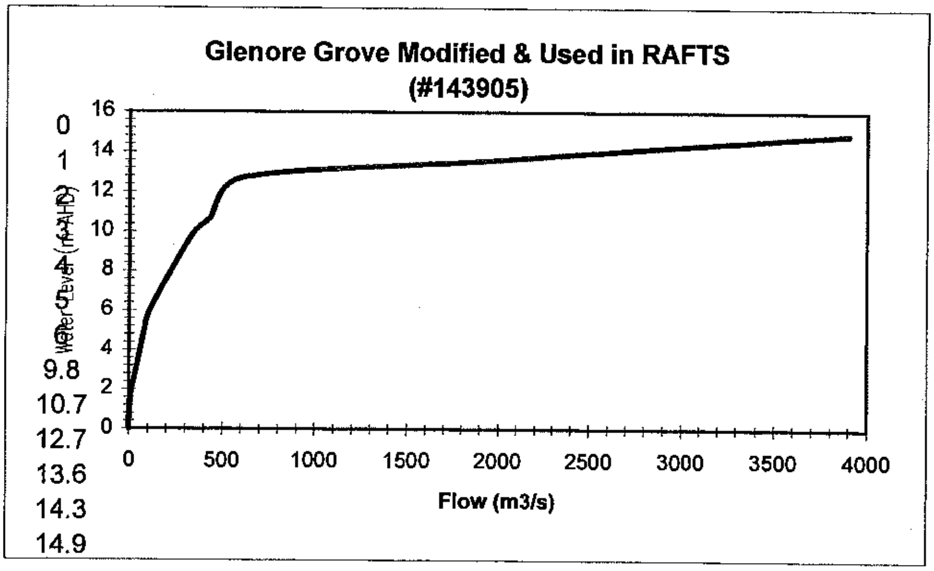
LOCKYER CREEK at GLENORE GROVE - LYO2

Level (m)	Discharge (m^3/s)
0	0
1	1
2	13
3	37
4	57
5	80
6	110
9.8	333
10.7	433
11.7	550
13	1000
14	2100
15	3300



LOCKYER CREEK at GLENORE GROVE - LYO2 Modified & used in RAFTS

Level (m)	Discharge (m^3/s)
0	0
1	1
2	13
3	37
4	57
5	80
6	110
9.8	333
10.7	433
12.7	600
13.6	1950
14.3	3000
14.9	3900



BRISBANE RIVER at GREGOR CREEK CBM - GRE 17

Level (m)	Discharge (m^3/s)
0	0
1	1
2	10
3	50
4	85
5	190
6	400
7	600
8	850
9	1200
10	1600
11	2000
12	2400
13	3000
14	3500

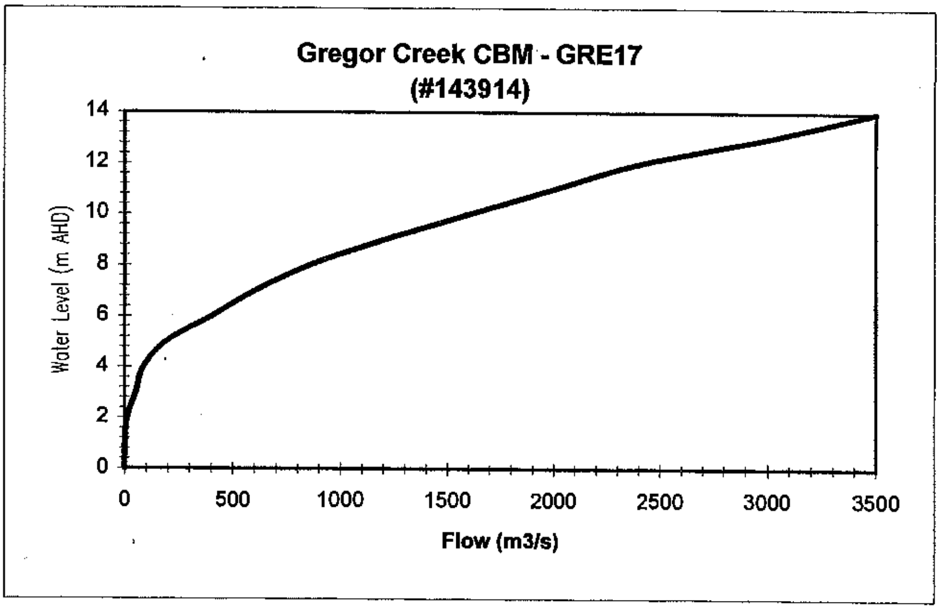
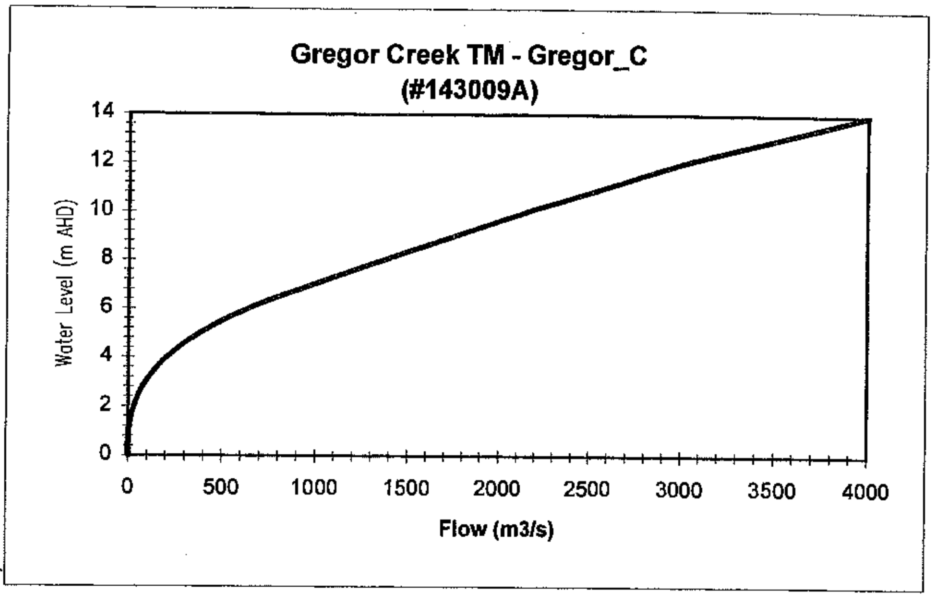


Figure 3.2 - Brisbane River Catchment Rating Curves

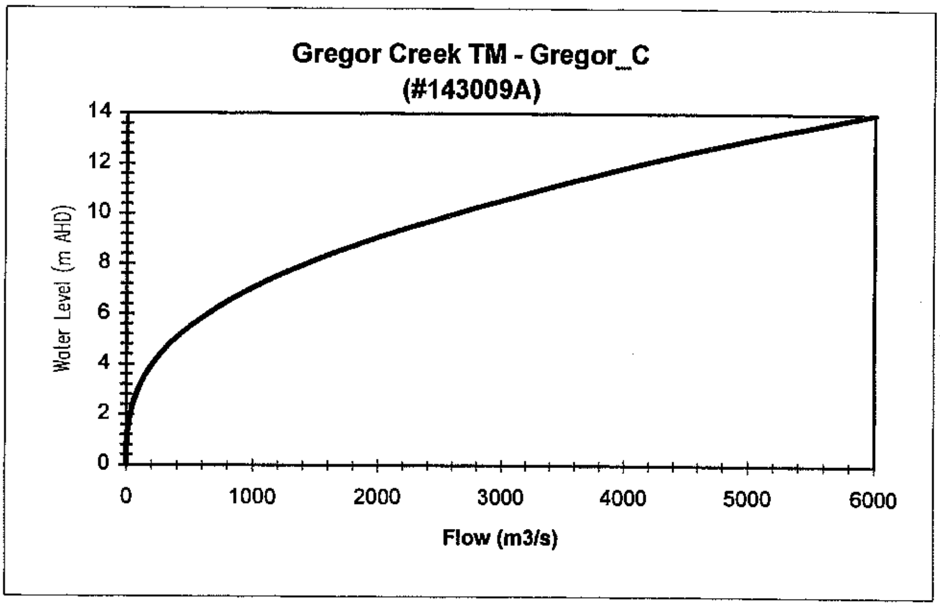
BRISBANE RIVER at GREGOR CREEK TM - GREGOR_C

Level (m)	Discharge (m^3/s)
0	0
1	2
2	29
3	93
4	206
5	381
6	638
7	981
8	1360
9	1750
10	2140
11	2580
12	3000
13	3500
14	4000



BRISBANE RIVER at GREGOR CREEK TM - GREGOR_C

Level (m)	Discharge (m^3/s)
0	0
1	2
2	29
3	93
4	206
5	381
6	638
7	981
8	1419
9	1960
10	2612
11	3328
12	4121
13	5013
14	6000



WARRILL CK at HARRISVILLE

Level (m)	Discharge (m^3/s)
0	0
1	5
2	25
3	40
4	75
5	150
5.5	200
6	400
7	1000

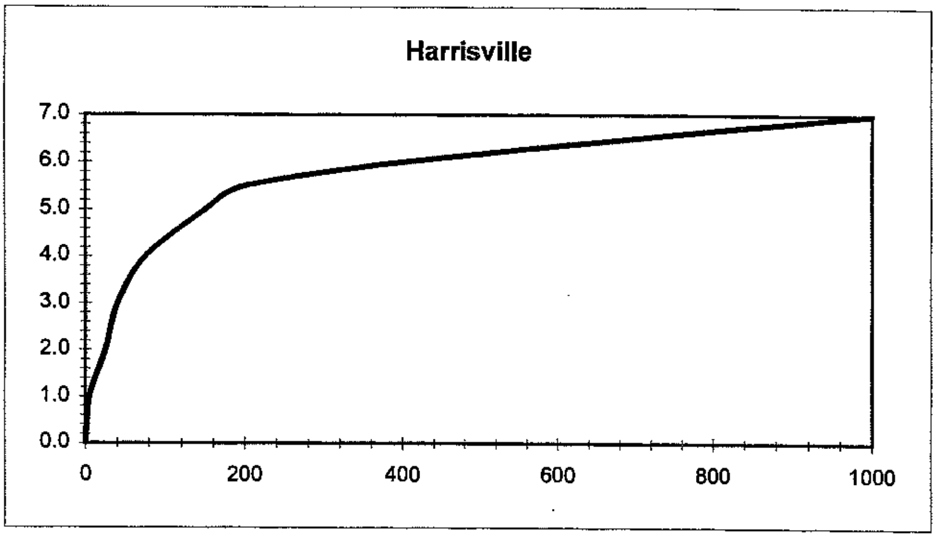
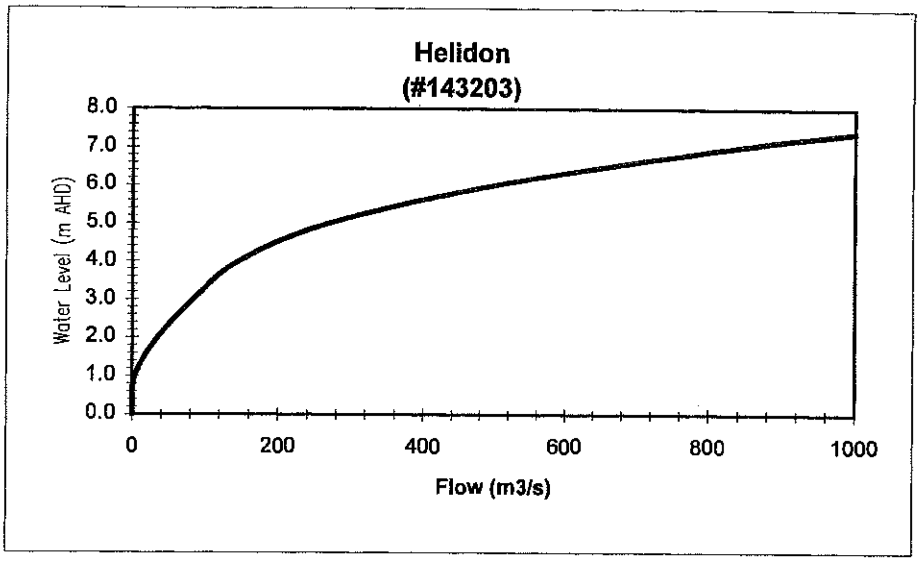


Figure 3.2 - Brisbane River Catchment Rating Curves

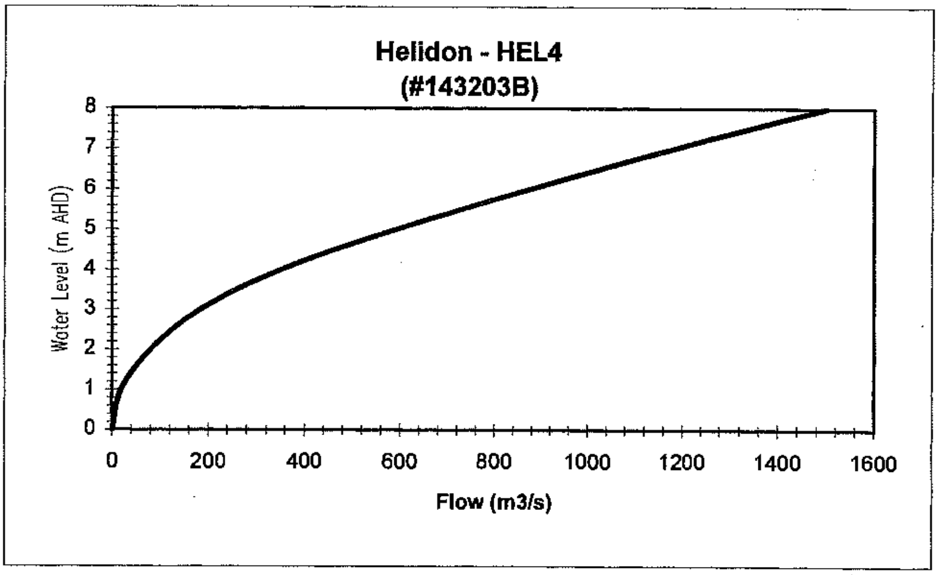
LOCKYER Ck at HELIDON

Level (m)	Discharge (m^3/s)
0	0
1	3
2	35
3	84
4	146
5	270
6	499
7	833
7.4	1000



LOCKYER CREEK at HELIDON - HEL4

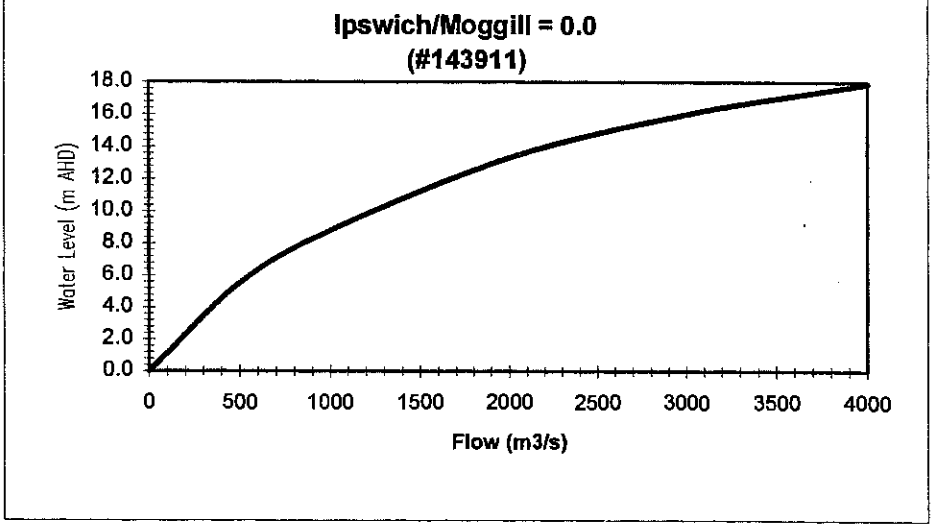
Level (m)	Discharge (m^3/s)
0	0
1	18
2	80
3	184
4	351
5	591
6	875
7	1180
8	1500



Bremer River at IPSWICH - 143911

MOGGILL = 0.0

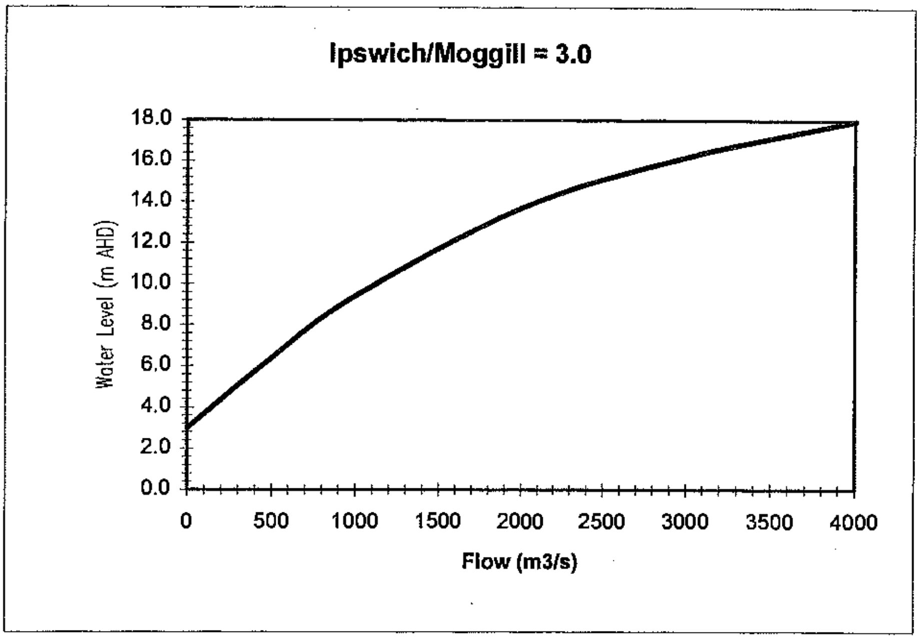
Level (m)	Discharge (m^3/s)
0	0
5.5	500
8.8	1000
13.3	2000
16	3000
17.9	4000



Bremer River at IPSWICH - 143911

MOGGILL = 3.0

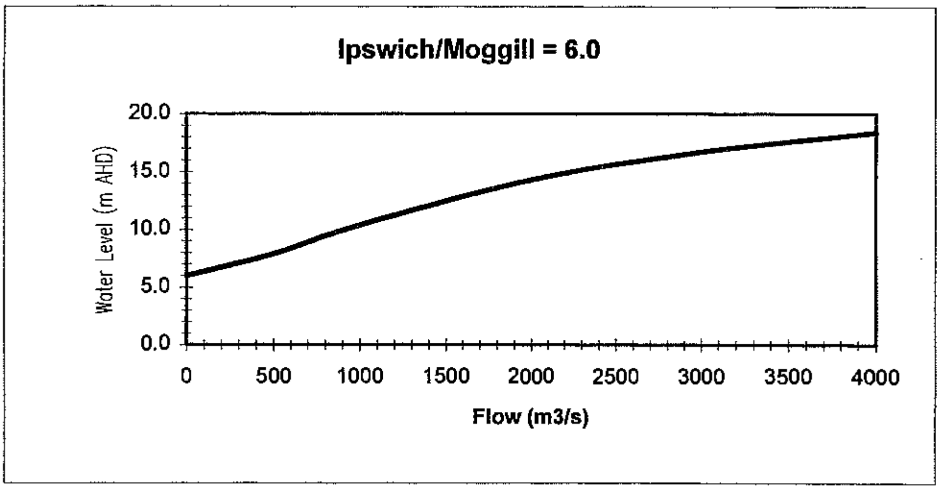
Level (m)	Discharge (m^3/s)
3	0
6.4	500
9.4	1000
13.7	2000
16.2	3000
18	4000



Bremer River at IPSWICH - 143911

MOGGILL = 6.0

Level (m)	Discharge (m^3/s)
6	0
7.9	500
10.4	1000
14.3	2000
16.7	3000
18.4	4000



Bremer River at IPSWICH - 143911

MOGGILL = 9.0

Level (m)	Discharge (m^3/s)
9	0
10	500
11.9	1000
15.2	2000
17.3	3000
18.7	4000

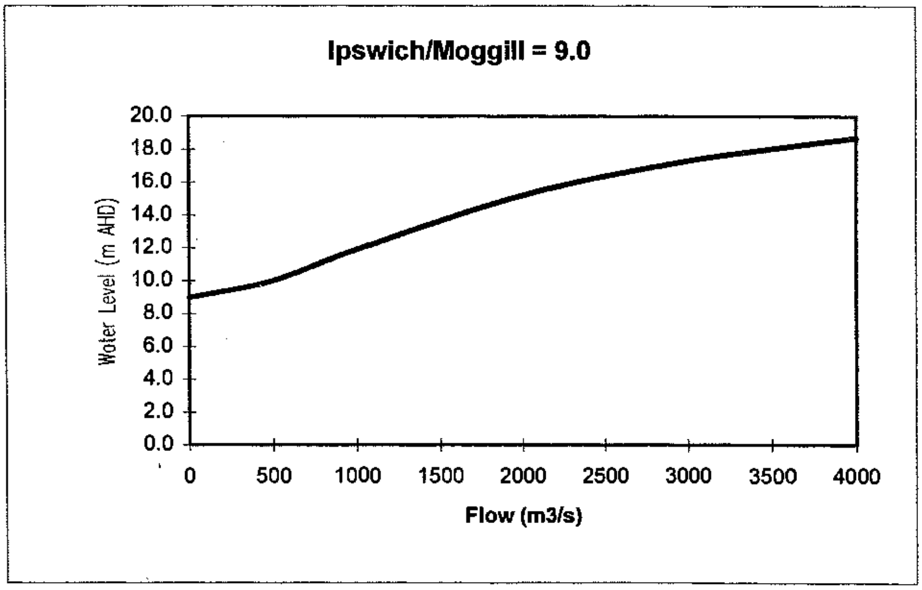
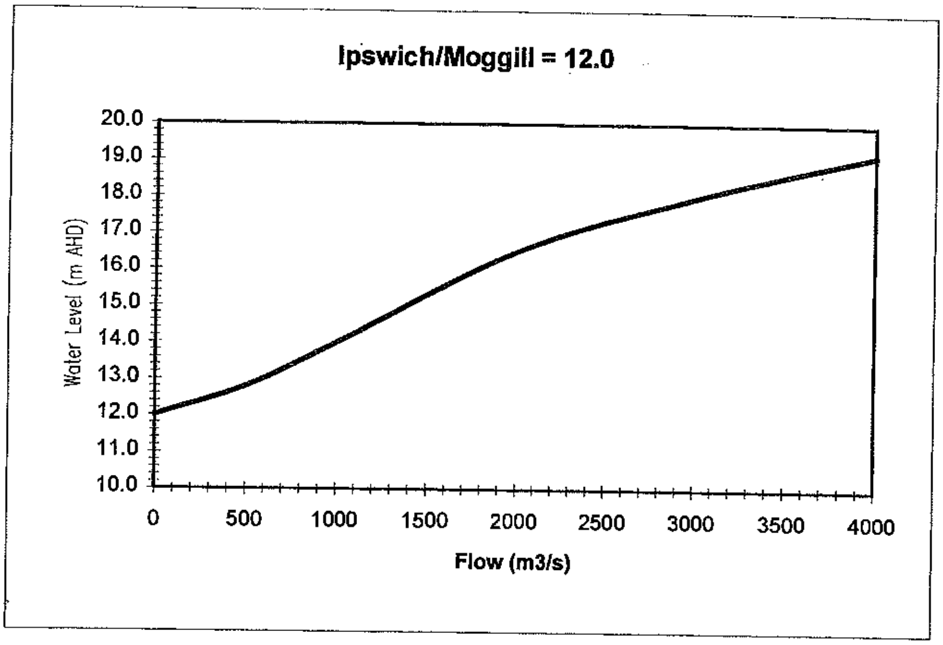


Figure 3.2 - Brisbane River Catchment Rating Curves

Bremer River at IPSWICH - 143911

MOGGILL = 12.0

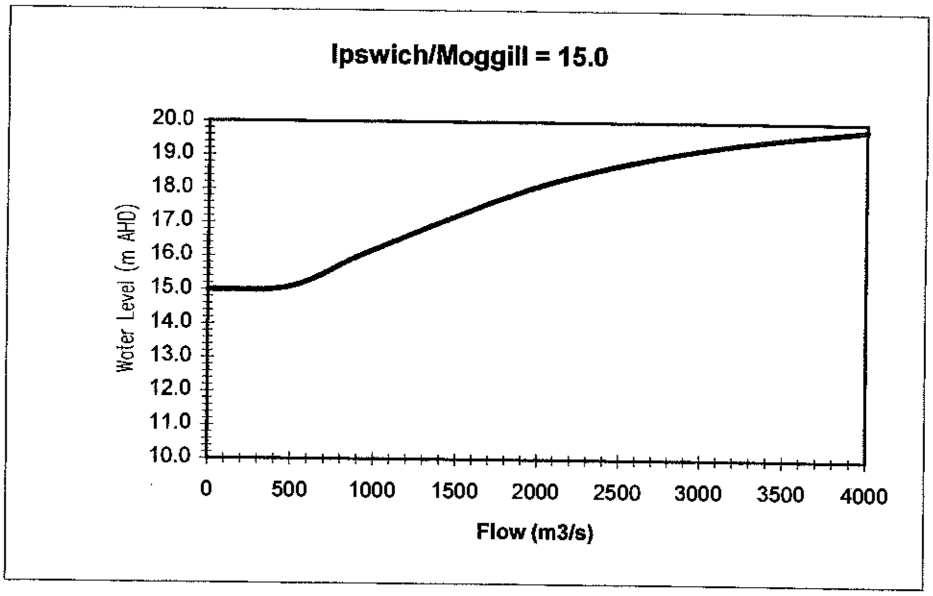
Level (m)	Discharge (m^3/s)
12	0
12.8	500
14	1000
16.5	2000
18	3000
19.2	4000



Bremer River at IPSWICH - 143911

MOGGILL = 15.0

Level (m)	Discharge (m^3/s)
15	0
15.1	500
16.2	1000
18.1	2000
19.2	3000
19.8	4000



Bremer River at IPSWICH - 143911

MOGGILL = 20.0

Level (m)	Discharge (m^3/s)
20	0
21.2	4000

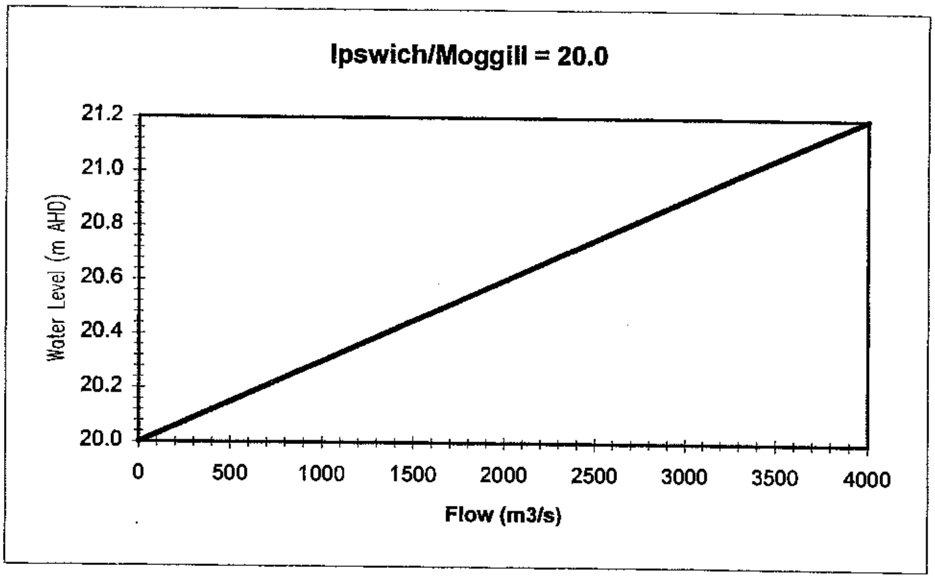
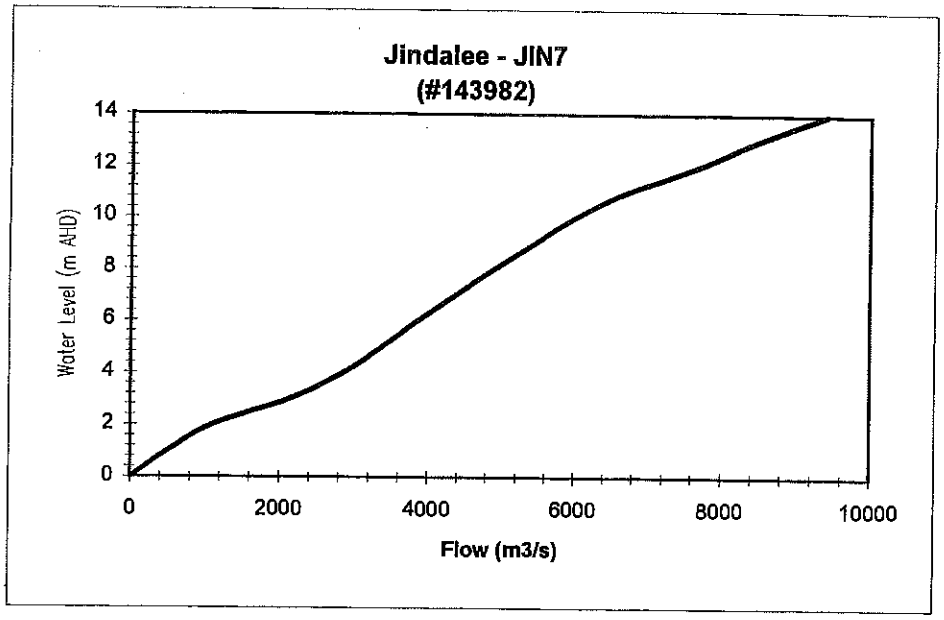


Figure 3.2 - Brisbane River Catchment Rating Curves

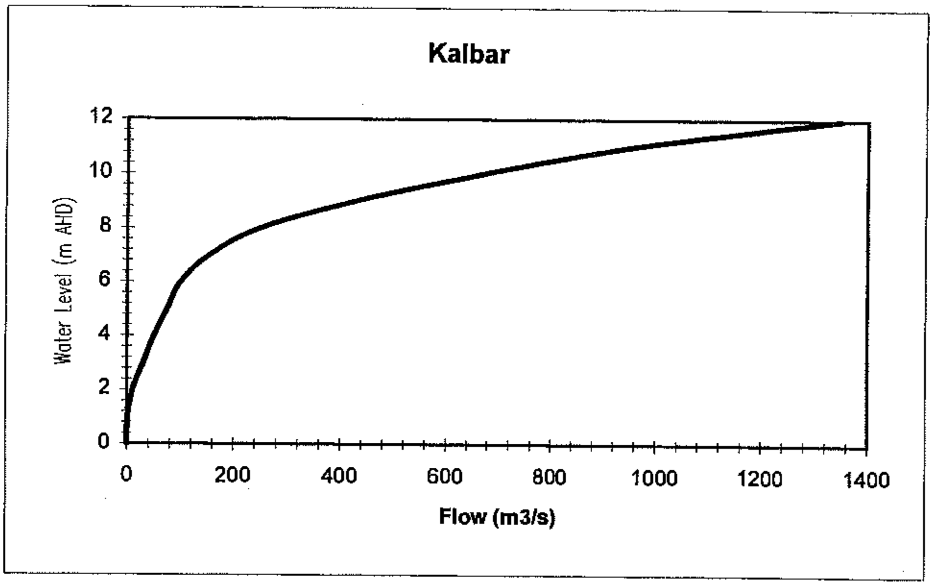
BRISBANE RIVER at JINDALEE - JIN7

Level (m)	Discharge (m^3/s)
0	0
1	500
2	1100
3	2140
4	2860
5	3380
6	3860
7	4370
8	4890
9	5440
10	6000
11	6710
12	7670
13	8470
14	9400



WARRILL CK at KALBAR

Level (m)	Discharge (m^3/s)
0	0
1	1
2	10
3	30
4	50
5	75
6	100
7	155
8	250
9	430
10	670
11	950
12	1350



BREMER RIVER at KUSS RD

Level (m)	Discharge (m^3/s)
0	0
7	110
7.8	370

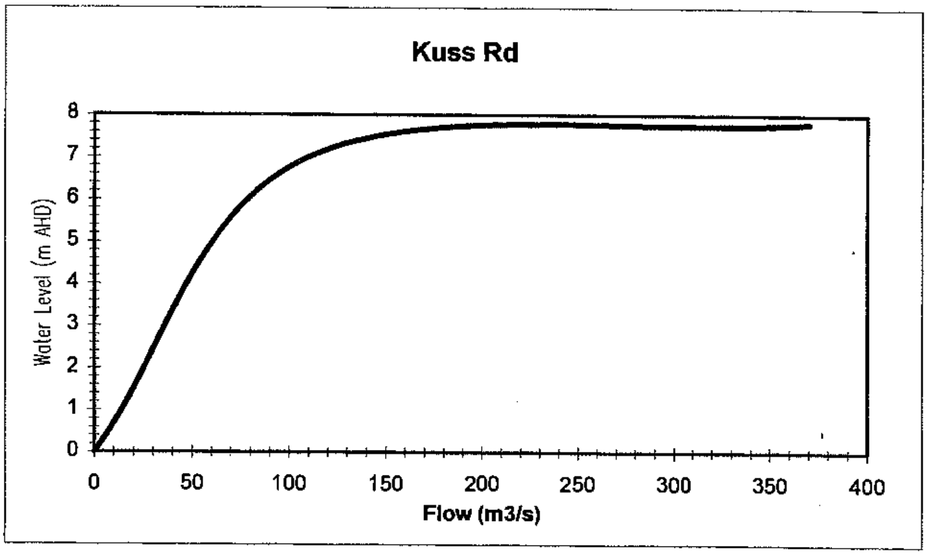
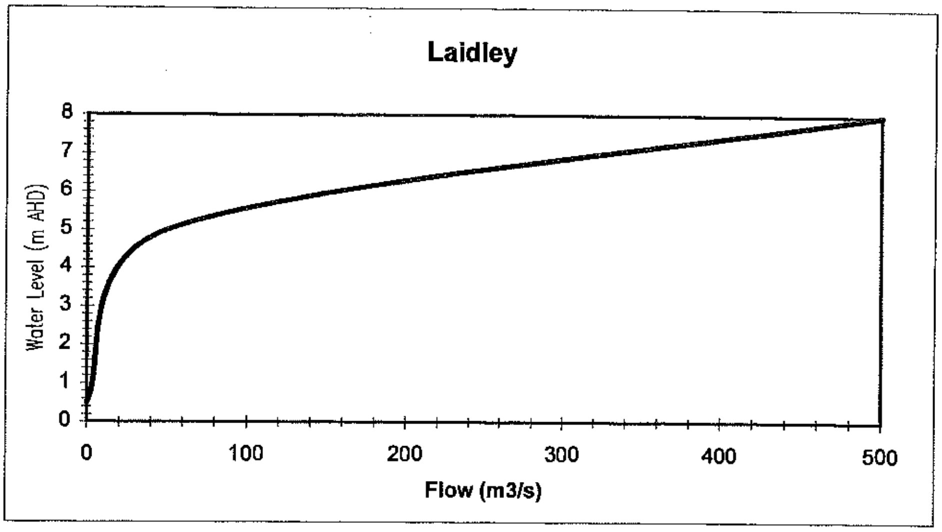


Figure 3.2 - Brisbane River Catchment Rating Curves

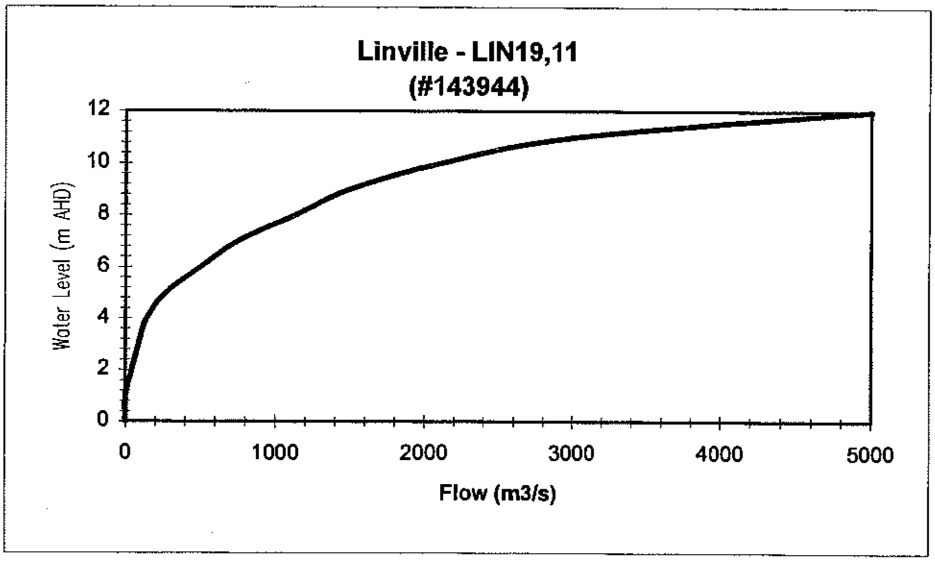
LAIDLEY CREEK at LAIDLEY

Level (m)	Discharge (m^3/s)
0.5	0
5	50
8	500



BRISBANE at LINVILLE - LIN19,11

Level (m)	Discharge (m^3/s)
0	0
1	1
2	40
3	85
4	140
5	270
6	500
7	750
8	1130
9	1500
10	2100
11	3000
12	5000



BRISBANE at LINVILLE TM

Level (m)	Discharge (m^3/s)
0	0
1	3
2	64
3	195
4	390
5	657
6	1000
7	1439
8	1966
9	2586
10	3299
11	4108
12	5016
13	6024
14	7134
15	8348

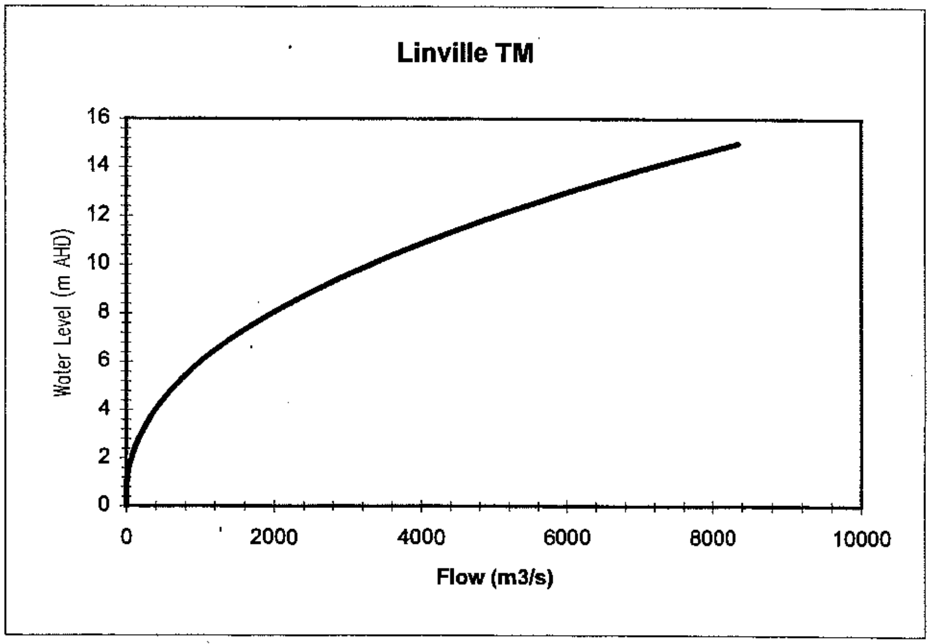
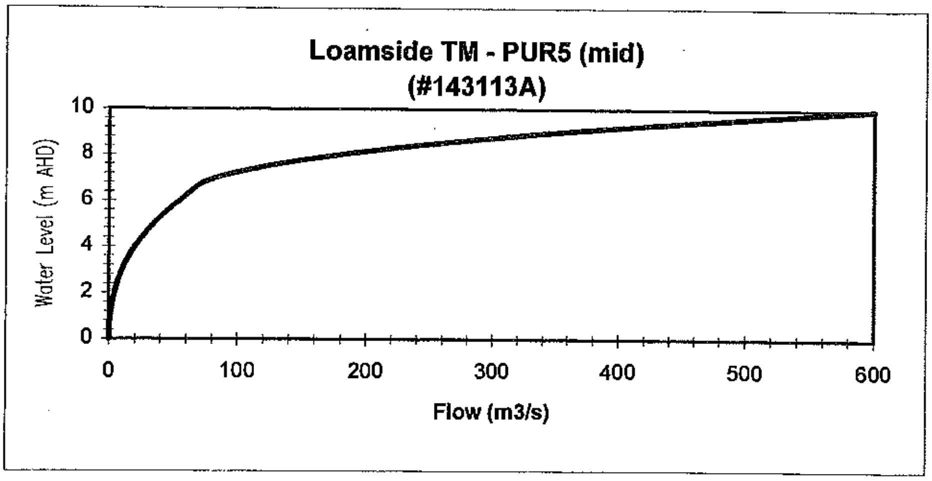


Figure 3.2 - Brisbane River Catchment Rating Curves

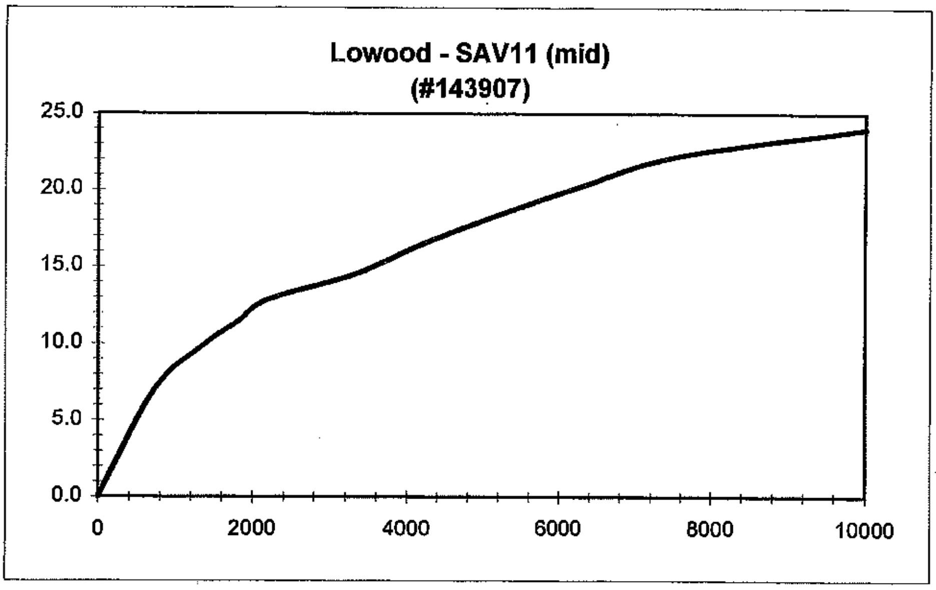
PURGA CREEK at LOAMSIDE TM - PUR5(mid)

Level (m)	Discharge (m^3/s)
0	0
1	1
2	4
3	10
4	20
5	35
6	55
7	83
8	179
9	350
10	600



BRISBANE RIVER at LOWOOD - SAV11(mid)

Level (m)	Discharge (m^3/s)
0	0
5.5	541
6.7	684
7.5	802
8.5	987
9.4	1238
10.5	1518
11.5	1826
12.8	2163
14.5	3313
16.5	4209
18.4	5210
20.3	6316
22.2	7525
24	10000



LOCKYER CREEK at LYONS BRIDGE - LYO6, LYONS_BR

Level (m)	Discharge (m^3/s)
0	0
1	1
2	6
3	13
4	23
5	37
6	57
7	81
8	110
9	145
10	184
11	251
12	333
13	433
14	552
15	750
16	1000
17.5	2000

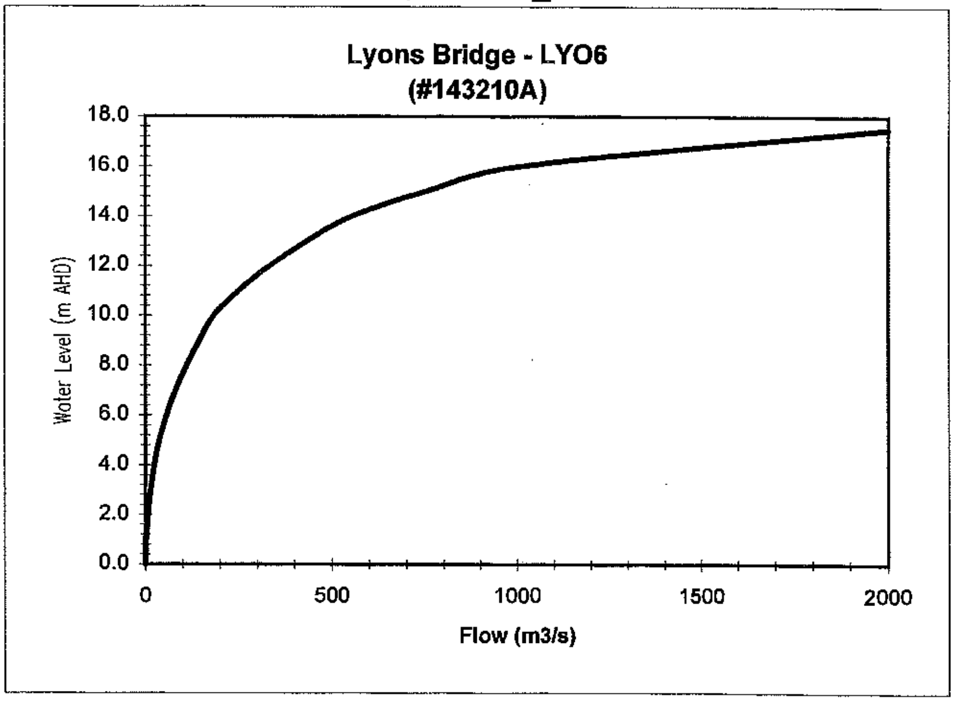
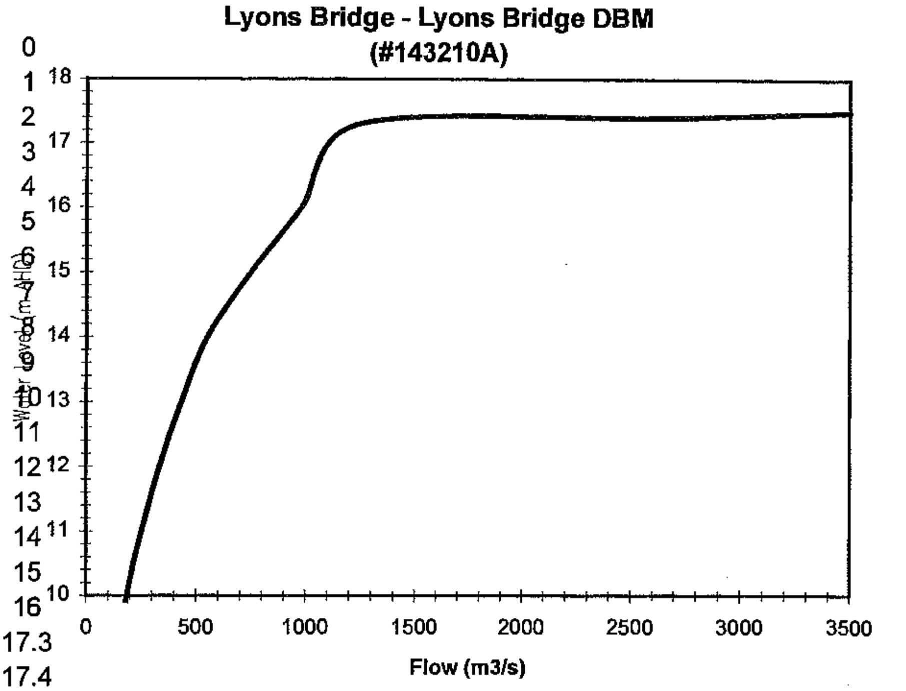


Figure 3.2 - Brisbane River Catchment Rating Curves

LOCKYER CREEK at LYONS BRIDGE CBM used in RAFTS - LYO6, LYONS_BR

Level (m)	Discharge (m^3/s)
0	0
1	1
2	6
3	13
4	23
5	37
6	57
7	81
8	110
9	145
10	184
11	251
12	333
13	433
14	552
15	750
16	980
17.3	1250
17.4	2650
17.5	3500



BRISBANE RIVER at MIDDLE CREEK

Level (m)	Discharge (m^3/s)
0	0
1	6
2	47
3	115
4	212
5	338
6	491
7	672
8	880
9	1115
10	1376
11	1665
12	1980
13	2321
14	2688
15	3082
16	3501
17	3946
18	4417
19	4914
20	5436

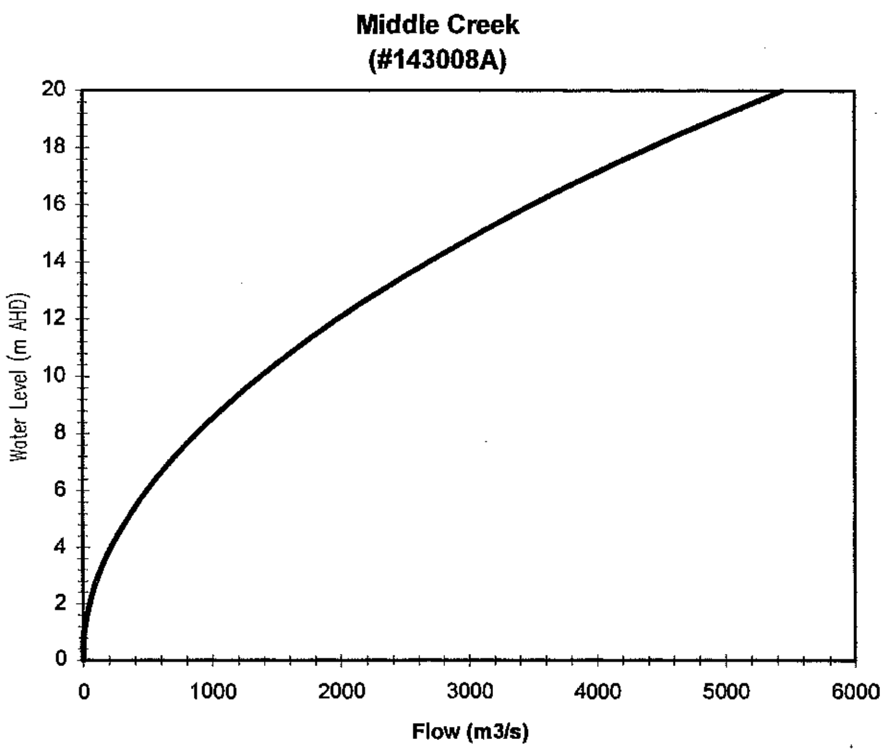
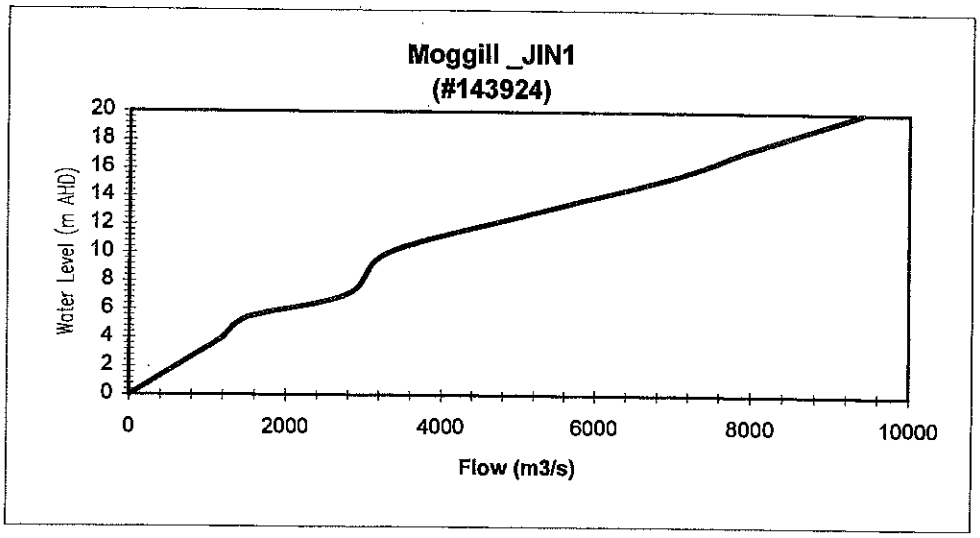


Figure 3.2 - Brisbane River Catchment Rating Curves

BRISBANE RIVER at MOGGILL - JIN1

Level (m)	Discharge (m^3/s)
0	0
1	300
2	600
3	900
4	1200
5.4	1500
7.1	2800
10	3300
12.6	5000
15.4	7000
17.4	8000
20	9400



MT CROSBY WEIR - MTC7

Level (m)	Discharge (m^3/s)
0	0
1	220
2	498
3	804
4	1129
5	1470
6	1822
7	2186
8	2559
9	2941
10	3330
11	3726
12	4129
13	4538
14	4953
15	5373
16	5798
17	6228
18	6663
19	7102
20	7545
21	7992
22	8443
23	8897
24	9356
25	9817
26	10282
27	10751
28	11222
29	11696

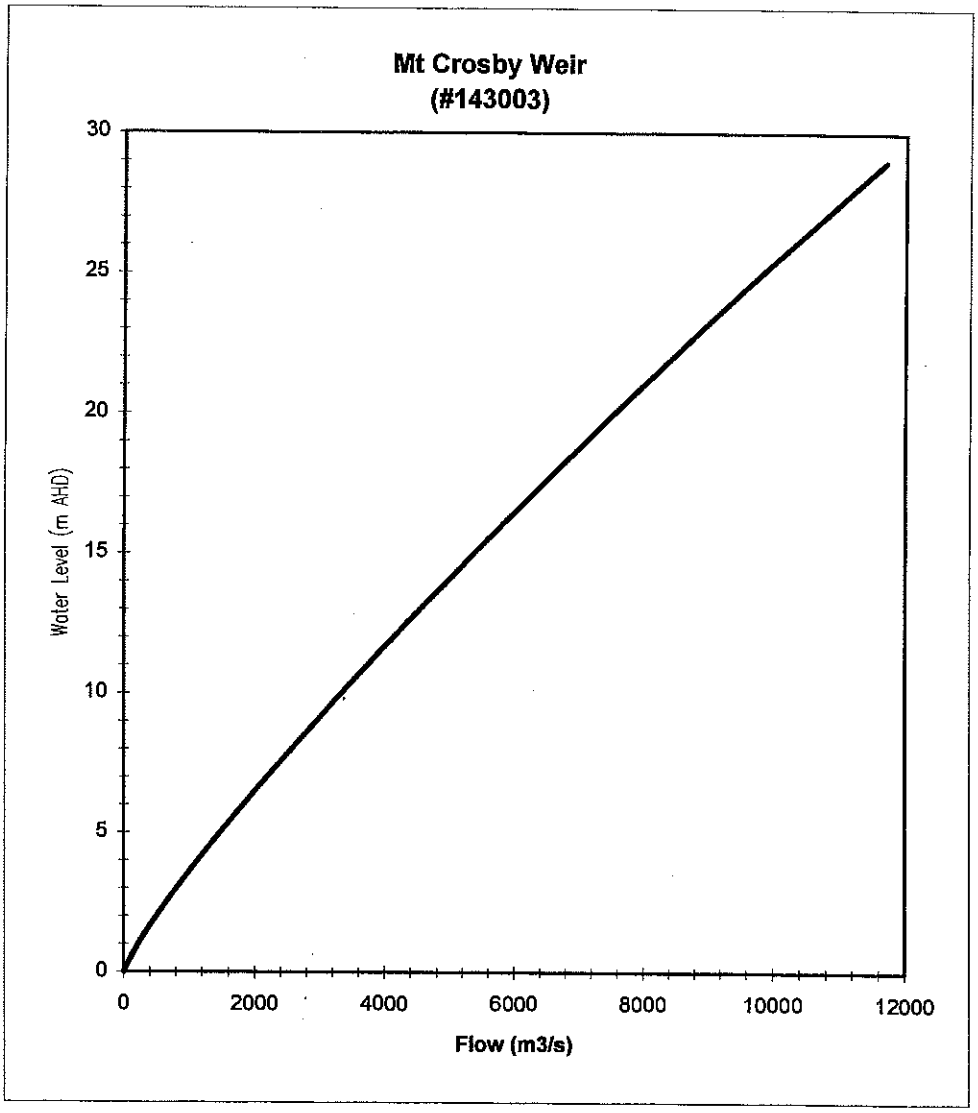
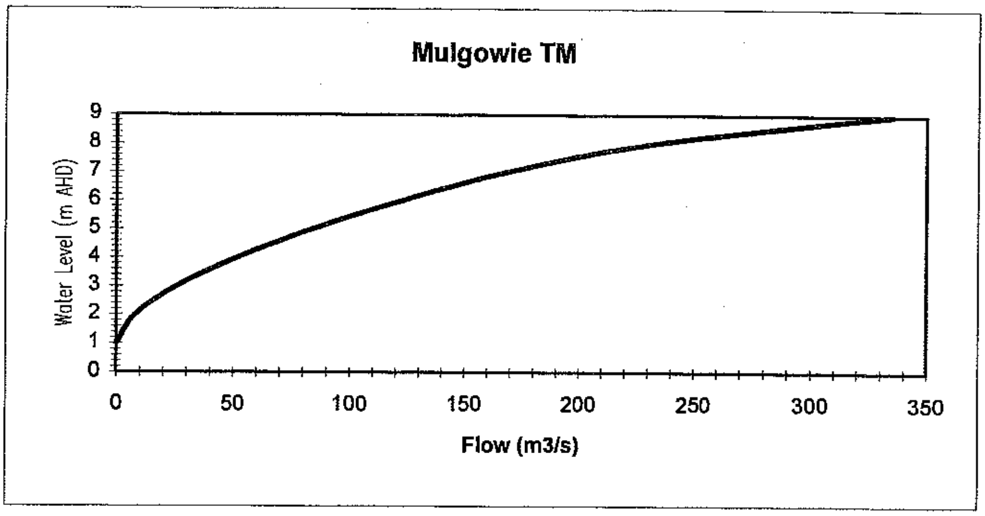


Figure 3.2 - Brisbane River Catchment Rating Curves

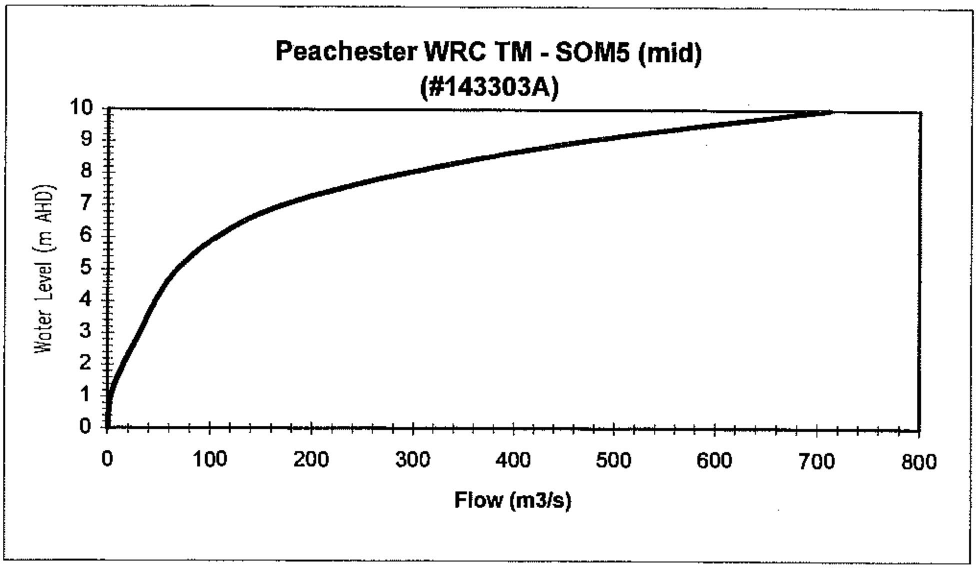
LAIDLEY CREEK at MULGOWIE TM

Level (m)	Discharge (m^3/s)
1	0
2	8
3	26
4	52
5	84
6	123
7	168
8	231
9	335



STANLEY RIVER at PEACHESTER WRC TM - SOM5(mid)

Level (m)	Discharge (m^3/s)
0	0
1	3
2	15
3	31
4	46
5	68
6	106
7	170
8	290
9	466
10	711



LOCKYER CREEK at LYONS BRIDGE (QWRC) TM - LYO6

Level (m)	Discharge (m^3/s)
0	0
1	1
2	8
3	17
4	28
5	40
6	60
7	85
8	115
9	149
10	193
11	263
12	348
13	450
14	571
15	712
16	900
17	1100
18	1400

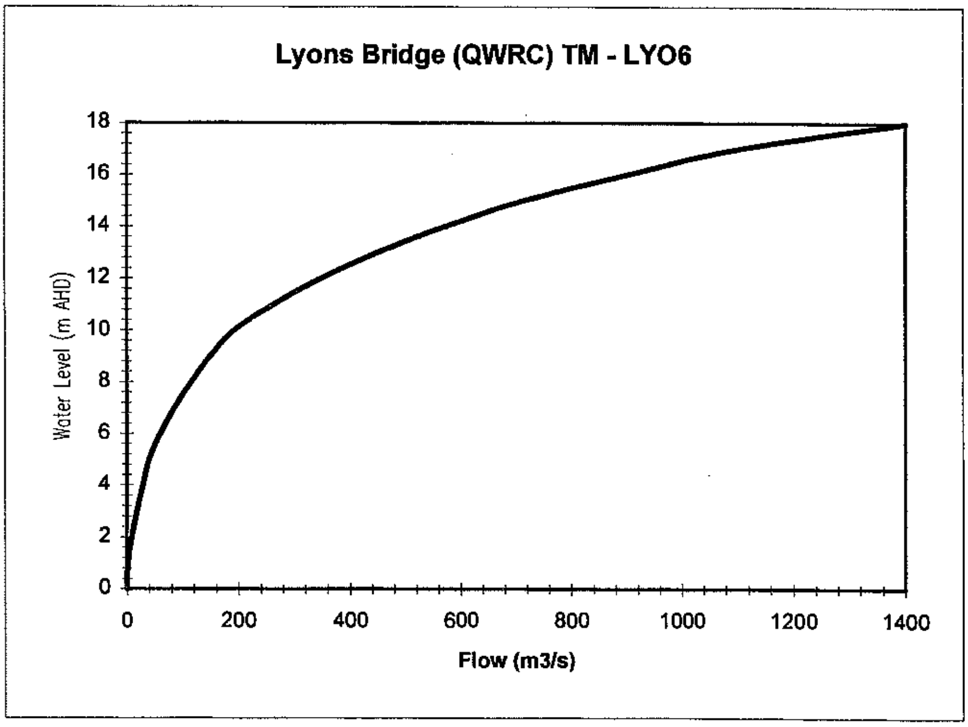
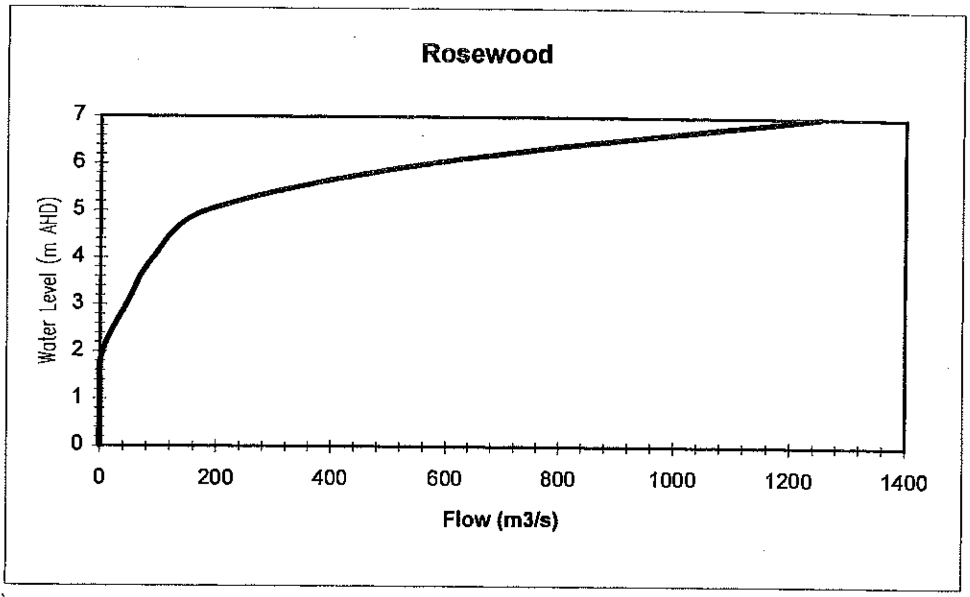


Figure 3.2 - Brisbane River Catchment Rating Curves

ROSEWOOD

Level (m)	Discharge (m^3/s)
0	0
1	0.2
2	4
3	45
4	90
5	180
6	560
7	1250



BRISBANE RIVER at SAVAGES CROSSING TM - SAV11

Level (m)	Discharge (m^3/s)
0	0
1	8
2	56
3	142
4	274
5	403
6	541
7	684
8	802
9	987
10	1238
11	1518
12	1826
13	2163
14	2522
15	2904
16	3313
17	3748
18	4209
19	4697
20	5210
21	5750
22	6316
23	6907
24	7525
25	8169
26	10000

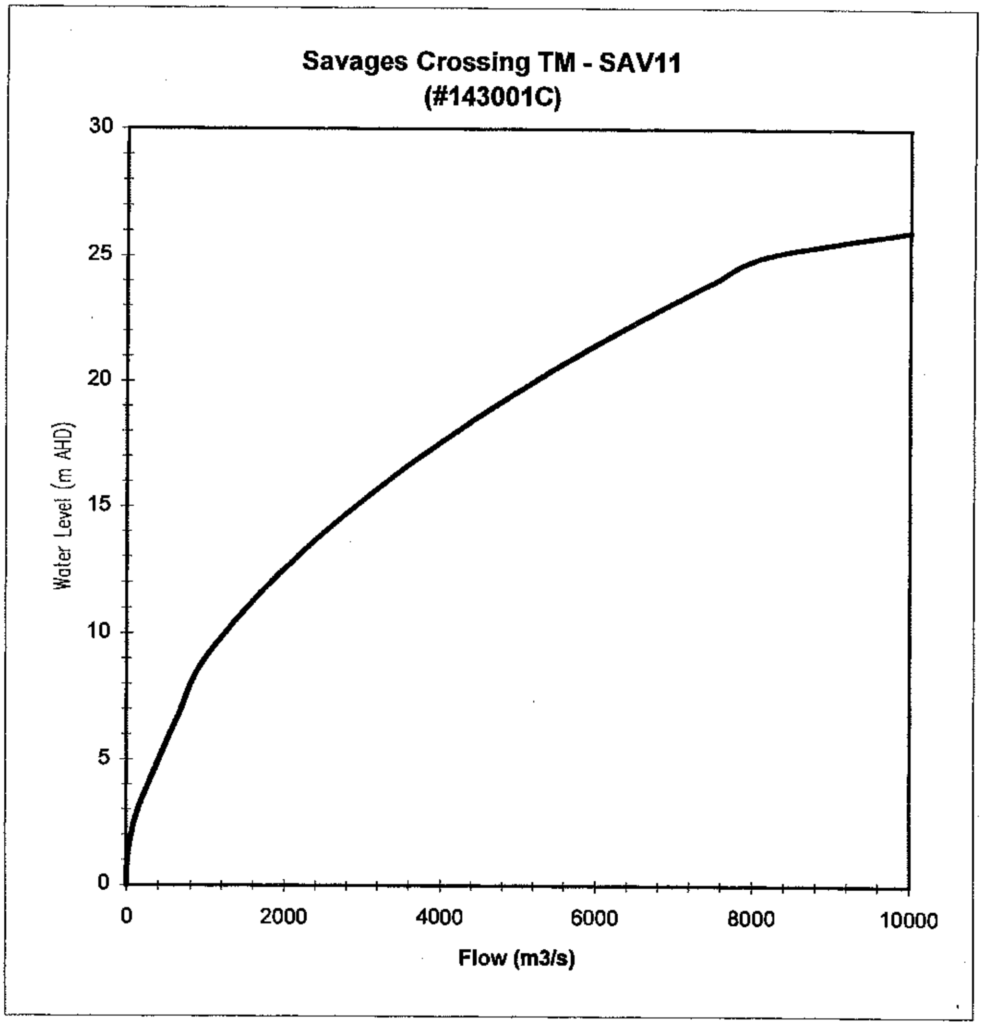
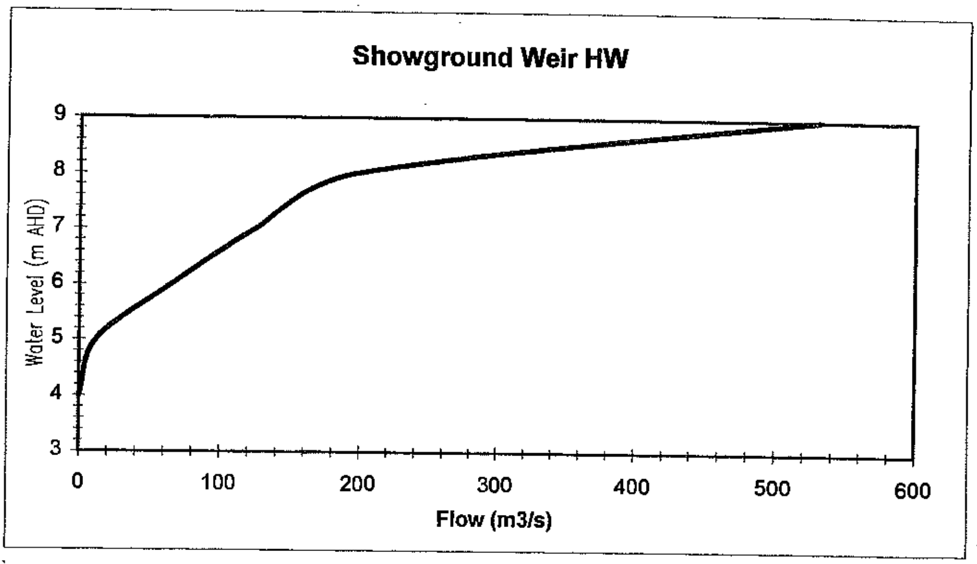


Figure 3.2 - Brisbane River Catchment Rating Curves

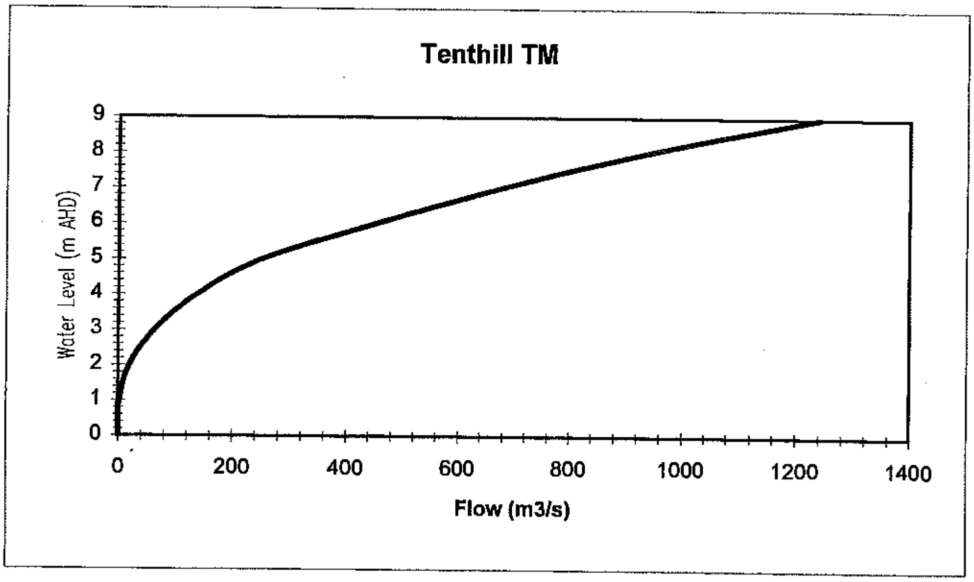
LAIDLEY CREEK at Showground Weir HW

Level (m)	Discharge (m^3/s)
4	0
5	12
6	65
7	125
8	196
9	530



TENTHILL CREEK at TENTHILL TM

Level (m)	Discharge (m^3/s)
0	0
1	1
2	19
3	63
4	137
5	252
6	451
7	675
8	934
9	1240



BREMER at WALLOON WRC

Level (m)	Discharge (m^3/s)
1	0
3.6	2
4.3	30
5.3	75
6.3	150
7.4	300
8.5	420
9.9	1000
12	1850
13	3300
14	6000

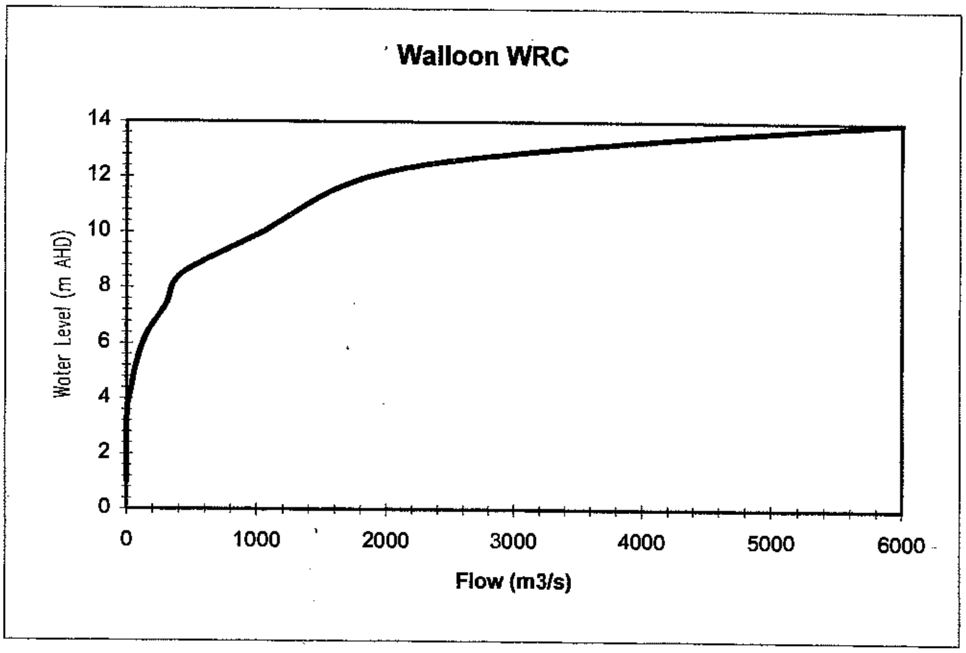
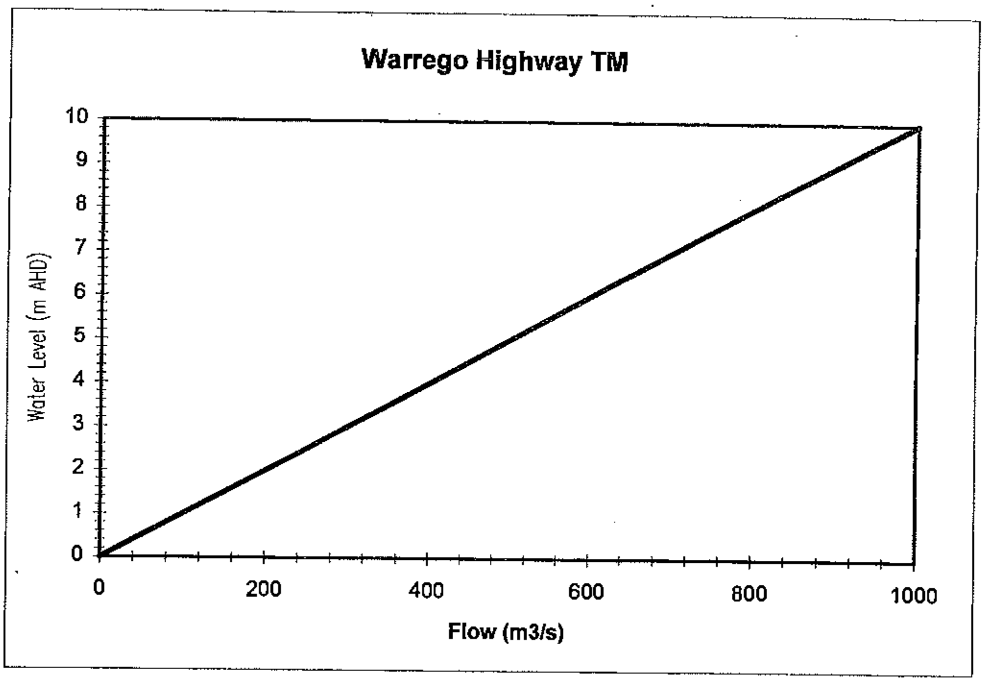


Figure 3.2 - Brisbane River Catchment Rating Curves

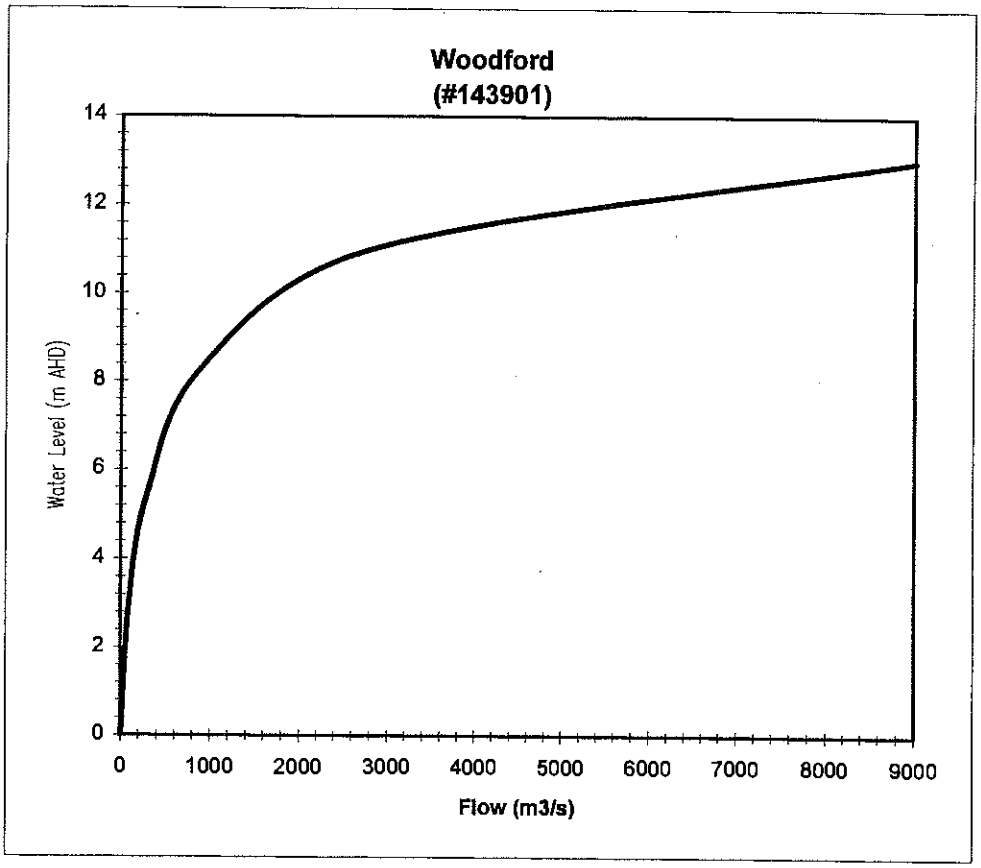
LAIDLEY CREEK at WARREGO HIGHWAY TM

Level (m)	Discharge (m^3/s)
0	0
10	1000

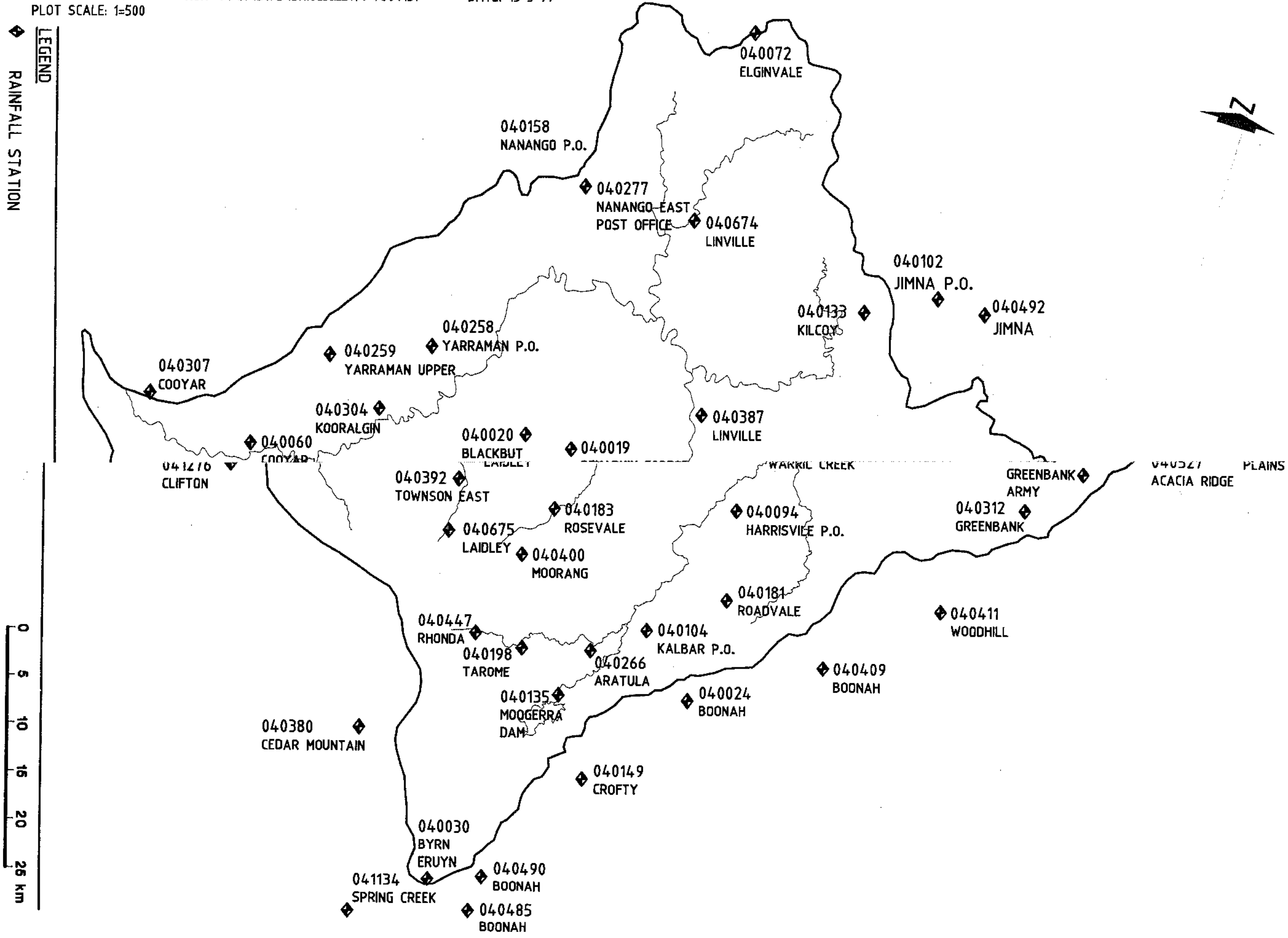


STANLEY RIVER at WOODFORD

Level (m)	Discharge (m^3/s)
0	0
3	90
5.5	300
8.3	900
11	2800
13	9000



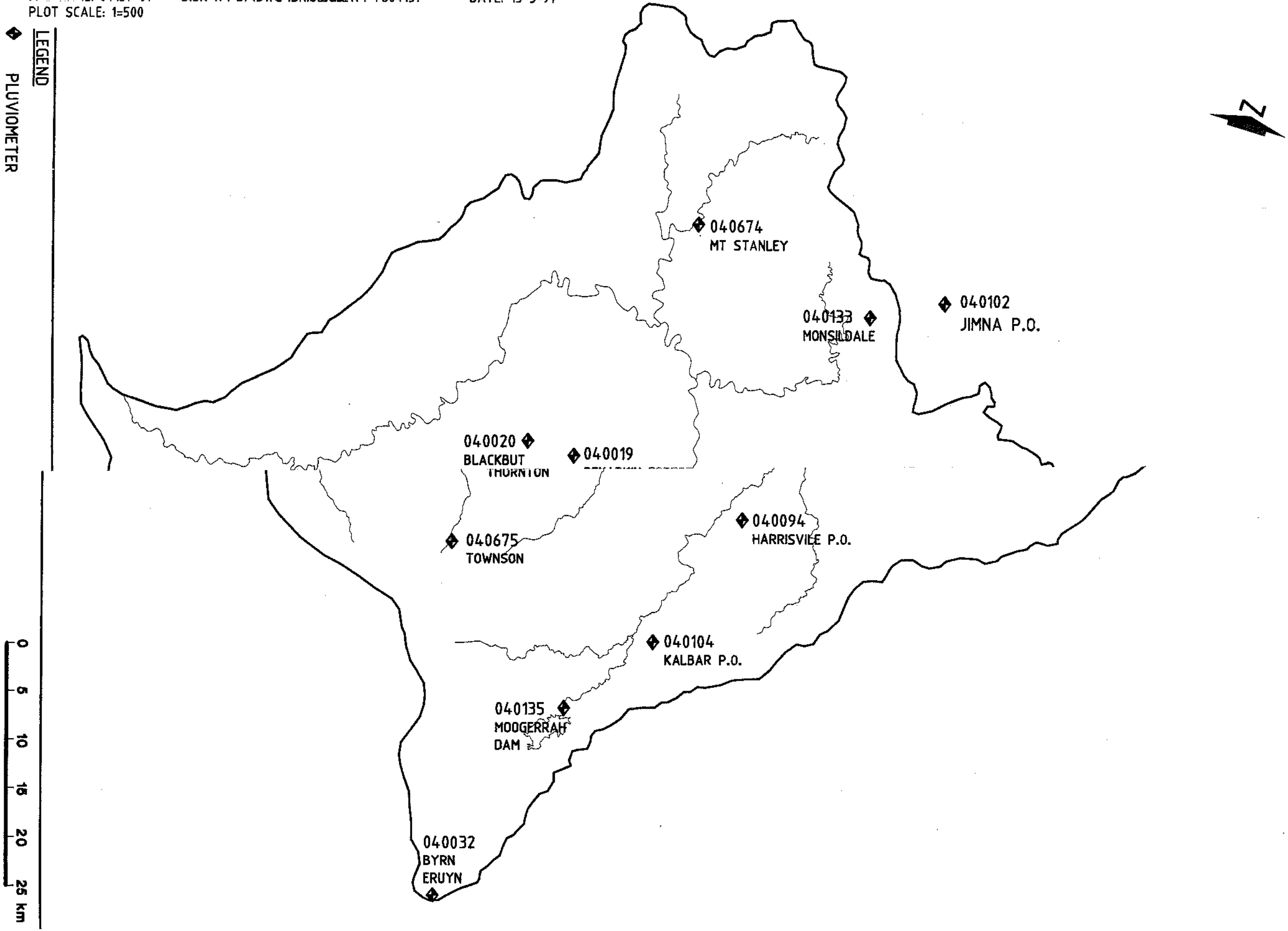
PLOT SCALE: 1=500



SINCLAIR KNIGHT MERZ

FIGURE 3.3
BRISBANE RIVER FLOOD STUDY
RAINFALL STATION LOCATIONS

FI... ME: 0... 7 ... N°: D:\DWG\BRIS... N°: T0... DATE: 13-5-97
PLOT SCALE: 1=500



SINCLAIR KNIGHT MERZ

FIGURE 3.4
BRISBANE RIVER FLOOD STUDY
PLUVIOMETER LOCATIONS

4. Review of Previous Hydrologic Studies

4. Review of Previous Hydrologic Studies

4.1 Overview

The most significant past study of the Brisbane River catchment was undertaken by the Department of Primary Industries (now Department of Natural Resources or DNR) for the South East Queensland Water Board during the period 1991 to 1994. The study was associated primarily with Somerset Dam and Wivenhoe Dam and included a revision of design floods, the development of runoff routing and hydraulic models and a management system for the flood operation of the dams.

This section summarises the main hydrologic outcomes of the DNR study associated with model calibration.

4.2 Hydrologic Model Calibration

The development of hydrologic models by DNR is documented in `Brisbane River Flood Hydrology - Runoff Routing Model Calibration' (Vol 1 and 2, September 1991).

An overview of past flood investigations associated with Somerset Dam and Wivenhoe Dam was provided in the DNR report. The most significant of these studies were the original design flood estimates for Wivenhoe Dam completed in 1977 (Hausler and Porter, 1977) and a 1983 revision of these design flows (Weeks, 1983).

Runoff routing model techniques were applied in the 1983 revision and involved calibration against seven historical floods; July 1965, March 1967, June 1967, January 1968, December 1971, January 1971 and January 1976.

WT42PC, a RORB type runoff routing model, was used by DNR in their 1991 study. A total of 24 individual models were set up corresponding to stream gauge locations and calibrated against historical data.

The seven floods used by Weeks (1983) were applied by DNR in addition to floods in June 1983, early April 1989 and late April 1989.

The subdivision of the Brisbane River catchment into 24 separate models which are then linked together such that hydrographs from upstream models form inputs into downstream models is a technique adopted by DNR from flood analysis done for Warragamba Dam, Sydney (Deen, Craig, Sable 1988).

During the calibration phase, recorded hydrographs were used as upstream inflows into several of the WT42PC models in preference to predicted hydrographs. For example, recorded hydrographs available for Brisbane River at Linville and Emu Creek at Boat Mountain were used as direct inflows into the WT42PC model of the Brisbane River upstream of Gregors Creek (refer to **Figure 3-1 - Stream Gauge Locations** for gauge locations).

The preferential use of recorded hydrographs in place of predicted hydrographs from upstream WT42PC models made it difficult to review the performance of the full network model of the Brisbane River (comprising of the individual WT42PC models linked together) in predicting flood hydrographs at the lower reaches of the catchment.

Calibration of the individual WT42PC models was based on matching of peak discharges and flood volumes by adjusting rainfall loss rates and catchment storage parameters (k and m).

The initial loss - continuing loss type of rainfall loss was used in the model calibration. Initial loss rates were adjusted to match the rising limb of the recorded hydrograph. A significant variability in loss rates was noted, both between the individual models for the same storm and over the range of storms that were modelled. Generally the initial loss ranged from 0 to 300 mm and continuing loss rate varied from 0.1 to 9.7 mm/hr. The upper end of the adopted losses are higher than expected for South East Queensland (AR&R, 1987).

The catchment storage parameter, k, was varied within each WT42PC model for each calibration event, generating an extensive set of k values. A k value was nominated for each individual model based on a weighted average; the bias being in proportion to the peak discharge of the calibration event. On this basis, the model parameters were weighted towards larger magnitude floods.

5. Hydrologic Modelling

5. Hydrologic Modelling

5.1 RAFTS Model Description

The objective of the hydrologic analysis was to develop a model that would adequately reproduce historical storm events and reliably predict design flood discharge hydrographs for the Brisbane River catchment.

The runoff routing model, RAFTS, was used for hydrologic modelling purposes. This program was originally developed by Willing and Partners and the Snowy Mountains Engineering Corporation in 1974 and was first distributed as the Regional Stormwater Model (RSWM).

RAFTS has been applied to watersheds ranging from rural to fully urban with catchment areas varying from less than 1 hectare to several thousand square kilometres. Since the 1980's, WP Software have added refinements to the RAFTS software including an EXPERT graphical environment, unsteady flow routing and simulation of retarding basin storages.

5.2 Comparison with URBS Model

As outlined in Section 4, the Department of Natural Resources developed a series of WT42 models of the Brisbane River catchment as part of the flood management of Wivenhoe Dam and Somerset Dam. This program has become the basis of a runoff routing model, URBS, developed jointly by the Brisbane City Council and Department of Natural Resources. URBS has been modified to become an integrated flood forecasting model and is used for this purpose by the Bureau of Meteorology. Presently, the Bureau has an operational URBS model of the Brisbane River catchment as part of its flood alert system.

Both URBS and RAFTS have the capacity to model separately the catchment storage effects (ie routing along overland flowpaths and minor tributaries draining to the major creeks) and channel storage (ie routing associated with the major creeks and channels). The URBS and RAFTS modelling approaches are different and some of these differences are summarised in **Table 5-1 - Comparison of URBS and RAFTS Storage Routing**.

Table 5-1 - Comparison of URBS and RAFTS Storage Routing

RAFTS Model	URBS Model
Catchment Storage	
$S = \left[\dfrac{0.285A^{0.52}}{(1+U)^{1.97} S_c^{0.5}} \right] Q^m$	$S = \left[\dfrac{\beta A^{0.5} (1+F)^2}{(1+U)^2} \right] Q^m$
where S = storage (m^3h/s) A = catchment area (km^2) Q = discharge (m^3/s) U = fraction urbanisation S_c = drainage slope (%) m = storage non-linearity exponent (default = 0.715) Also RAFTS has optional storage factor, PERN, based on the average roughness of the catchment.	where S = storage (m^3h/s) A = catchment area (km^2) Q = discharge (m^3/s) U = fraction urbanisation F = fraction forest β = lag parameter m = storage non-linearity exponent (default = 0.8)
Channel Routing	
Two options are available 1. Simple lag where flood hydrograph is displaced in time by a user-specified delay with zero attenuation. 2. Muskingum - Cunge Routing with routing parameters are calculated from slope, geometry and roughness.	One option 1. Muskingum Routing with direct user inputs of routing parameters (x and α)

5.3 RAFTS Model Setup

Model Layout

A RAFTS model of the Brisbane River catchment was developed to predict runoff hydrographs from rainfall for both historic and design storms.

The schematisation of the model is shown in the following series of four plans included in this report:

- **Figure 5-1a - RAFTS Layout - Bremer and Lower Brisbane**
- **Figure 5-1b - RAFTS Layout - Lockyer**
- **Figure 5-1c - RAFTS Layout - Somerset and Wivenhoe**
- **Figure 5-1d - RAFTS Layout - Upper Brisbane**

Generally, the majority of nodes are schematised in RAFTS format (subcatchment to subcatchment), however there are some exceptions:

- At the catchment headwaters where there are 2 subareas joining together (eg WAL1 and WAL2 compared to KAL8 which is a single headwater subarea). In this case, the link lags are set to zero but a link is shown on **Figure 5-1** for clarity.

- Dummy nodes (zero catchment area) were inserted between RAFTS nodes and these are shown as intermediate nodes. An example is MTC### which is used to sum hydrographs.

The RAFTS model is based on a RORB type model which is centroid to centroid based. During the model setup the RORB type link lags were converted to a RAFTS subarea boundary to subarea boundary type lag. (This involved measuring the river reach distance between subarea boundaries and then checking if the total tributary length is the same as what DNR estimated.)

A single RAFTS model was setup that has full coverage of the Brisbane River catchment. The breakup of the model layout into the four main geographical areas shown in **Figure 5.1a** to **5.1d** was done for presentation only.

The RAFTS model consists of several major elements as follows:

- **General Nodes** - the `building blocks' of the model. Routing of flows from each catchment local to each node is routed through a conceptual storage (see **Table 5-1** for details on catchment storage). Many of the nodes coincide (or are close to) stream gauges which enable comparison between recorded and predicted hydrographs.

- **Basin Nodes** - are a special type of RAFTS node in which inflow hydrographs are routed through a user specified storage. In the case of the Brisbane River Flood Study, basin nodes were used to model dam storages and significant temporary flood storage zones within the river system.

- **Links** - provide a connection between nodes and include channel routing effects (see **Table 5-1** for details on channel routing).

The delineation of RAFTS subarea boundaries, and hence the basic model structure, is based on the DNR WT42 models used for real time flood forecasting. A consistent node numbering system has been applied. In several cases `dummy' nodes have been added (these are denoted with the suffix with one or more `#' or `+').

RAFTS Model Parameters

During the model setup phase, the input of several types of model parameters was required prior to undertaking RAFTS calibration and verification:

- **Subarea Properties** - include the local catchment area, the percentage impervious of the catchment surface, the vectored slope of the subcatchment and a surface roughness factor (PERN).

- **Link Properties** - generally, hydrographs were lagged between subarea nodes based on travel time.

The subarea and link properties were incorporated into the RAFTS model based on available data. Parameters including area, percentage impervious, and slope were fixed. Surface roughness factor and link travel times were subject to adjustment during the course of model calibration.

The basis of parameter selection during the RAFTS model setup phase was:

- **Catchment areas** - the area of the local catchment assigned to each node was based on the catchment subdivision of the DNR flood forecasting models. These node areas were typically of the order of 5 000 to 10 000 ha.

- **Percentage impervious** - zero percentage impervious was adopted for most of the catchment, given its predominant rural and natural landuses. RAFTS derives an equivalent fraction urbanisation (referred to as U in **Table 5-1**) using the percentage impervious assigned to each node. On this basis, the majority of the catchment also had a zero fraction urbanisation. In the Brisbane metropolitan area, the assumed percentage impervious varied from 20 to 50% to account for catchment urbanisation.

- **Slope** - a slope of 2% was globally applied throughout the RAFTS model. This assumption leads to a constant factor in the catchment storage relationship, making it more consistent with the URBS model approach.

- **Surface roughness** - this is an empirical factor based on the average Mannings n of the catchment surface. A Mannings n value of 0.05, consistent with rural landuse, were globally applied in the RAFTS model. This factor was varied during model calibration.

- **Link lag** - initial estimates of lags between nodes were based on interpretation of travel time plots between stream gauges supplied by the Hydrology Section, Bureau of Meteorology. These plots were based on the time difference of the incidence of peak gauge height for a range of historical floods.

Rainfall Losses

An initial loss and continuing loss model was employed for the RAFTS calibration. These losses are used to predict the runoff volume generated from the catchment in response to rainfall and includes two components:

- **Initial Loss** - a loss (in mm) accounting for infiltration effects that is deducted from rainfall prior to the occurrence of surface runoff. Typical values of Initial loss range from 0 to 150 mm.

- **Continuing Loss** - a constant loss rate (in mm/hr) that is deducted from the rainfall over the duration of the storm. Typical continuing loss rates fall in a range from 0 to 3.5 mm/hr.

Initial loss and continuing losses were assumed to be uniform within each of the six broad areas shown in **Figure 2-2 - Brisbane River Subcatchments**.

Basin Nodes
Basin nodes were used in the RAFTS model to account for temporary flood storage effects at key locations within the Brisbane River and its tributaries. The stage-storage discharge relationship assigned to each of these nodes was based on matching the shape and peak discharge of predicted and gauged hydrographs downstream of the nodes.

Basin nodes were also used in the RAFTS model to simulate existing dam storages. For the smaller dams, a simple stage-storage volume - outflow discharge curve based on the dam outlet configuration and the storage volume was used. This data was supplied by DNR and was applied to the dams listed in **Table 2-1 - Major Dams in the Brisbane Valley** with the exception of Wivenhoe and Somerset Dams. It was assumed that the dam storage level was at full supply level at the start of each calibration flood.

Somerset Dam and Wivenhoe Dam are major flood mitigation structures and the regulation of outflows by setting of the dam spillway gates is governed by a set of flood operation rules. Spillway operation depends in part on flooding conditions prevailing downstream of Wivenhoe Dam due to less regulated tributary flows such as Lockyer Creek.

During the RAFTS model calibration phase, recorded or synthetic hydrographs of Somerset and Wivenhoe Dam outflows were used as direct inputs. This approach effectively divided the Brisbane Valley catchment into the following (based on the subcatchments shown on **Figure 2-2**):

- **Somerset** - upstream of Somerset Dam and hence modelling inflows to this dam.

- **Upper Brisbane and Wivenhoe** - upstream of Wivenhoe Dam including upper Brisbane River, Cooyar Creek, Emu Creek and Cressbrook Creek. Regulated flows from Somerset Dam were directly input based on historical data.

- **Lockyer, Bremer and Lower Brisbane** - the remainder of the Brisbane River catchment including Lockyer Creek, Bremer River and the lower Brisbane River. In this case, outflow hydrographs from Wivenhoe Dam were used as direct inputs.

For the case of historical floods prior to the completion of Wivenhoe Dam in 1985, the division of the Brisbane Valley catchment simplified to:

- **Somerset** - upstream of Somerset Dam
- **Upper Brisbane, Wivenhoe, Lockyer, Bremer and Lower Brisbane** - the remainder of the Brisbane River catchment and downstream of Somerset Dam. Recorded outflow hydrographs from this dam were used as inputs.

5.4 RAFTS Model Validation

General Approach

The approach taken in model validation, in accordance to the study brief, was to derive a single set of catchment and channel routing parameters that would be applicable to the entire range of historical floods under consideration. Rainfall loss rates could be adjusted depending on antecedent moisture conditions and other factors.

Calibration against data recorded for a minimum of four floods was required including the January 1974 flood. Another four floods of varying magnitude were used to verify the model performance.

Achieving a consistency between RAFTS and MIKE 11 prediction of flood discharge at key points within the Brisbane River was also a requirement of the calibration process.

The focus of the RAFTS modelling is to generate inflow hydrographs for the Brisbane River MIKE 11 model which extends from the Inner Bar to upstream of the Moggill gauge. A high priority was achieving an acceptable calibration at locations towards the lower reaches of the Brisbane River and also at stream gauges distributed within the catchment at key points of interest (refer to primary stream gauges in **Section 3.1**).

Selection of Calibration and Verification Floods

A summary of major Brisbane River floods and the availability of hydrological data (rainfalls and streamflows) and hydraulic data (flood levels and discharges in the Brisbane metropolitan area) is given in **Table 5-2 - Data Availability for Major Historical Floods**.

Table 5-2 - Data Availability for Major Historical Floods

Flood	Hydrologic Data	Hydraulic Data
February 1931	✓	✓
March 1955	✓	✓
July 1965	✓	
March 1967	✓	
June 1967	✓	✓
January 1968	✓	✓
December 1971	✓	
July 1973	✓	✓
January 1974	✓	✓
January 1976	✓	✓
June 1983	✓	✓
April 1989 a	✓	✓
April 1989 b	✓	✓
May 1996	✓	✓

Note:

1. Floods modelled by DNR for validation of WT42 and RUBICON models are shaded.
2. Limited data also available for the February 1893 flood.

The historical floods can be grouped as:

- **Pre-Somerset Dam** - Floods that occurred prior to the construction of Somerset Dam. There is some confusion regarding the date in which Somerset Dam was constructed. Although the dam was completed in 1959, construction began in 1943 and it is believed that the war caused construction to be ceased. At this point, it is believed that the dam was completed, except for the radial area flood spillway gates.

- **Pre-Wivenhoe Dam** - floods that occurred prior to the construction of Wivenhoe Dam which was operational in 1985. The June 1983 flood occurred during the construction phase when the dam spillway was at a near completion stage.

- **Post-Wivenhoe Dam** - floods that occurred after completion of Wivenhoe Dam in 1985.

Table 5-3 - Historical Calibration and Verification Events provides a list of the events used in the RAFTS and MIKE 11 model validation. The selection of historical floods took into account various factors including the availability of both hydrologic and hydraulic datasets for the same flood. A higher weighting towards recent floods was applied as these tended to have more data available for calibration purposes, however the 1931 and 1955 events were included as these were the only floods considered to be of medium magnitude.

A selection of floods to have full coverage of both pre-Wivenhoe Dam and post-Wivenhoe Dam conditions was also undertaken. The floods used for RAFTS and MIKE 11 model validation covered a historical period from 1931 to 1996.

Table 5-3 - Historical Calibration and Verification Events

Event	Period of Event	Type
January 1974	24/01/74 to 28/01/74	Calibration
June 1983	20/06/83 to 23/06/83	Calibration
Late April 1989	24/04/89 to 27/04/89	Calibration
May 1996	31/04/96 to 07/05/96	Calibration
February 1931	01/02/31 to 06/02/31	Verification
March 1955	26/03/55 to 29/03/55	Verification
July 1973	01/07/73 to 09/07/73	Verification
Early April 1989	31/3/89 to 04/04/89	Verification

Major Dam Discharges

A major consideration in the RAFTS calibration was the flood regulation characteristics of the two major dams; Somerset Dam and Wivenhoe Dam. The hydrologic effect of Somerset Dam started after its completion in 1959 and full operation of the larger Wivenhoe Dam was initiated in 1985.

Estimates of inflow and outflow hydrographs at both dams for a range of historical floods were available and are compiled as **Figure 5-2 - Wivenhoe Dam Discharges** and **Figure 5-3 - Somerset Dam Discharges.** These are synthetic hydrographs produced by Brisbane City Council and estimated from measured storage levels and records of spillway gate settings. In the case of Wivenhoe releases, DNR suggests that the outflow hydrographs may be over estimated by between 15 to 20 percent, especially for the lesser floods that occurred in early and late April 1989 (SEQWB, October 1994) which correspond to outflows of the order of 1 200 to 1 500 m^3/s.

Wivenhoe Dam releases are derived by a theoretical rating curve based on the hydraulics of the four spillway radial gates. To resolve the potential outflow discrepancy, DNR recommended that the clear gate opening be measured for a range of gate settings and that sensors be installed at each spillway gate.

In the case of RAFTS modelling for the early and late April 1989 floods, both the DNR and Council derived hydrographs were tested. The selection of the Wivenhoe Dam outflow hydrograph used was based on matching the recorded hydrograph at the Savages Crossing streamgauge, particularly after the recession of Lockyer Creek discharges. On this basis, the Council hydrograph was used for the early April 1989 flood and the DNR hydrograph was applied in the late 1989 flood analysis.

No dam releases for both Wivenhoe Dam and Somerset Dam were reported for the May 1996 flood. Data on Somerset Dam releases during the July 1973 flood was unavailable.

5.5 RAFTS Calibration - January 1974 Flood

The January 1974 flood was the first event used in the calibration process and is by far the largest of the floods considered. A significant amount of historical data is available for calibration; including rainfalls, streamflows and flood levels in the Brisbane River.

The 1974 flood occurred prior to construction of Wivenhoe Dam and is thus representative of pre-Wivenhoe Dam conditions. This is also the case for the July 1973 verification flood.

Rainfall

Rainfall occurred over a four day period commencing on mid 24 January 1974. **Figure 5-4 - Rainfall Distribution - January 1974 Storm** presents the spatial distribution of rainfall across the Brisbane River catchment.

Rainfall tended to increase in an easterly direction, with highest values being recorded at stations along the D'Aguilar Range and further south at Mount Glorious and Mount Nebo. Total four day rainfalls ranged from 120 mm to 1 306 mm. Selected pluviograph patterns are shown on **Figure 5-5- Representative Pluviographs - January 1974 Flood**. Peak rainfall intensities tended to occur on 26 January. The Brisbane metropolitan area recorded a sequence of three storms, the first and largest burst occurring on 25 January.

Rainfall Losses

The losses used to reproduce the rising limb and total volume of the recorded hydrograph at key stream gauge are given in **Table 5-4 - Rainfall Losses - January 1974 Calibration**.

Table 5-4 - Rainfall Losses - January 1974 Calibration

Sub-Catchment	Initial Loss (mm)	Continuing Loss (mm/hr)
Upper Brisbane	0	2.5
Somerset	0	2.5
Wivenhoe	0	2.5
Lockyer	0	2.5
Bremer	0	0
Lower Brisbane	0	2.5

Catchment Storage

By calibration to the 1974 flood data, especially against the general shape of recorded hydrographs, the following PERN values were applied:

- PERN equal to 0.11 - was used for Wivenhoe and Upper Brisbane subcatchments.
- PERN equal to 0.05 - was used for Somerset, Lockyer Bremer and Lower Brisbane subcatchments.

Channel Routing

A simple lag time assigned to each RAFTS link was found generally to reproduce the channel routing behaviour as recorded by the available stream gauges. For example, the Brisbane River stream gauge data at Savages Crossing and Mt Crosby shows no attenuation of peak discharge. This trend was also the case between the Moggill and Jindalee gauge sites.

On this basis, link lag times were adjusted to match the recorded timing of hydrographs. Hydrograph attenuation due to local storage effects was found to be significant at the following three key sites:

- **Lowood** - Lockyer Creek enters the Brisbane River upstream of Lowood. The lower reaches of Lockyer Creek are low lying floodplain subject to extensive inundation during major floods. Thus, the Lockyer Creek confluence represents a large temporary flood storage and its ponding effect is controlled by Brisbane River backwater.
- **Moggill** - The Bremer River enters the Brisbane River upstream of the Moggill gauge. On a similar basis as the Lockyer Creek - Brisbane River confluence, a significant amount of temporary flood storage is available in the lower Bremer River which is regulated by local backwater conditions from the Brisbane River.
- **Harrisville** - The Warrill Creek floodplain near Harrisville has substantial storage routing effects, based on recorded hydrographs in this area.

Channel storage effects at the above locations were modelled by basin nodes. A stage-storage-discharge relationship was derived at each storage, based on achieving a match against predicted and recorded downstream hydrographs. The storage relationships are shown as:

- **Figure 5-6 - Channel Storage Curves at Lowood**
- **Figure 5-7 - Channel Storage Curves at Moggill**
- **Figure 5-8 - Channel Storage Curves at Harrisville**

Storage Curve A at Lowood (presented in **Figure 5-6**) gave the best fit against recorded stream gauge data for the January 1974 flood.

Recorded and Predicted Hydrographs

Plots of recorded and RAFTS predicted hydrographs for the January 1974 calibration are compiled in **Appendix B** (Figure B-1a to B-1d). A summary is given in **Table 5-5 - RAFTS Calibration - January 1974 Flood.**

Predicted peak discharges within the coverage of the MIKE 11 model (ie at Moggill, Jindalee and Port Office) are within 1 to 3 percent of recorded peaks, RAFTS estimates hydrograph volumes are 13 to 14 percent below measured volumes at Moggill and Jindalee. Part of this volume mismatch can be attributed to inconsistently high flows recorded at Moggill after the hydrograph recession and, similarly, high flows at Jindalee prior to the start of the hydrograph rising limb. At Port Office gauge, the predicted and measured flood volume are within 2 percent.

At other key sites in the Brisbane Valley, predicted peak discharges are within 0 to 13 percent of gauged discharges, except for Lockyer Creek at Lyons Bridge, Bremer River at David Trumpy Bridge and Warrill Creek at Amberley. The Lockyer Creek and Bremer River gauges are subject to backwater effects from Brisbane River.

Table 5-5 - RAFTS Calibration - January 1974 Flood

Number	Stream	Site	Peak Discharge (m^3/s)			Discharge Volume (GL)			Comments
			Gauged	Predicted	Diff(%)	Gauged	Predicted	Diff(%)	
Upper Brisbane									
143015	Cooyar Ck	Damsite	967	585	-40	105	94	-10	
143007	Brisbane Rv	Linville	2 100	1 912	-9	181	220	+22	
143010	Emu Ck	Boat Mtn	1 054	882	-16	151	131	-13	
143009	Brisbane Rv	Gregors	3 750	3 829	+2	651	556	-15	
Somerset & Wivenhoe									
143305	Stanley Rv	Somerset Dam	3 587	3 119	-13	591	465	-21	
143008	Brisbane Rv	Middle Ck	4 813	5 429	+13	1 055	1 054	0	
143901	Stanley Rv	Woodford	1 111	1 332	+20	186	148	-20	
143303	Stanley Rv	Peachester	360	500	+39	77	56	-27	
143013	Cressbrook	Damsite	202	410	+103	33	48	+45	
Lockyer									
143203	Lockyer Ck	Helidon	1 308	858	-34	108	60	-44	
143210A	Lockyer Ck	Lyons Bridge	2 650	3 750	+42	492	475	-3	Backwater effect at gauge
143905	Lockyer Ck	Glenore Grove	3 900	3 466	-11	395	398	0	
143904	Lockyer Ck	Gatton	2 120	2 400	+13	132	200	+52	
143907	Brisbane Rv	Lowood	7 397	7 471	+1	1 891	1 743	-8	
Bremer & Lower Brisbane									
143001	Brisbane Rv	Savages Cross	7 340	7 497	+2	2 031	1 836	-10	
143003	Brisbane Rv	Mt Crosby	7 456	7 503	0	2 185	1 983	-9	
143110	Bremer Rv	Adams Bridge	349	531	+52	46	65	+41	
143108	Warrill Ck	Amberley	1 576	2 132	+35	294	385	+31	
143113	Purga Ck	Loamside	400	868	+117	55	106	+93	Poor rating at high flows
143019	Oxley Ck	Beatty Rd	985	966	-2	98	85	-13	
143911	Bremer Rv	David Trumpy	4 000	4 891	+22	994	876	-11	Backwater effect at gauge
143915	Brisbane Rv	Moggill	9 346	9 663	+3	3 472	2 971	-14	Gauge flow high at end
143982	Brisbane Rv	Jindalee	9 493	9 670	+2	3 567	3 111	-13	Gauge flow high at start
143919	Brisbane Rv	Port Office	9 800	9 675	-1	3 343	3 269	-2	

Note: 1. Primary stream gauges are shaded.

5.6 RAFTS Calibration - June 1983 Flood

The June 1983 flood was a significant flood in the Upper Brisbane and Wivenhoe parts of the Brisbane Valley. Wivenhoe Dam was under construction and four of the five spillway monoliths were built to final crest level. The flood occurred prior to the installation of spillway gates and thus outflow from the dam was unregulated.

The 1983 flood data represents a transition between pre-Wivenhoe Dam and post-Wivenhoe Dam conditions.

Rainfall

Rainfall occurred over a period of three days commencing 20 June 1983. The spatial distribution of rainfall within the Brisbane River catchment is presented in **Figure 5-9 - Rainfall Distribution - June 1983 Storm**. Rainfalls varied from about 40 mm to 240 mm.

As shown in **Figure 5-10 - Representative Pluviographs - June 1983 Storm**, two rainfall peaks occurred with the latter burst recorded on the morning of 22 June generally being dominant.

Rainfall Losses

The losses applied during the June 1983 flood calibration are given in **Table 5-6 - Rainfall Losses - June 1983 Calibration.**

Table 5-6 - Rainfall Losses - June 1983 Calibration

Subcatchment	Initial Loss (mm)	Continuing Loss (mm/hr)
Upper Brisbane	0	2.5
Somerset	0	1.5
Wivenhoe	0	2.5
Lockyer	0	2.5
Bremer	0	0
Lower Brisbane	0	2.5

Catchment Storage

A PERN coefficient of 0.05 was applied to all subcatchments.

Channel Routing

Link lag times used in the 1974 calibration were used except for upstream of the partially constructed Wivenhoe Dam. Faster travel times were used in the drowned reach of the Brisbane River from Somerset Dam to Wivenhoe Dam (Node WIV12 to WIV-OUT) to account for flood wave celerity effects.

At the channel storage nodes assigned at Lowood, Moggill and Harrisville, the storage curves used for the January 1974 flood calibration were applied except for a modified storage relationship at Lowood. This is shown as Storage Curve B on **Figure 5-6 - Channel Storage Curves at Lowood.**

Recorded and Predicted Hydrographs
Plots of recorded and RAFTS predicted hydrographs for the June 1983 calibration are compiled in **Appendix B (Figure B-2a** to **B-2c**) and summarised in **Table 5-7 - RAFTS Calibration - June 1983 Flood.**

The match between predicted and recorded flows at key sites are generally within acceptable limits. Flows based on the Brisbane River gauge at Moggill are substantially lower than RAFTS predicted discharge. This trend was also present in the analysis of both the early and late April 1989 events (refer to Section 5.7 and 5.13). These three floods of the lower Brisbane River were of similar magnitude and less than 2 000 m^3/s.

Also the Moggill hydrograph volume based on the gauge data is substantially less than the volume recorded upstream at Savages Creek. On this basis, it is suggested that the Moggill rating curve be adjusted for moderate floods (less than 2 000 m^3/s). There also may be a need to have a rating curve dependent on downstream tide levels at this site.

Table 5-7 - RAFTS Calibration - June 1983 Flood

Number	Stream	Site	Peak Discharge (m^3/s)			Discharge Volume (GL)			Comments
			Gauged	Predicted	Diff(%)	Gauged	Predicted	Diff(%)	
Upper Brisbane									
143015	Cooyar Ck	Damsite	707	1 159	+64	51	70	+37	
143007	Brisbane Rv	Linville	2 090	2 204	+5	148	146	-1	
143010	Emu Ck	Boat Mtn	885	1 188	+34	47	75	+60	
143009	Brisbane Rv	Gregors Ck	3 850	4 118	+7	332	309	-7	
Somerset & Wivenhoe									
143305	Stanley Rv	Somerset Dam	2 236	2 316	+4	260	177	-32	
143036	Brisbane Rv	Wivenhoe Dam	5 900	5 849	-1	776	739	-5	Synthetic gauged hydrograph
143303	Stanley Rv	Peachester	310	362	+17	27	16	-41	
Lockyer									
143203	Lockyer Ck	Helidon	619	540	-13	41	29	-29	
143212	Tenthill Ck	Tenthill	183	345	+89	15	21	+40	
143210A	Lockyer Ck	Lyons Bridge	2 290	2 379	+4	166	156	-6	Backwater effect at gauge
143905	Lockyer Ck	Glenore Grove	2 100	2 261	+8	218	126	-42	
Bremer & Lower Brisbane									
143001	Brisbane Rv	Savages Cross	1 641	1 513	-8	721	614	-15	
143110	Bremer Rv	Adams Bridge	132	128	-3	10	12	+20	
143107	Bremer Rv	Walloon	387	830	+114	33	72	+118	
143108	Warrill Ck	Amberley	383	398	+4	50	79	+58	
143113	Purga Ck	Loamside	141	235	+67	12	21	+75	
143911	Bremer Rv	David Trumpy	2 045	1 405	-31	119	184	+55	Gauge record incomplete
143915	Brisbane Rv	Moggill	1 457	2 029	+39	450	855	+90	Recorded volume < Savages Crossing

Note: 1. Primary stream gauges are shaded.

5.7 RAFTS Calibration - Late April 1989 Flood

The late April 1989 flood was a significant event in the Upper Brisbane and Somerset parts of the catchment. It occurred about three weeks after the incidence of a flood of similar magnitude (early April 1989 flood used for verification).

The flood regulation function of Wivenhoe Dam was in full operation during the 1989 floods as indicated by the dam outflow hydrographs presented in **Figure 5-2 - Wivenhoe Dam Discharges**. Releases from Wivenhoe Dam during the late 1989 flood continued for a period of four days after the cessation of dam inflows.

On this basis, the late April 1989 flood (in addition to the early April 1989 verification and May 1996 calibration events) are representative of post-Wivenhoe Dam conditions.

Rainfall

As shown in **Figure 5-11 - Rainfall Distribution - Late 1989 Storm**, the highest rainfalls were recorded in the upper parts of the Somerset subcatchment. Total rainfalls up to 355 mm were recorded over a three day period. In the Lockyer and Bremer areas of the catchment, rainfalls were substantially less and generally fell in the range of 50 to 100 mm.

Selected rainfall temporal patterns are presented in **Figure 5-12 - Representative Pluviographs - Late April 1989 Storm.** All stations recorded a storm burst during mid 26 April and at some locations including Ravensbourne, Moongerah Dam and Kirkleagh, this burst was preceded by a similar rainfall pattern on 25 April.

Rainfall Losses

Table 5-8 - Rainfall Losses - Late April 1989 Calibration lists the initial and continuing losses applied in the hydrograph calibration.

Table 5-8 - Rainfall Losses - Late April 1989 Calibration

Subcatchment	Initial Loss (mm)	Continuing Loss (mm/hr)
Upper Brisbane	30	2.5
Somerset	30	0
Wivenhoe	30	2.5
Lockyer	30	2.5
Bremer	10	0
Lower Brisbane	30	2.5

Catchment Storage

A PERN coefficient of 0.05 was applied to all subcatchments.

Catchment Routing

The late April 1989 flood was the first event analysed that incorporated controlled flood regulation at Wivenhoe Dam.

Link lag times were a modified set of travel times used in the June 1983 flood when the dam was under construction. In the case of the late April 1989 flood calibration, travel times were reduced in the Brisbane River reach from the dam wall to the upstream extent of the Wivenhoe Dam storage (Node WIV7 to WIV-OUT).

During the calibration process, travel times were also reduced in the Brisbane River reach from Linville to Scrub Creek (Node GRE1 to GRE-OUT).

At the channel storage nodes assigned at Lowood, Moggill and Harrisville, the storage curves used in the June 1983 flood calibration were used.

Recorded and Predicted Hydrographs
Plots of recorded and RAFTS predicted hydrographs for the late April 1989 calibration are presented in **Appendix B** (**Figure B-3a** to **B-3d**). Further details are given in **Table 5-9 - RAFTS Calibration - Late April 1989 Flood**.

Recorded and predicted discharge peaks at key sites are generally matched within about 15 percent.

The synthetic inflow hydrograph at Wivenhoe Dam has an unrealistic discharge `spike' and this accounts for the discrepancy with RAFTS peak discharge at this location.

Table 5-9 - RAFTS Calibration - Late April 1989 Flood

Number	Stream	Site	Peak Discharge (m^3/s)			Discharge Volume (GL)			Comments
			Gauged	Predicted	Diff(%)	Gauged	Predicted	Diff(%)	
Upper Brisbane									
143015	Cooyar Ck	Damsite	436	648	+49	34	47	+38	
143007	Brisbane Rv	Linville	2 214	2 178	-2	116	128	+10	
143010	Emu Ck	Boat Mtn	610	612	0	39	45	+15	
143009	Brisbane Rv	Gregors Ck	3 250	3 457	+6	297	238	-20	Lag error in gauge
Somerset & Wivenhoe									
143305	Stanley Rv	Somerset Dam	3 639	2 620	-28	337	273	-19	
143036	Brisbane Rv	Wivenhoe Dam	9 632	4 750	-50	792	682	-14	Spike in synthetic hydrograph
143901	Stanley Rv	Woodford	642	1 089	+70	201	111	-45	
143303	Stanley Rv	Peachester	431	729	+69	34	53	+56	
Lockyer									
143203	Lockyer Ck	Helidon	499	184	-63	19	11	-42	
143212	Tenthill Ck	Tenthill	89	70	-17	15	7	-53	
143225	Laidley Ck	Showground	119	46	-61	16	4.3	-73	
143905	Lockyer Ck	Glenore Grove	422	409	-3	67	34	-49	
Bremer & Lower Brisbane									
143001	Brisbane Rv	Savages Cross	1 406	1 210	-14	815	753	-8	
143110	Bremer Rv	Adams Bridge	96	79	-18	6.3	9	+43	
143107	Bremer Rv	Walloon	259	521	+101	20	51	+155	
143108	Warrill Ck	Amberley	252	290	+15	41	64	+56	
143113	Purga Ck	Loamside	112	169	+51	11	15	+36	
143911	Bremer Rv	David Trumpy	773	873	+13	74	139	+88	Gauge record incomplete
143915	Brisbane Rv	Moggill	1 200	1 400	+17	752	931	+24	

Note: 1. Primary stream gauges are shaded.

5.8 RAFTS Calibration - May 1996 Flood

The flood of May 1996 caused extensive flooding of rural areas throughout the Brisbane Valley, especially in the Laidley and Lockyer Creek areas. Significant flows were also recorded along the Bremer River and Warrill Creek and this caused moderate flooding at Ipswich. A full description of the meteorological and hydrologic aspects of the May 1996 flood has been prepared by the Bureau of Meteorology (BOM, 1996).

No dam releases during the May 1996 flood were reported at both Somerset Dam and Wivenhoe Dam.

Rainfall

Rainfall associated with the May 1996 flood occurred over a period of several days. Eight day rainfall totals within the Brisbane Valley are shown in **Figure 5-13 - Rainfall Distribution - May 1996 Storm.** Maximum rainfalls of in excess of 1 000 mm were recorded at Mount Glorious. As shown in **Figure 5-14 - Representative Pluviographs - May 1996 Storm**, the rainfall pattern was multi-peaked with recorded intensities generally less than 4 mm/hr with peaks of the order of 10 mm/hr.

Rainfall Losses

Table 5-10 - Rainfall Losses - May 1996 Calibration lists the rainfall losses assigned to each Brisbane River subcatchment.

Table 5-10 - Rainfall Losses - May 1996 Calibration

Subcatchment	Initial Loss (mm)	Continuing Loss (mm/hr)
Upper Brisbane	150	2.5
Somerset	150	2.0
Wivenhoe	150	2.5
Lockyer	140	1.2
Bremer	100	1.5
Lower Brisbane	100	1.5

Catchment Storage

A PERN coefficient of 0.05 was applied to all subcatchments.

Channel Routing

Link lag times within the RAFTS model and channel storage properties at Lowood, Moggill and Harrisville were identical to those used in the late April 1989 flood calibration.

Recorded and Predicted Hydrographs

Plots of recorded and RAFTS predicted hydrographs for the May 1996 calibration are presented in **Appendix B** (**Figures B-4a** to **B-4d**). Further summary information is compiled in **Table 5-11 - RAFTS Calibration - May 1996 Flood.** For the lower reaches of the Brisbane River, peak discharges are predicted by RAFTS to within 5 percent of gauged flows.

Table 5-11 - RAFTS Calibration - May 1996 Flood

Number	Stream	Site	Peak Discharge (m^3/s)			Discharge Volume (GL)			Comments
			Gauged	Predicted	Diff(%)	Gauged	Predicted	Diff(%)	
Upper Brisbane									
143015	Cooyar Ck	Damsite	41	74	+80	9.3	6.4	-31	Relatively low flow
143007	Brisbane Rv	Linville	57	75	+32	17.4	6.9	-60	Relatively low flow
143010	Emu Ck	Boat Mtn	388	198	-49	39	18	-54	
143009	Brisbane Rv	Gregors Ck	479	340	-29	76	52	-32	
Somerset & Wivenhoe									
143036	Brisbane Rv	Wivenhoe Dam	2 386	2 644	+11	343	232	-32	
Lockyer									
143203	Lockyer Ck	Helidon	739	259	-65	93	34	-63	
143212	Tenthill Ck	Tenthill	628	592	-6	71	107	+51	
143225	Laidley Ck	Showground	540	485	-10	66	76	+15	
143907	Brisbane Rv	Lowood	2 020	2 088	+3	525	578	+10	
143905	Lockyer Ck	Glenore Grove	2 460	2 253	-8	475	410	-14	
Bremer & Lower Brisbane									
143001	Brisbane Rv	Savages Cross	2 011	2 102	+5	532	609	+14	
143110	Bremer Rv	Adams Bridge	225	199	-12	35	24	-31	
7020	Bremer Rv	Rosewood	781	766	-2	155	126	-19	
6572	Warrill Ck	Harrisville	376	568	+51	88	80	-9	
143107	Bremer Rv	Walloon	726	837	+15	127	140	+10	
143102	Warrill Ck	Kalbar	426	533	+25	52	56	+8	
143108	Warrill Ck	Amberley	402	384	-4	129	100	-22	
143019	Oxley Ck	Beatty Rd	237	297	+25	49	42	-14	
143915	Brisbane Rv	Moggill	2 792	2 807	0	761	1 028	+35	Record incomplete

Note: 1. Primary stream gauges are shaded.

5.9 RAFTS Verification - February 1931

The 1931 historical flood event commenced on the 1 Feb 1931 and continued for a period of five days. This event was the second largest flood recorded this century and was considered to be an important flood in the verification process.

Limited stream gauge information was available in the lower reaches of the Brisbane River however it was considered that there was sufficient information to provide some indication of the reliability of the RAFTS model output.

Wivenhoe and Somerset Dams were not constructed for this event and the RAFTS model was adjusted accordingly.

Rainfall

One of the main concerns modelling this event was the lack of pluviograph information. Pluviographs provide temporal variation throughout the catchment during a storm.

To account for spatial variation, rainfall depths for the event were calculated and these depths were input into Civilcad where isohyetal maps were generated. **Figure 5-15 - Isohyetal Map - February 1931 Flood** illustrates the rainfall depths for the Brisbane River Catchment.

Rainfall depths were then interpolated at each sub-area and input into the software package HYDCON where appropriate temporal patterns were applied. HYDCON is a software package produced by Sinclair Knight Merz specifically for this study.

A single temporal pattern was applied over the entire catchment for the 1931 flood which was measured at Brisbane Regional Office. This was the only temporal pattern (other than daily rainfall information) available for this flood event.

After inspection of the daily rainfall data it was considered that the temporal pattern over the catchment was reasonably consistent for the lower part of the catchment. However for the upper catchment the rainfall commenced half to a full day earlier than in the lower catchments (Lower Brisbane and Bremer catchments). To account for these effects the temporal pattern for the upper catchments was applied half a day earlier as illustrated in **Figure 5-16 - Representative Pluviographs - February 1931 Storm**.

Rainfall Losses

Table 5-12 - Rainfall Losses - February 1931 Verification lists the initial and continuing losses used for the pre Wivenhoe and pre Somerset Dam verification event.

Table 5-12- Rainfall Losses - February 1931 Verification

Subcatchment	Initial Loss (mm)	Continuing Loss (mm/hr)
Upper Brisbane	150	3.5
Somerset	120	3.0
Wivenhoe	150	3.5
Lockyer	100	2.5
Bremer	40	1.0
Lower Brisbane	40	1.0

The above losses are consistent with the loss rates used for the previous calibration/verification events although the maximum continuing loss had to be increased from a previous maximum of 3 mm/hr to 3.5 mm/hr.

Catchment Storage

The PERN value applied to the catchment were applied as follows:

- PERN equal to 0.11 - was used for Wivenhoe, Somerset and the Upper Brisbane subcatchments.
- PERN equal to 0.05 - was used for Lockyer, Bremer and Lower Brisbane subcatchments.

These PERN values reflect the absence of Wivenhoe and Somerset Dams.

Channel Routing

Channel routing within the Somerset subcatchment were modified to account for the effects of Somerset Dam not being constructed during this event. Lag times were adjusted until a good match of the Savages Crossing hydrograph was achieved.

Storage properties assigned at Lowood, Moggill and Harrisville basin nodes were identical to those used in the 1974 flood calibration.

Recorded and Predicted Hydrographs

Plots of recorded and RAFTS predicted hydrographs for the February 1931 flood are compiled in **Appendix B - RAFTS Results (Figure B-5)** and summary details are given in **Table 5-13 - RAFTS Verification - February 1931 Flood Event.**

Table 5-13 - Rafts Verification - February 1931 Flood

Number	Stream	Site	Peak Discharge (m^3/s)			Discharge Volume (GL)			Comments
			Gauged	Predicted	Diff (%)	Gauged	Predicted	Diff (%)	
Upper Brisbane									
143002	Brisbane	Fulham Vale	3005	3150	+4.9	338340	287870	-15.0	
Somerset and Wivenhoe									
143303	Stanley	Peachester	625	640	+2.9	59330	35760	-40.0	
Lockyer									
143203	Lockyer	Helidon	370	545	+45.0	33310	23230	-30.0	
Bremer and Lower Brisbane									
143102	Warrill	Kalbar	40	245	+499	1920	16620	+765	Poor Data
143101	Warrill	Mudtapilly	260	285	+9.7	20970	27930	+33.0	Key Location
143001	Brisbane	Savages Crossing	5575	5685	+2.0	1009760	915750	-9.0	Key location

The main object of this verification was to match hydrographs at Savages Crossing and Mudtapilly as these locations directly influence the inflow into the Lower Brisbane River.

5.10 RAFTS Verification - March 1955

The 1955 flood event commenced on the 26 March 1955 and was the third largest recorded flood event this century. The event continued over a period of three days. Although Somerset Dam was not fully completed for the 1955 flood event, it was modelled because the dam storage was completed.

Rainfall

A similar procedure to that adopted for the 1931 flood event was used for the 1955 event. An isohyetal map was generated and rainfall depths were interpolated using Civilcad. HYDCON was used to apply the temporal patterns at each sub area. **Figure 5-17 - Isohyetal Map - March 1955 Flood** presents rainfall depths over the Brisbane River Catchment

For this event a temporal pattern was available at the Brisbane Regional Office and Somerset Dam hence temporal variation over the catchment could be better represented in the 1931 event. The Theissen polygon method was applied to the catchment to determine the area of influence for each of these temporal patterns. **Figure 5-18 - Representative Pluviographs - March 1955 Storm** illustrates each of these temporal patterns.

Rainfall Losses

Table 5-14 - Rainfall Losses - March 1955 Verification lists the initial and continuing losses used for the pre Wivenhoe and Somerset Dam verification events.

Table 5-14 - Rainfall Losses - March 1955 Verification

Subcatchment	Initial Loss (mm)	Continuing Loss (mm/hr)
Upper Brisbane	20	1.8
Somerset	130	2.5
Wivenhoe	20	1.8
Lockyer	85	2.5
Bremer	50	1.5
Lower Brisbane	100	2.5

The loss parameters used for this verification event conform to the values used for the previous calibration and verification events.

Catchment Storage
The PERN value applied to the catchment was 0.5 except for Wivenhoe and the Upper Brisbane subcatchment where a PERN coefficient of 0.11 was used. These PERN values reflect the absence of Wivenhoe Dam.

Channel Routing
The link travel times and storage properties assigned at Lowood, Moggill and Harrisville basin nodes were identical to those used in the January 1974 flood calibration.

5.11 Recorded and Predicted Hydrographs

Plots of recorded and RAFTS predicted hydrographs for the March 1955 flood are compiled in **Appendix B (Figure B-6a to B-6b)** and summary details are given in **Table 5-15 - RAFTS Verification - March 1955 Flood Event.**

Table 5-15 - Rafts Verification - March 1955 Flood

Number	Stream	Site	Peak Discharge (m^3/s)			Discharge Volume (GL)			Comments
			Gauged	Predicted	Diff (%)	Gauged	Predicted	Diff (%)	
Upper Brisbane									
143002	Brisbane	Fulham Vale	5090	4800	-5.6	437310	414570	-5.2	
Somerset and Wivenhoe									
143006	Cressbrook Ck	Tinton	485	480	-1.2	27120	44680	+65.0	
143303	Stanley	Peachester	455	425	-6.9	104690	15870	-85.0	
Lockyer									
143206	Lockyer	Brightview Weir	620	800	+31.0	48850	45230	-7.4	
143204	Lockyer	Wilsons Weir	934	931	-0.3	201470	65950	-67.0	
143203	Lockyer	Helidon	225	235	+4.5	14930	10100	-32.0	
Bremer and Lower Brisbane									
143102	Warrill	Kalbar	3314	348	+5.1	32220	19600	-39.0	Key location
143001	Brisbane	Savages Crossing	5270	5085	-3.5	1125840	758900	-33.0	Key Location

Again most emphasis for the matching of hydrographs was placed on two primary stream gauges, Savages Crossing and Kalbar. These gauges were the predominant gauges for estimating inflows into the Lower Brisbane River for the 1955 flood event.

5.12 RAFTS Verification - July 1973 Flood

The July 1973 flood was the first of two floods used to verify the RAFTS model. It is representative of pre-Wivenhoe conditions and the RAFTS assumptions used in the January 1974 flood calibration were checked against recorded July 1973 flood data.

Records on Somerset Dam outflows were not available for this verification event.

Rainfall

The spatial distribution of rainfalls over a eight day period commencing 1 July 1973 is shown in **Figure 5-19 - Rainfall Distribution - July 1973 Storm**. Highest rainfalls were registered in the upper Somerset area and the lowest readings were associated with the southern parts of the Bremer River subcatchment.

Rainfall temporal patterns recorded in the Brisbane Valley were highly variable as indicated in **Figure 5-20 - Representative Pluviographs - July 1973 Storm**.

Rainfall Losses

Table 5-16 - Rainfall Losses - July 1973 Verification lists the initial and continuing losses used in the pre-Wivenhoe Dam verification analysis.

Table 5-16 - Rainfall Losses - July 1973 Verification

Subcatchment	Initial Loss (mm)	Continuing Loss (mm/hr)
Upper Brisbane	100	3.0
Somerset	100	2.5
Wivenhoe	100	3.0
Lockyer	100	1.2
Bremer	120	2.5
Lower Brisbane	100	2.5

Catchment Storage

A PERN coefficient of 0.05 was applied, except for the Wivenhoe and Upper Brisbane areas where a PERN coefficient of 0.11 was used.

Channel Routing

The link travel times and storage properties assigned at Lowood, Moggill and Harrisville basin nodes were identical to those used in the January 1974 flood calibration.

Recorded and Predicted Hydrographs

Plots of recorded and RAFTS predicted hydrographs for the July 1973 flood are compiled in **Appendix B** (**Figures B-7a** to **B-7b**) and summary details are given in **Table 5-17 - RAFTS Verification - July 1973 Flood.**

Table 5-17 - RAFTS Verification - July 1973 Flood

Number	Stream	Site	Peak Discharge (m^3/s)			Discharge Volume (GL)			Comments
			Gauged	Predicted	Diff(%)	Gauged	Predicted	Diff(%)	
Upper Brisbane									
143015	Cooyar Ck	Damsite	430	399	-7	43	35	-19	High gauged flows prior to flood
143007	Brisbane Rv	Linville	373	1 492	+300	71	127	+80	Gauged flow less than Cooyar Ck
143010	Emu Ck	Boat Mtn	354	337	-5	33	29	-12	
143009	Brisbane Rv	Gregors Ck	2 702	2 559	-5	255	228	-10	
Somerset & Wivenhoe									
143008	Brisbane Rv	Middle Ck	2 442	2 871	+18	632	298	-53	Somerset Dam outflow not modelled
143013	Cressbrook	Damsite	30	67	+120	6.9	7.1	+3	
Lockyer									
143203	Lockyer Ck	Helidon	96	94	-2	23	5.3	-80	High gauged flows prior to flood
143210A	Lockyer Ck	Lyons Bridge	130	563	+330	32	66	+110	Backwater effect at gauge
Bremer & Lower Brisbane									
143001	Brisbane Rv	Savages Cross	2 711	2 610	-4	788	796	+1	
143003	Brisbane Rv	Mt Crosby	2 484	2614	+5	736	824	+12	
143107	Bremer Rv	Walloon	71	114	+60	10.0	7.3	-27	
143108	Warrill Ck	Amberley	3.3	6.4	+90	0.7	0.6	-14	Very low flows

Note: 1. Primary stream gauges are shaded.

5.13 RAFTS Verification - Early April 1989 Flood

To validate the post-Wivenhoe Dam assumptions established by RAFTS calibration against the late April 1989 and May 1996 floods, available data for the early April 1989 flood was used as a model verification.

The early April 1989 flood was a minor event in the western Brisbane Valley and only small flows were recorded for Cooyar Creek, Emu Creek and Lockyer Creek. The flood regulation effect of Wivenhoe Dam was evident during the flood as indicated in **Figure 5-2 - Wivenhoe Dam Discharges.**

Rainfall

Total rainfalls recorded at various stations within the Brisbane Valley are presented as **Figure 5-21 - Rainfall Distribution - Early April 1989 Storm**. The western part of the catchment generally received less than 100 mm of rainfall over the five day period from 31 March to 4 April 1989. Highest rainfalls were recorded at the headwaters of the Stanley River (Somerset) and further south towards Mount Glorious.

Figure 5-22 - Representative Pluviographs - Early April 1989 Storm indicates that peak rainfall intensities occurred during a period from late 31 March to mid 1 April 1989.

Rainfall Losses

Rainfall losses used in the post-Wivenhoe Dam verification analysis are given in **Table 5-18 - Rainfall Losses - Early April 1989 Verification**.

Table 5-18 - Rainfall Losses - Early April 1989 Verification

Subcatchment	Initial Loss (mm)	Continuing Loss (mm/hr)
Upper Brisbane	50	2.5
Somerset	50	1.5
Wivenhoe	50	2.5
Lockyer	120	0
Bremer	120	0
Lower Brisbane	120	0

Catchment Storage

A PERN coefficient of 0.05 was applied globally in the RAFTS model.

Channel Routing

The link travel times and storage properties assigned at Lowood, Moggill and Harrisville basin nodes were the same as those used in the post-Wivenhoe calibration against the late April 1989 and May 1996 floods.

Recorded and Predicted Hydrographs

Plots of recorded and RAFTS predicted hydrographs are compiled in **Appendix B (Figures B-8a** to **B-8c**). A summary of peak flows and hydrograph volumes is given in **Table 5-19 - RAFTS verification - Early April 1989 Flood.**

Table 5-19 - RAFTS Verification - Early April 1989 Flood

Number	Stream	Site	Peak Discharge (m^3/s)			Discharge Volume (GL)			Comments
			Gauged	Predicted	Diff(%)	Gauged	Predicted	Diff(%)	
Upper Brisbane									
143015	Cooyar Ck	Damsite	35	30	-14	4.3	3.1	-28	Relatively low flow
143007	Brisbane Rv	Linville	1 307	1 452	+11	98	69	-30	
143010	Emu Ck	Boat Mtn	27	5	-81	4.0	0.5	-88	Relatively low flow
143009	Brisbane Rv	Gregors Ck	1 711	1 587	-7	141	109	-23	
Somerset & Wivenhoe									
143036	Brisbane Rv	Wivenhoe Dam	4 722	3 644	-23	639	594	-7	Synthetic gauged hydrograph
Lockyer									
143212	Tenthill Ck	Tenthill	37	62	+68	6.8	2.5	-63	Relatively low flow
143225	Laidley Ck	Showground	95	121	+27	11.4	8.2	-28	
143210A	Lockyer Ck	Lyons Bridge	91	196	+115	14	20	+43	Backwater effect at gauge
143905	Lockyer Ck	Glenore Grove	104	174	+67	33	15	-55	Record in error
Bremer & Lower Brisbane									
143001	Brisbane Rv	Savages Cross	1 434	1 525	+6	677	696	+3	
143110	Bremer Rv	Adams Bridge	78	22	-72	5.8	1.3	-78	
143107	Bremer Rv	Walloon	164	503	+207	24	36	+50	
143108	Warrill Ck	Amberley	211	157	-26	33	24	-27	
143113	Purga Ck	Loamside	112	234	+109	11	15	+36	
143911	Bremer Rv	David Trumpy	530	612	+15	61	83	+36	
143915	Brisbane Rv	Moggill	1 080	1 773	+64	382	840	+120	Record incomplete

Note: 1. Primary stream gauges are shaded.

5.14 Adopted RAFTS Model Parameters

RAFTS Storage

By a process of calibration and verification against a series of historical floods, a set of RAFTS storage parameters were determined. These parameters tended to fall into three groups; pre-Somerset Dam conditions prior to 1943, pre-Wivenhoe Dam conditions prior to 1985 and post-Wivenhoe Dam conditions following completion of the dam. **Table 5-20 - Summary of RAFTS Storage Parameters** provides an overview of adopted storage properties.

Table 5-20- Summary of RAFTS Storage Parameters

Storage Type	Pre-Somerset Dam Conditions	Pre-Wivenhoe Dam Conditions	Post-Wivenhoe Dam Conditions
Catchment Storage	PERN = 0.05 except PERN =0.11 for Upper Brisbane	PERN = 0.05 except PERN = 0.11 for Wivenhoe and Upper Brisbane	PERN = 0.05
Channel Routing	Link travel times based on timing of record hydrographs	Link times based on timing of recorded hydrographs	Link travel times as per Pre-Wivenhoe conditions, modified to account for Wivenhoe Dam drowned reach
	Basin node storage at Lowood (storage curve A), Moggill and Harrisville as shown in Figures 5-6,5-7 and 5-8	Basin node storage at Lowood (storage curve A), Moggill and Harrisville as shown in Figures 5-6,5-7 and 5-8	Basin node storage as per Pre-Wivenhoe conditions, except storage curve B used at Lowood.

Notes:
1. Pre-Wivenhoe conditions based on calibration against January 1974 flood and verified against June 1973 flood.
2. Post-Wivenhoe conditions based on calibration against late April 1989 and May 1996 floods. Verified against early April 1989 flood.

The difference in model factors, such as faster link travel times upstream of the dam for post-Wivenhoe Dam conditions, can be directly attributed to the physical presence of the Wivenhoe Dam lake. Other factors, such as the adopted PERN coefficient in the Wivenhoe and Upper Brisbane areas, are due to the state of vegetative growth in the catchment at the time of flood.

As a check on the sensitivity of predicted hydrographs to assumptions on storage parameters, the January 1974 and June 1973 events were rerun assuming post-Wivenhoe Dam storage conditions (except for link travel times). A PERN value of 0.05 was applied throughout the RAFTS model and storage curve A was used at the Lowood basin node.

Plots of predicted hydrographs are compiled in **Appendix B** (**Figure B-9a** for July 1973 flood and **Figure B-10a** and **B-10b** for January 1974 flood). Summary details at key gauges are given in **Table 5-21 - July 1973 and January 1974 Flood - Post Wivenhoe PERN Values Sensitivity Analysis**.

Table 5-21 - July 1973 and January 1974 - Post Wivenhoe PERN Values Flood Sensitivity Analysis

Number	Stream	Site	Peak Discharge (m^3/s) Gauged	Predicted	Diff (%)
July 1973 Flood					
143009	Brisbane Rv	Gregors Ck	2 702	3 276	+21
143008	Brisbane Rv	Middle Ck	2 242	3 561	+59
143001	Brisbane Rv	Savages Cross	2 711	2 274	-16
143003	Brisbane Rv	Mt Crosby	2 484	2 276	-8
January 1974 Flood					
143007	Brisbane Rv	Linville	2 100	2 430	+16
143009	Brisbane Rv	Gregors Ck	3 750	4 358	+14
143008	Brisbane Rv	Middle Ck	4 813	5 903	+23
143907	Brisbane Rv	Lowood	7 397	7 840	+6
143001	Brisbane Rv	Savages Cross	7 340	7 868	+7
143003	Brisbane Rv	Mt Crosby	7 456	7 874	+6
143915	Brisbane Rv	Moggill	9 346	10 226	+12
143919	Brisbane Rv	Port Office	9 800	10 247	+5

Note: Wivenhoe storage not included in the analysis.

The reduced catchment storage within the Upper Brisbane and Wivenhoe areas tended to increase predicted discharge peaks compared to the calibrated values (refer to **Tables 5.21** and **5.5**). Towards the lower reaches of the Brisbane River, the difference between predicted and recorded peaks are less than 10 percent. The change in node storage properties at Lowood introduces a steeper hydrograph in the January 1974 flood.

Rainfall Losses

An overview of initial and continuing losses used in the RAFTS calibration and verification analysis is given in **Table 5-22 - Summary of RAFTS Rainfall Losses**.

Table 5-22 - Summary of RAFTS Rainfall Losses

Subcatchment	February 1931	March 1955	July 1973	January 1974	June 1983	Early April 1989	Late April 1989	May 1996
Upper Brisbane	150 & 3.5	20 & 1.8	100 & 3.0	0 & 2.5	0 & 2.5	100 & 3.0	30 & 2.5	150 & 2.5
Somerset	120 & 3.0	130 & 2.5	100 & 2.5	0 & 2.5	0 & 1.5	100 & 2.5	30 & 0	150 & 2.0
Wivenhoe	150 & 3.5	20 & 1.8	100 & 3.0	0 & 2.5	0 & 2.5	100 & 3.0	30 & 2.5	150 & 2.5
Lockyer	100 & 2.5	85 & 2.5	100 & 1.2	0 & 2.5	0 & 2.5	100 & 1.2	30 & 2.5	140 & 1.2
Bremer	40 & 1.0	50 & 1.5	120 & 2.5	0 & 0	0 & 0	120 & 2.5	10 & 0	100 & 1.5
Lower Brisbane	40 & 1.0	100 & 2.5	100 & 2.5	0 & 2.5	0 & 2.5	100 & 2.5	30 & 2/5	100 & 1.5

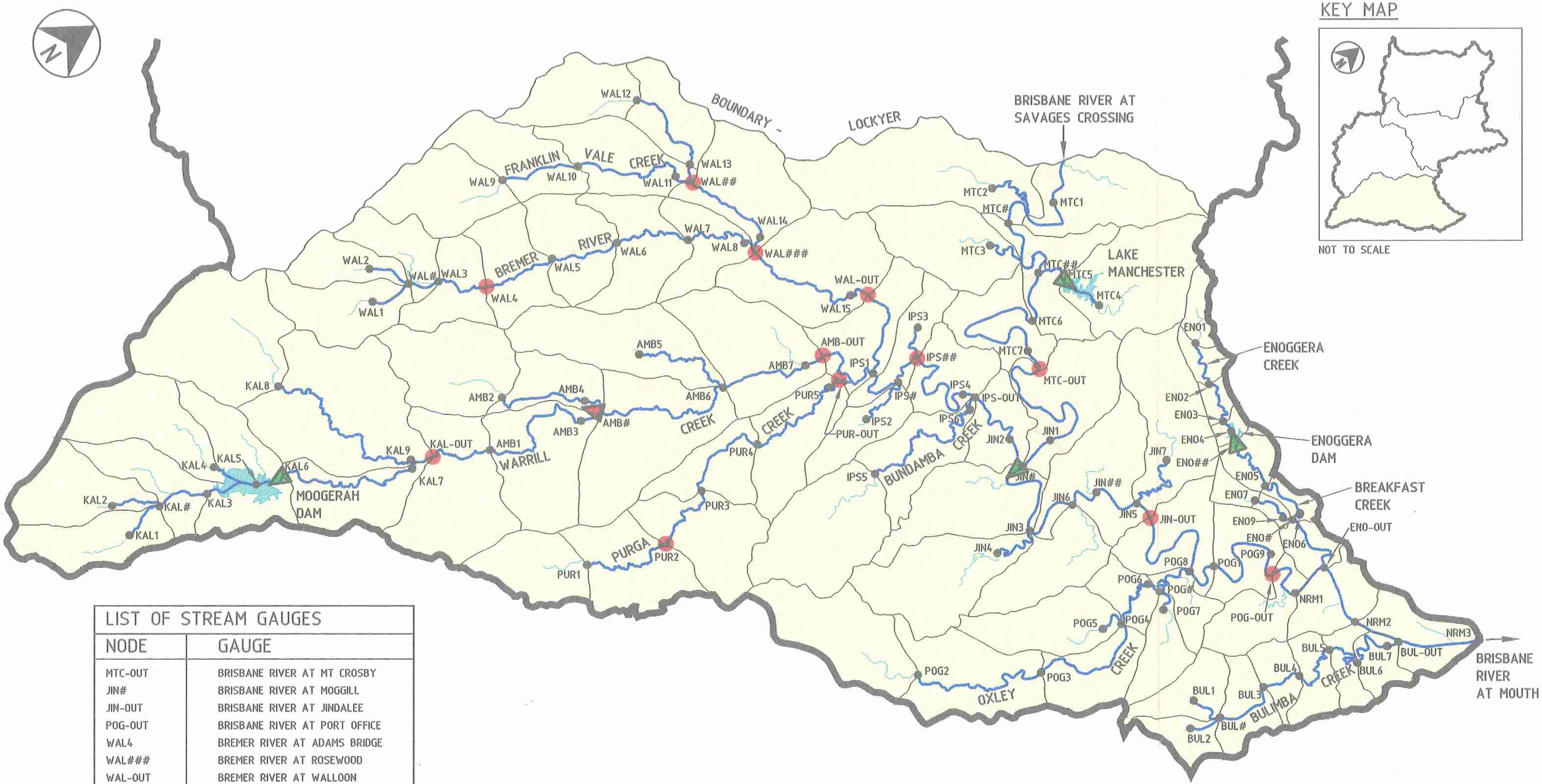
Note: 0 & 2.5 denotes 0 mm initial loss and 2.5 mm continuing loss.

The above losses fall in the expected range for South East Queensland and shall be used as input into the selection of appropriate losses for design flood analysis.

FIGURE 5.1a

BRISBANE RIVER FLOOD STUDY

RAFTS LAYOUT - BREMER AND LOWER BRISBANE



KEY MAP

NOT TO SCALE

LIST OF STREAM GAUGES

NODE	GAUGE
MTC-OUT	BRISBANE RIVER AT MT CROSBY
JIN#	BRISBANE RIVER AT MOGGILL
JIN-OUT	BRISBANE RIVER AT JINDALEE
POG-OUT	BRISBANE RIVER AT PORT OFFICE
WAL4	BREMER RIVER AT ADAMS BRIDGE
WAL###	BREMER RIVER AT ROSEWOOD
WAL-OUT	BREMER RIVER AT WALLOON
IPS##	BREMER RIVER AT DAVID TRUMPY
KAL-OUT	WARRILL CREEK AT KALBAR
AMB#	WARRILL CREEK AT HARRISVILLE
AMB-OUT	WARRILL CREEK AT AMBERLY
PUR-OUT	PURGA CREEK AT LOAMSIDE
PUR2	PURGA CREEK AT WASHPOOL
WAL##	WESTERN CREEK AT KUSS ROAD

LEGEND

- CATCHMENT BOUNDARY
- RAFTS SUB-AREA BOUNDARY
- RAFTS GENERAL NODE
- RAFTS LINK
- RAFTS NODE AT STREAM GAUGE
- RAFTS BASIN NODE

FILE 0415 DIS D:\DV ISBAD 004 0 -3-9
PLOT SCALE: 1=300

SINCLAIR KNIGHT MERZ

FIGURE 5.1b
BRISBANE RIVER FLOOD STUDY
RAFTS LAYOUT - LOCKYER

KEY MAP

NOT TO SCALE

LIST OF STREAM GAUGES	
NODE	GAUGE
HEL-OUT	LOCKYER CREEK AT HELIDON
TEN-OUT	TENTHILL CREEK AT TENTHILL
SH05	LAIDLEY CREEK AT SHOWGROUND
SH04	LAIDLEY CREEK AT MULGOWIE
SH03	LAIDLEY CREEK AT THORNTON
LYO#	LAIDLEY CREEK AT WARREGO HIGHWAY
LYO-OUT	LOCKYER CREEK AT LYONS BRIDGE
LYO-OUT	LOCKYER CREEK AT RIFLE RANGE
LY02	LOCKYER CREEK AT GLENORE GROVE
GAT-OUT	LOCKYER CREEK AT GATTON
SAV10	BRISBANE RIVER AT LOWOOD

LEGEND

CATCHMENT BOUNDARY
RAFTS SUB-AREA BOUNDARY
RAFTS GENERAL NODE
RAFTS LINK
RAFTS NODE AT STREAM GAUGE
RAFTS BASIN NODE

0 1 2 3 4 5 10 15 km

FILE 0415 PLOT SCALE: 1=300

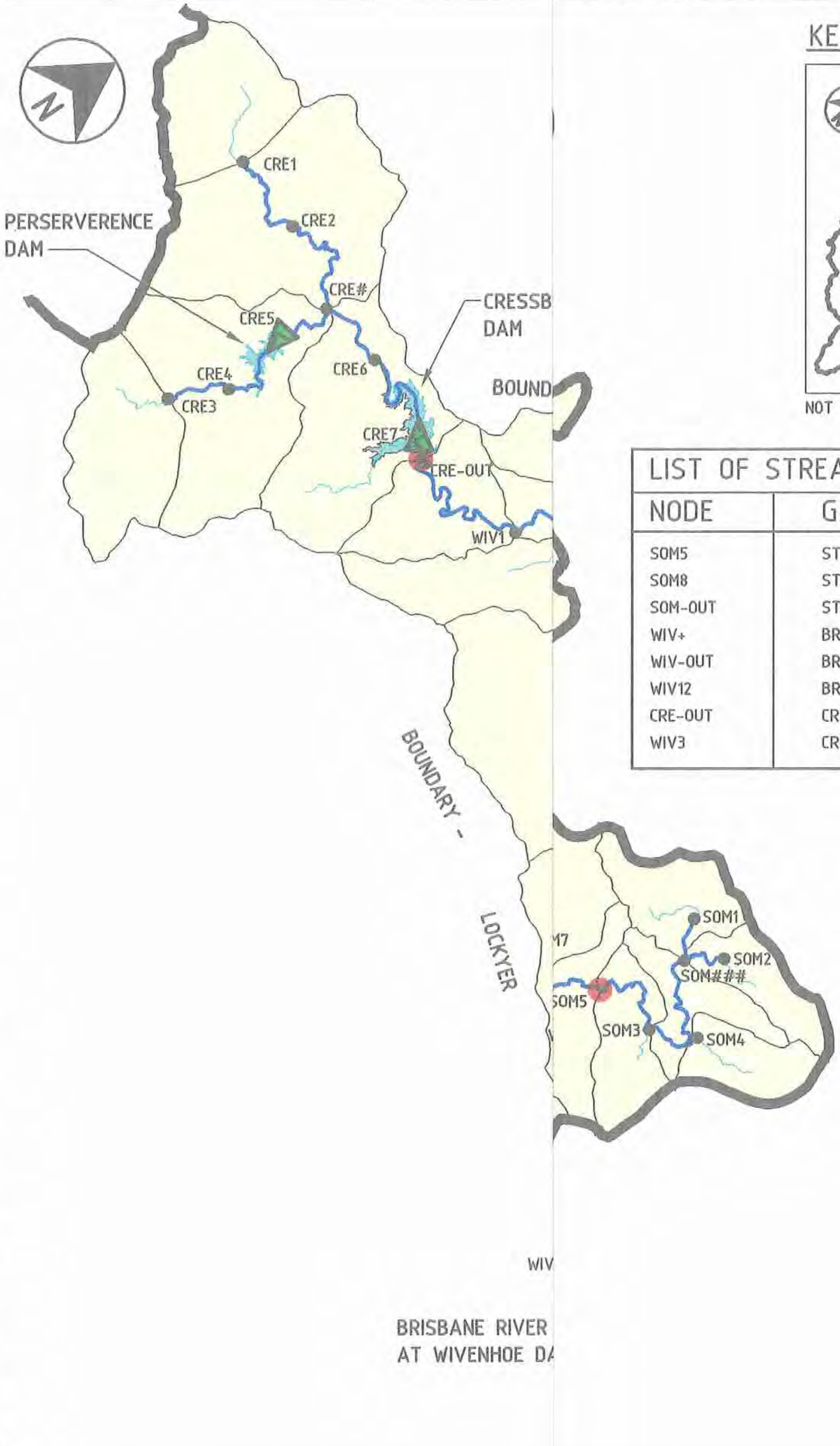
DIS D:\D' ISBA\ T004 D ...-3-9

BCC.121.0471

SINCLAIR KNIGHT MERZ

FIGURE 5.1c

BRISBANE RIVER FLOOD STUDY
RAFTS LAYOUT - SOMERSET AND WIVENHOE



KEY MAP

NOT TO SCALE

LIST OF STREAM GAUGES	
NODE	GAUGE
SOM5	STANLEY RIVER AT PEACHESTER
SOM8	STANLEY RIVER AT WOODFORD
SOM-OUT	STANLEY RIVER AT SOMERSET DAM
WIV+	BRISBANE RIVER AT MIDDLE CREEK
WIV-OUT	BRISBANE RIVER AT WIVENHOE DAM
WIV12	BRISBANE RIVER AT CABOONBAH
CRE-OUT	CRESSBROOK CREEK AT DAM SITE
WIV3	CRESSBROOK CREEK AT ROSENTRETERS

LEGEND

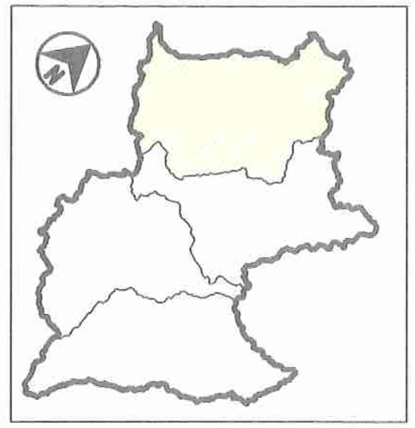
- CATCHMENT BOUNDARY
- RAFTS SUB-AREA BOUNDARY
- RAFTS GENERAL NODE
- RAFT
- RAFT
- RAFT

0 1 2 3 4 5 10 15km

SINCLAIR KNIGHT MERZ

FIGURE 5.1d
BRISBANE RIVER FLOOD STUDY
RAFTS LAYOUT - UPPER BRISBANE RIVER

KEY MAP



NOT TO SCALE

LIST OF STREAM GAUGES

NODE	GAUGE
COO-OUT	COOYER CREEK AT DAM SITE
LIN-OUT	BRISBANE RIVER AT LINVILLE
GRE18	BRISBANE RIVER AT GREGORS CREEK
EMU-OUT	EMU CREEK AT BOAT MOUNTAIN
GRE2	BRISBANE RIVER AT DEVON HILLS

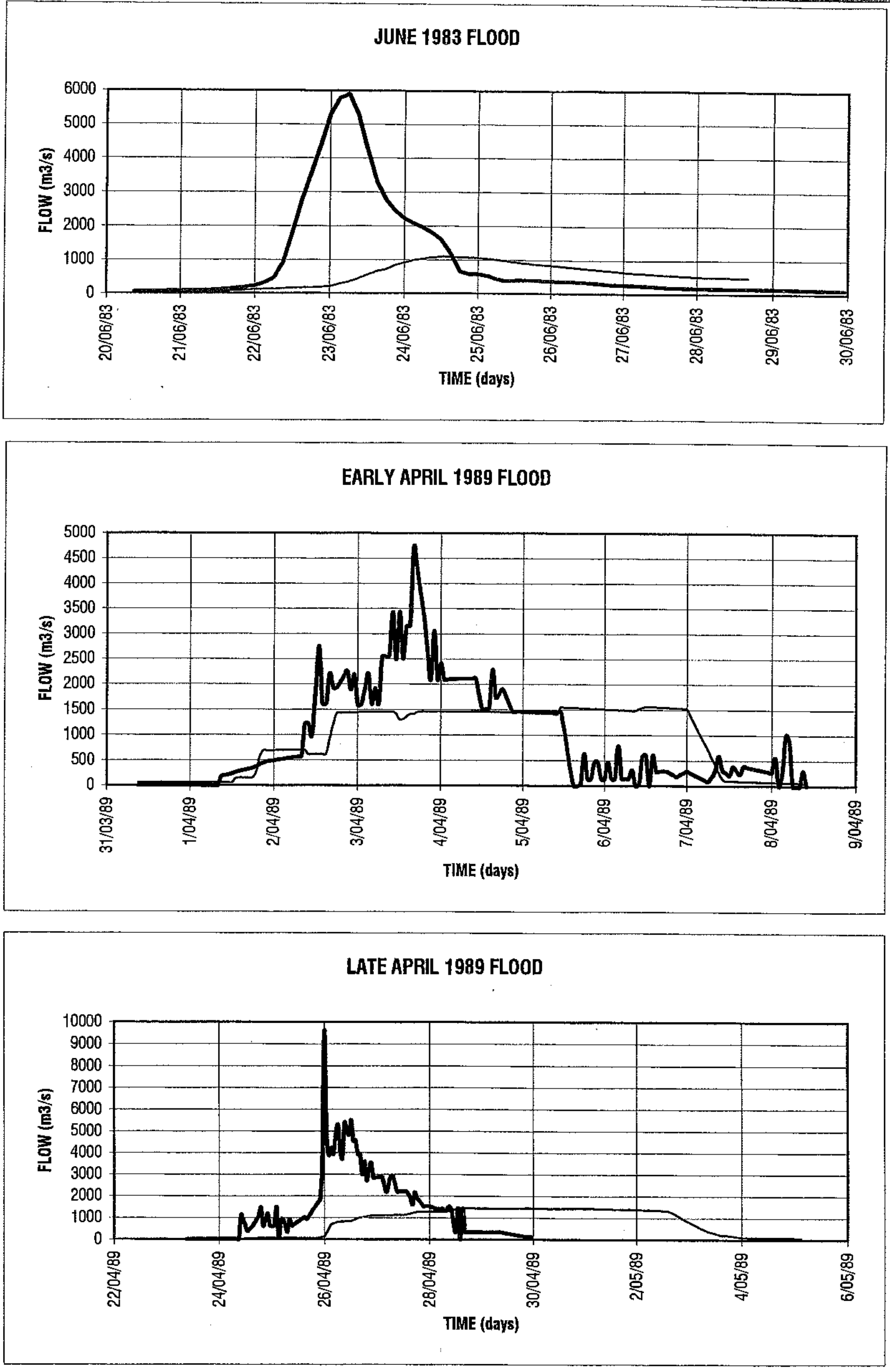
LEGEND

- CATCHMENT BOUNDARY
- RAFTS SUB-AREA BOUNDARY
- RAFTS GENERAL NODE
- RAFTS LINK
- RAFTS NODE AT STREAM GAUGE
- RAFTS BASIN NODE

0 1 2 3 4 5 10 15 km

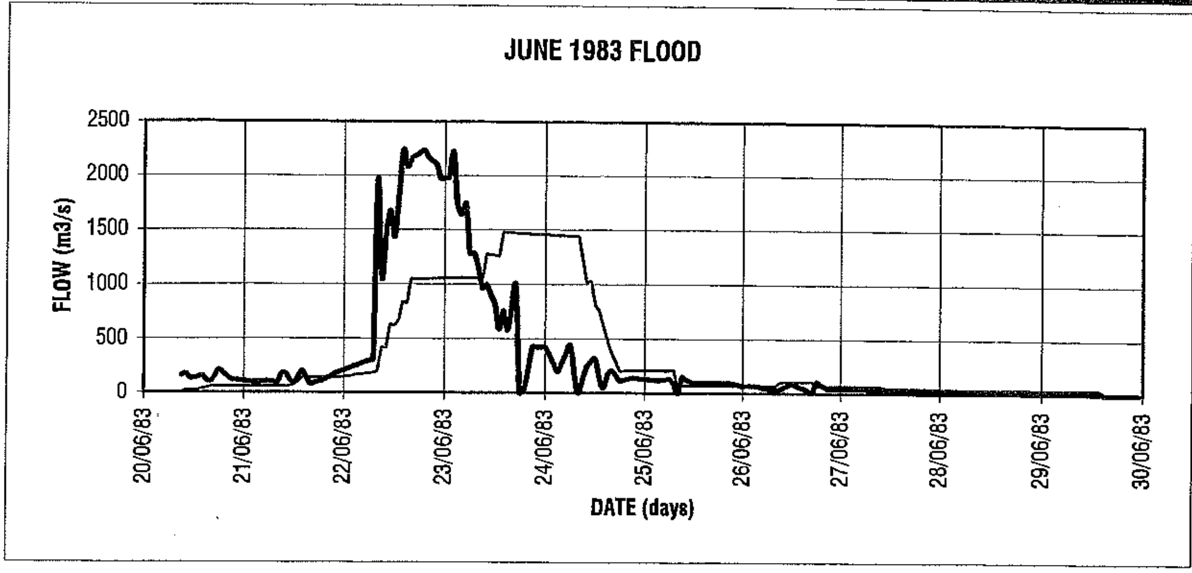
BCC.121.0473

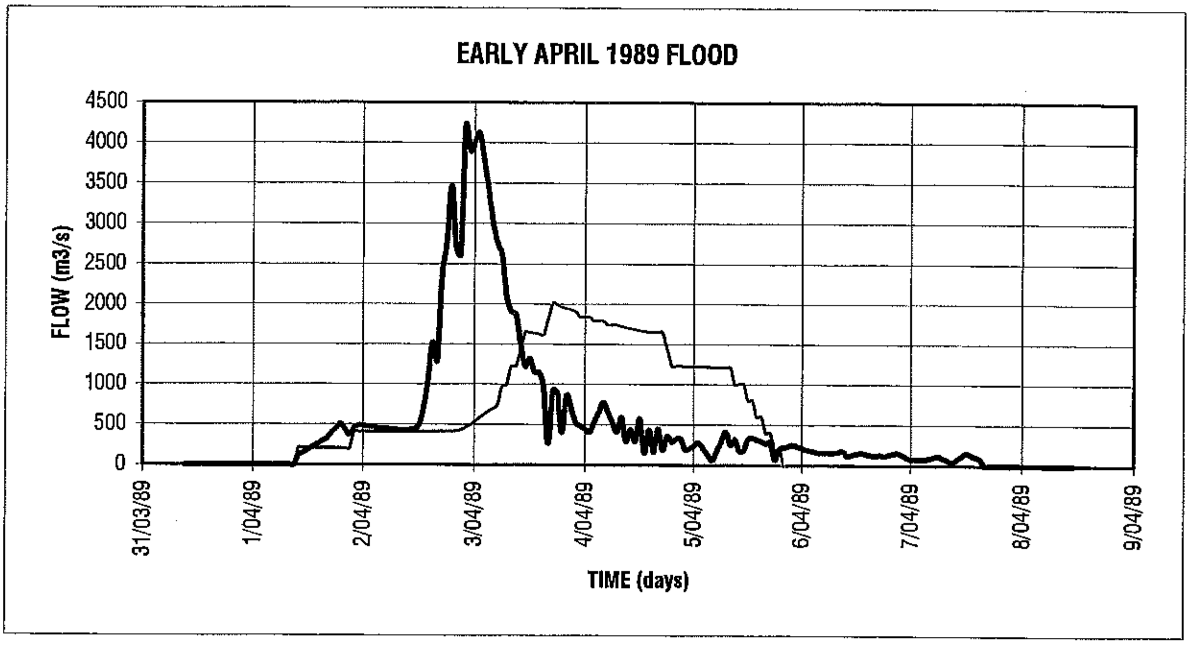
Figure 5-2 - Wivenhoe Dam Discharges

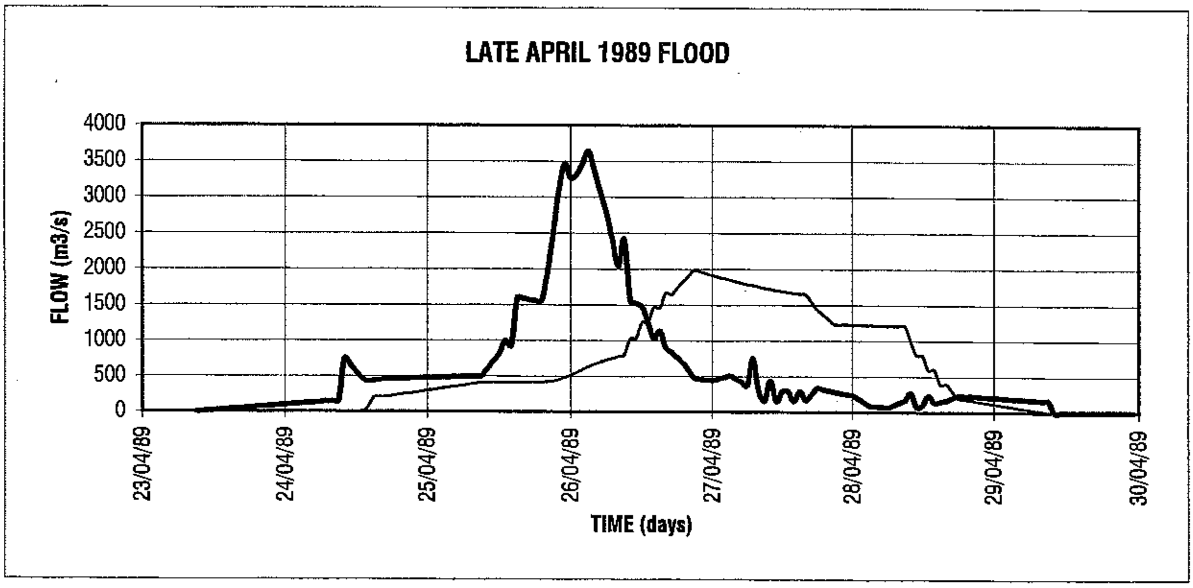


LEGEND
Inflow
Outflow

Figure 5-3 - Somerset Dam Discharges





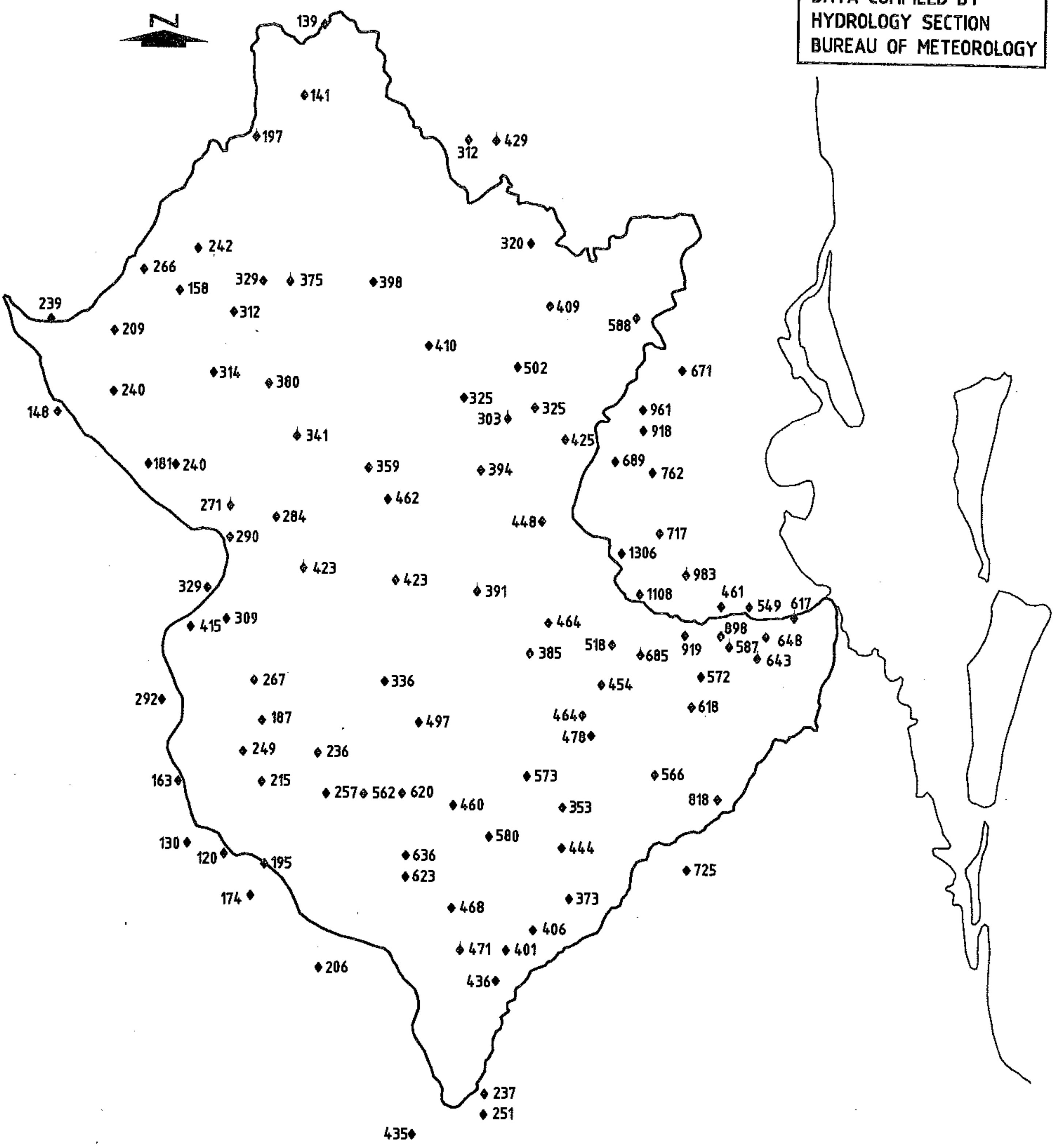


LEGEND
Inflow
Outflow

SINCLAIR KNIGHT MERZ

FIGURE 5.4
BRISBANE RIVER FLOOD STUDY
RAINFALL DISTRIBUTION
- JANUARY 1974 STORM

DATA COMPILED BY
HYDROLOGY SECTION
BUREAU OF METEOROLOGY



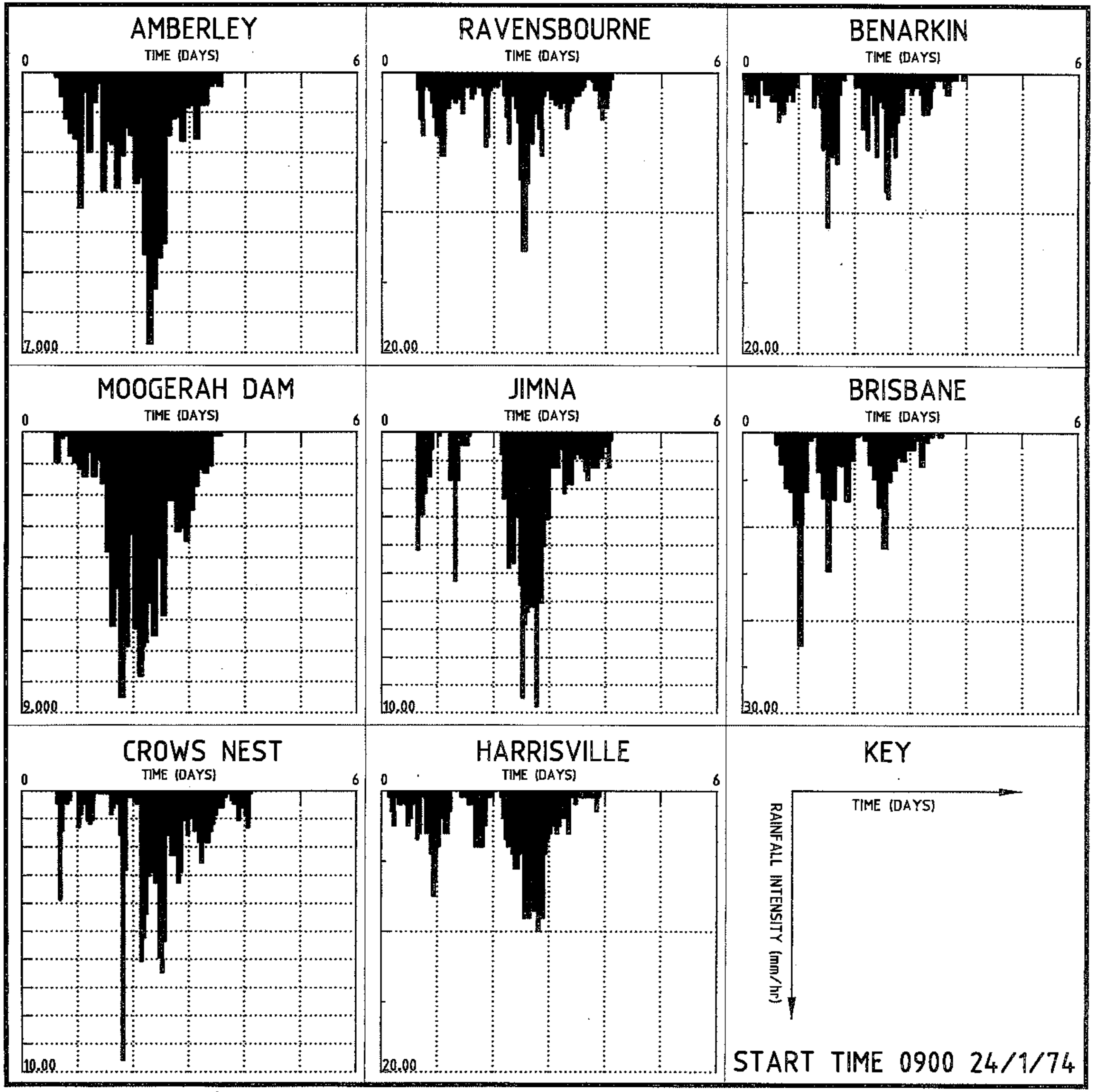
STORM DURATION - 9am 24/01/74 TO 9am 28/01/74

LEGEND

◆ 70 RAINFALL (mm)

0 10 20 30 40 50 km

FILE NAME: 04157-09 DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 10-3-97
PL ALE:



SINCLAIR KNIGHT MERZ

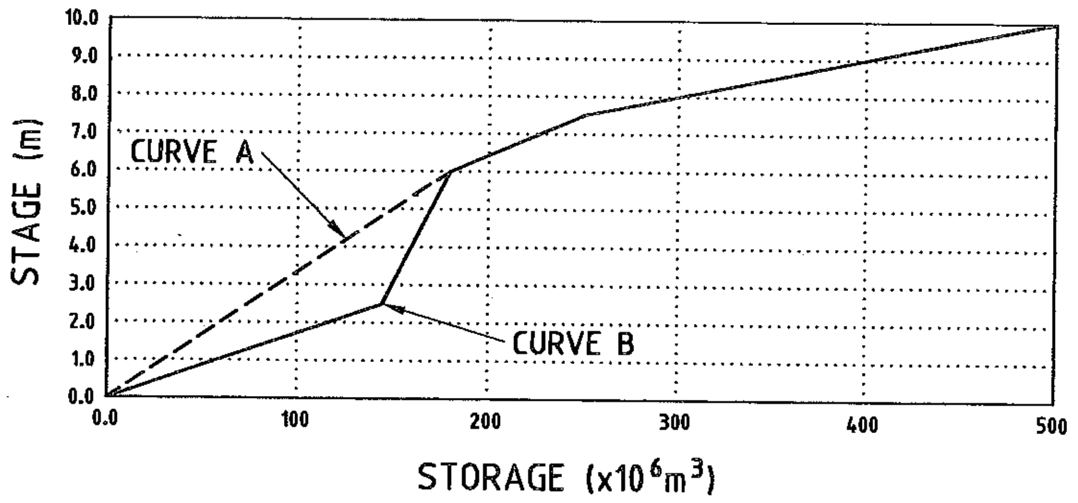
FIGURE 5.5

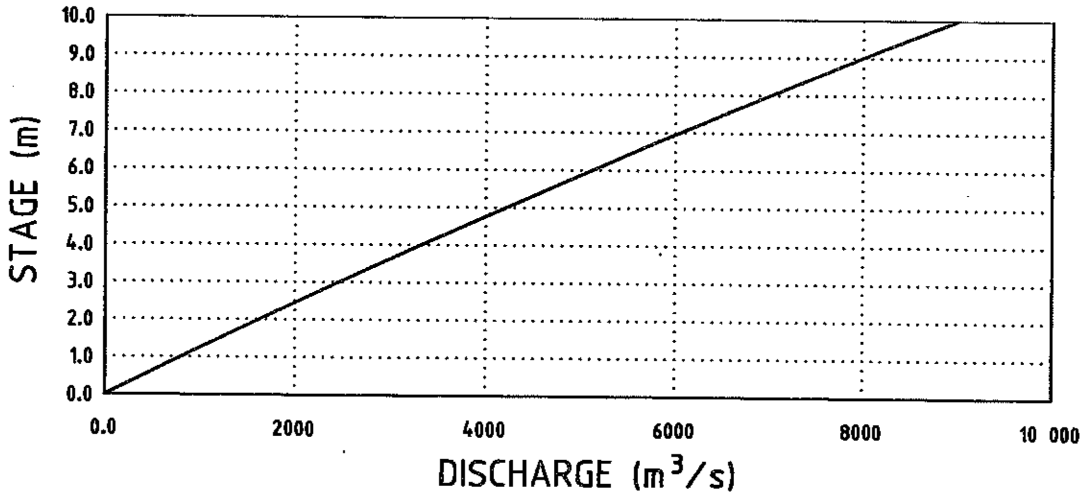
BRISBANE RIVER FLOOD STUDY
REPRESENTATIVE PLUVIOGRAPHS
- JANUARY 1974 STORM

SINCLAIR KNIGHT MERZ

FIGURE 5.6

BRISBANE RIVER FLOOD STUDY
CHANNEL STORAGE CURVES AT LOWOOD

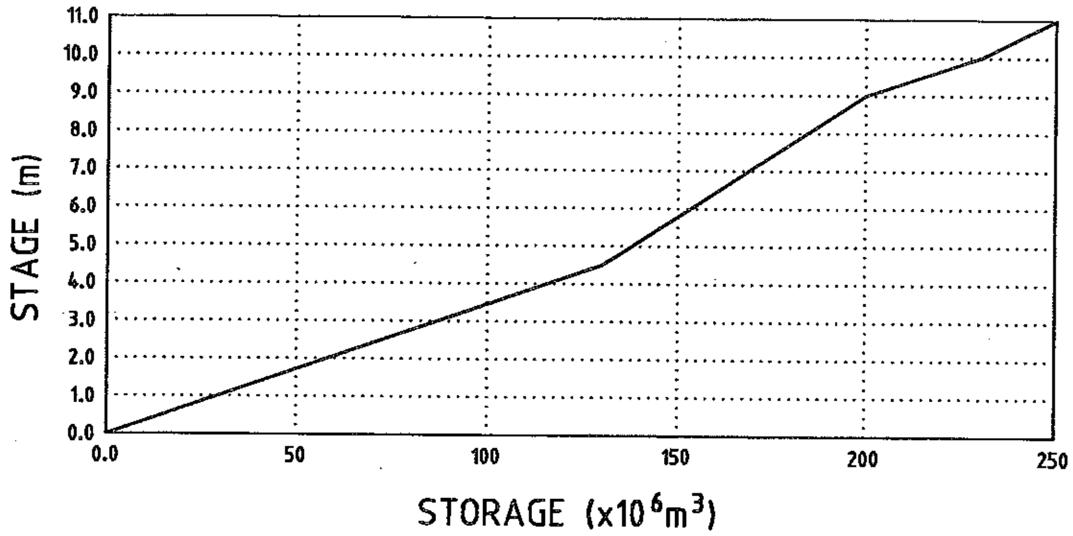


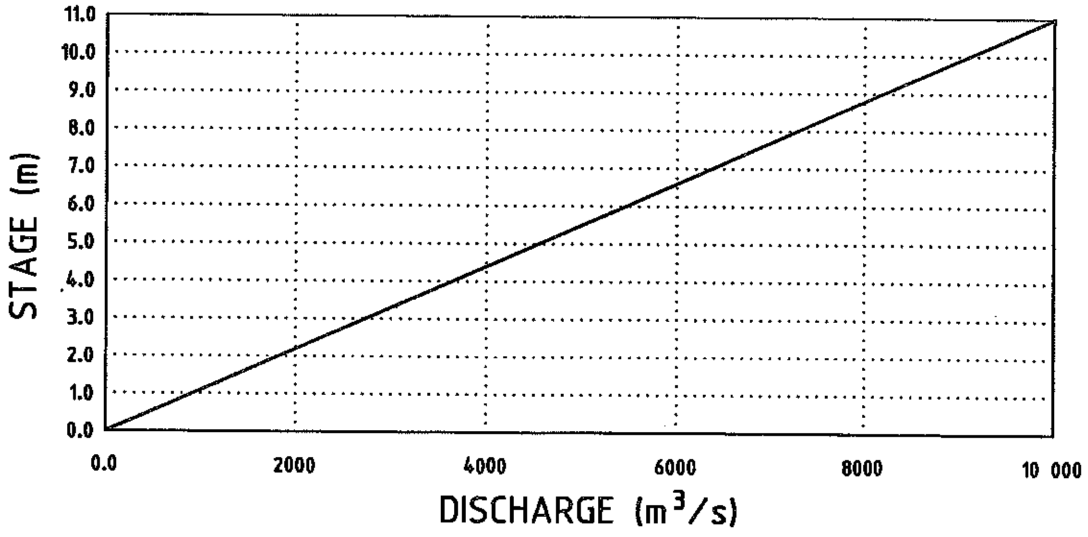


FILE NAME: 04157-28 DISK Nº: D:\DWG\BRISBANE Nº: T004157 DATE: 14/3/97
PL ALE:

FIGURE 5.7

BRISBANE RIVER FLOOD STUDY
CHANNEL STORAGE CURVES AT MOGGILL

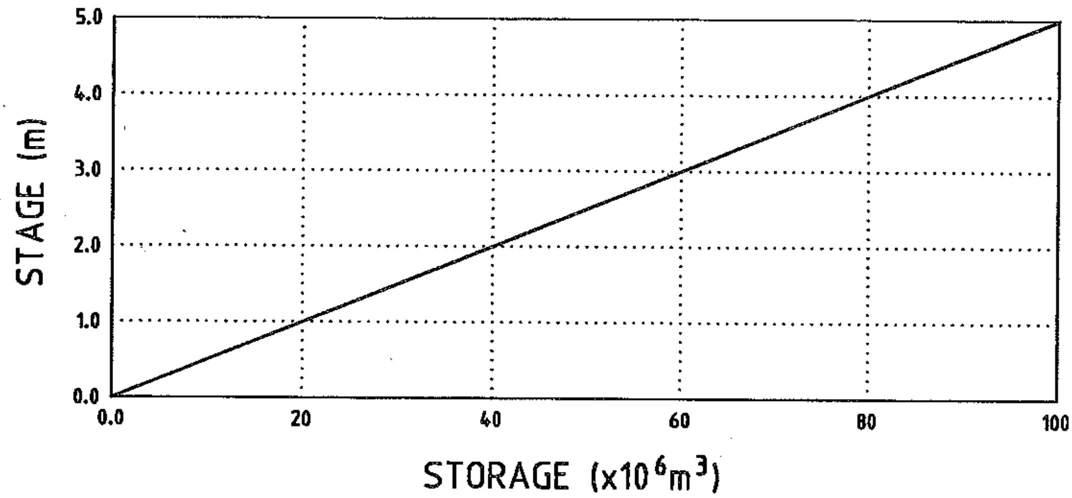


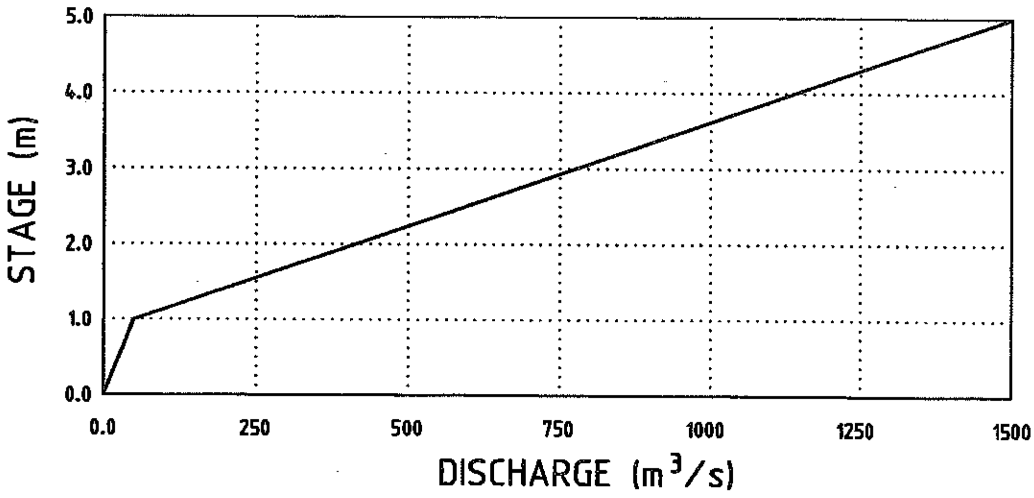


FILE NAME: 04157-28 DISK N°: D:\DWG\BRISBANE DATE: 14/3/97
PLC... SCALE: 1...

FIGURE 5.8

BRISBANE RIVER FLOOD STUDY
CHANNEL STORAGE CURVES AT HARRISVILLE



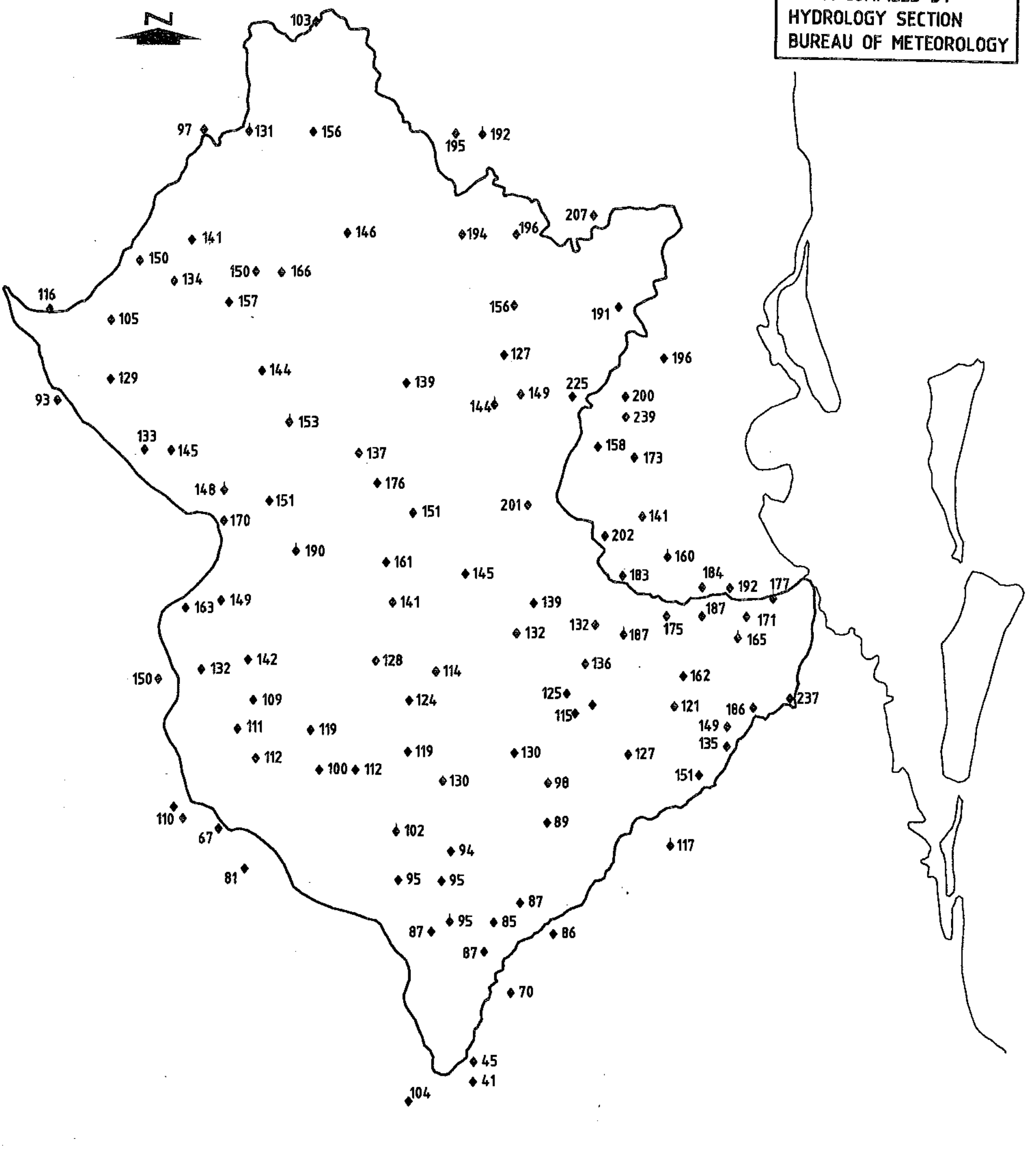


FILE NAME: 04157-28 DISK N°: D:\DWG\BRISBANE ... DATE: 14/3/97

SINCLAIR KNIGHT MERZ

FIGURE 5.9

BRISBANE RIVER FLOOD STUDY
RAINFALL DISTRIBUTION
- JUNE 1983 STORM



STORM DURATION - 9am 20/06/83 TO 9am 23/06/83

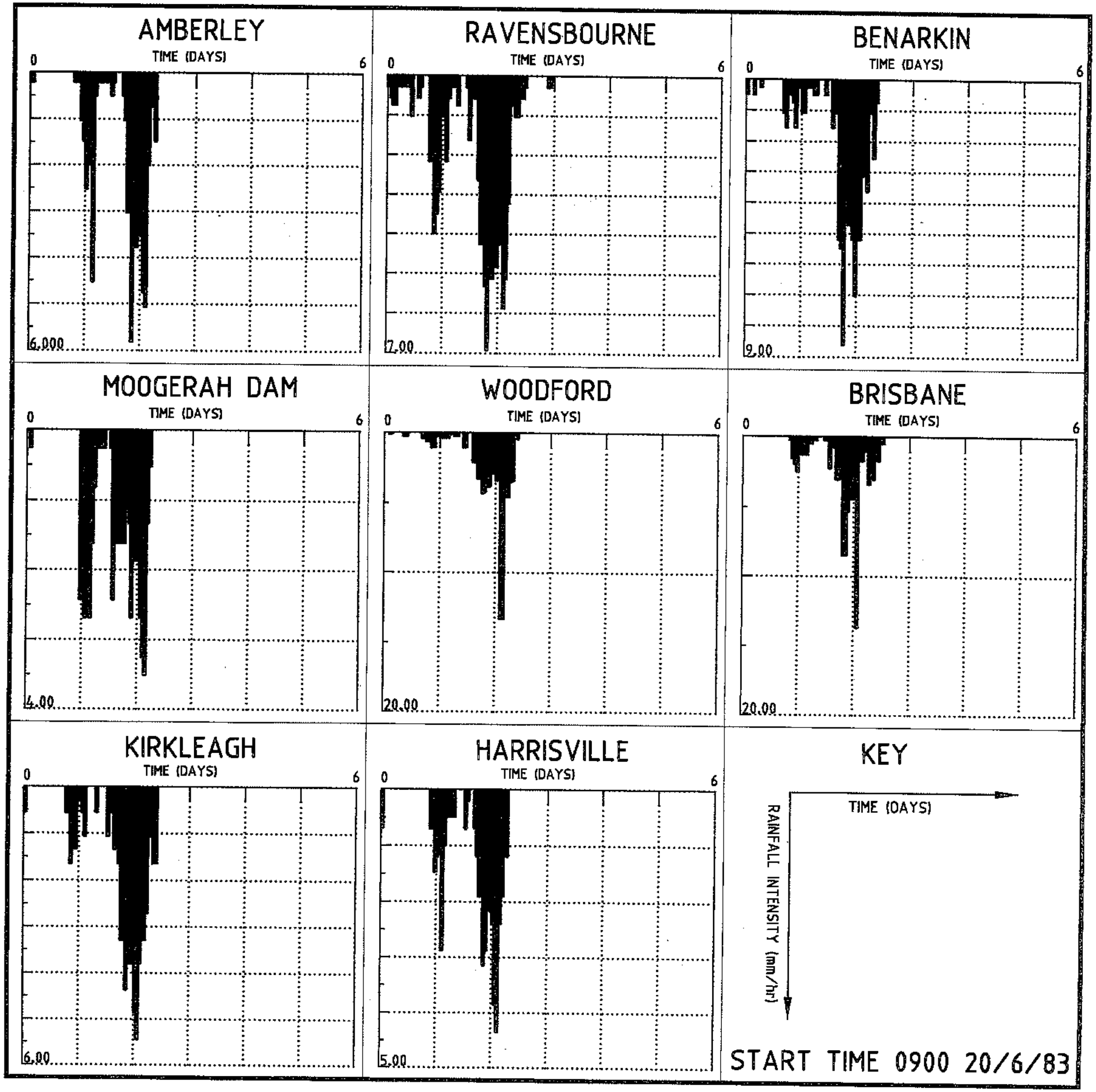
LEGEND

◆ 70 RAINFALL (mm)

0 10 20 30 40 50 km

FILE NAME: 04157-11 DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 10-3-97

PL ALE: 1

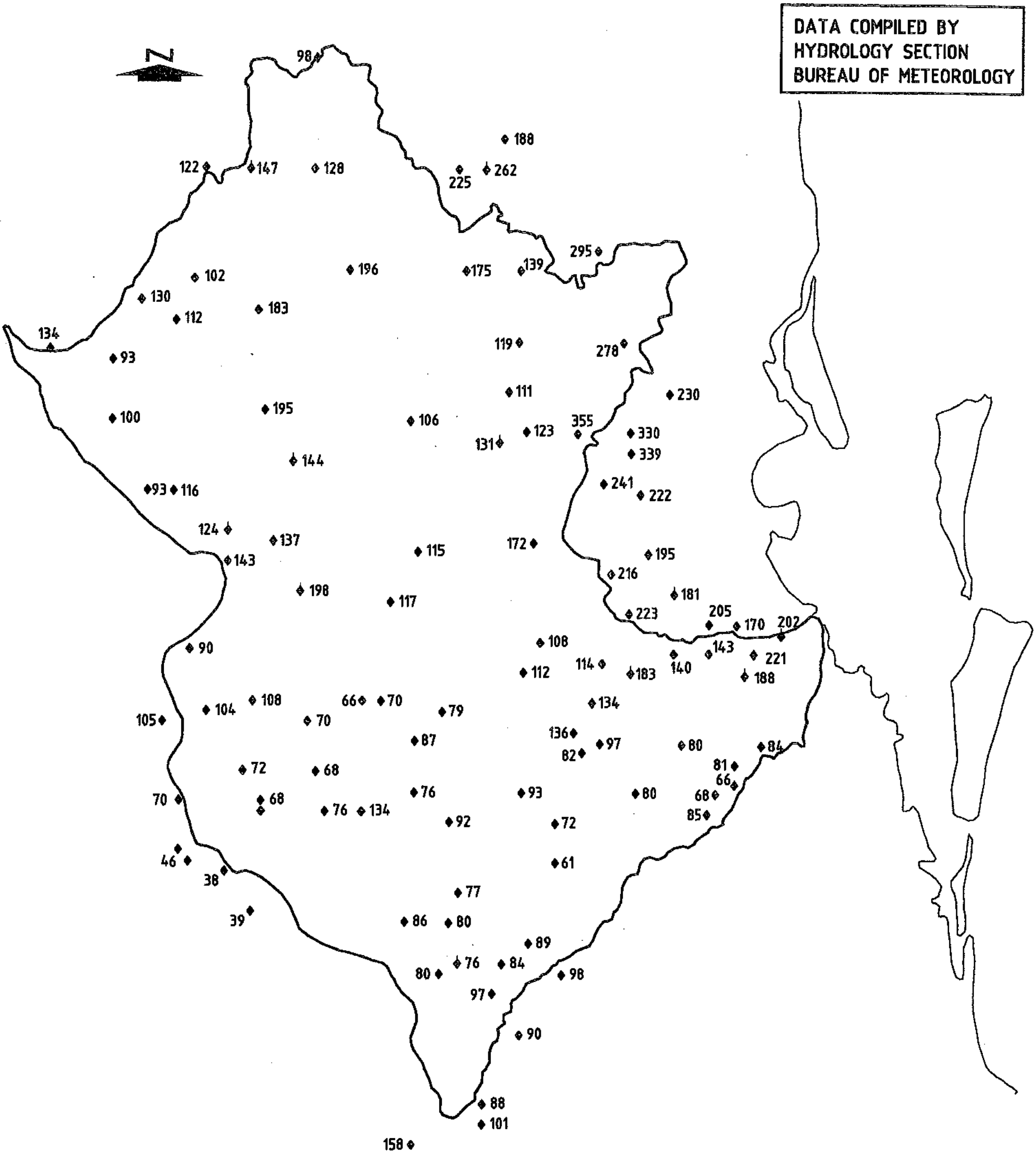


SINCLAIR KNIGHT MERZ

FIGURE 5.10
BRISBANE RIVER FLOOD STUDY
REPRESENTATIVE PLUVIOGRAPHS
- JUNE 1983 STORM

FIGURE 5.11
BRISBANE RIVER FLOOD STUDY
RAINFALL DISTRIBUTION
- LATE APRIL 1989 STORM

SINCLAIR KNIGHT MERZ



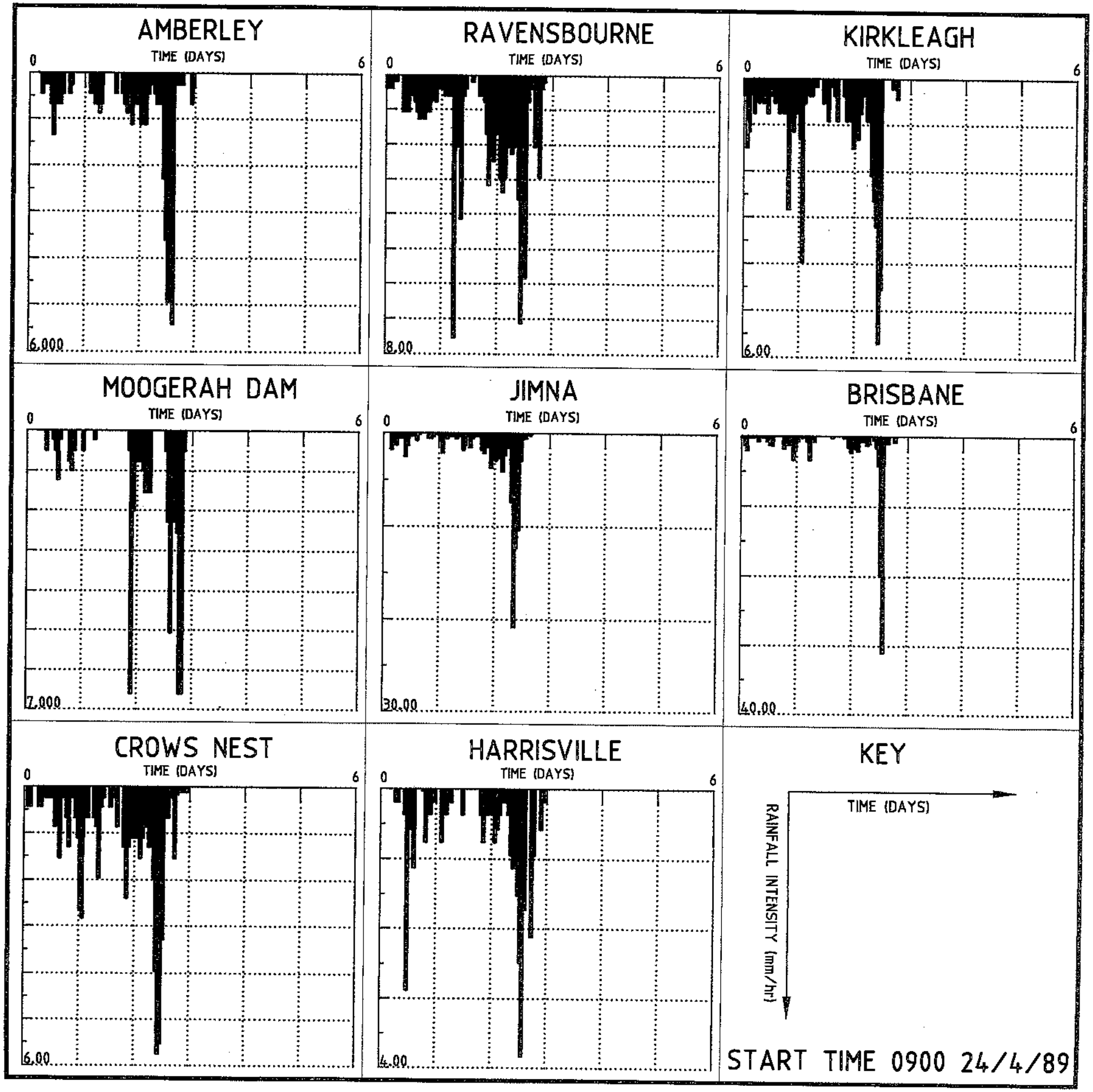
STORM DURATION - 9am 24/04/89 TO 9am 27/04/89

LEGEND

◆ 70 RAINFALL (mm)

0 10 20 30 40 50 km

FILE NAME: 04157-14 DISK N°: D:\DWG\BRISB... N°: T00/157 DATE: 14/2/97
PLOT SCALE: 1=60



SINCLAIR KNIGHT MERZ

FIGURE 5.12
BRISBANE RIVER FLOOD STUDY
REPRESENTATIVE PLUVIOGRAPHS
- LATE APRIL 1989 STORM

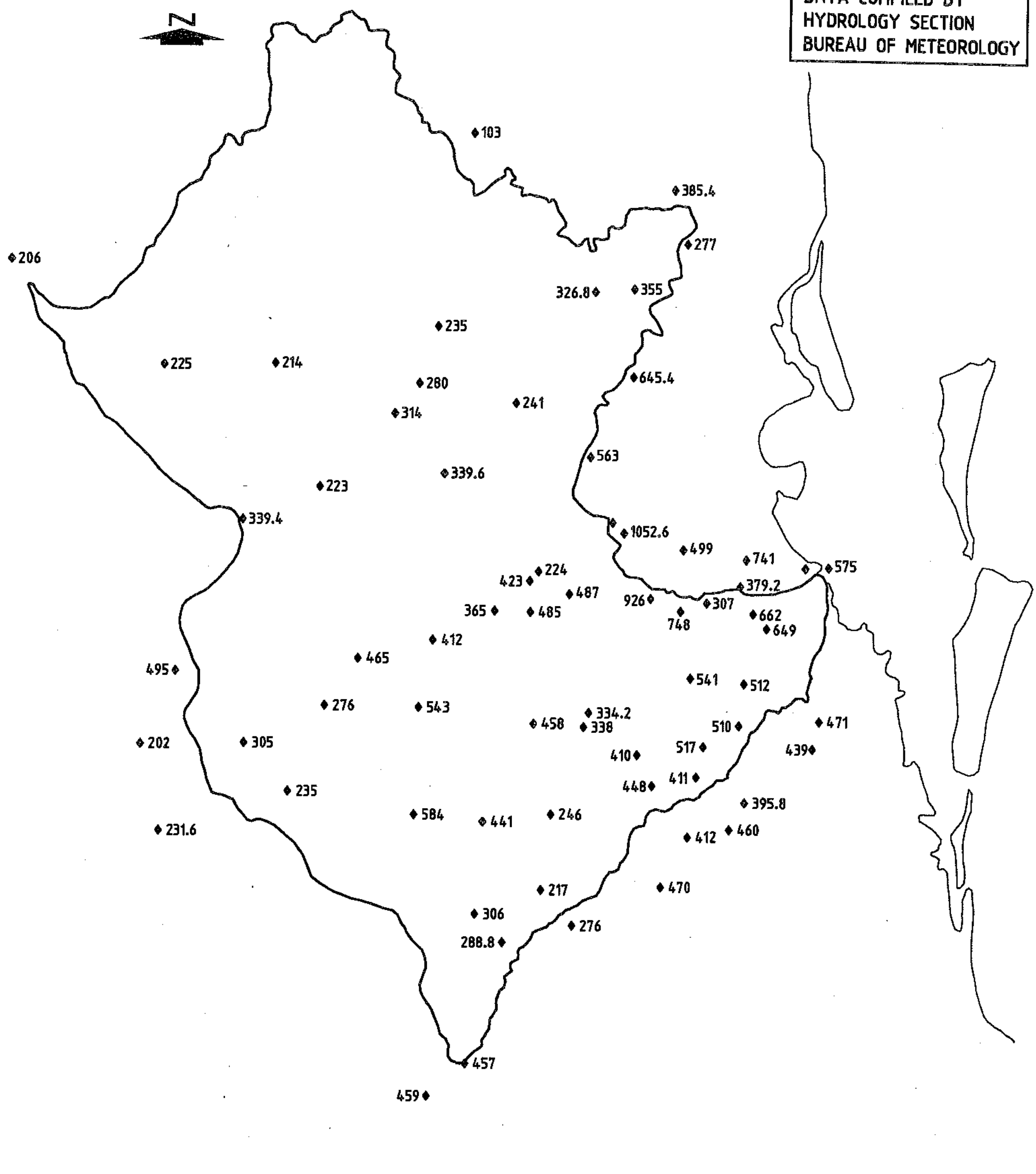
BCC.121.0484

FIGURE 5.13

BRISBANE RIVER FLOOD STUDY
RAINFALL DISTRIBUTION
- MAY 1996 STORM

SINCLAIR KNIGHT MERZ

DATA COMPILED BY
HYDROLOGY SECTION
BUREAU OF METEOROLOGY



STORM DURATION - 9am 31/04/96 TO 9am 07/05/96

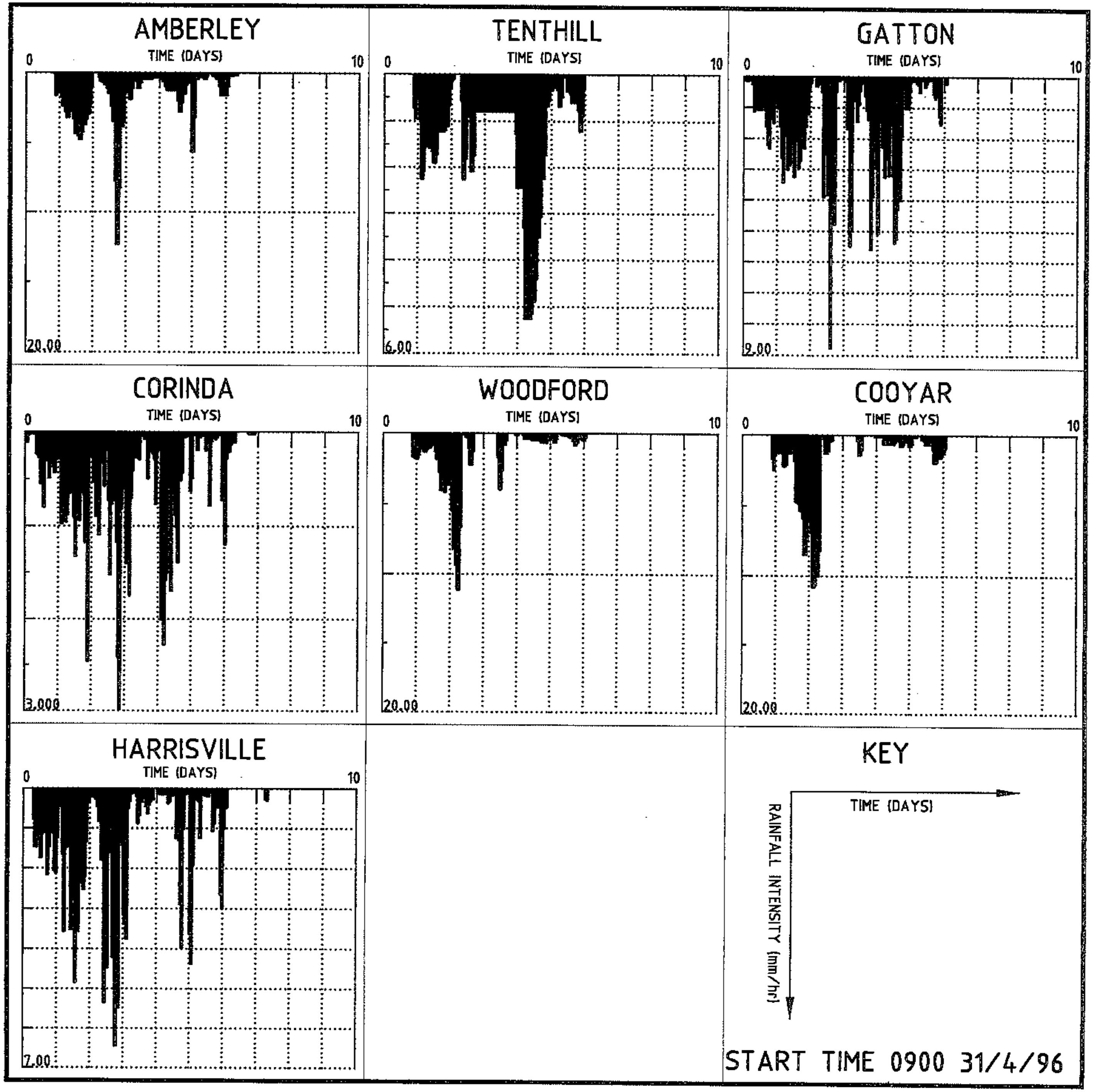
LEGEND

◆ 70 RAINFALL (mm)

0 10 20 30 40 50 km

DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 10-3-97

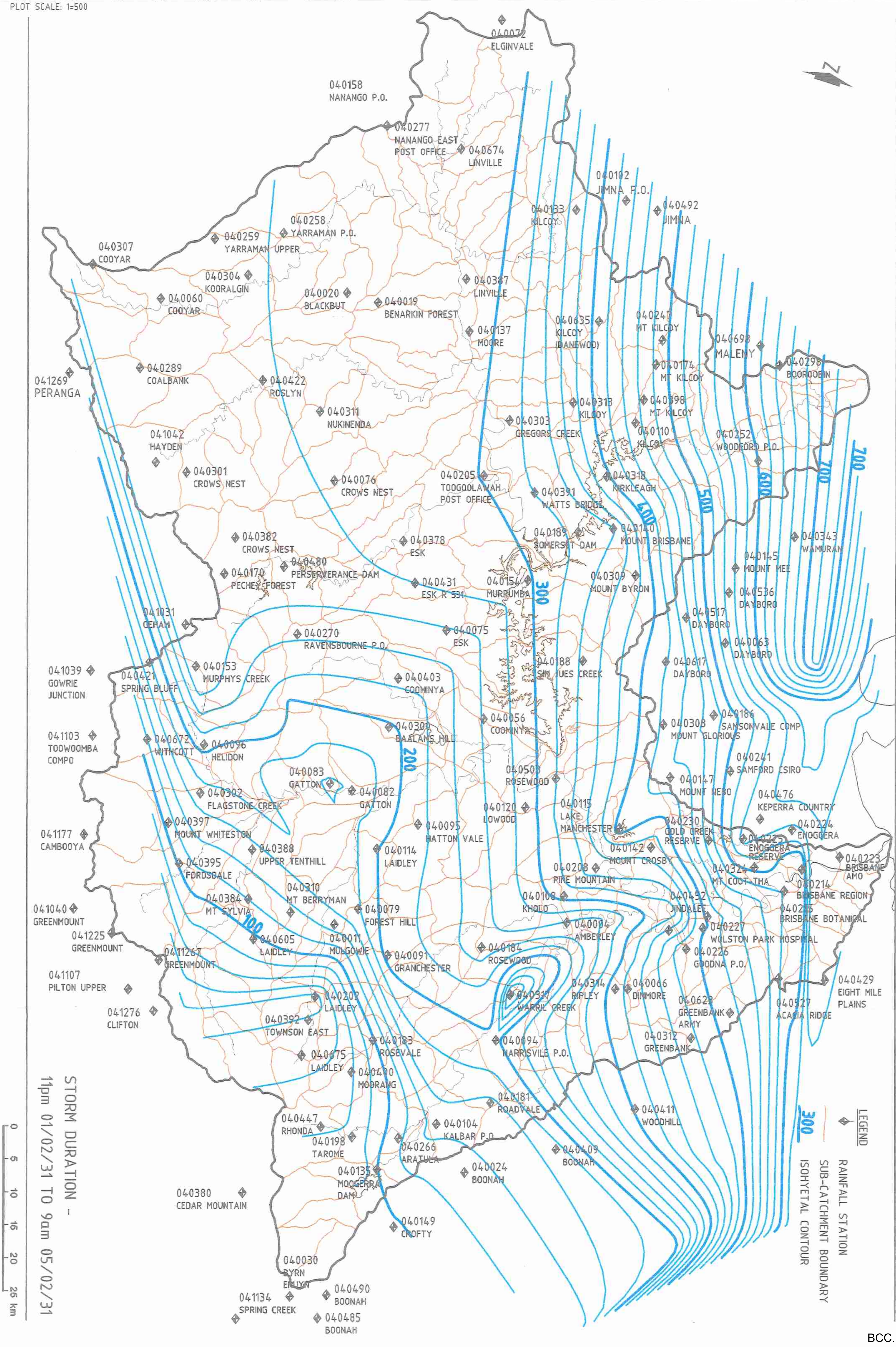
FILE NAME: 04157-15 SCALE:



SINCLAIR KNIGHT MERZ

FIGURE 5.14
BRISBANE RIVER FLOOD STUDY
REPRESENTATIVE PLUVIOGRAPHS
- MAY 1996 STORM

FILE 0415 DIS D:\D' ISBA T004' D 29-7-
PLOT SCALE: 1=500



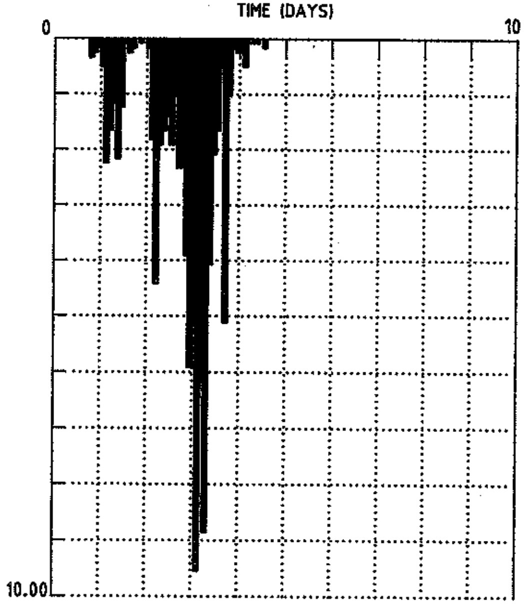
SINCLAIR KNIGHT MERZ

FIGURE 5-15
BRISBANE RIVER FLOOD STUDY
ISOHYETAL MAP - FEBRUARY 1931 STORM

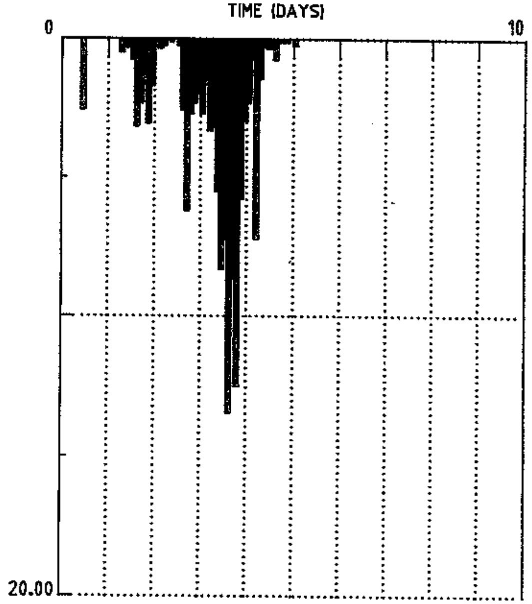
BCC.121.0487

FILE NAME: 04157-56 DISK N°: D:\DWG\BRISB... N°: T004157 DATE: 21/8/97
PLOT SCALE: 1-60

*STANLEY RIVER AT SOMERSET DAM

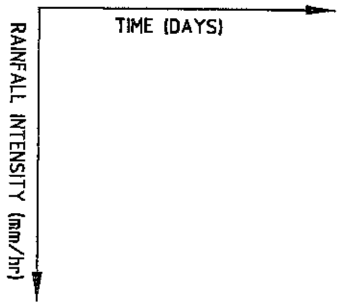


BRISBANE RIVER AT PORT OFFICE



* NOTE: PORT OFFICE PLUVIOGRAPH PATTERN BROUGHT FORWARD HALF A DAY

KEY



START TIME 2100 01/02/31

SINCLAIR KNIGHT MERZ

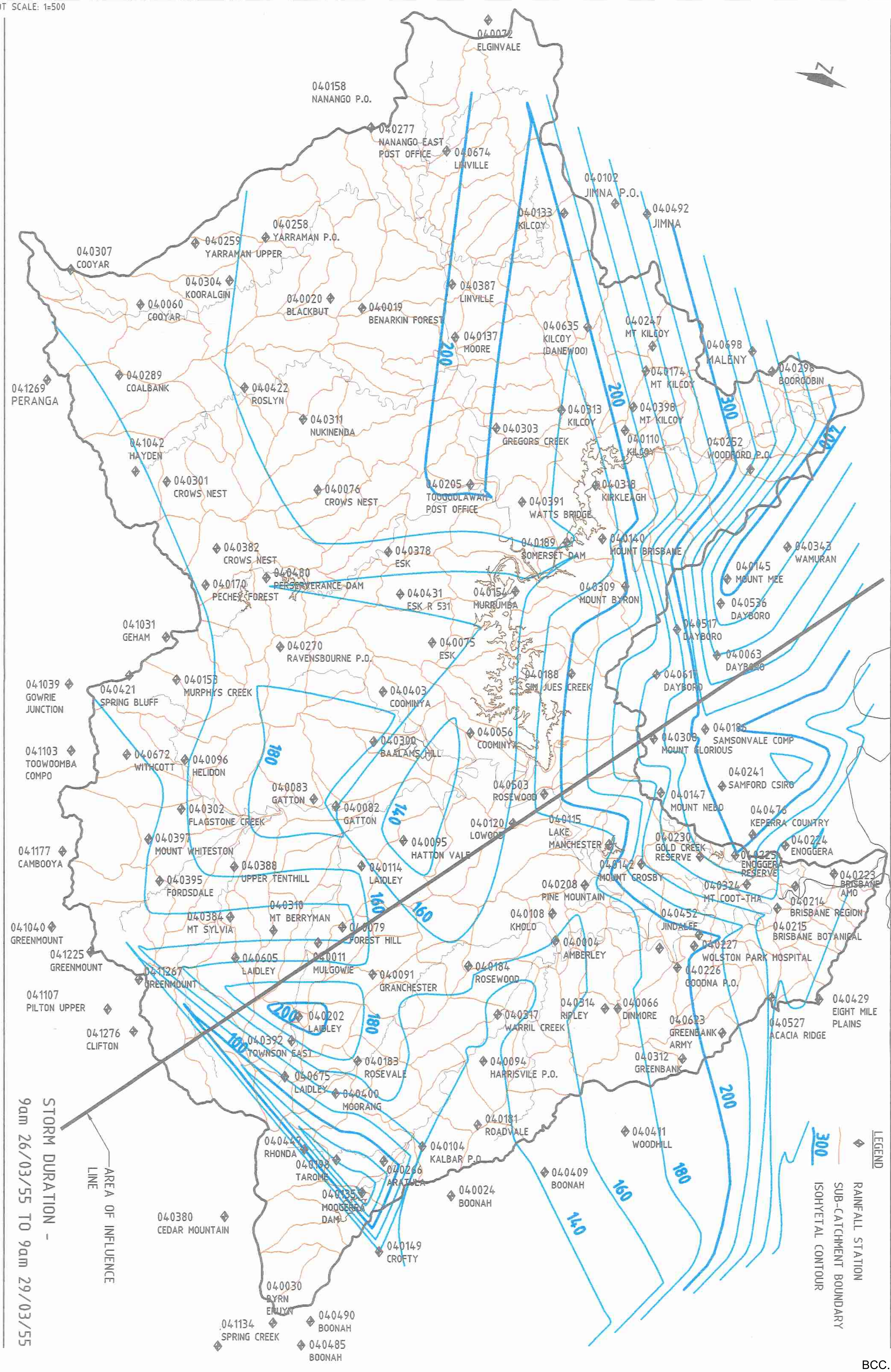
FIGURE 5-16
BRISBANE RIVER FLOOD STUDY
REPRESENTATIVE PLUVIOGRAPHS
- FEBRUARY 1931 STORM

BCC.121.0488

FIGURE 5-17

BRISBANE RIVER FLOOD STUDY
ISOHYETAL MAP - MARCH 1955 STORM

SINCLAIR KNIGHT MERZ



STORM DURATION -
9am 26/03/55 TO 9am 29/03/55

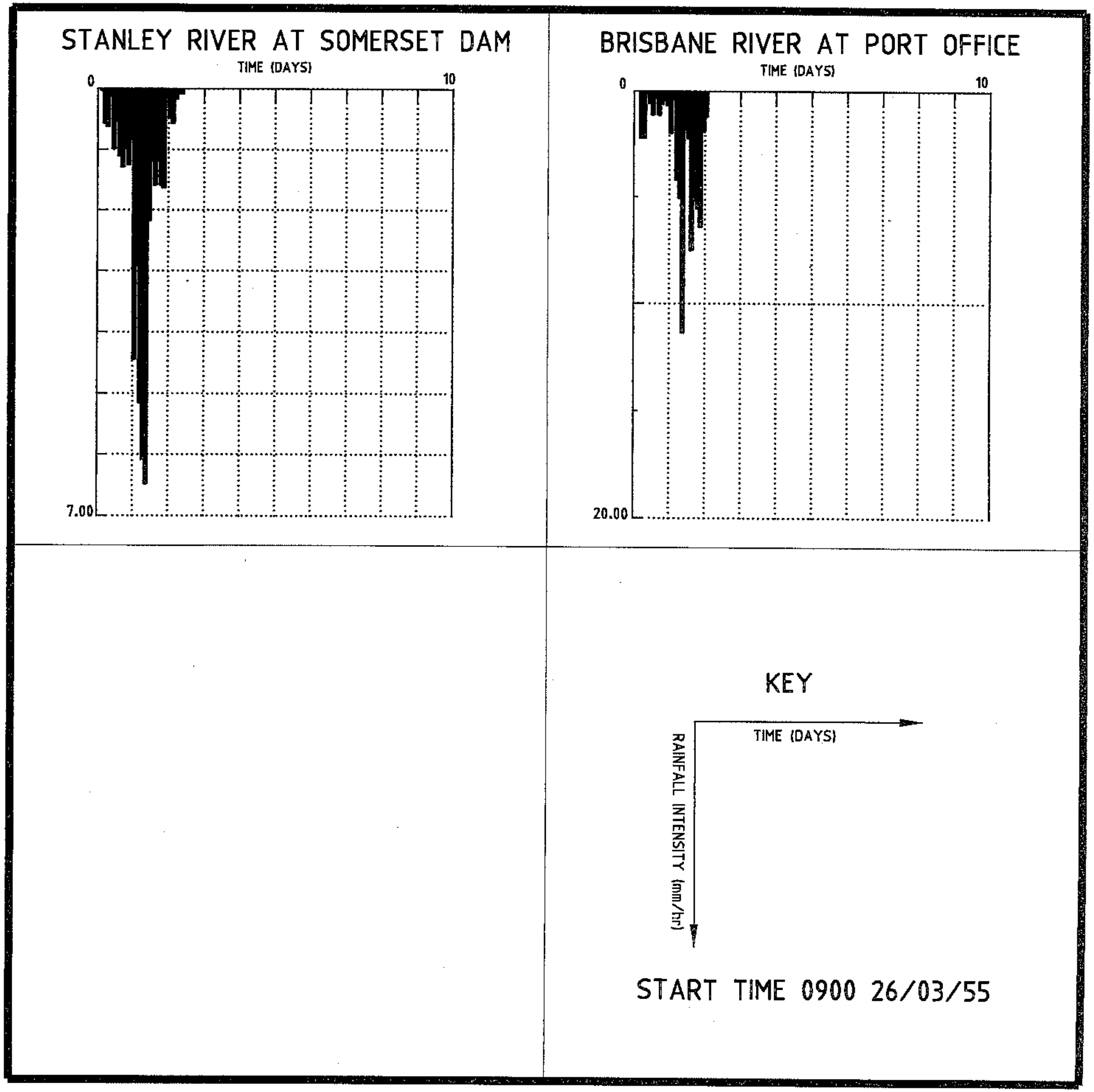
LEGEND

◈ RAINFALL STATION

SUB-CATCHMENT BOUNDARY

300 ISOHYETAL CONTOUR

FILE NAME: 04157-56 DISK N°: D:\DWG\BRISB... N°: T00/157 DATE: 21/8/97
PLOT SCALE: 1=80



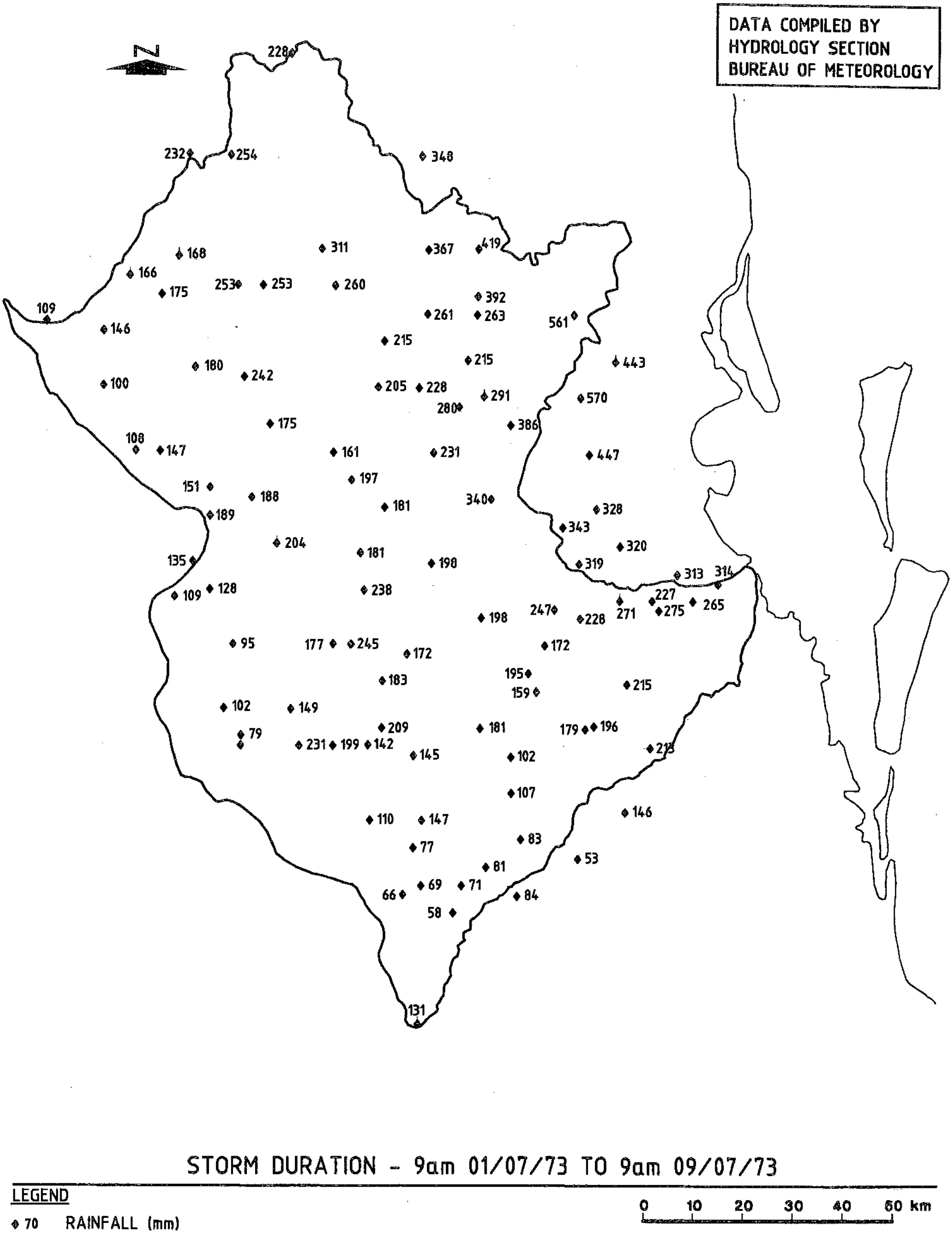
SINCLAIR KNIGHT MERZ

FIGURE 5-18
BRISBANE RIVER FLOOD STUDY
REPRESENTATIVE PLUVIOGRAPHS
- MARCH 1955 STORM

FIGURE 5-19

BRISBANE RIVER FLOOD STUDY
RAINFALL DISTRIBUTION
- JULY 1973 STORM

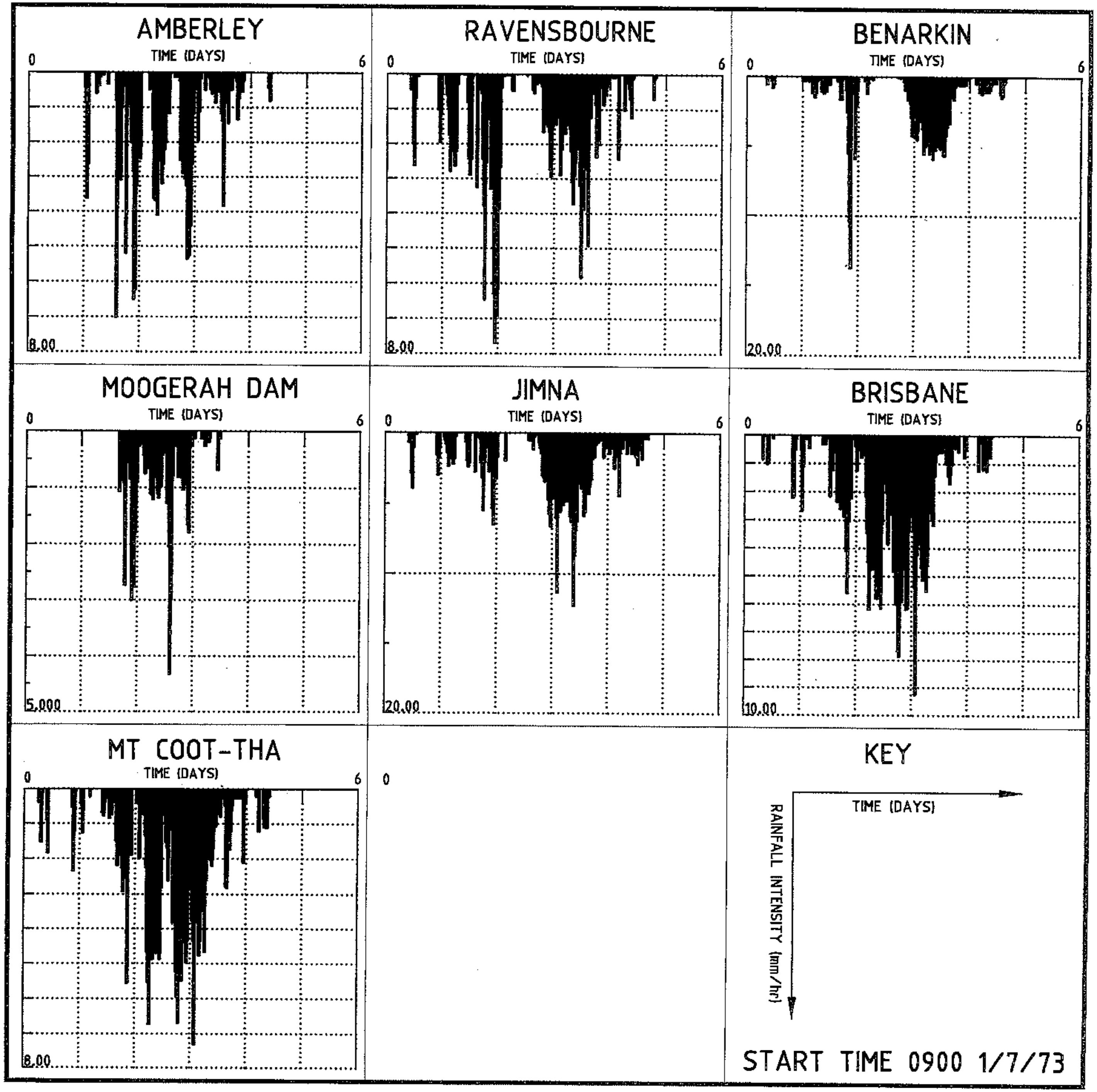
SINCLAIR KNIGHT MERZ



FILE NAME: 04157-17 DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 10-3-97
PLOT SCALE: 1:1000

BCC.121.0491

FILE NAME: 04157-18 DISK N°: D:\DWG\BRISB JOB N°: T004157 DATE: 14/3/97
PLOT SCALE: 1:..



SINCLAIR KNIGHT MERZ

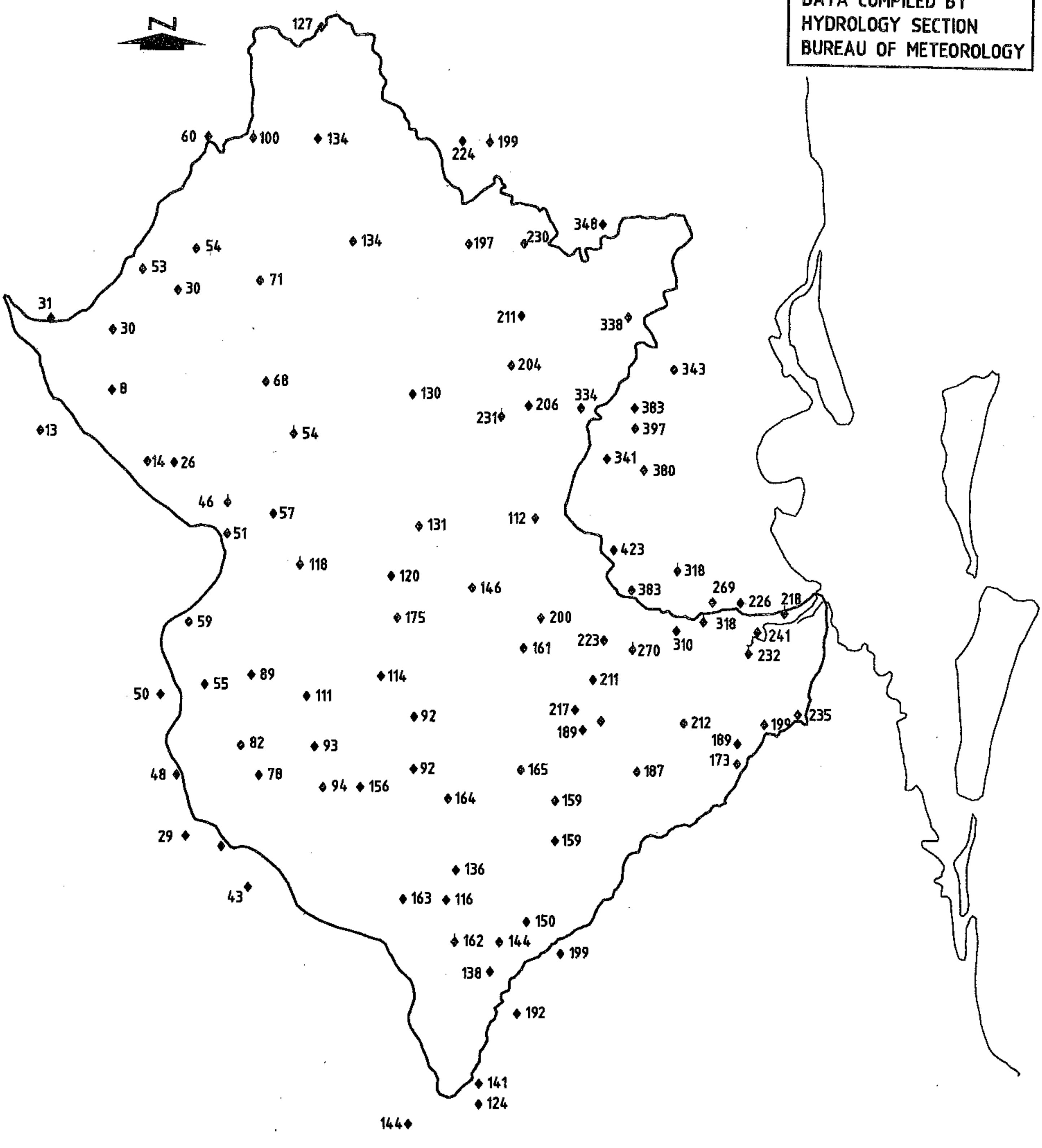
FIGURE 5-20
BRISBANE RIVER FLOOD STUDY
REPRESENTATIVE PLUVIOGRAPHS
- JULY 1973 STORM

BCC.121.0492

SINCLAIR KNIGHT MERZ

FIGURE 5-21
BRISBANE RIVER FLOOD STUDY RAINFALL DISTRIBUTION - EARLY APRIL 1989 STORM

DATA COMPILED BY
HYDROLOGY SECTION
BUREAU OF METEOROLOGY



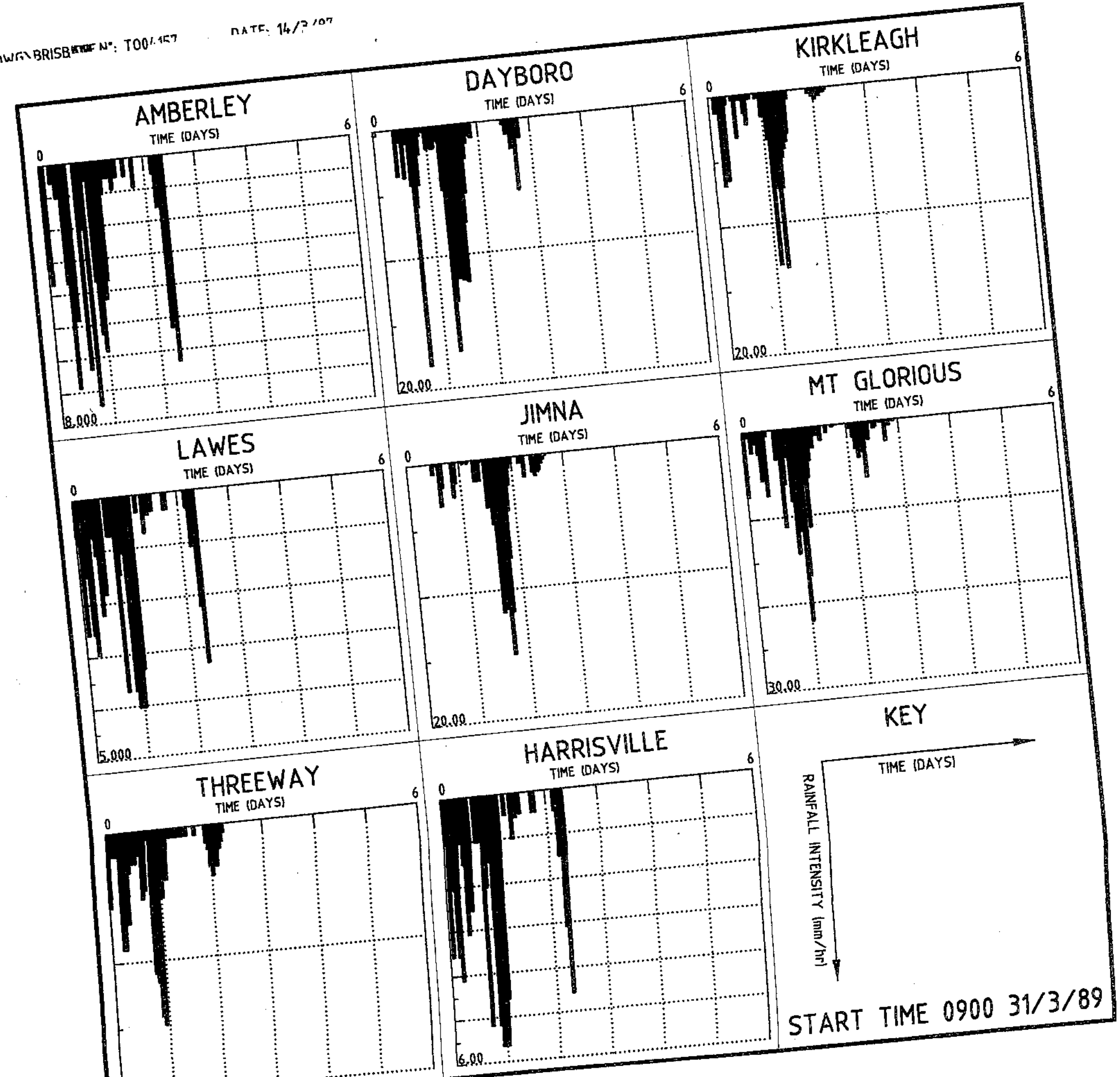
STORM DURATION - 9am 31/03/89 TO 9am 04/04/89

LEGEND

◆ 70 RAINFALL (mm)

FILE NAME: 04157-19 DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 10-3-97
PLATE

FILE NAME: 04157-20 DISK N°: D:\DWG\BRISB JOB N°: T004157 DATE: 14/3/97



SINCLAIR KNIGHT MERZ

FIGURE 5-2

BRISBANE RIVER FLOOD STUDY
REPRESENTATIVE PLUVIOGRAPHS
- EARLY APRIL 1989 STORM

BCC.121.0494

6. Hydraulic Model

6. Hydraulic Model

6.1 Overview

The overall purpose of any hydraulic modelling is to describe the movement or behaviour of floods as they pass through the channel system and associated floodplains. Flood levels, extent of inundation and flow velocities at various locations along the study reach are computed in the process.

In order for the model results to be reliable, it is necessary to calibrate and verify the hydraulic model. The calibration process involves the matching of calculated levels with recorded levels for as many recorded events as possible. Characteristics such as channel roughness parameters and appropriate model schematisation are derived in the calibration process.

The next major step after calibrating the model is to test or verify the model by using the model parameters derived during the calibration phase. This process is necessary in order to ensure that the model accurately describes the hydraulic behaviour of the channel system both for recorded events as well as for design events.

The one-dimensional hydrodynamic model, MIKE 11 developed by the Danish Hydraulic Institute was selected for the hydraulic analysis. HEC-RAS, the industry standard steady-state one-dimensional model was used to check the hydraulic behaviour of major structures located along the river in the study area.

This section of the report describes the hydraulic modelling of the Brisbane River system with respect to the calibration and verification processes.

6.2 MIKE 11 Model Description

The MIKE 11 hydrodynamic model was developed by the Danish Hydraulic Institute and it is a one-dimensional unsteady-state model used to simulate flows in channels of various configurations.

The model is based on an implicit finite-difference approach and can be applied to looped networks and quasi two-dimensional flow simulations. The model is capable of simulating sub-critical as well as super-critical flow conditions through a numerical scheme which adapts according to local flow conditions.

Inputs to the model include discharge hydrographs at various inflow points, water level or discharge hydrographs at the downstream boundary of the model, cross-sectional data and channel roughness values.

6.3 HEC-RAS Model Description

HEC-RAS has been developed to predict water surface profiles for steady flow in natural or constructed channels. The computational procedure is based on the solution of the one dimensional energy equation with energy losses due to friction evaluated from Manning's equation. Effects of hydraulic structures such as bridges, culverts and weirs can be readily incorporated. For the purpose of this study, HEC-RAS has been used to check the performance of the MIKE 11 model at bridge structures.

6.4 Model Establishment

6.4.1 Brisbane River System Schematisation

Brisbane River was represented by one main branch in the MIKE 11 model which extends from the Western Inner Bar to the Brisbane City Council boundary which is located approximately 79 km upstream.

Additional branches located at the confluences of the Bremer River, Oxley Creek , Enoggera Creek and Bulimba Creek were included in the model to allow major inflows and storages from these tributaries to be taken into account. Storages associated with smaller tributaries were not considered to be significant and therefore were not included in the model.

This was considered to be a reasonable representation as peak inflows from major tributaries within the hydraulic model reach occur well before peak inflows from the upper Brisbane River catchment (ie. upstream of the Brisbane City Boundary). This allowed floodwater to be backed up into each tributary and provided a simulated storage at each confluence. Model branches and major confluence locations are shown in **Figure 6-1a to 6-1g - MIKE 11 Model Structure**.

Surveyed data provided by Brisbane City Council was used to describe the cross-sectional geometry of the Brisbane River system in the model. The geometry of the adjoining tributaries consisted of Brisbane River survey data (connection to Brisbane River) and derived levels from topographical information for the upstream cross sections. Locations of the cross-sections used in the model are shown in **Figure 6-1a to 6-1g - MIKE 11 Model Structure.** A total of 197 cross-sections were used to represent the geometry of the Brisbane River system and a further 8 cross sections for the four adjoining tributaries being modelled.

6.4.2 Boundary Conditions

Discharge hydrographs simulated by the hydrologic model, RAFTS, for the various recorded events were used as boundary conditions at the upstream ends of the hydraulic model and 4 intermediate locations representing sub-catchment inflows along the creeks. These locations are illustrated on **Figure 6-1a to 6-1g - MIKE 11 Model Structure.**

Recorded water levels in the Brisbane River at the Western Inner Bar were used as the downstream boundary conditions for the events being modelled.

6.4.3 Hydraulic Structures

A total of 8 waterway crossings are located within the Brisbane River study area as shown in **Figure 6-1a to 6-1g - MIKE 11 Model Structure.** Geometry and hydraulic capacity vary considerably between crossings, but they can all be grouped into bridge structure types.

Bridge Structures consist of a road decking supported by piers. This type of structure has the highest capacity to accommodate flood discharges without overtopping. Changes to waterway geometry are usually minor compared to other structures such as culverts, except for the piers and encroachment of the creek by the bridge abutments.

Two types of flow regimes were allowed for in the hydraulic modelling of waterway structures:

Weir Type Flow is the flow over a crest such as a road or top of a pipeline. This occurs when the roadway is overtopped and may be either free flow (low downstream water levels causing critical flow conditions at the structure) or submerged flow (high downstream water levels `drowning' out the weir flow). The weirs for this study were modelled within a separate link branch. This allowed weir flow to be estimated at each bridge structure.

Culvert Type Flow is the flow through a culvert opening. The hydraulics of culvert flow are dependent on factors such as downstream submergence, culvert dimensions and geometry, friction effects and whether the culvert is flowing partially full or is pressurised.

The modelling approach for each bridge structure was a combination of culvert and weir flow. Flows below the bridge deck were assumed to approximate a culvert type regime.

A relationship between water level and available waterway width was developed from cross sectional information. Reductions in waterway area due to piers and bridge skewness were taken into account. The level-width curve was then input into MIKE 11.

This approach was applied to flows below the bridge deck. For overtopping conditions, the road crest geometry was specified directly into MIKE 11 and modelled as a broad crested weir.

A brief description of each structure is provided below.

1. Centenary Bridge - A multi span structure consisting of a constant deck depth with 6 piers and abutments encroaching within the waterway area. During the 1974 flood event a barge was sunk immediately upstream of the bridge to avoid bridge damage occurring. This may have caused a reduction of the conveyance through the waterway.

2. Indooroopilly Bridge - There are three bridges in this location these being the Walter Taylor Bridge and two Indooroopilly Rail Bridges. For modelling purposes these three bridges were combined and assumed to be a composite structure. Anecdotal evidence suggests that the combination of these three structures reduce the waterway area and cause a choking effect.

3. The Merivale Bridge - This rail bridge was constructed after the 1974 flood event. It has been included for all events occurring after 1974.

4. William Jolly Bridge - This bridge is situated approximately 250 m downstream of the Merivale bridge. The bridge is a multi span bridge with arched chords joining the piers at low levels. It is considered that these arched chords may cause some minor afflux to occur due to the reduction in waterway area.

5. Victoria Bridge - The Victoria Bridge is located approximately 700 m downstream of the William Jolly Bridge. The bridge is a solid arch bridge which reduces the waterway area considerably at higher flood levels.

6. Captain Cook Bridge - This bridge is similar to the Victoria Bridge however the reduction in waterway area is less due to the flat arch shape of the deck.

7. Story Bridge - The deck level of the Story Bridge is such that weir flow is unlikely for most floods. Any restriction of flow is due to the piers and abutments only, hence major affluxes at this location are not expected.

8. Gateway Bridge - This bridge was not included in the model as the deck is suspended at a very high level. The effect of the piers on afflux was considered to be negligible due to the extent of waterway area at this location.

A list of the modelled structures and how they were represented in MIKE 11 are presented in **Table 6-1 - List of Hydraulic Structures**.

Table 6-1 - List of Hydraulic Structures

No	Structure Location	Chainage (km)	Structure Description	Modelled in MIKE 11 as:
1	Centenary Highway	1028.720	Major Public Bridge	Irregular culvert + weir
2	Indooroopilly Bridges	1037.110	Major Public Bridge	Irregular culvert + weir
3	Merivale Bridge	1052.37	Major Public Bridge	Irregular culvert + weir
4	William Jolly Bridge	1052.625	Major Public Bridge	Irregular culvert + weir
5	Victoria Bridge	1053.355	Major Public Bridge	Irregular culvert + weir
6	Captain Cook Bridge	1054.660	Major Public Bridge	Irregular culvert + weir
7	Story Bridge	1056.920	Major Public Bridge	Irregular culvert + weir

6.5 MIKE 11 Model Calibration

6.5.1 General

Model calibration involves the selection of appropriate model schematisation and model parameters in order to match simulated and recorded water levels and discharges. This involves an iterative process and the careful selection of roughness parameters which reflect channel and floodplain conditions and an accurate description of flow movement.

Channel roughness values (Manning's `n') selected were primarily based on site visits, examination of aerial photographs and past experience from other flood studies. These were modified in some cases to reflect the hydraulic behaviour of the flood, (such as a change in vegetation or the presence of a sharp bend), as it moved downstream in order to achieve a reasonable match between recorded and predicted flood levels.

Four recorded events covering a variable range of floods, with rainfall and water level data were used to calibrate the hydraulic model. These flood events were;

- 24 January 1974
- 01 May 1996
- 23 April 1989
- 20 June 1983

The calibration events can be classified into a large flood event (1974) and small flood events (1983, 1989, and 1996). The peak discharge of the 1974 flood event was approximately 10 000 m^3/s, while the other events discharges range from 1 500 m^3/s to 3 000 m^3/s. Unfortunately no historical records for mid range flood events were available at the time of calibration.

Adopted Manning's 'n' values used in the hydraulic model are shown in **Figure 6-2 - Hydraulic Model Channel Roughness & Relative Resistance Values.** From **Figure 6-2** it can be seen that two sets of Manning's 'n' data were required to achieve a good calibration. The higher set of Manning's 'n' values were required to match the predicted water levels to the recorded water levels for the 1974 flood. Since MIKE 11 does not directly allow for bend losses, Manning's 'n' values had to be increased at bends to account for these losses. Furthermore, the predicted velocities in the 1974 flood were double that of the smaller events, hence increasing bend losses further. To account for the greater bend losses, the Manning's 'n' values had to be increased for the calibration of the 1974 flood event. Further discussion of the adopted Manning's 'n' values is provided later in this report.

Initial roughness estimates were based on site inspection and refined during the calibration process to achieve a best fit across the range of the four calibration events analysed.

Generally, the upper reach of the Brisbane River from MIKE 11 model chainage 1 000 km to 1 040 km consists of mainly open grassed and treed floodplains with severe meanders at various locations. Residential properties are located at various intervals and levels along this reach. These residential properties could be described as being in low density areas.

From chainage 1 040 km to 1 070 km a reach could be described as medium to high density residential areas which include the inner city area. The general shape of the river could be described as severely meandering.

The lower reach of the Brisbane River from 1 070 km to 1 078.66 km is relatively uniform with no major bends. Industry and residential properties line the banks along with mangrove swamps close to the river outlet.

Generally the overall river bed profile could be described as irregular which is probably due to dredging. This form roughness may cause a slight increase to the expected Manning's 'n' values.

The floodplain roughnesses varied significantly along the extent of the Brisbane River. Generally, the Manning's 'n' values varied from 0.025 at the Inner Bar, 0.035 for open grassed floodplains, 0.075 for treed floodplains to 0.47 for complete flow retardation in the inner city area.

Hydrographs exported from the RAFTS model were used as direct inputs into the MIKE 11 model.

Downstream boundary conditions (tailwater) were based on available data for the Brisbane River. Continuous data from the Bureau of Meteorology was used to set tailwater levels. This allowed tidal influences to be included in the modelling however the quality of the data for the late April 1989 and the May 1996 flood events was considered to be poor and water levels had to be derived to complete each of these data sets.

Each of the floods selected for calibration purposes was simulated using the MIKE 11 model. A comparison of recorded and computed flood levels at the gauge and spot level locations is tabulated in **Appendix C - MIKE 11 Model Results - Calibration/Verification (Table C-1 - Predicted & Recorded Flood Levels for Calibration and Verification Events)**. Corresponding discharges are presented in **Table C-2 Predicted Discharges for Calibration/Verification Events**. Longitudinal profiles of peak flood levels for the calibration events are also presented in **Appendix C as Figures C-1a to C1i - Flood Calibration Profiles** and **Drawings W10581 - Sheets 01 to 09.**

6.5.2 January 1974 Flood Event

The January 1974 flood event was the largest flood that has occurred in the Brisbane River in recent times. This event was considered to be the primary calibration event because a large amount of recorded flood level information was available.

At the time of this flood Wivenhoe Dam had not been constructed and this enabled good calibration of the discharge hydrographs to be achieved.

For this calibration the Merivale Bridge was not included in the model as it was not constructed until 1975.

Due to extensive dredging in the river system it was appropriate to compare surveyed cross sections taken directly after the 1974 flood with surveyed cross sections taken in 1995. A number of cross sections were compared at various locations and although each set of the compared sections were not at an exact corresponding location, the general trend suggested that the river system previously had a lower bed level (up to 1.5 m). This was not expected to cause significant differences in flood levels because the additional volume due to the increase in depth would already be accounted for by the tidal prism.

The Manning's 'n' values were input at each cross section using preliminary values obtained from the site inspection. At bend locations these values were increased by a factor of 1.3 (Chow, 1973) to model the additional losses not accounted for in MIKE 11. These parameters were adjusted incrementally until a good calibration was obtained. On completion of this calibration event, generally predicted levels were within 0.1 m of continuous recorded levels and within 0.2 m recorded spot levels.

For continuous records the rise, peak and recession of the hydrographs generally provided a good match to the recorded levels. The recorded spot levels varied significantly depending on whether the level was taken on the outside or inside of a bend. The predicted levels outside the maximum allowable tolerance of 0.2 m were checked and in most cases were deemed to be likely to be due to superelevation at bends or incorrect recorded level information (see **Section 6.10** for further discussion). This was primarily decided by looking at surrounding levels and identifying any outliers in the recorded levels.

A comparison of recorded and predicted hydrographs is given in **Appendix C (Figure C-3a to C-3d - Predicted & Recorded Hydrograph Comparison - January 1974)**.

The Manning's 'n' values adopted for this calibration were considered to be slightly higher than expected. This was considered further during other calibration events.

6.5.3 May 1996 Flood Event

This event was considered to be a small event approximately 10 percent the size of the 1974 flood. Discharge hydrographs calculated by the RAFTS model were used as inflows at each inflow boundary and recorded level information was used as the downstream water level at the downstream boundary. For this event the Merivale Bridge was included in the MIKE 11 model.

Only two continuous recorded water level records and no spot level information were available for the 1996 flood. The continuous recorded water levels were available at Moggill gauging station and the Western Inner Bar. The primary objective of the calibration for this flood was to match the recorded water level at Moggill.

The Manning's 'n' values obtained from 1974 flood calibration were used for the model run where it was found that the predicted water level at Moggill was well above the recorded water levels. The difference in water levels was so great that the Bureau of Meteorology was contacted to check if a datum shift at the Moggill gauge had been overlooked. This was not the case and further investigations revealed the difference was due to lower bend losses caused by lower flow velocities for the smaller floods.

To check that reducing the Manning's 'n' value was a reasonable assumption a MIKE 11 model of one of the Brisbane River bends was set up and a bend loss for three Manning's 'n' values were determined. The three Manning's 'n' values used were;

- 0.07- Value adopted for the 1974 flood at bend.
- 0.05 - Value adopted for the 1996 flood at bend
- 0.035 - Value expected in channel if no bend was present.

The bend loss was considered to be the change in water level from the downstream exit of the bend to the upstream entrance to the bend.

These bend losses were recorded and the following equation was used and a comparison made to check the validity of the adopted roughness values.

Using the bend loss equation:

$$h_b = C_L.V^2/2.g$$

where

$$C_L = 2.b/r$$

and

b = width of flow at bend
r = radius of bend,

the estimated bend losses were calculated for the 1996 flood and the 1974 flood.

The results are presented in **Table 6-2 - Comparison of Bend Losses**.

Table 6-2 - Comparison of Bend Losses

Flood	b (m)	r (m)	C_L	V (m/s)	Calculated h_b (m)	MIKE 11 h_b (m)
1996	250	600	0.8	1.2	0.06	0.07
1974	700	600	2.3	1.8	0.39	0.38

It can be seen from **Table 6-2** that both the coefficient C_L and the velocity increase significantly at the bend for the larger flood. Since MIKE 11 cannot directly account for bend losses it was therefore necessary to reduce the Manning's 'n' value for the lesser flood to achieve a good calibration.

The rise of the recorded level hydrograph at Moggill matched reasonably well with the predicted rising limb calculated by MIKE 11. The predicted peak water level is however 0.28 m above and approximately 18 hours behind the recorded water level at this location. This was the best calibration that could be obtained within MIKE 11 given the RAFTS model calculated boundaries available.

It was therefore considered that the difference between the recorded and predicted levels was due to the predicted inflows at Moggill by the RAFTS model. As the RAFTS model has matched the recorded hydrograph at Moggill (refer **Table 5-11**), it appears that the rating curve at this site is in error in this flow range.

Appendix C (Figure C4 - Predicted & Recorded Hydrograph Comparison - May 1996) illustrates the match of hydrographs achieved.

6.5.4 Late April 1989 Flood Event

Hydrographs generated by the RAFTS model were used at each inflow location and the adopted Manning's 'n' values used for the 1996 calibration event were used for the calibration of this flood. The Merivale Bridge was also included in the MIKE 11 model for this calibration.

The only available flood level data was located at the Moggill gauge and the Western Inner Bar. As shown in **Table C-1** and **Figure C-5 - Predicted & Recorded Hydrograph Comparison - Late April 1989**, the magnitude of the predicted peak flood level was 0.25 m lower than the peak recorded flood level at Moggill.

This flood event included a large component of Wivenhoe Dam outflows which is evident in **Figure B-3b**. It can be seen from this figure that the tail of the hydrograph remains constant for a period of 8 days and that the variation between the recorded and the RAFTS predicted hydrograph is significant. These variations imply that the direct inflow from Wivenhoe Dam input into the RAFTS model does not represent discharges from the dam. The discrepancy in predicted water level determined in MIKE 11 could probably be explained by the predicted discharge hydrograph calculated by the RAFTS model which is heavily influenced by Wivenhoe Dam flows.

6.5.5 June 1983 Flood Event

The Manning's 'n' values adopted for the smaller flood events was again used to calibrate the 1983 flood. Wivenhoe Dam had been constructed and the Merivale Bridge was also included in the model.

Table C-1 and Figure C-6 - Predicted & Recorded Hydrograph Comparison show a good match between MIKE 11 peak predicted levels and levels recorded by the gauge at Moggill. The only recorded level information for this event was located at Moggill and the Western Inner Bar.

The comparison of predicted and recorded hydrographs illustrates that the rising limb of the water level hydrograph matches well with the MIKE 11 predicted rising limb. The peaks occur at virtually the same time and match to within 0.01 m. The recession of the predicted level hydrograph is however well above the recorded levels and this again questions the sensitivity of the Wivenhoe outflow gauging station to dam water levels and release strategies.

6.6 MIKE 11 Model Verification

6.6.1 General

Verification of the hydraulic model was the next phase in the modelling process after calibration. The model was tested by simulating other recorded flood events which were not used to calibrate the model without adjusting model specific parameters. This was done to determine the overall performance and robustness of the model in simulating a range of flood events.

The Brisbane River hydraulic model was verified using the hydraulic parameters derived from the calibration process to simulate the following events;

- February 1931
- March 1955
- 01 April 1989
- 04 July 1973.

The 1989 and 1973 events were considered to be small events and the Manning's 'n' values adopted for the calibration of the small events were used for the verification.

The model verification for the 1931 and 1955 flood events was carried out using the calibrated parameters used for the 1974 flood event. These parameters were considered to be the most appropriate as flood waters would be well out of the river proper similar to the 1974 event. It was therefore assumed that bend losses and Manning's n roughnesses would also be similar.

All existing structures detailed in **Table 6-1 - List of Hydraulic Structures** were included in the hydraulic model for the 1989 flood verification event however the Merivale Bridge was removed for the 1973 verification event.

The absence of some structures during the 1931 and 1955 flood events required that the MIKE 11 model be modified. The only structure that was constructed for the 1931 event was the William Jolly Bridge and for the 1955 flood event the in place structures were Indooroopilly Bridge, William Jolly Bridge, Victoria Bridge and the Story Bridge. The MIKE 11 model was adjusted accordingly for each event to account for the absence of the relevant structures.

Model boundaries at Brisbane River for the verification events consisted of RAFTS discharge hydrographs for model inflows and recorded water levels for the tailwater level at the Western Inner Bar.

Recorded and predicted verification flood levels at various locations are tabulated in **Appendix C - MIKE 11 Model Results - Calibration/ Verification**. Longitudinal flood level profiles are also included as **Sheets C.10 to C.18**. A comparison of recorded and computed flood levels at the gauge and spot level locations is tabulated in **Appendix C - MIKE 11 Model Results - Calibration/Verification (Table C-1 - Predicted & Recorded Flood Levels for Calibration and Verification Events)**. Corresponding discharges are presented in **Table C-2 - Predicted Discharges for Calibration/Verification Events**. Longitudinal profiles for the Verification Events are also presented in **Appendix C as Figures C-2a to C-2i - Flood Verification Profiles** and **Drawings W10581 - Sheets 10 to 18.**

6.6.2 February 1931

The February 1931 flood was the second largest recorded flood event used for any of the verification or calibration events.

Calculated hydrographs for this event from the RAFTS model were input into the MIKE 11 model and predicted water levels were computed. The adopted tailwater level at the Western Inner Bar for this event was 1.5 m AHD which was considered to be reasonable. This tailwater level assumes a 2 year ARI storm surge in Moreton Bay (Mallon TD, 1987). Using this tailwater level the predicted water levels are generally within 150 mm which was considered to be a good result given the age of the basic data.

Predicted water levels above the Indooroopilly Bridge are generally within 300 mm below the recorded flood levels however the reliability of these recorded levels are in question due to annotations on recorded flood level maps. These annotations indicate that some form of extrapolation may have been carried out and hence the reliability of this information is questionable.

Time series level data was not available for this event and therefore a hydrograph comparison could not be conducted however **Table C-1 - Predicted & Recorded Flood Levels for Calibration and Verification Events** presents a comparison between recorded peak flood levels and predicted values.

6.6.3 March 1955

The March 1955 flood was the third largest recorded flood event used for the verification or calibration events in this study.

Calculated hydrographs for this event from the RAFTS model were input into the MIKE 11 model and predicted water levels were computed. The adopted tailwater level at the Western Inner Bar for this event was 1.3 m AHD which was considered to be reasonable as this level was below the 1 year ARI storm surge level for Moreton Bay (Mallon TD, 1987). Using this tailwater level the water levels are generally within 150 mm which was considered to be a good result.

Flood Profiles for the 1955 event are presented in **Appendix C (Figures C-7 - Predicted & Recorded Hydrograph comparison - March 1955)**.

6.6.4 Early April 1989

The April 1989 flood was the smallest flood used for any of the verification or calibration events.

Calculated hydrographs for this event using the RAFTS model were input to the MIKE 11 model. Computed water levels are summarised in **Table C-1** and indicate a poor level of model performance. Predicted levels were 0.97 m above the recorded level at Moggill. This difference can be attributed to the over estimation of the discharge hydrograph (see **Figure B-8C**) determined by RAFTS at Moggill. This is again probably due to the use of the Wivenhoe Dam recorded outflow as input to the RAFTS model. A comparison between recorded and predicted hydrographs is presented in **Figure C-8 - Predicted and Recorded Hydrograph Comparison - Early April 1989.**

6.6.5 July 1973

The July 1973 event was again classed in the small flood category however a reasonable amount of flood level information was available for the event.

Figure C-9 - Predicted & Recorded Hydrograph Comparison and **Table C-1** illustrates that a level of model performance similar to the calibration process was achieved with this event. Recorded flood levels were matched to within the tolerances specified except for two locations where the maximum difference between recorded and predicted was +0.16 m at Cairncross Dock and 0.2 m at the Port Office Gauge.

6.7 Hydrologic and Hydraulic Model Consistency

Due to the absence of stream gauging data on the Brisbane River, direct comparisons between historical hydrographs and calculated RAFTS and MIKE 11 hydrographs could not be made. To ensure consistency between the hydrologic and hydraulic models direct comparisons of the calculated hydrographs from each model were made at three locations along the creek, these being Moggill, Centenary Bridge and the Port Office.

These comparisons are illustrated in the following figures:

- **Figure 6-3 - Hydrologic and Hydraulic Model Consistency - January 1974**
- **Figure 6-4 - Hydrologic and Hydraulic Model Consistency - June 1983**
- **Figure 6-5 - Hydrologic and Hydraulic Model Consistency - Late April 1989**
- **Figure 6-6 - Hydrologic and Hydraulic Model Consistency - May 1996**

- **Figure 6-7 - Hydrologic and Hydraulic Model Consistency - February 1931**
- **Figure 6-8 - Hydrologic and Hydraulic Model Consistency - March 1955**
- **Figure 6-9 - Hydrologic and Hydraulic Model Consistency - July 1973**
- **Figure 6-10 - Hydrologic and Hydraulic Model Consistency - Early April 1989.**

Figures 6-3 to **6-10** represent the calculated hydrographs from both models at the three locations along Brisbane River.

Figures 6-3 to **6-10** illustrate that a general consistency between the models has been attained. The variation in peak discharges is generally within ±10% and the timing of the peak is reasonably accurate.

6.8 HEC-RAS Check of Major River Crossings

A total of seven HEC-RAS models were set up for the major structures in the Brisbane River Study area. The location of these structures are listed in **Table 6-1 - List of Hydraulic Structures**.

Each of these HEC-RAS models provide an accurate estimate of headloss through the structure and includes factors such as pier shape and geometry. These models were used to check the MIKE 11 approach to modelling structures, using the following methodology.

- The MIKE 11 model was run for two of the calibration events. Water levels upstream and downstream of the structure and flow discharges were output at the peak of the hydrograph.

- The HEC-RAS model was run using these flow and tailwater conditions. The water levels upstream of the bridge estimated by HEC-RAS were compared against MIKE 11 predictions to check if there was a reasonable match between predicted affluxes.

The results of the HEC-RAS structure afflux check are given in **Table 6-3 - HEC-RAS Check of MIKE 11 on Headloss through Major Structures**. These results illustrates that all of the model comparisons achieved a match to within ±0.12 m.

Table 6-3 - HEC-RAS Check of MIKE 11 on Headloss Through Major Structures

Structure ID	1974 Afflux			1983 Afflux		
Bridge	Mike 11	HEC-RAS	Difference (m)	Mike 11	HEC-RAS	Difference (m)
Centenary	0.15	0.06	-0.07	0.05	0.01	-0.04
Indooroopilly	0.10	0.10	-0.00	0.01	0.02	+0.01
Merivale	-	-	-	0.03	0.01	+0.02
William Jolly	0.54	0.61	+0.07	0.01	0.07	+0.06
Victoria	0.19	0.07	+0.12	0.01	0.02	0.01
Captain Cook	0.08	0.10	+0.02	0.01	0.01	+0.00
Story	0.11	0.04	-0.07	0.03	0.00	-0.03

This match was considered reasonable given the significant differences in the analytical techniques used by MIKE 11 and HEC-RAS. The major model differences that contribute to the variation in headloss through the structures are:

- An irregular waterway shape can be specified in MIKE 11 which is useful in modelling bridges spanning natural creeks. By comparison, HEC-RAS simplifies the waterway shape as a trapezoid which will introduce a water level difference at flows below the bridge deck.

- Both models assume critical conditions over the bridge deck. However there are considerable differences between the methods employed to determine energy head loss in critical flow. HEC-RAS adopts a standard broad crested weir relationship using an effective weir length (ie assumes MIKE 11 rectangular flow area). MIKE 11 uses the critical flow area over the roadway (ie assumes a variable flow area). The MIKE 11 methodology is considered to be a better technique, especially for overtopping of roads that have a complicated longitudinal profile.

The performance of the MIKE 11 model to match recorded flood levels (where available) in the vicinity of structures and the consistency of MIKE 11 and HEC-RAS results indicates that the MIKE 11 model is adequately reproducing structure hydraulics.

6.9 MIKE 11 Model Performance

Performance of the hydraulic model over the range of calibration events is considered to be reasonable. The brief specified acceptable calibration as matching predicted levels to recorded levels to within the following ranges:

- Continuous records, 0.10 m

- MHI records, 0.15 m

- Other flood levels, 0.20 m.

A summary of the performance of the MIKE 11 model is given in **Table 6-4 - Hydraulic Model Performance Summary** as mean absolute water level differences over the selected calibrated and verification floods. Considering the contents of **Table 6-4** the model generally meets accuracy requirements. Some non-conformances are evident and these were discussed in Section 6.5. These results were achieved on the basis of:

- Maintaining realistic channel roughness and variation of roughness along the length of the river. These roughness factors are representative of the current creek configuration, however an adjustment had to be made to reduce the roughness values for smaller flood events, due to reduced bend losses.

- The verification events for the 1931 and 1955 flood events generally showed good correlation with recorded flood levels given the changes to the river system over time (ie. dredging).

- Satisfactory checks were performed on the hydraulics of the major structures as described in Sections 6.8.

Table 6-4 - Hydraulic Model Performance Summary

Gauge ID	MIKE 11 Chainage (km)	Water Level Difference (m)								Mean Absolute Difference (m)
		Calibration Events				Verification Events				
		1974	1996	1989b	1983	1931	1955	1989a	1973	
Moggill	1006.30	-0.04	0.28	-0.25	0.01	-	-	0.97	0.02	0.26
Goodna Hos	1014.61	-0.02	-	-	-	-	-	-	-0.03	0.03
Mt Ommaney	1026.68	0.00	-	-	-	-	-	-		0.00
Darra Wharf	1031.70	-0.10	-	-	-	-	-	-	-0.06	0.08
Sherwood	1034.89	-0.12	-	-	-	-	-	-	-	0.12
Clarence Rd	1037.29	-0.09	-	-	-	-	-	-	-	0.09
Oxley Ck	1039.57	0.10	-	-	-	-	-	-	-	0.10
King Arthur Tce	1040.09	-0.01	-	-	-	-	-	-	-	0.01
Tennyson PH	1041.46	-0.04	-	-	-	-	-	-	0.04	0.04
Yeronga St	1042.52	-0.11	-	-	-	-	-	-	-	0.11
Sandy Ck	1044.06	0.05	-	-	-	-	-	-	-	0.05
Dutton Pk Cemetery	1046.34	-0.45	-	-	-	-	-	-	-	0.45
Highgate Hill	1047.92	-0.10	-	-	-	-	-	-	-	0.10
St Lucia Ferry	1048.89	-0.01	-	-	-	-	-	-	0.14	0.08
Montague Rd	1053.90	-0.34	-	-	-	-	-	-	-	0.34
Port Office	1055.96	-0.04	-	-	-	-	-	-	0.23	0.14
Cresent Rd	1063.65	0.06	-	-	-	-	-	-	-0.06	0.06
Cairncross Dock	1065.99	0.03	-	-	-	-	-	-	0.16	0.10
Bulimba PH	1069.54	0.00	-	-	-	-	-	-	-	0.00
Western Inner Bar	1078.66	0.00	0.00	0.00	0.00	-	-	0.00	0.00	0.00

6.10 Superelevation Calculations

Superelevation calculations were performed at three (3) locations to provide an indicative estimate of the magnitude of superelevations at bends. These calculations were performed using:

$$\Delta h = \frac{V^2_{max}}{g}\left[\frac{20r_c}{3b} - \frac{16r_c^{\,3}}{b^3} + \left(\frac{4r_c^{\,2}}{b^2} - 1\right)\ln\left\{\frac{2r_c + b}{2r_c - b}\right\}\right]$$

where:

Δh = change in water level (m)

V^2_{max} = maximum velocity at bend (m/s)

g = gravity (9.81 m/s^2)

r_c = radius of bend at centre of river

b = width of river (m) (generally assumed to be the distance between the cadastral boundaries defined for the river corridor)

Table 6-5 - Superelevation Calculations lists the parameters used and results for the three locations where superelevations were predicted.

Table 6-5 - Superelevation Calculations

Location	Cross section No.	MIKE 11 (km)	AMTD (km)	V max (m/s)	rc (m)	b (m)	Δh (mm)
Darra Wharf	1 280	1 031.7	46.96	3.28	410	190	± 270
Indooroopilly Bridge	1 140	1 037.09	41.57	2.68	400	170	± 170
Newstead Park	320	1 063.31	15.35	2.18	580	380	± 170

From **Table 6-5** it can be seen that the bend situated at Darra Wharf has an estimated Δh of ± 270 mm. This assumes that from the centre of the river to the outside of the bend the water level increases by 270 mm. Similarly from the centre of the river to the inside of the bend the water level reduces by 270 mm. Therefore the total change in water level from the inside of the bend to the outside of the bend at Darra Wharf was estimated to be 540 mm.

Recorded water levels and superelevations at these locations have been summarised in **Table 6-6 - Superelevation Comparison**, and compared to the predicted water levels and superelevations, estimated by the superelevations calculations.

Table 6-6 - Superelevation Comparison

Location	Cross section No.	MIKE 11	AMTD	Recorded			Predicted		
		(km)	(km)	Inside (m AHD)	Outside (m AHD)	Δh total (mm)	Inside (m AHD)	Outside (m AHD)	Δh total (mm)
Darra Wharf	1 280	1 031.7	46.96	13.36	13.79	430	13.14	13.68	540
Indooroopilly	1 140	1 037.09	41.57	11.20	11.84	640	11.09	11.43	340
Newstead Park	320	1 063.31	15.35	2.60	3.3	900	2.79	3.13	340

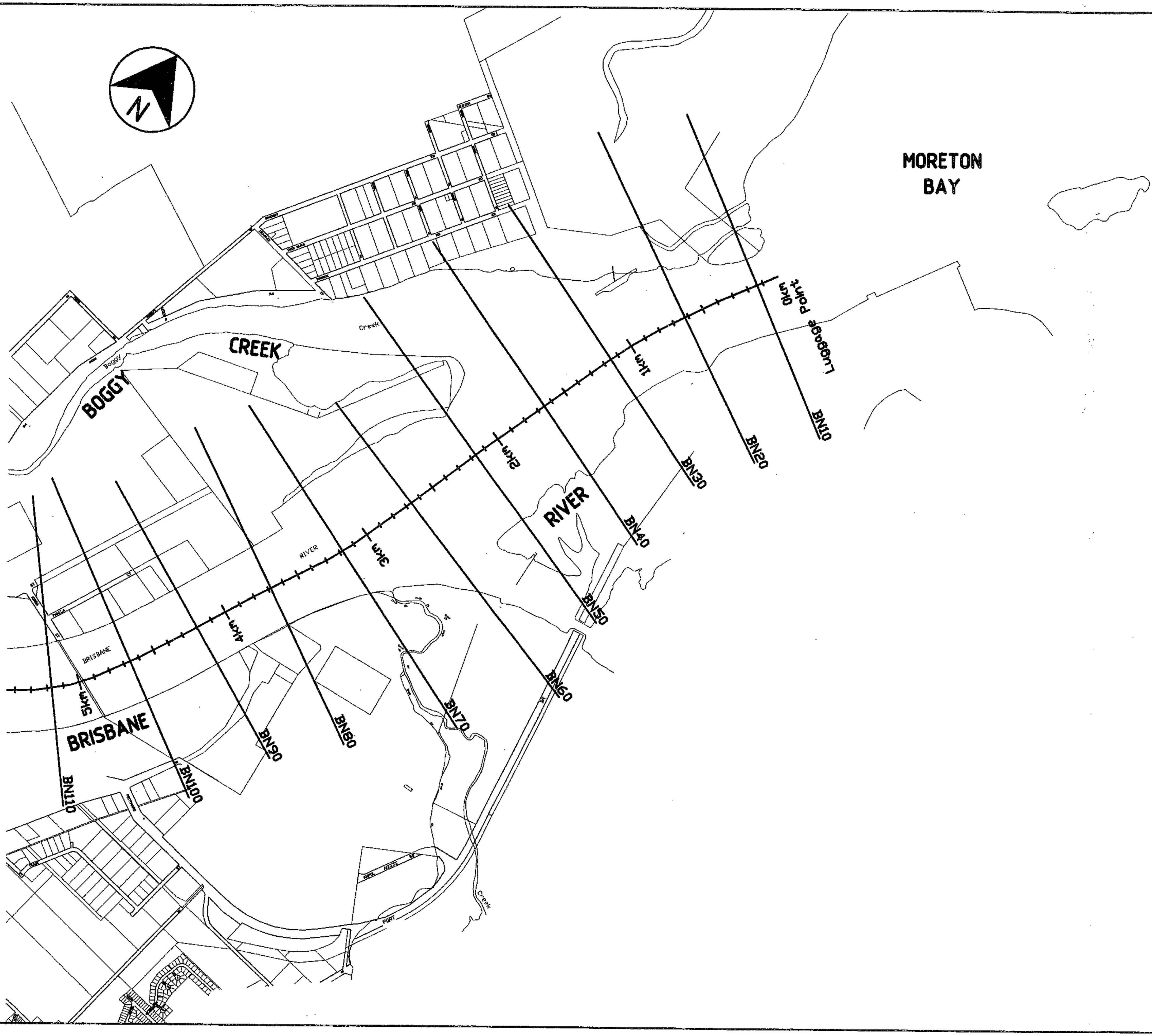
From **Table 6-5** it can be seen that at Darra Wharf the superelevation calculations over predict the total change in water level by approximately 20%. Upstream of Indooroopilly Bridge, the superelevation calculations under predict the total change in water level by 50% and similarly at Newstead Park by 60%.

These calculations indicate that superelevations at bends in the Brisbane River would be significant, however the magnitude of these superelevations predicted by the calculations do not show good correlation to recorded levels on the inside and outside of the investigated bends. These discrepancies are most likely due to the assumed width of the river (ie b) which could effect the calculated superelevation. There may have also been errors in the recording of the actual flood levels.

This exercise demonstrates that significant superelevations can occur along the Brisbane River thus accounting for variations in calibration performance of the model where recorded flood levels are available at the outside and inside of river bends.

FIGURE 6.1a
BRISBANE RIVER FLOOD STUDY
MIKE 11 MODEL STRUCTURE

CROSS SECTION NUMBER	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 10	1078.525	0.135
BN 20	1078.040	0.620
BN 30	1077.510	1.150
BN 40	1077.010	1.650
BN 50	1076.495	2.165
BN 60	1076.000	2.660
BN 70	1075.480	3.180
BN 80	1074.985	3.675
BN 90	1074.460	4.200
BN 100	1074.000	4.660

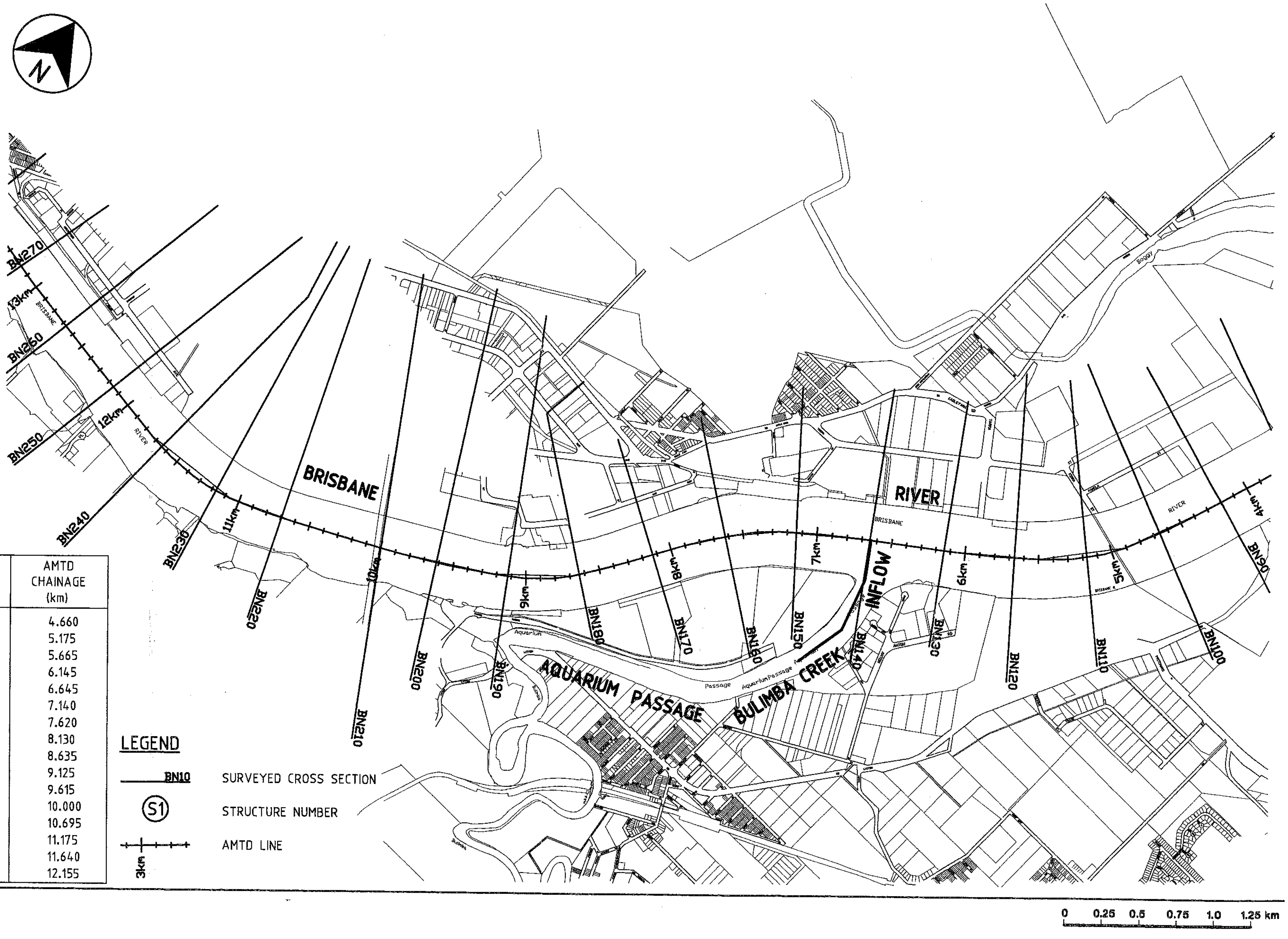


LEGEND

BN10	SURVEYED CROSS SECTION
(S1)	STRUCTURE NUMBER
3km	AMTD LINE

PLOT SCALE: 1=25

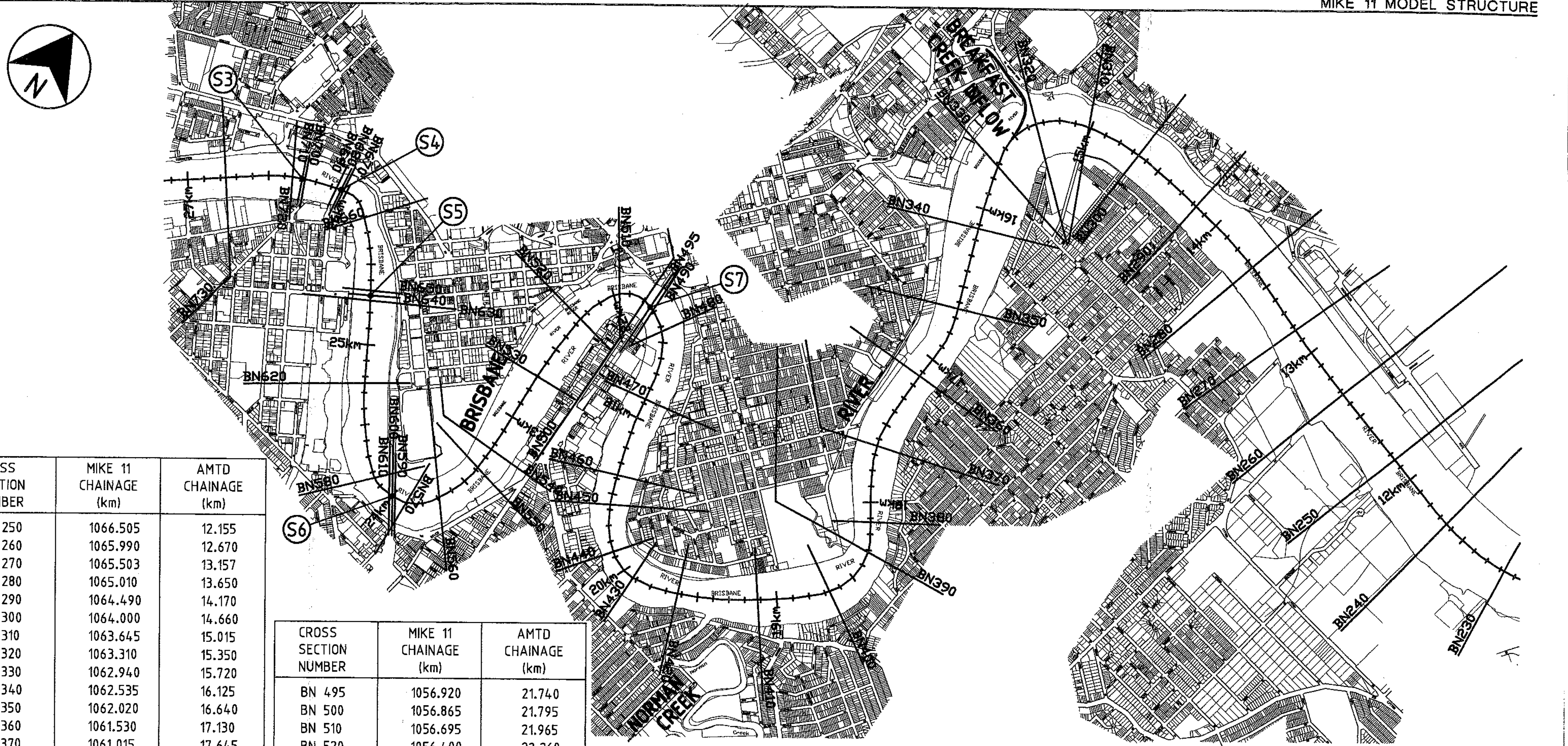
FIGURE 6.1b
BRISBANE RIVER FLOOD STUDY
MIKE 11 MODEL STRUCTURE



CROSS SECTION NUMBER	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 100	1074.000	4.660
BN 110	1073.485	5.175
BN 120	1072.995	5.665
BN 130	1072.515	6.145
BN 140	1072.015	6.645
BN 150	1071.520	7.140
BN 160	1071.040	7.620
BN 170	1070.530	8.130
BN 180	1070.025	8.635
BN 190	1069.535	9.125
BN 200	1069.045	9.615
BN 210	1068.660	10.000
BN 220	1067.965	10.695
BN 230	1067.485	11.175
BN 240	1067.020	11.640
BN 250	1066.505	12.155

PLOT SCALE: 1=25

FIGURE 6.1c
BRISBANE RIVER FLOOD STUDY
MIKE 11 MODEL STRUCTURE



CROSS SECTION NUMBER	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 250	1066.505	12.155
BN 260	1065.990	12.670
BN 270	1065.503	13.157
BN 280	1065.010	13.650
BN 290	1064.490	14.170
BN 300	1064.000	14.660
BN 310	1063.645	15.015
BN 320	1063.310	15.350
BN 330	1062.940	15.720
BN 340	1062.535	16.125
BN 350	1062.020	16.640
BN 360	1061.530	17.130
BN 370	1061.015	17.645
BN 380	1060.535	18.125
BN 390	1060.345	18.315
BN 400	1059.990	18.670
BN 410	1059.540	19.120
BN 420	1059.035	19.625
BN 430	1058.735	19.925
BN 440	1058.530	20.130
BN 450	1058.230	20.430
BN 460	1058.040	20.620
BN 470	1057.530	21.130
BN 480	1057.090	21.570
BN 490	1056.950	21.710

CROSS SECTION NUMBER	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 495	1056.920	21.740
BN 500	1056.865	21.795
BN 510	1056.695	21.965
BN 520	1056.400	22.260
BN 530	1055.960	22.700
BN 540	1055.420	23.240
BN 550	1055.280	23.380
BN 560	1054.970	23.690
BN 570	1054.760	23.900
BN 580	1054.490	24.170
BN 590	1054.680	23.980
BN 600	1054.660	24.000
BN 610	1054.640	24.020
BN 620	1053.900	24.760
BN 630	1053.385	25.275
BN 640	1053.355	25.305

CROSS SECTION NUMBER	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 650	1053.320	25.340
BN 660	1052.865	25.795
BN 670	1052.640	26.020
BN 680	1052.625	26.035
BN 690	1052.595	26.065
BN 700	1052.390	26.270
BN 710	1052.370	26.290
BN 720	1052.310	26.350
BN 730	1051.895	26.765

TABLE OF STRUCTURES

STRUCTURE NUMBER	CROSS SECTION NUMBER	STRUCTURE LABEL
S3	BN 710	MERIVALE BRIDGE
S4	BN 680	WILLIAM JOLLY BRIDGE
S5	BN 640	VICTORIA BRIDGE
S6	BN 600	CAPTAIN COOK BRIDGE
S7	BN 495	STOREY BRIDGE

LEGEND

BN10	SURVEYED CROSS SECTION
(S1)	STRUCTURE NUMBER
3km	AMTD LINE

0 0.25 0.5 0.75 1.0 1.25 km

PLOT SCALE: 1=25

FIGURE 6.1d
BRISBANE RIVER FLOOD STUDY
MIKE 11 MODEL STRUCTURE

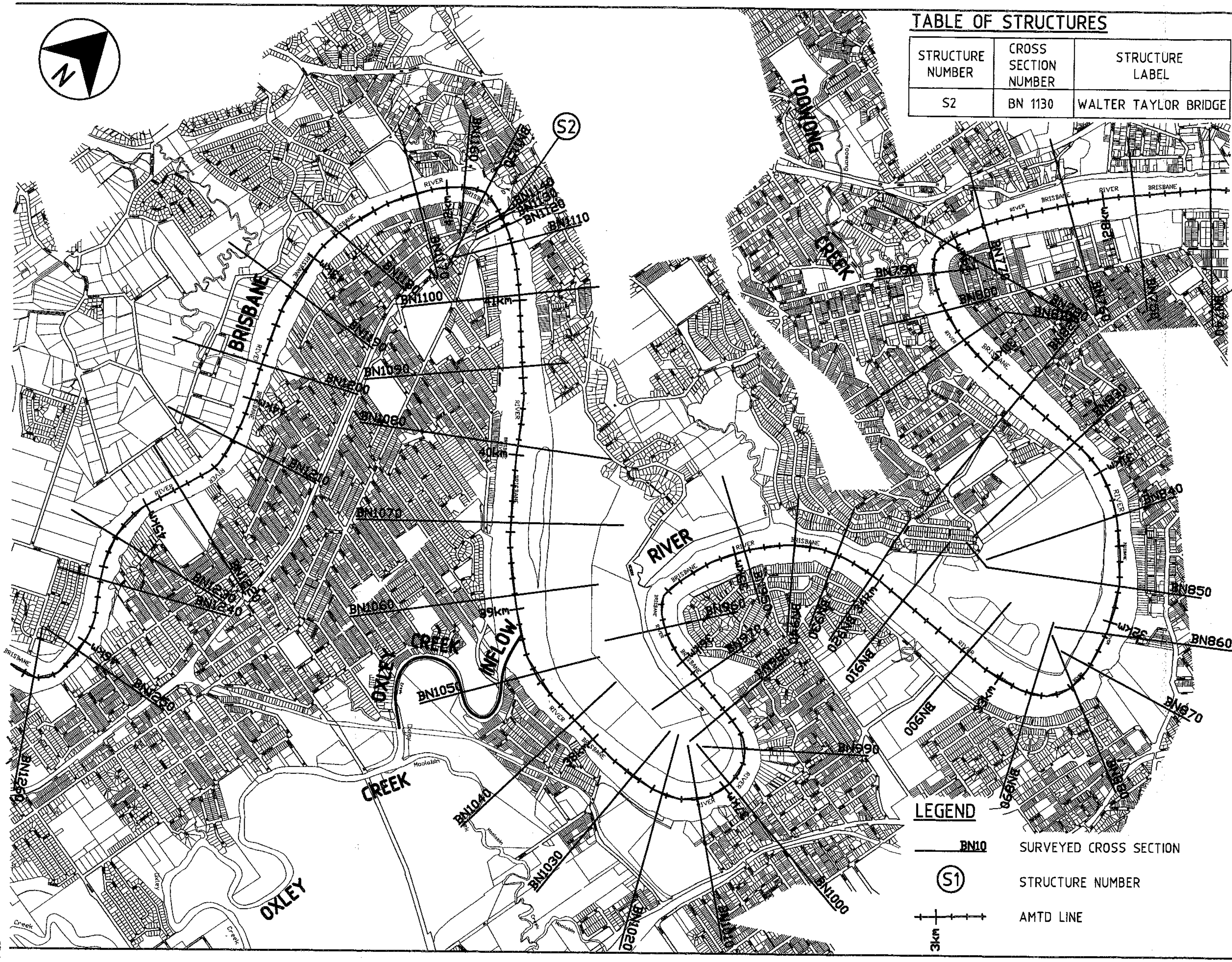


TABLE OF STRUCTURES

STRUCTURE NUMBER	CROSS SECTION NUMBER	STRUCTURE LABEL
S2	BN 1130	WALTER TAYLOR BRIDGE

CROSS SECTION NUMBER	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 740	1051.360	27.300
BN 750	1050.860	27.800
BN 760	1050.430	28.230
BN 770	1049.870	28.790
BN 780	1049.590	29.070
BN 790	1049.370	29.290
BN 800	1049.120	29.540
BN 810	1048.890	29.770
BN 820	1048.375	30.285
BN 830	1047.915	30.745
BN 840	1047.350	31.310
BN 850	1046.900	31.760
BN 860	1046.580	32.080
BN 870	1046.340	32.320
BN 880	1046.180	32.480
BN 890	1045.885	32.775
BN 900	1045.400	33.260
BN 910	1044.860	33.800
BN 920	1044.605	34.055
BN 930	1044.340	34.320
BN 940	1044.060	34.600
BN 950	1043.725	34.935
BN 960	1042.910	35.750
BN 970	1042.515	36.145
BN 980	1042.235	36.425
BN 990	1041.960	36.700
BN 1000	1041.700	36.960
BN 1010	1041.460	37.200
BN 1020	1041.230	37.430
BN 1030	1041.010	37.650
BN 1040	1040.490	38.170
BN 1050	1040.090	38.570
BN 1060	1039.565	39.095
BN 1070	1039.100	39.560
BN 1080	1038.600	40.060
BN 1090	1038.085	40.575
BN 1100	1037.625	41.035
BN 1110	1037.285	41.375
BN 1120	1037.175	41.485
BN 1130	1037.110	41.550
BN 1140	1037.090	41.570
BN 1150	1036.915	41.745
BN 1160	1036.770	41.890
BN 1170	1036.460	42.200
BN 1180	1035.900	42.760
BN 1190	1035.414	43.246
BN 1200	1034.890	43.770
BN 1210	1034.370	44.290
BN 1220	1033.900	44.760
BN 1230	1033.370	45.290
BN 1240	1033.080	45.580
BN 1250	1032.585	46.075
BN 1260	1032.230	46.430

0 0.25 0.5 0.75 1.0 1.25 km

FILE NAME: 04137-24 PLOT SCALE: 1=25 DISK No: D:\DWG\BRISBANE No: T00437 DATE: 14/3/97

FIGURE 6.1e
BRISBANE RIVER FLOOD STUDY
MIKE 11 MODEL STRUCTURE

CROSS SECTION NUMBER	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 1260	1032.230	46.430
BN 1270	1031.995	46.665
BN 1280	1031.700	46.960
BN 1290	1031.260	47.400
BN 1300	1030.870	47.790
BN 1310	1030.220	48.440
BN 1320	1029.680	48.980
BN 1330	1029.200	49.460
BN 1340	1028.760	49.900
BN 1350	1028.720	49.940
BN 1360	1028.680	49.980
BN 1370	1028.180	50.480
BN 1380	1027.680	50.980
BN 1390	1027.160	51.500
BN 1400	1026.900	51.760
BN 1410	1026.680	51.980
BN 1420	1026.170	52.490
BN 1430	1025.590	53.070
BN 1440	1025.360	53.300
BN 1450	1025.070	53.590
BN 1460	1024.563	54.097
BN 1470	1024.080	54.580
BN 1480	1023.570	55.090
BN 1490	1023.040	55.620
BN 1500	1022.575	56.085
BN 1510	1022.105	56.555
BN 1520	1021.895	56.765
BN 1530	1021.715	56.945
BN 1540	1021.539	57.121
BN 1550	1021.095	57.565
BN 1560	1020.830	57.830
BN 1570	1020.525	58.135
BN 1580	1020.115	58.545
BN 1590	1019.865	58.795
BN 1600	1019.490	59.170

TABLE OF STRUCTURES

STRUCTURE NUMBER	CROSS SECTION NUMBER	STRUCTURE LABEL
S1	BN 1350	CENTENARY BRIDGE

LEGEND

BN10 — SURVEYED CROSS SECTION

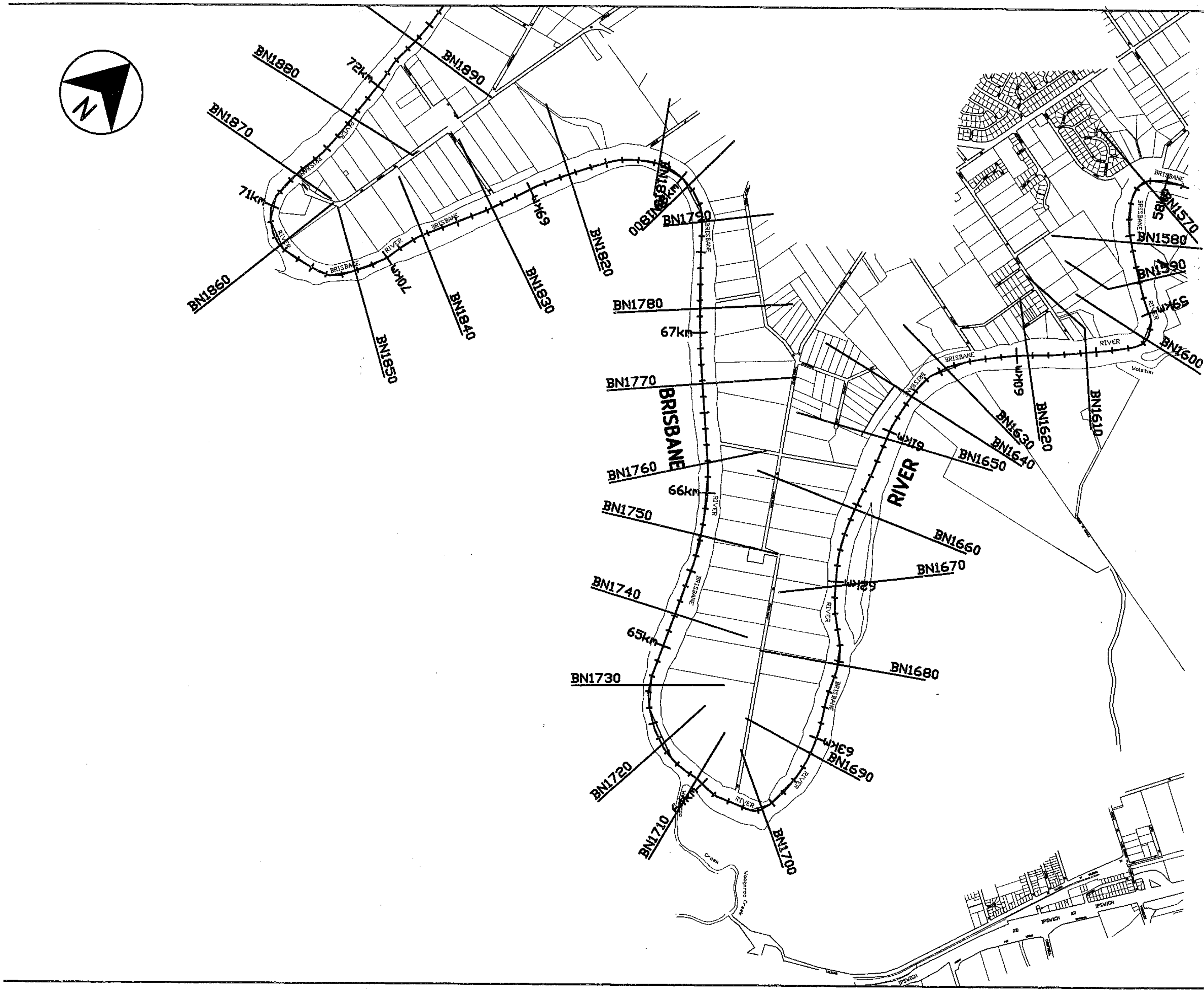
(S1) — STRUCTURE NUMBER

3km — AMTD LINE

0 0.25 0.5 0.75 1.0 1.25 km

PLOT SCALE: 1=25

FIGURE 6.1f
BRISBANE RIVER FLOOD STUDY
MIKE 11 MODEL STRUCTURE



CROSS SECTION NUMBER	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 1600	1019.490	59.170
BN 1610	1019.095	59.565
BN 1620	1018.725	59.935
BN 1630	1018.200	60.460
BN 1640	1017.920	60.740
BN 1650	1017.610	61.050
BN 1660	1017.130	61.530
BN 1670	1016.640	62.020
BN 1680	1016.140	62.520
BN 1690	1015.560	63.100
BN 1700	1015.090	63.570
BN 1710	1014.610	64.050
BN 1720	1014.310	64.350
BN 1730	1013.910	64.750
BN 1740	1013.445	65.215
BN 1750	1012.935	65.725
BN 1760	1012.475	66.185
BN 1770	1011.980	66.680
BN 1780	1011.510	67.150
BN 1790	1010.980	67.680
BN 1800	1010.725	67.935
BN 1810	1010.490	68.170
BN 1820	1009.720	68.940
BN 1830	1009.400	69.260
BN 1840	1008.925	69.735
BN 1850	1008.445	70.215
BN 1860	1007.920	70.740
BN 1870	1007.410	71.250
BN 1880	1006.910	71.750

LEGEND

BN10 — SURVEYED CROSS SECTION

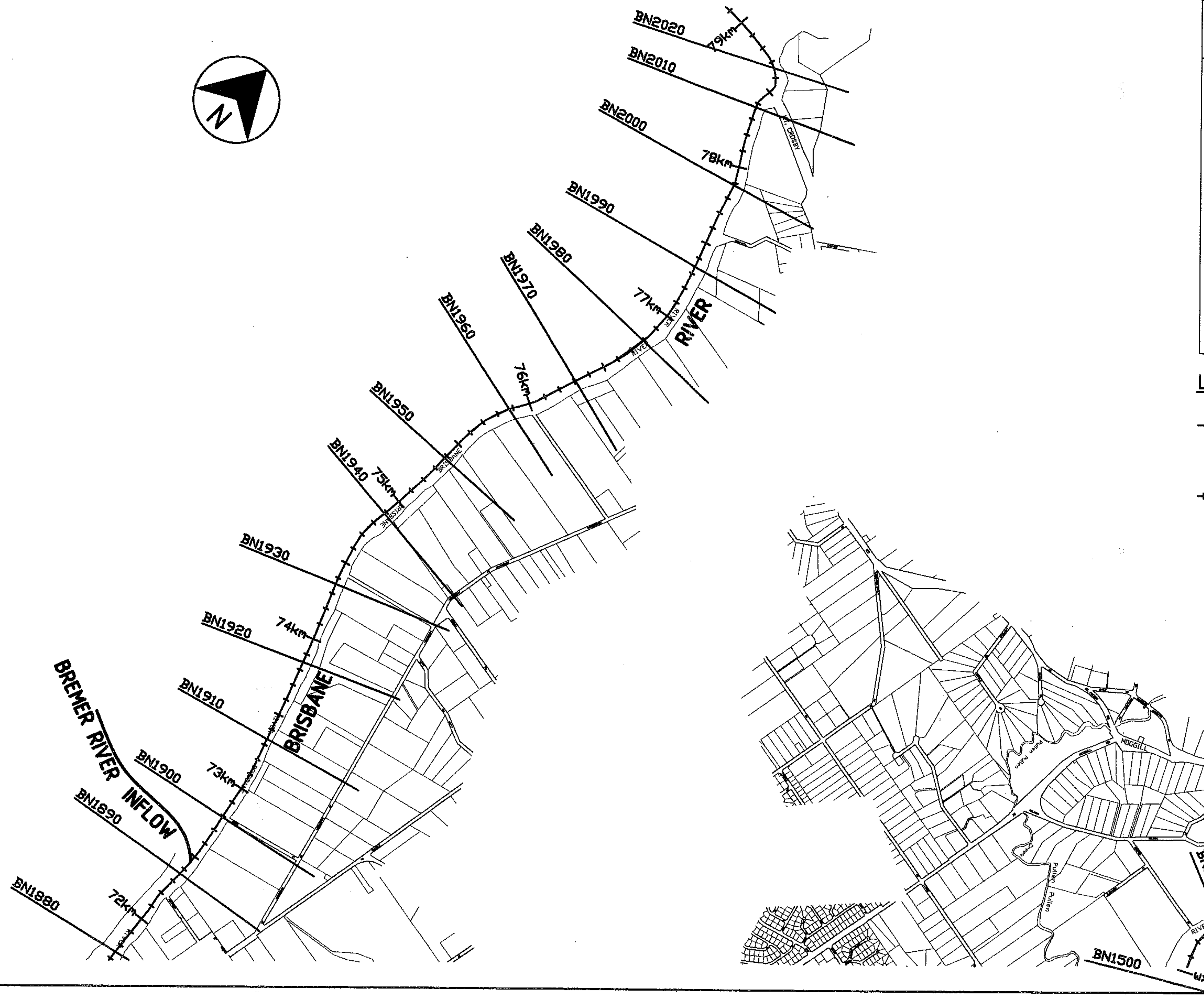
S1 — STRUCTURE NUMBER

3km — AMTD LINE

0 0.25 0.5 0.75 1.0 1.25 km

PLOT SCALE: 1=25

FIGURE 6.1g
BRISBANE RIVER FLOOD STUDY
MIKE 11 MODEL STRUCTURE



CROSS SECTION NUMBER	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 1880	1006.910	71.750
BN 1890	1006.300	72.360
BN 1900	1005.870	72.790
BN 1910	1005.325	73.335
BN 1920	1004.810	73.850
BN 1930	1004.300	74.360
BN 1940	1003.775	74.885
BN 1950	1003.275	75.385
BN 1960	1002.785	75.875
BN 1970	1002.350	76.310
BN 1980	1001.865	76.795
BN 1990	1001.315	77.345
BN 2000	1000.775	77.885
BN 2010	1000.285	78.375
BN 2020	1000.000	78.660

LEGEND

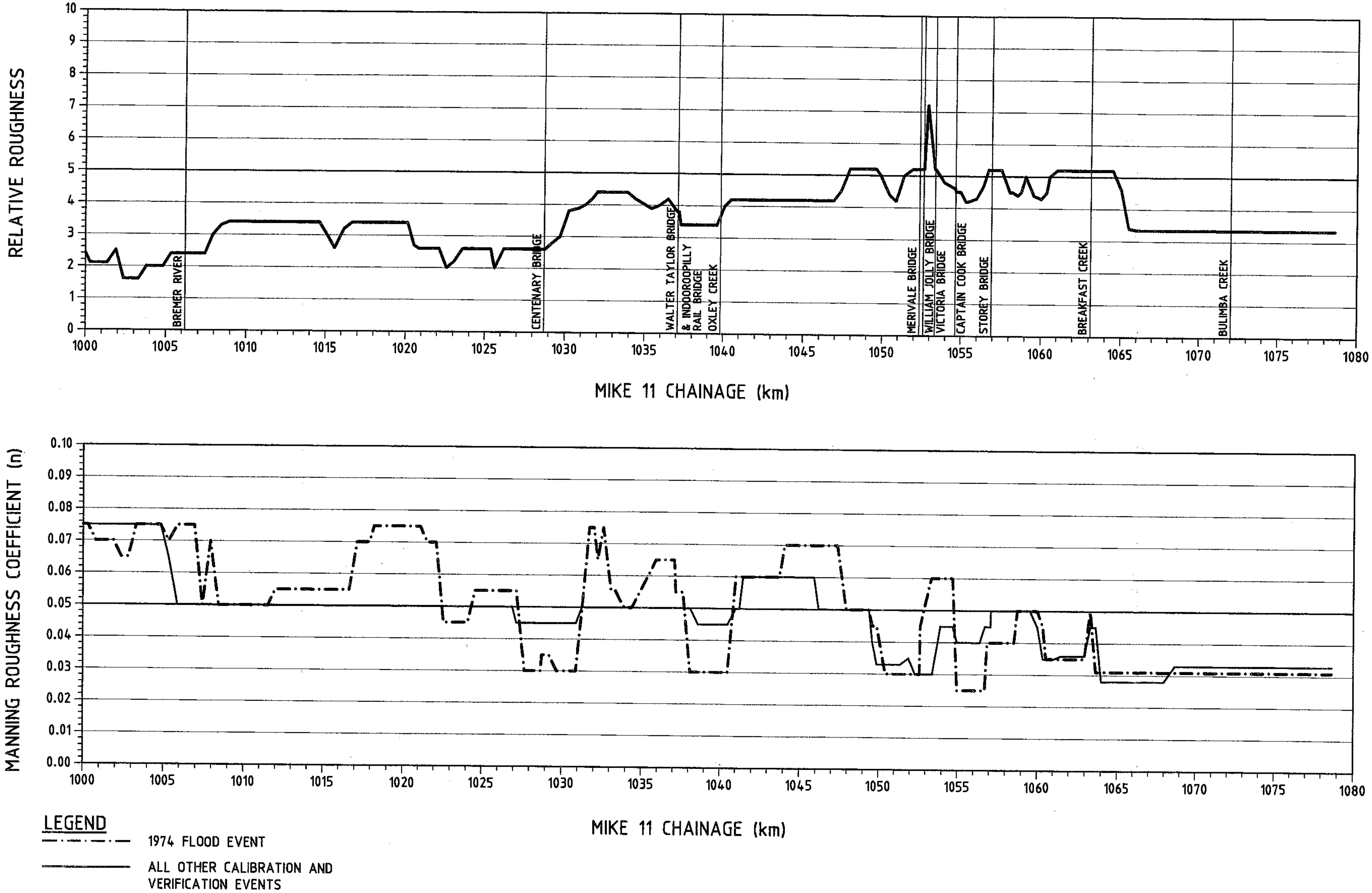
- BN10 — SURVEYED CROSS SECTION
- (S1) — STRUCTURE NUMBER
- 3km — AMTD LINE

0 0.25 0.5 0.75 1.0 1.25 km

PLOT SCALE: 1=25

SINCLAIR KNIGHT MERZ

FIGURE 6.2
BRISBANE RIVER FLOOD STUDY
MANNINGS HYDRAULIC MODEL CHANNEL ROUGHNESS
AND RELATIVE RESISTANCE VALUES

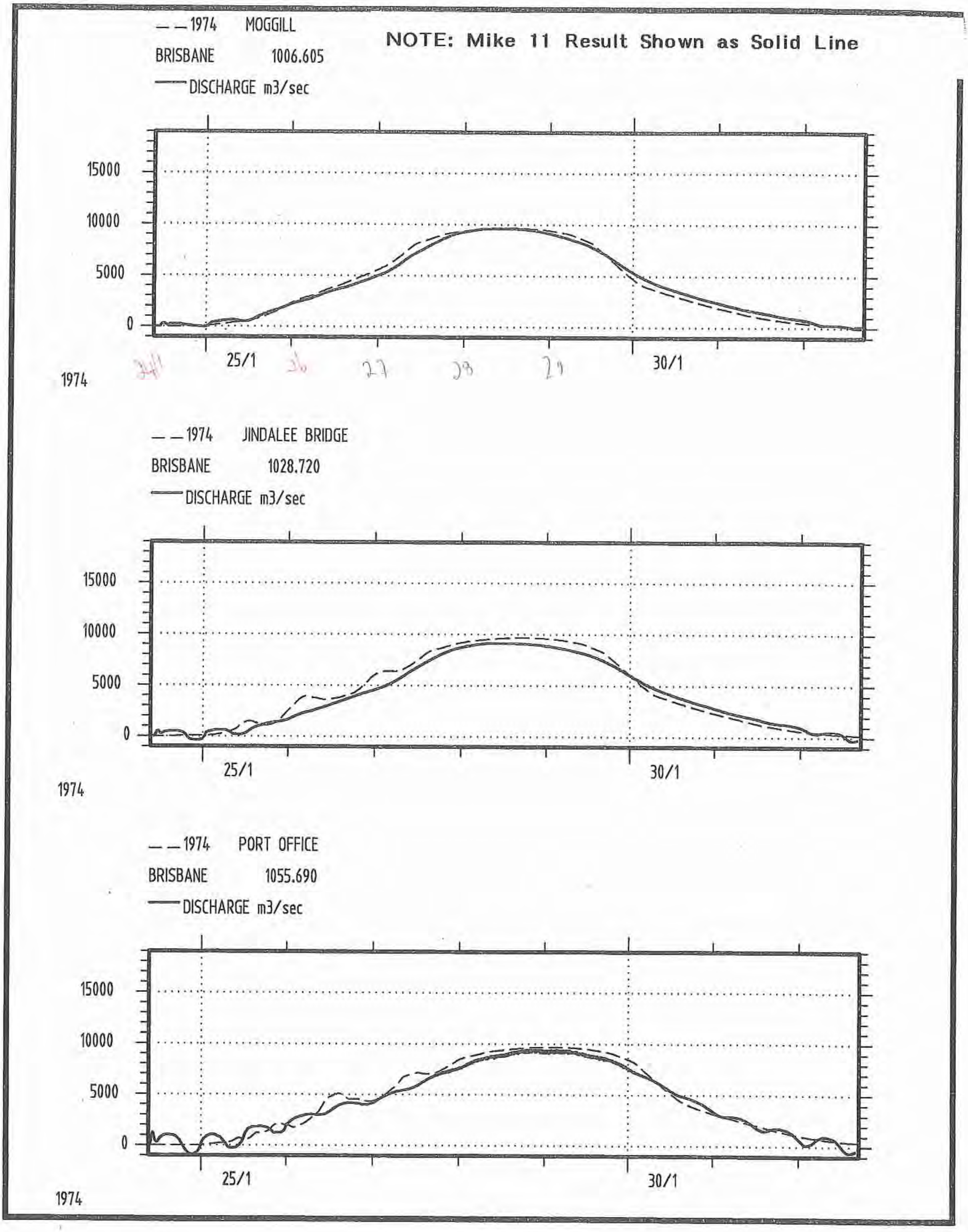


PLOT SCALE: 1=250

FIGURE 6-3

BRISBANE RIVER FLOOD STUDY
HYDROLOGIC AND HYDRAULIC MODEL CONSISTENCY
- JANUARY 1974

SINCLAIR KNIGHT MERZ

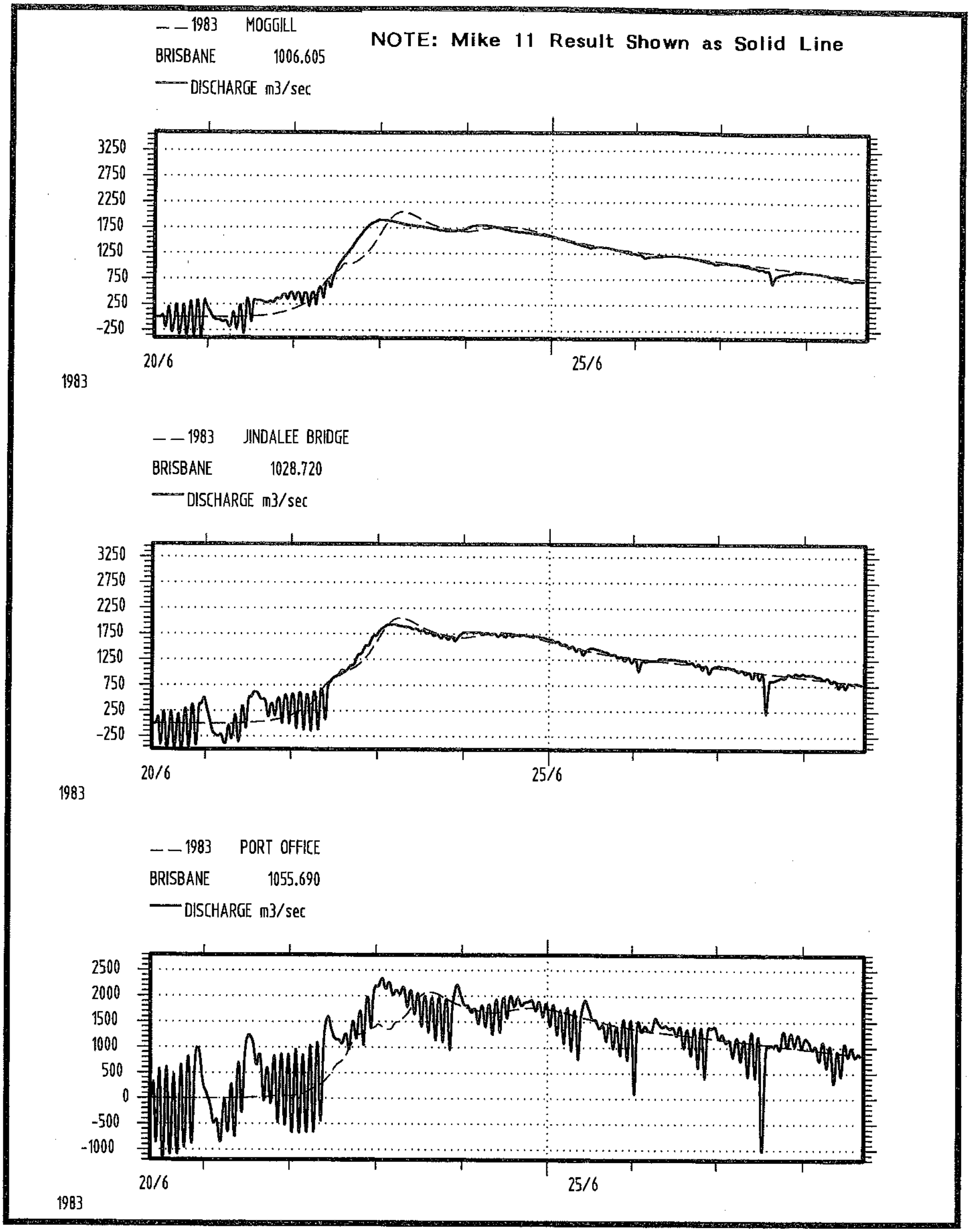


FILE NAME: 4157-222 DISK N°: G:\ JOB N°: T00457 DATE: 17-2-98

FIGURE 6-4

BRISBANE RIVER FLOOD STUDY
HYDROLOGIC AND HYDRAULIC MODEL CONSISTENCY
- JUNE 1983

SINCLAIR KNIGHT MERZ



FILE NAME: 4157-223 DISK N°: G:\ JOB N°: T004157 DATE: 17-7-98
PL.. SCALE:

FIGURE 6-5

BRISBANE RIVER FLOOD STUDY
HYDROLOGIC AND HYDRAULIC MODEL CONSISTENCY
- LATE APRIL 1989

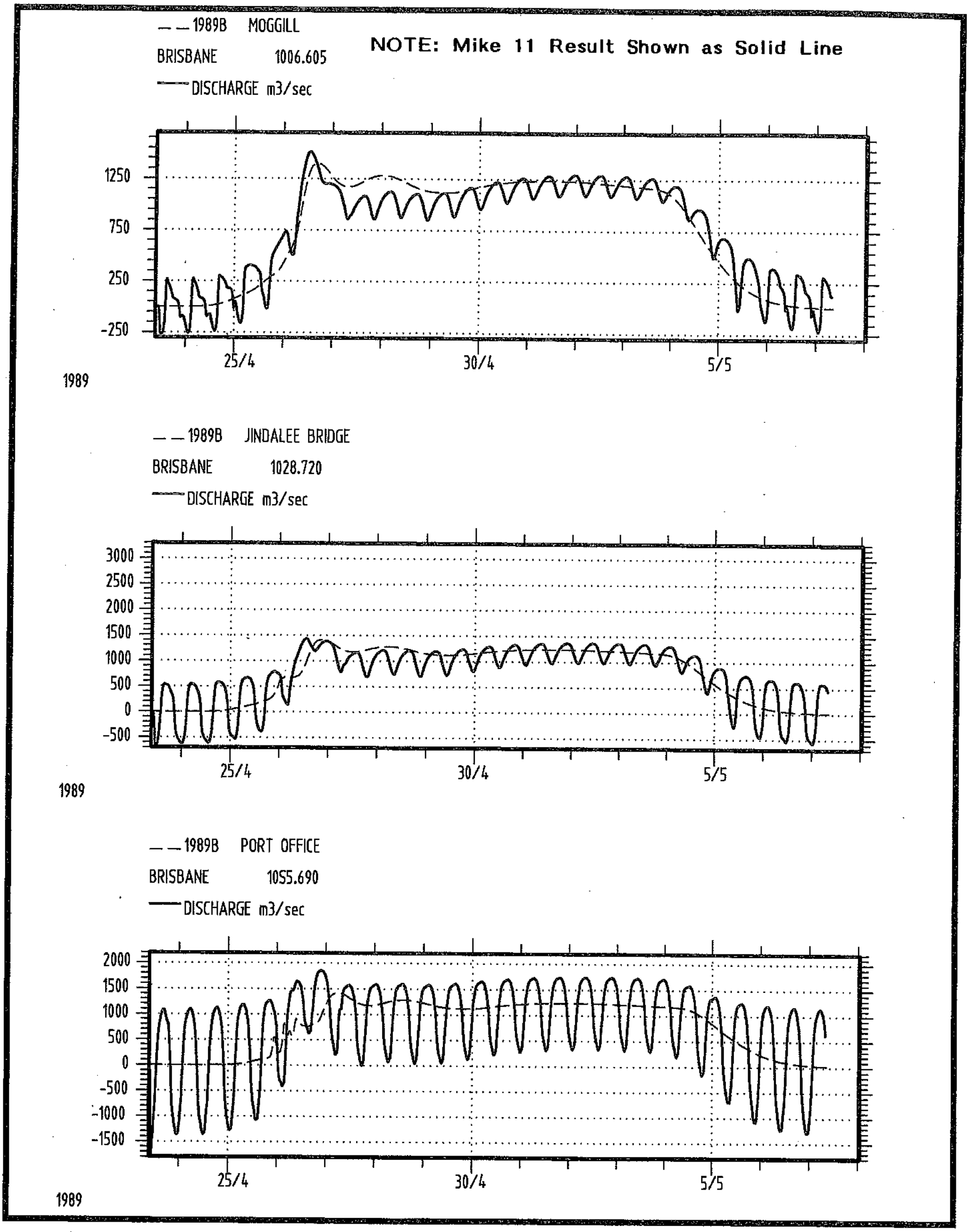
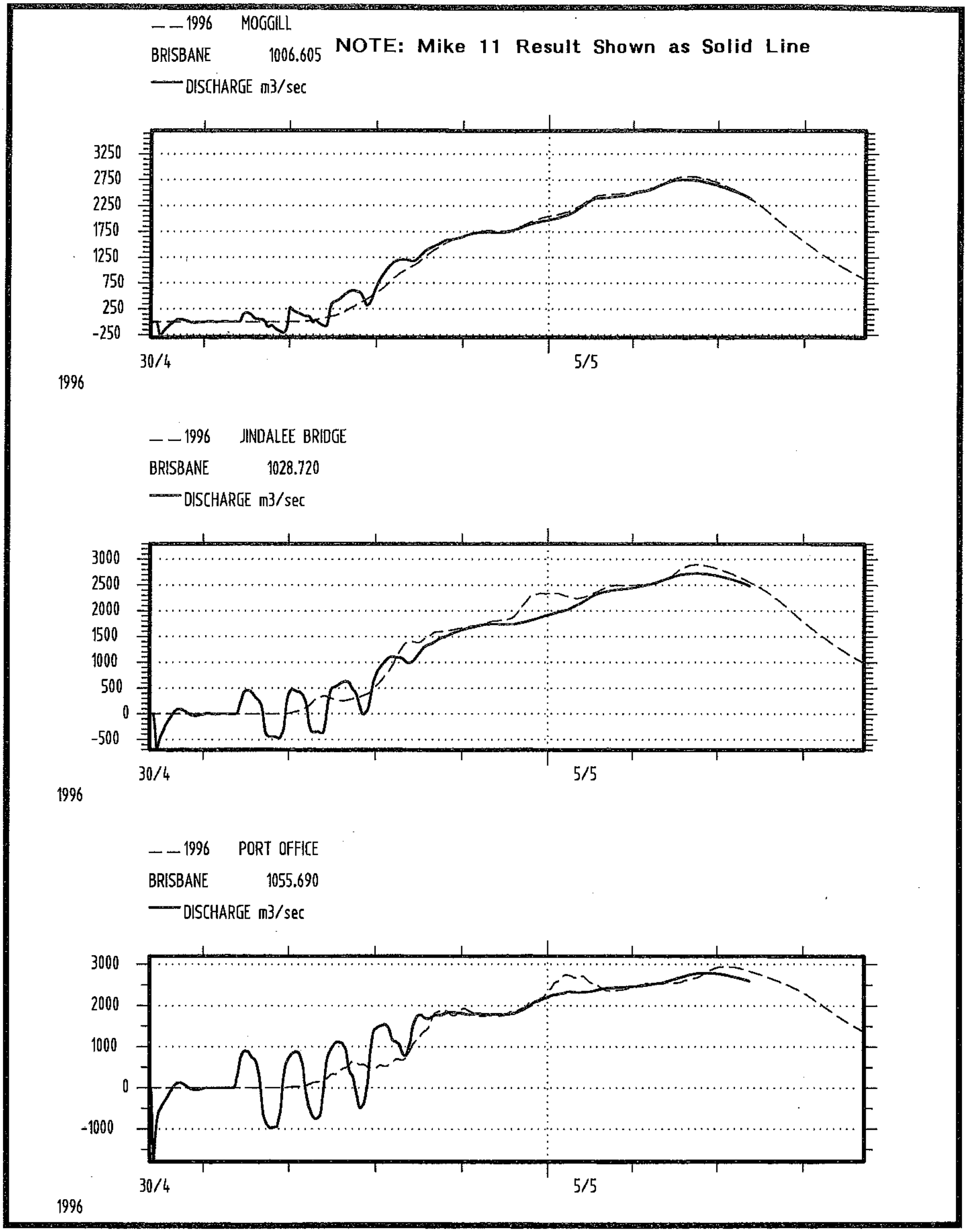


FIGURE 6-6

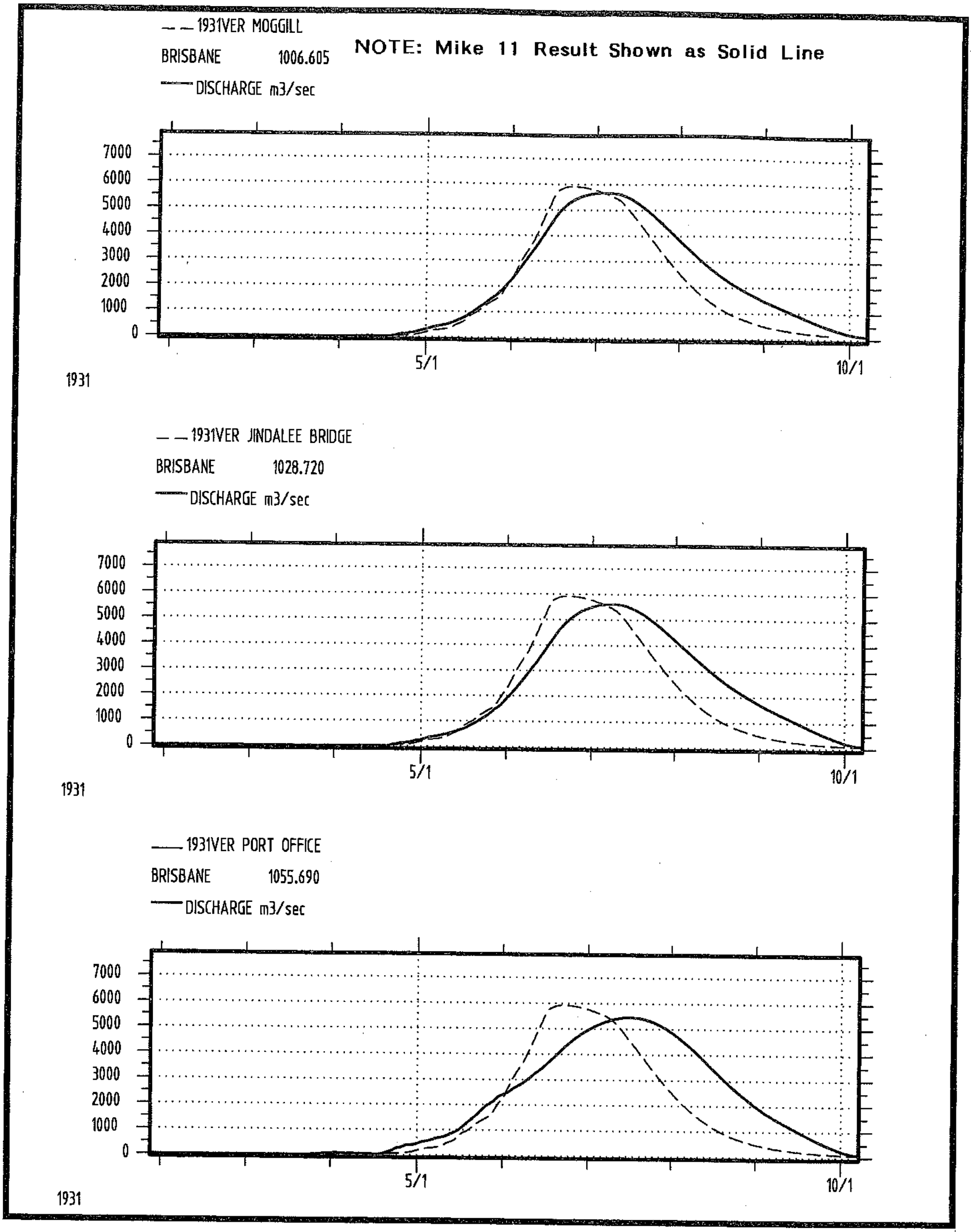
BRISBANE RIVER FLOOD STUDY
HYDROLOGIC AND HYDRAULIC MODEL CONSISTENCY
- MAY 1996



SINCLAIR KNIGHT MERZ

FIGURE 6-7

BRISBANE RIVER FLOOD STUDY
HYDROLOGIC AND HYDRAULIC MODEL CONSISTENCY
- FEBRUARY 1931

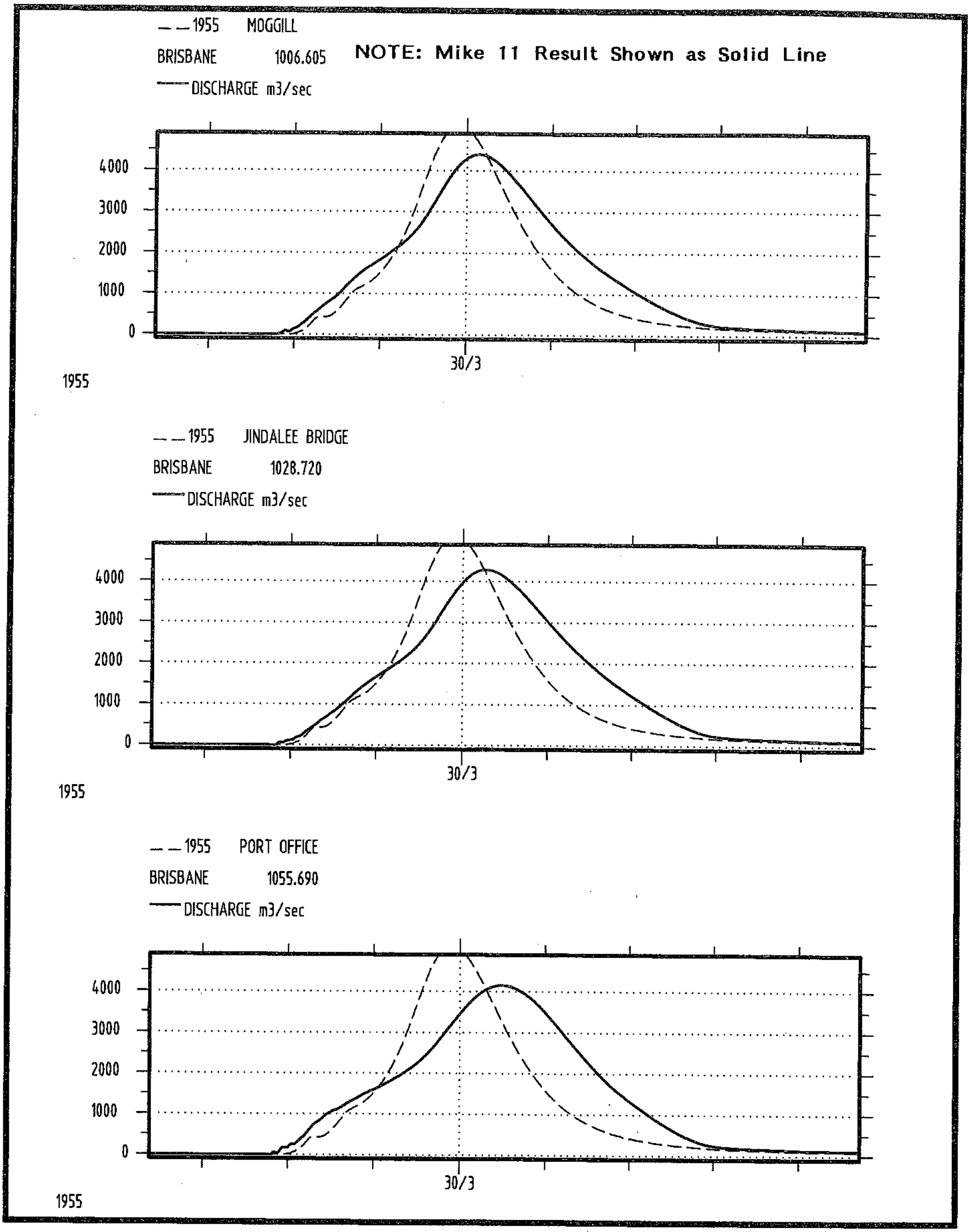


FILE NAME: 4157-226 DISK N°: G:\ JOB N°: T004157 DATE: 17-7-98
P CALE:

FIGURE 6-8

SINCLAIR KNIGHT MERZ

BRISBANE RIVER FLOOD STUDY
HYDROLOGIC AND HYDRAULIC MODEL CONSISTENCY
- MARCH 1955

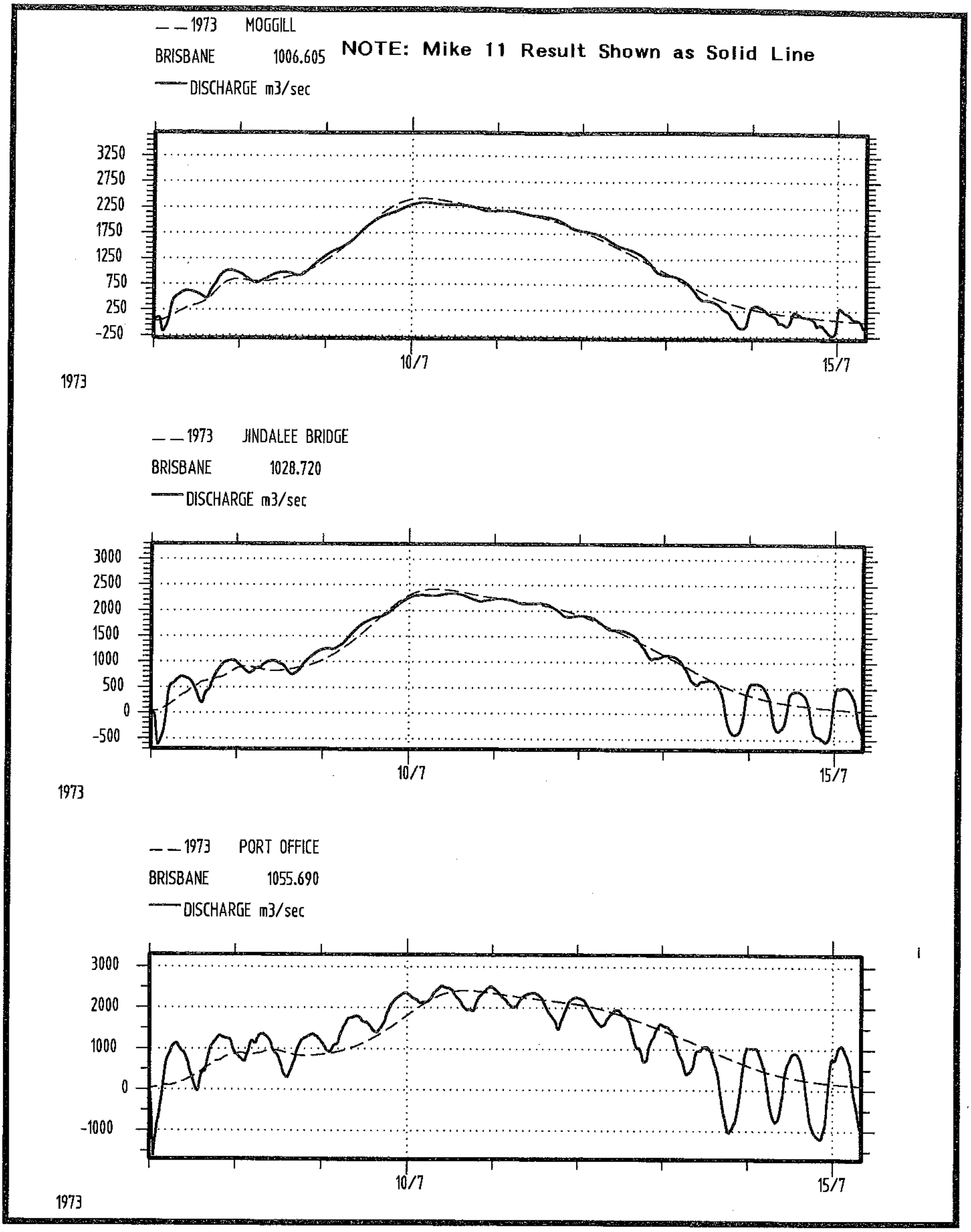


FILE NAME: 4157-227 DISK N°: G:\ JOB N°: T004157 DATE: 17-7-98
PI :ALE:

FIGURE 6-9

BRISBANE RIVER FLOOD STUDY HYDROLOGIC AND HYDRAULIC MODEL CONSISTENCY - JULY 1973

SINCLAIR KNIGHT MERZ

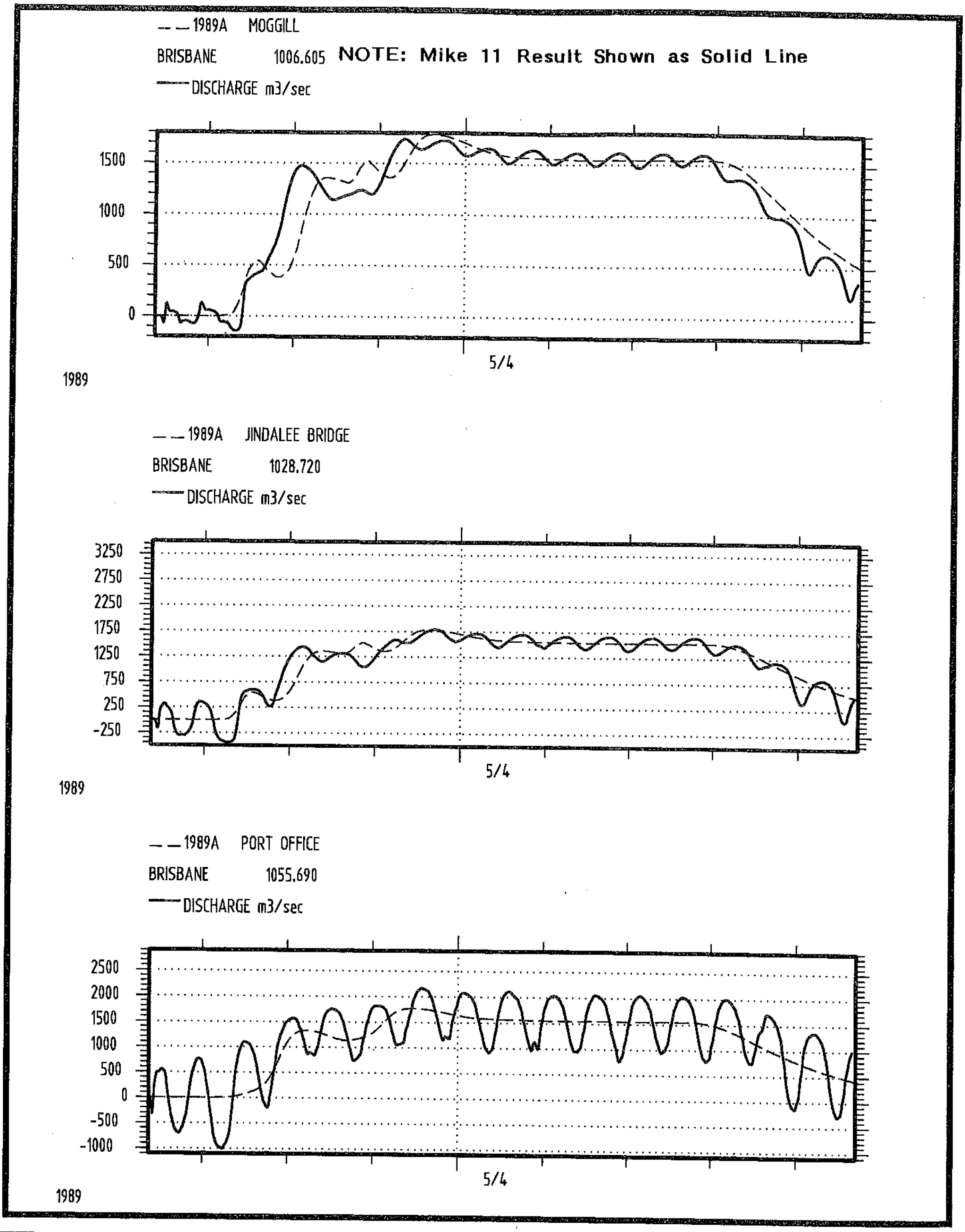


FILE NAME: 4157-228 DISK N°: G:\ JOB N°: T004157 DATE: 17-7-98
PL.. .CALE: ..

SINCLAIR KNIGHT MERZ

FIGURE 6-10

BRISBANE RIVER FLOOD STUDY
HYDROLOGIC AND HYDRAULIC MODEL CONSISTENCY
- EARLY APRIL 1989



PLOT SCALE: 1=1

7. Design Events Hydrology

7. Design Events Hydrology

7.1 Design Storm Requirements

An analysis of design storm events was performed to establish design flood characteristics in the Brisbane River. A range of average recurrence intervals (ARI) from 1 in 2 years ARI to the Probable Maximum Precipitation (PMP) were assessed. Temporal patterns and rainfall intensities were based on Australian Rainfall and Runoff (1987) guidelines and hydrologic data supplied by the Department of Natural Resources.

This assessment considers only the existing extent of urbanisation for the Brisbane River Catchment.

7.2 Catchment Urbanisation

The majority of the Brisbane River Catchment was considered to be rural and was therefore allocated a zero percent impervious. In the Brisbane Metropolitan area the assumed percentage impervious varied from 20 to 50% to account for the catchment urbanisation.

The potential effect of urbanisation in the middle and upper reaches of the river even in the long term is likely to be negligible. However, there is potential for significant urbanisation in the lower reaches of the river. Future urbanisation in Brisbane and surrounding areas would cause the peak runoff from these areas to occur earlier than at present. As the time of concentration of the Brisbane River as a whole is large compared to that of the urban areas of Brisbane, it is slightly conservative to retain the present level of urbanisation rather than the potential ultimate level.

7.3 Design Event Rainfall

Design Event rainfall data was required to determine inflow hydrographs for the calculation of flood profiles in the Brisbane River. The distribution of rainfall over the catchment for the calibration events identified that significant variations of rainfall occurred over the catchment. This variation in rainfall was attributed to the size and topography of the catchment.

Design rainfall intensities were derived using Intensity-Frequency-Duration (IFD) techniques used in Chapter 2 of Australian Rainfall and Runoff 1987 (AR&R). Design rainfall intensities were derived at 130 rainfall gauge locations throughout the catchment to account for the variation of rainfall. Isoheytal maps for the catchment were derived for recurrence intervals ranging from 2 year ARI to 100 Year ARI using CivilCAD and the calculated design rainfalls.

The following figures present Isoheytal maps and rainfall depths for critical duration storms ranging from 2 year ARI to 100 year ARI.

- **Figure 7-1 - 2 Year ARI 30 Hour Duration Rainfall Event - Brisbane River Catchment.**
- **Figure 7-2 - 5 Year ARI 30 Hour Duration Rainfall Event - Brisbane River Catchment.**
- **Figure 7-3 - 10 Year ARI 30 Hour Duration Rainfall Event - Brisbane River Catchment.**
- **Figure 7-4 - 20 Year ARI 30 Hour Duration Rainfall Event - Brisbane River Catchment.**
- **Figure 7-5 - 50 Year ARI 30 Hour Duration Rainfall Event - Brisbane River Catchment.**
- **Figure 7-6 - 100 Year ARI 30 Hour Duration Rainfall Event - Brisbane River Catchment.**

For large catchments it is unlikely that rainfall intensity will remain constant across the catchment. To account for this variation, AR&R suggests use of an areal reduction factor which reduces the depth of rainfall over the catchment.

The problem with this method is that the areal reduction factor method presented in AR&R is based on work conducted in the United States and virtually no work has been conducted for durations greater than 24 hours or catchments with areas greater than 1 000 km^2.

Since the Brisbane River Catchment is approximately 13 500 km^2 and has a critical duration of approximately 24 hours it was considered that spatial variation would have to be accounted for using an alternate method.

As previously stated design rainfalls were calculated at approximately 130 locations over the entire catchment. These rainfalls were then used to calculate rainfall depths at the centroid of each sub-area (ie approximately 250 locations) using interpolation facilities within CIVILCAD. This method ensured that the majority of rainfall variation was accounted for by a blanket coverage of the catchment which in turn minimised the effects of rainfall variation.

Given that the total catchment area of the Brisbane River is approximately 13 500 km^2 and that this area has been broken down into about 250 sub areas, then the average sub area is around 50 km^2. The areal reduction factor for an area of 50 km^2 (24 hour duration) was determined to be 0.98. Since the areal reduction factor was almost equal to one, areal reduction factors were not applied to any of the sub-areas. The rainfall intensities used in this study are therefore considered to be slightly conservative.

Australian Rainfall and Runoff temporal patterns for zone 3 apply to the Brisbane River Catchment.

The Probable Maximum Precipitation (PMP) rainfall depth and corresponding temporal pattern were provided by the Bureau of Meteorology for the DNR study. The adopted PMP rainfall depth for the Brisbane River Catchment is presented in **Table 7-1 - PMP Rainfall Depth, Brisbane River Catchment.**

Table 7-1 - PMP Rainfall Depth - Brisbane River Catchment

Duration	PMP Rainfall Depth
12	370
24	530
48	680
72	830
96	1010
120	1050
144	1070
168	1160

Review of the relevant reports and files suggested that PMP investigations conducted by the Department of Natural Resources used the total PMP rainfall depth over the entire catchment. This method provides a conservative result which may be applicable when considering dam safety. For this study spatial variation was accounted for by use of **Figure D-1 - Generalised Tropical Storm Method (GTSM) Design Isohyetal Pattern for the Distribution of PMP for Areas > 2 000 km^2**. The procedural method for the GTSM is also provided in **Appendix D - Generalised Tropical Storm Method.**

An analysis to determine the critical duration PMP rainfall event was performed. The critical duration storm for the PMP was found to be 168 hours. Peak discharges for the durations ranging from 24 hour to 168 hour storms are presented in **Table 7-2 - Peak Discharges for PMP at Lowood, Moggill & Port Office**. A plot of these results are presented in **Figure 7-7 - Critical Duration Storms at Lowood, Moggill & Port Office.**

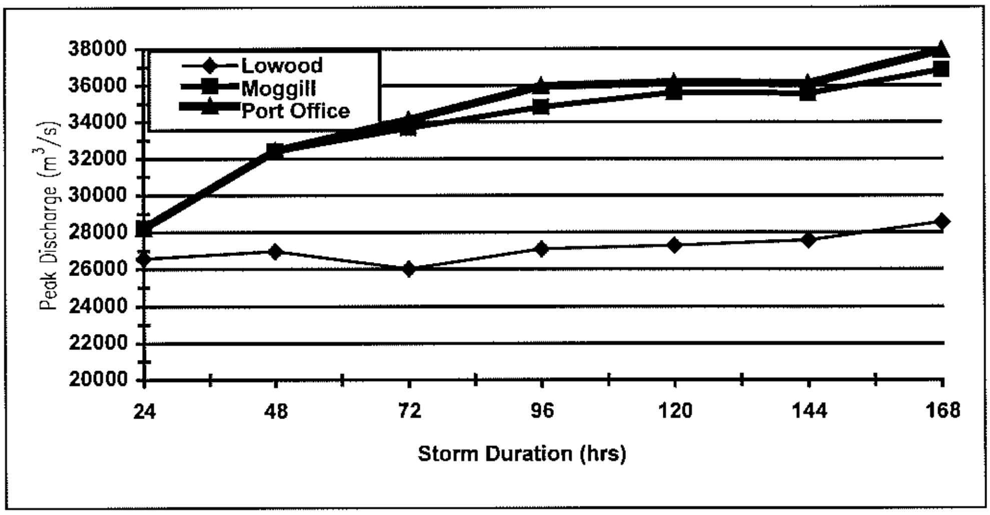
Table 7-2 - Peak Discharges for PMP at Lowood, Moggill & Port Office

Duration (hrs)	Lowood (m^3/s)	Moggill (m^3/s)	Port Office (m^3/s)
24	26580	28230	28230
48	26980	32410	32430
72	26020	33680	34130
96	27100	34830	35960
120a	27290	35620	36160
144a	27580	35570	36110
168c	28560	36860	37910

Note: The subscripts for the 120, 144 and 168 hour duration storms relate to the adopted temporal pattern which produced the peak discharge.

As previously mentioned the critical storm duration for the PMP event was 168 hours with only six percent variation in peak discharges predicted for the range of longer durations from 96 hours to 168 hours. As there was a significant difference between the critical durations found for the 100 year ARI and PMP events, a number of checks were conducted to ensure basic data had been interpreted and applied correctly.

Figure 7-7 - Critical Duration Storms at Lowood, Moggill & Port Office



The average intensities for each PMP duration were examined to ensure that the average rainfall intensity decreased as the storm duration increased.

The maximum rainfall intensity within each duration was checked to make sure that the temporal pattern was reasonably uniform without any uncharacteristic high intensities contained throughout the duration of the rainfall event.

A final check of sensitivity of time increment within the duration was conducted. This made little difference to the peak discharges and therefore it was considered that the effects of time increment were negligible.

The RAFTS model output for these events showed that the larger volumes of water associated with longer duration events caused peak discharges to occur over a longer period of time which resulted in the coincidence of peak discharges at major confluences. Conversely, the coincident peak effects for the shorter duration events were not as pronounced hence resulting in smaller peak discharges for the shorter duration storms.

Previous investigations conducted by the Department of Natural Resources found that the critical duration storm for the PMP was 120 hours and the critical duration storm for the 100 year ARI event was 24 hours. As the DNR found that there was significant differences in duration between the two recurrence intervals, it was considered that this was inherent of the catchment configuration and the rainfall variability in the catchment and the 168 hour event was adopted as the critical duration storm for the PMP event for this study. Initial and continuing losses have been applied which is consistent with the parameter set used for the 100 year ARI storm. Investigations carried out by the DNR used a continuing loss rate of 2.5 mm/hr and found that the peak discharge at the Port Office for the PMP was 31950 m^3/s. A continuing loss of 2.5 mm/hr was applied to the Sinclair Knight Merz model (120 hour storm) and the resulting peak discharge for the PMP at the Port Office was estimated to be 29960 m^3/s. This comparison shows that the Sinclair Knight Merz result is within 7% of the DNR result.

The adoption of the 168 hour duration storm for the PMP presented a problem in the calculation of the intermediate flood events if a rainfall based method was used. Since the critical duration of the PMP differed from the 100 year and 50 year ARI events, an extrapolation to 168 hours would have had to be done for the 100 and 50 year IFD curves. As no recognised methodology was available, the rainfall based calculation of intermediate events was not considered further.

An alternate method was to use peak discharges from the PMP, 100 year and 50 year ARI events using the methodology set down in Australian Rainfall and Runoff (AR&R). This method eliminated the problems associated with varying duration events. The intermediate events were calculated using this method at Lowood, Moggill and Port Office. The following figures illustrate the peak discharges with respect to recurrence interval at Lowood, Moggill and the Port Office.

- **Figure 7-8 - Design Peak Discharges at Lowood.**
- **Figure 7-9 - Design Peak Discharges at Moggill.**
- **Figure 7-10 - Design Peak Discharges at Port Office.**

It should be noted that the stage-storage and stage-discharge curves within RAFTS were extended to account for the larger design flood events. The extension of these curves was done assuming vertical banks and hence the only additional storage was confined to within the creek proper. The stage discharge curves were extended linearly following the general trend of the calibrated curves. These assumptions were considered to be a conservative estimate however given the available information (ie cross sectional and topograpical) these assumptions were considered to be appropriate.

The return period for the PMP was determined to be 100 000 years ARI using **Table 13.1 of AR&R**. This calculation was performed using the Generalised Method with a catchment area of approximately 13 500 km^2.

Figure 7-8 - Design Peak Discharges at Lowood

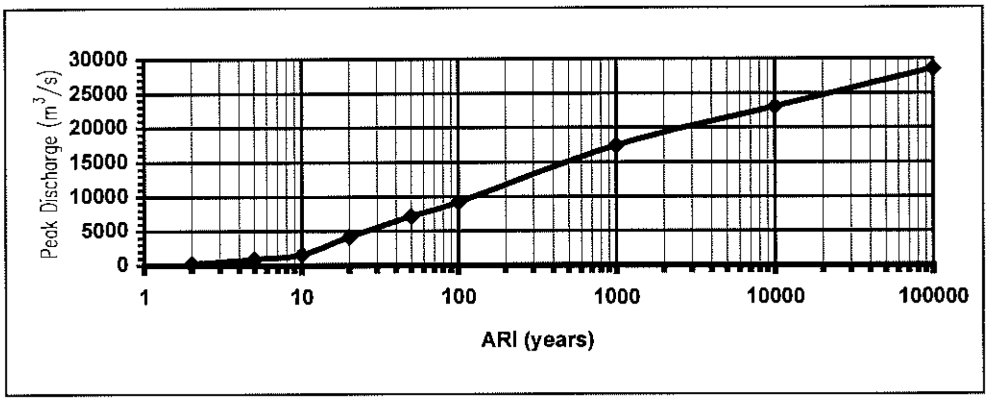


Figure 7-9 - Design Peak Discharges at Moggill

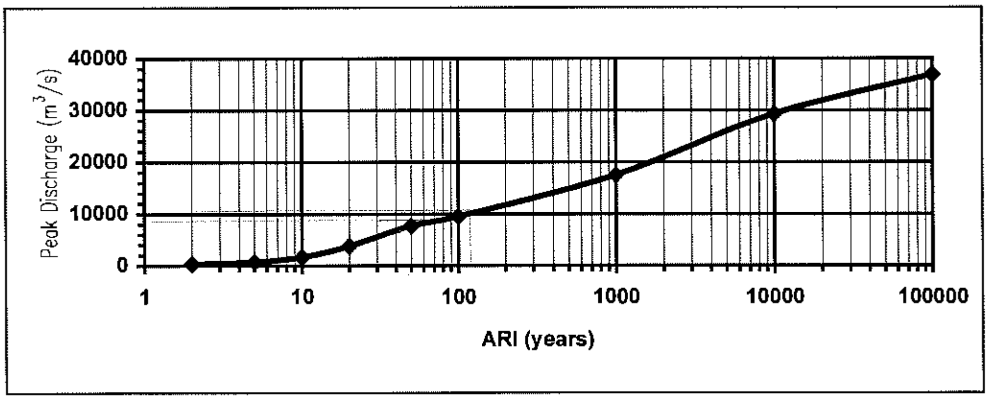
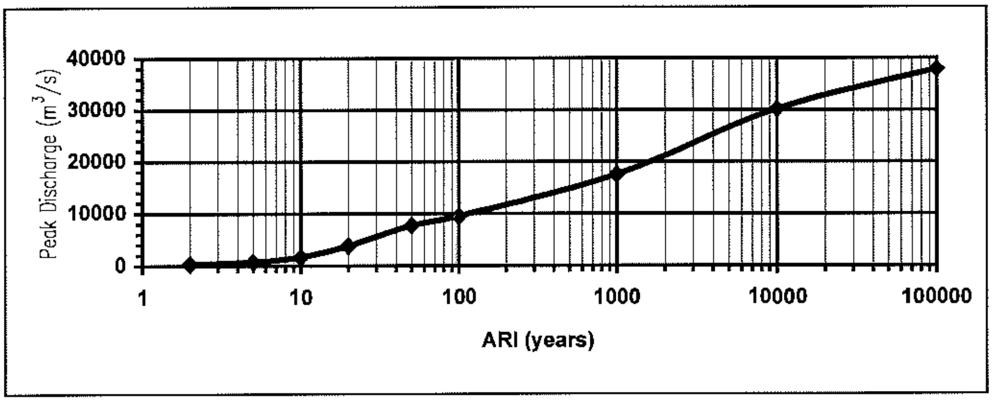


Figure 7-10 - Design Peak Discharges at Port Office



Once the peak discharges for these events were calculated, an average ratio was determined and the PMP rainfall depths were scaled and applied to the catchment. The 168 hour temporal pattern was adopted and the scaled intermediate storms were run through RAFTS. These scaling factors were adjusted for each recurrence interval until a good match between the AR&R peak calculated discharges and the peak RAFTS discharges was achieved. **Table 7-3 - Peak Predicted Discharges for the PMF, 10000, and 2000 Year ARI Events at Lowood, Moggill and Port Office** and **Table 7-4 Peak Predicted Discharges for the 1000, 500 and 200 Year ARI Events at Lowood, Moggill and Port Office** present the outcomes of this analysis.

Table 7-3 - Peak Predicted Discharges for the PMF, 10000 and 2000 Year ARI Events at Lowood, Moggill and Port Office

Location	PMF			10000 Year ARI			2000 Year ARI		
	Calc (m^3/s)	RAFTS (m^3/s)	% error	Calc (m^3/s)	RAFTS (m^3/s)	% error	Calc (m^3/s)	RAFTS (m^3/s)	% error
Lowood	-	28560	-	25090	23020	-8.3	18250	17880	-2.0
Moggill	-	36860	-	28140	29300	+4.1	18660	19490	+4.4
Port Office	-	37910	-	28640	30140	+5.2	18800	19500	+3.7

BCC.121.0538

Table 7-4 - Peak Predicted Discharges for the 1000, 500, 200 Year ARI Events at Lowood, Moggill and Port Office

Location	1000 Year ARI			500 Year ARI			200 Year ARI		
	Calc (m^3/s)	RAFTS (m^3/s)	% error	Calc (m^3/s)	RAFTS (m^3/s)	% error	Calc (m^3/s)	RAFTS (m^3/s)	% error
Lowood	17400	16290	-6.4	12840	11600	-9.7	10100	9420	-6.7
Moggill	17480	17540	+0.4	13080	13910	+6.4	10440	10870	+4.1
Port Office	17580	17550	-0.2	13120	14020	+6.8	10450	10880	+4.1

Table 7-3 and 7-4 show that the calculated discharges are within 10% of the RAFTS predicted discharges at the three locations hence they were considered to be acceptable.

7.4 Flood Frequency Analysis

A flood frequency analysis was performed to ensure consistency between the rainfall and streamflow based estimates of design discharges. The analysis also produced appropriate rainfall loss rates to ensure consistency between the two analysis methods.

Flood frequency analyses were conducted at Moggill, Lowood and Brisbane City at the Port Office Gauge. The omission of Jindalee for the analyses was due to limited available historical information at the site.

The locations for the flood frequency analyses are presented in **Figure 7-11 - Flood Frequency Analysis Location Layout**.

7.5 Historical Data

Historical events were derived from streamflow data recorded at Bureau of Meteorology gauging stations for Brisbane City (Port Office gauge) and Moggill. This data was in the form of peak instantaneous water levels which were converted to discharges using rating curves provided by the Bureau of Meteorology. The data for Lowood was obtained from the Department of Natural Resources in the form of peak instantaneous monthly discharges.

The Brisbane City (Port Office) gauge is influenced by tidal fluctuations and hence rating curves at the Port Office gauge vary to account for the changing tidal conditions. To determine peak discharges during flooding, it was therefore necessary to know the corresponding tide level at the time and date for each event. This information was not available. Discharges were determined by using two rating curves supplied by the Bureau of Meteorology. These rating curves used the following tailwater levels:

(i) -0.15 m AHD, and
(ii) 1.85 m AHD (highest Astronomical Tide +0.15 m).

One of the problems associated with performing the flood frequency analysis for this catchment was the influence that Wivenhoe and Somerset Dams would have on the downstream locations. To minimise these effects the flood frequency analysis was performed using a data series prior to the construction of Wivenhoe Dam (1985).

To account for the effects of Somerset Dam (constructed in 1943), it was necessary to adjust the series of peak discharges. As the adopted data series ended prior to 1985, the effects of Wivenhoe Dam did not need to be considered. However, all data between 1943 and 1985 had to be adjusted to remove the effects of the construction of Somerset Dam.

In order to establish a relationship between the flow upstream of Somerset Dam and flow downstream of the dam site prior to its construction, peak monthly discharges obtained at Woodford (upstream) were plotted against the discharge at the Silverton Gauge (downstream), prior to 1943. A line of best fit was then formulated and a correlation of 91.5% was achieved. This correlation is graphically represented in **Figure E-1 - Relationship Between Discharges of Woodford and Silverton**. The data for Woodford and Silverton used in this study and the resulting adjustment factors due to the construction of Somerset Dam are illustrated in **Appendix E - Adjustment of Historical Streamflows to Account for the Effects of Somerset Dam**. Historical data and adjusted discharges are presented in the following tables:

- **Table E-1 - Calculation of Adjustment Factor for Post Wivenhoe Dam Flows**
- **Table E-2 - Historical Data at Woodford and Silverton (1920 - 1985)**
- **Table E-3 - Historical and Adjusted Data at Moggill (1965 - 1983)**
- **Table E-4 - Historical and Adjusted Data at Port Office (1841 - 1974)**
- **Table E-5 - Historical and Adjusted Discharge at Lowood.**

Each of the corresponding adjusted values were applied at Lowood, Moggill and the Port Office and Flood Frequency Curves were constructed for the no dams effective catchment (ie effects of Wivenhoe and Somerset Dams removed).

7.6 Construction of Flood Frequency Curves

In constructing the flood frequency curves, annual series of peak discharges were utilised in all analyses. An annual series was adopted because of the emphasis of the study in regard to design flood estimation involving ARI's of greater than 10 years. This is in accordance with the recommendations of Chapter 10 of Australian Rainfall and Runoff, (1987).

The flood frequency curves for the annual series data were constructed in accordance with the methods outlined in Australian Rainfall and Runoff, 1987. For each location the historical peak discharges were ranked in descending order and the plotting position for each discharge was then calculated. Using the ranked discharges and their associated plotting positions, the values were plotted on Log Normal paper and the flood frequency curves were then fitted by eye.

A Log-Pearson Type III distribution together with 5% and 95% confidence limits was also fitted to all of the annual series data using the procedures outlined in Chapter 10 of Australian Rainfall and Runoff, 1987. The fit by eye curve was adopted at each location however the Log Pearson Distribution and 5% and 95% confidence limits have been plotted for comparison.

The flood frequency curves generated from the historical annual data series at the three nominated locations are presented in the following figures:

- **Figure 7-12 - Flood Frequency Curve at Lowood - No Dams Effective**
- **Figure 7-13 - Flood Frequency Curve at Moggill - No Dams Effective**
- **Figure 7-14 - Flood Frequency Curve at Port Office (-0.15 m AHD) - No Dams Effective** and
- **Figure 7-15 - Flood Frequency Curve at Port Office (1.85m AHD, Highest Astronomical Tide +0.15 m) - No Dams Effective**.

Results for the fit by eye peak discharge estimates are presented in the following tables:

- **Table 7-5 - Flood Frequency Estimates at Lowood - No Dams Effective**
- **Table 7-6 - Flood Frequency Estimates at Moggill - No Dams Effective**
- **Table 7-7 - Flood Frequency Estimates at Port Office (-0.15 m AHD) - No Dams Effective** and
- **Table 7-8 - Flood Frequency Estimates at Port Office (1.85 m AHD, - Highest Astronomical Tide +0.15 m) - No Dams Effective**

Two flood frequency curves were generated at the Port Office Gauge, incorporating the two tide events mentioned previously.

Table 7-5 - Flood Frequency Estimates at Lowood - No Dams Effective

AEP %	ARI (years)	FFA Fit by Eye Estimate (m^3/s
50	2	800
20	5	2 900
10	10	3 800
5	20	5 100
2	50	6 900
1	100	8 200

Data at the Lowood site was reasonable, with 75 years of data being available and 62 annual floods on record. Again, the annual series had to be adjusted for those years where there was very little or no flow recorded.

Table 7-6 - Flood Frequency Estimates at Moggill - No Dams Effective

AEP %	ARI (years)	FFA Fit by Eye Estimate (m^3/s
50	2	1 630
20	5	4 250
10	10	6 500
5	20	8 500
2	50	11 000
1	100	13 700

Data at the Moggill site was poor. A period of 18 years has been analysed, with only 11 annual floods in this time period recorded. The frequency chart thus had to be adjusted for the years of zero data in accordance with Section 10.7.2 of Australian Rainfall and Runoff, 1987.

Table 7-7 - Flood Frequency Estimates at Port Office (-0.15 m AHD) - No Dams Effective

AEP %	ARI (years)	FFA Fit by Eye Estimate (m^3/s
50	2	500
20	5	3 300
10	10	5 700
5	20	8 100
2	50	11 200
1	100	13 700

Table 7-8 - Flood Frequency Estimates at Port Office (Highest Astronomical Tide) - No Dams Effective

AEP %	ARI (years)	FFA Fit by Eye Estimate (m^3/s
50	2	-
20	5	1 000
10	10	3 500
5	20	6 250
2	50	9 750
1	100	12 500

The two flood frequency estimates for the Port Office Gauge are shown in **Tables 7-7** and **7-8**. Data from 1841 was available at this site, with 142 years of data being analysed and adjustments made for the years of zero or low flow.

7.7 Initial and Continuing Losses

To determine appropriate initial and continuing loss values, the RAFTS model was run excluding Wivenhoe and Somerset Dams. The critical storm duration was determined by running each ARI without losses.

Once the critical duration was determined initial and continuing losses were applied uniformly over the catchment until the peak discharges produced by RAFTS matched the peak discharges found in the fit by eye flood frequency curves (**Section 7.6**). The adopted loss parameters are presented in **Table 7-9 - Initial and Continuing Losses for Brisbane River Catchment.**

Table 7-9 - Initial and Continuing Losses for Brisbane River Catchment

AEP (Years)	Initial Loss (mm)	Continuing Loss (mm/hr)
PMP	0.0	0.0
10 000	0.0	0.0
2 000	0.0	0.0
1 000	0.0	0.0
500	0.0	0.0
200	0.0	0.0
100	0.0	0.0
50	0.0	1.0
20	20	2.5
10	60	2.5
5	80	2.5
2	80	2.5

A comparison of RAFTS with loss rates applied and fit by eye peak discharges at Lowood, Moggill and Port Office are presented in **Table 7-10 - Peak Discharge Comparison Between RAFTS and Flood Frequency Curves for Lowood, Moggill and Port Office - No Dams Effective** for events up to and including the 100 year ARI.

Table 7-10 - Peak Discharge Comparison Between RAFTS and Flood Frequency Curves for Lowood, Moggill and Port Office - No Dams Effective

	Lowood			Moggill			Port Office *		
ARI (years)	RAFTS (m^3/s)	FFA (m^3/s)	Diff (%)	RAFTS (m^3/s)	FFA (m^3/s)	Diff (%)	RAFTS (m^3/s)	FFA (m^3/s)	Diff (%)
100	12 280	8 200	+33.2	13 590	13 700	-0.8	13 600	13 700	-0.7
50	10 370	6 900	+33.5	11 280	11 120	-1.4	11 120	11 200	-0.7
20	7 510	5 100	+32.1	8 060	8 500	-5.5	8 060	8 100	-0.5
10	5 830	3 800	+34.8	5 770	6 500	-12.7	5 770	5 700	+1.2
5	3 770	2 900	+23.1	3 150	4 500	-30.2	3 150	3 300	-5.1
2	1 060	800	+24.5	1 020	2 000	-51.0	1 020	500	+49.0

Note: (1) Comparison for Port Office conducted for -0.15 m AHD Rating Curve Case.

From **Table 7-10** it can be seen that for Moggill and Port Office the comparison yields a good result however for low flows the percentage difference varies considerably. This variance would be most likely influenced by tidal fluctuations at these sites. As the study objectives are generally related to the large flood events greater importance was placed on results consistency for the 10 year ARI flood and above.

At Lowood RAFTS over estimates flows by between about 23 and 41%. Loss rates above Lowood were increased, however this resulted in a reduction in flows at Moggill and the Port Office. Given that the main aim of this study was to produce development design flood levels within the Brisbane City Boundary it was considered that the loss parameters presented in **Table 7-9** were the most appropriate as they produced the best results at Moggill and Port Office.

7.8 Wivenhoe and Somerset Dam Operations

The RAFTS model was used to predict design hydrographs for the MIKE 11 hydraulic model. Prior to the commencement of the design events modelling, dam operational procedures for Wivenhoe and Somerset dams had to be established. These procedures were developed after discussions with Brisbane City Council and South East Queensland Water Board officers.

Given the complex release procedures for Somerset and Wivenhoe Dams, it was decided that the following assumptions be adopted for this study.

- The starting water level for both dams are assumed to be Wivenhoe RL 67.0 m AHD and Somerset RL 100.5 m AHD which is full supply level and spillway level respectively.

- During a flood event all communication between Wivenhoe and Somerset would be cut. When communications are cut during a flood event, the procedure is to employ uncontrolled releases for both dams.

It is evident that the above assumptions are conservative, however these were considered to be the most appropriate when setting development regulation lines. Storage curves and stage-discharge curves used in this study are presented in **Appendix F - Dam Operations**. These curves were input into the RAFTS model and the design events modelling was conducted.

7.9 Design RAFTS Modelling

Wivenhoe and Somerset Dams were included in the RAFTS model and the 24 hour, 30 hour and 36 hour storms for the 100 year ARI event were rerun. Using no losses it was found that the critical storm duration for the dams effective case was 30 hours which is consistent with the no dams effective case.

Floods ranging from 2 year ARI through to PMP were run assuming loss parameters presented in **Table 7-9**. Peak discharges at Lowood, Moggill and the Port Office are presented in **Table 7-11 - Peak Discharges at Lowood, Moggill and the Port Office - Losses and Dams Effective**. Peak discharges presented in the Department of Natural Resources Report are also presented in **Table 7-11** at the Port Office for comparison.

Table 7-11 - Peak Discharges at Lowood, Moggill and the Port Office - Losses and Dams Effective

ARI (Years)	Lowood SKM (m^3/s)	Moggill SKM (m^3/s)	Port Office SKM (m^3/s)	Port Office DNR (m^3/s)	Difference @ PO (m^3/s)
PMP	28 560	36 860	37 910	31950(1)	+5 960
10 000	23 020	29 300	30 140	27560(1)	+2 580
2 000	17 880	19 490	19 500	-	-
1 000	16 290	17 540	17 550	20100(1)	-2 550
500	11 590	13 910	14 010	17 510(1)	-3 500
200	9 420	10 870	10 880	11 840(1)	-960
100	9 190	9 650	9 560	9 120(2)	+440
50	7 140	7 750	7 750	7 990(2)	-240
20	4 190	3 860	3 860	3 950(2)	-90
10	1 610	1 680	1 680	2 840(2)	-1 160
5	920	760	760	-	-
2	280	320	330	-	-

Note (1) - DNR 120a hour duration storm assuming 2.5 mm/hr continuing loss.
(2) - DNR 24 hour duration storm assuming varying loss rates.

The comparison between the Sinclair Knight Merz (SKM) and Department of Natural Resources (DNR) discharges up to and including the 100 year ARI event are generally within 5%, however, the SKM 10 year ARI flood is approximately 42% below that predicted by the DNR. This is most likely due to the loss parameters used. The loss rates used for the 10 year ARI flood by SKM are, IL = 60 mm, CL = 2.5 mm/hr whereas the losses used by DNR are IL = 22.9 mm and CL = 2.5 mm/hr.

As previously mentioned the PMF and intermediate results from the different sources vary considerably. However when loss rates applied by DNR were applied in the SKM model for the PMF flood event, this resulted in the outcomes for both models being within 7% of each other.

Given that the loss parameters for the no dams effective case generally yield discharges within 1% of the flood frequency analysis at the Port Office gauge (**Table 7-10**), the loss parameters adopted by SKM were considered the most appropriate.

7.10 Comparison of DNR and SKM Discharges

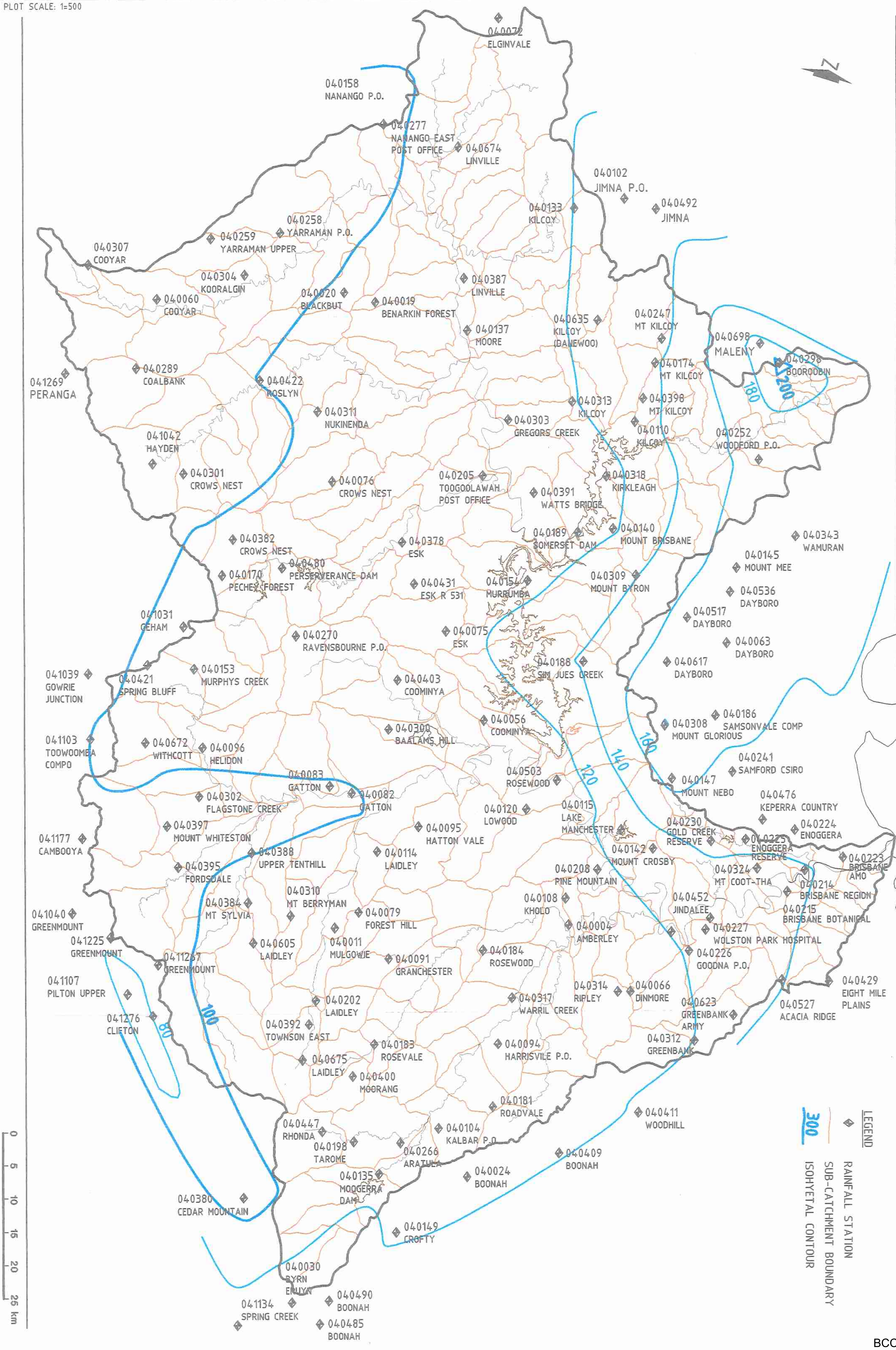
It was proposed that a comparison between design flood hydrographs between DNR and SKM be conducted. Upon determination of the critical duration event, it became evident that the DNR critical duration was estimated at 24 hours whereas the SKM analysis resulted in a critical duration of 30 hours.

This meant that it was not appropriate to compare the two hydrographs as the 24 hour duration storm has a different temporal pattern to that of the 30 hour duration storm, hence a comparison was not conducted.

RAFTS hydrographs for the range of ARI storms at the Brisbane City Boundary, Inflow Boundaries and the Port Office gauge are presented in the following figures:

- **Figure G-1 - Hydrographs for the 2 Year ARI Flood Event**
- **Figure G-2 - Hydrographs for the 5 Year ARI Flood Event**
- **Figure G-3 - Hydrographs for the 10 Year ARI Flood Event**
- **Figure G-4 - Hydrographs for the 20 Year ARI Flood Event**
- **Figure G-5 - Hydrographs for the 50 Year ARI Flood Event**
- **Figure G-6 - Hydrographs for the 100 Year ARI Flood Event**
- **Figure G-7 - Hydrographs for the 200 Year ARI Flood Event**
- **Figure G-8 - Hydrographs for the 500 Year ARI Flood Event**
- **Figure G-9 - Hydrographs for the 1 000 Year ARI Flood Event**
- **Figure G-10 - Hydrographs for the 2 000 Year ARI Flood Event**
- **Figure G-11 - Hydrographs for the 10 000 Year ARI Flood Event**
- **Figure G-12 - Hydrographs for the PMF (100 000 Year ARI Flood Event)**

FILE 0415' DIS D:\D\ ISBJAT T0041 D -7-97
PLOT SCALE: 1=500



SINCLAIR KNIGHT MERZ

FIGURE 7-1
BRISBANE RIVER FLOOD STUDY
2 YEAR ARI 30 HOUR DURATION RAINFALL EVENT - BRISBANE RIVER CATCHMENT

SINCLAIR KNIGHT MERZ

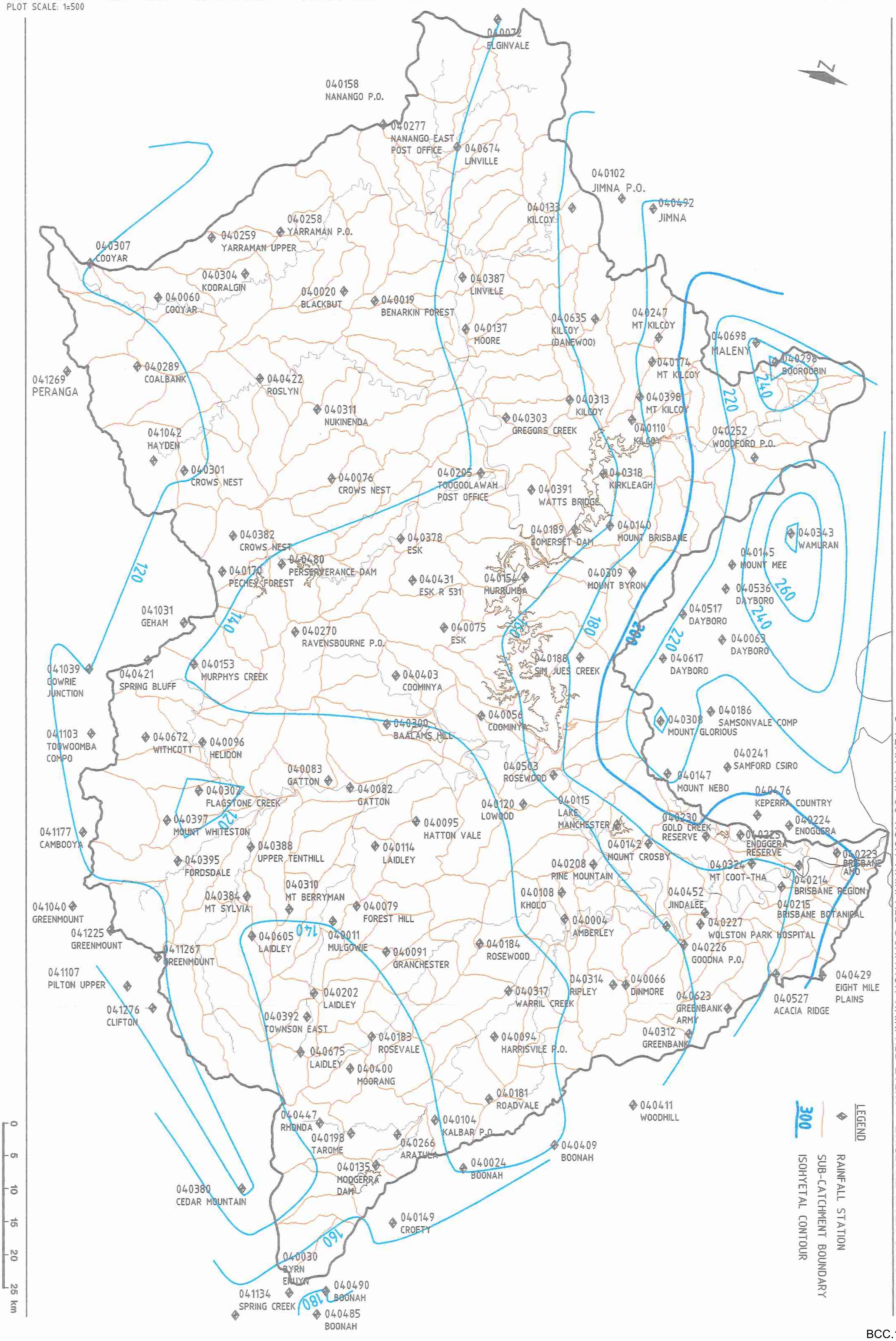
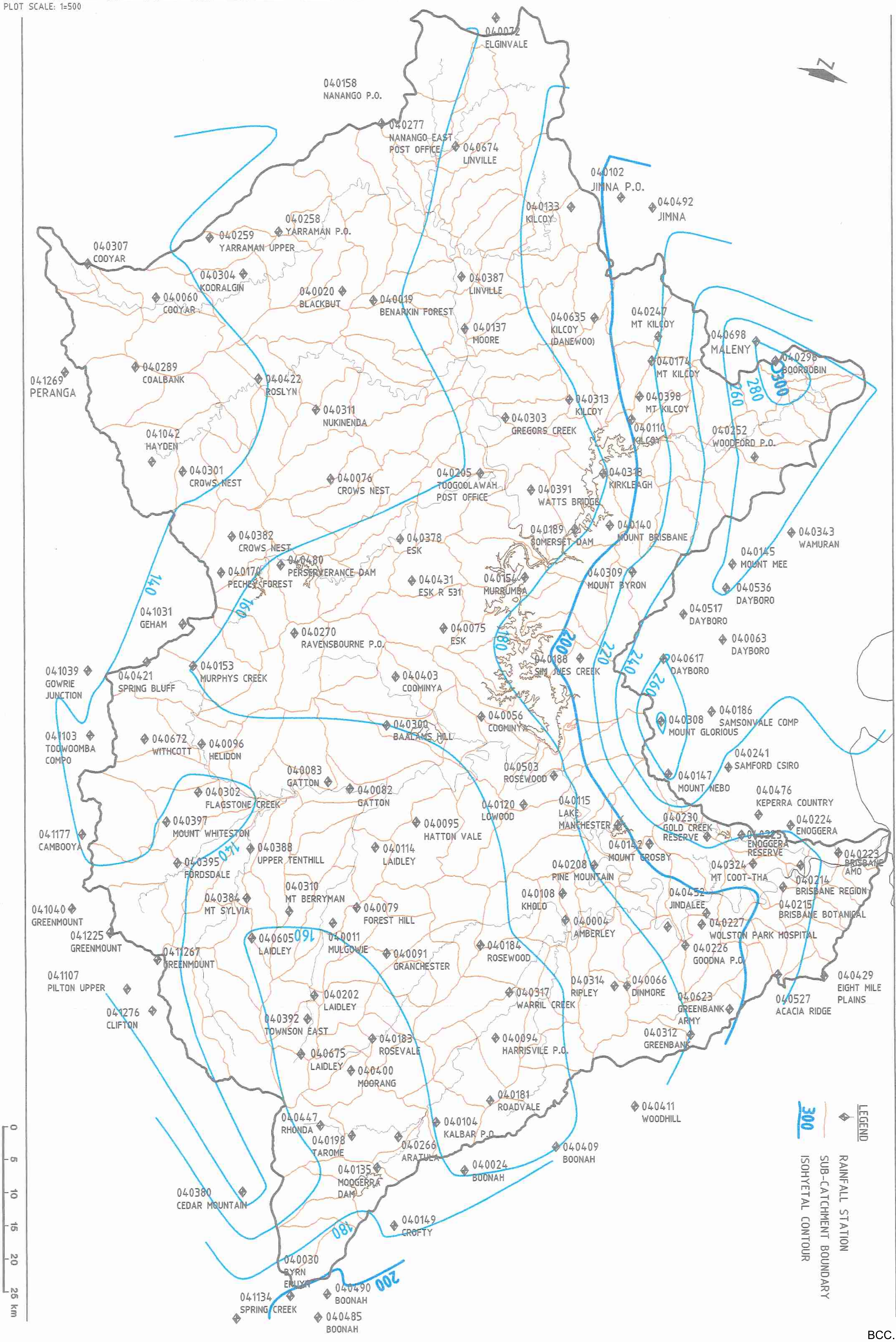


FIGURE 7-2
BRISBANE RIVER FLOOD STUDY
5 YEAR ARI 30 HOUR RAINFALL DURATION RAINFALL EVENT - BRISBANE RIVER CATCHMENT

LEGEND
- RAINFALL STATION
- SUB-CATCHMENT BOUNDARY
- 300 ISOHYETAL CONTOUR

BCC.121.0548



SINCLAIR KNIGHT MERZ

FIGURE 7-3
BRISBANE RIVER FLOOD STUDY
BRISBANE RIVER CATCHMENT
10 YEAR ARI 30 HOUR DURATION RAINFALL EVENT - BRISBANE RIVER CATCHMENT

LEGEND
- RAINFALL STATION
- SUB-CATCHMENT BOUNDARY
- 300 ISOHYETAL CONTOUR

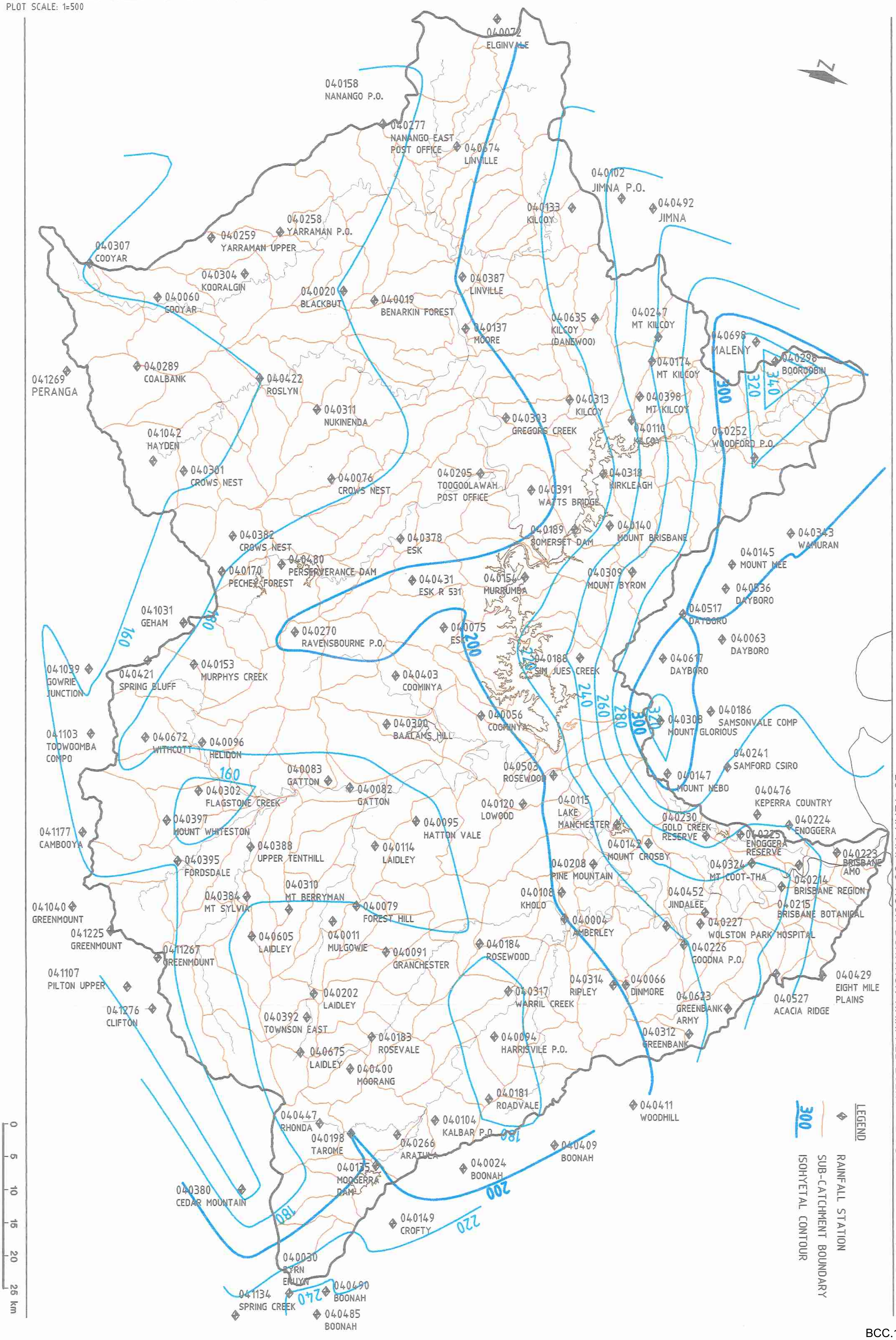


FIGURE 7-4
BRISBANE RIVER FLOOD STUDY
20 YEAR ARI 30 HOUR DURATION RAINFALL EVENT - BRISBANE RIVER CATCHMENT

LEGEND
RAINFALL STATION
SUB-CATCHMENT BOUNDARY
300 ISOHYETAL CONTOUR

FILE 0415 DIS D:\D\ ISBAL T0041 D -7-97
PLOT SCALE: 1=500

SINCLAIR KNIGHT MERZ

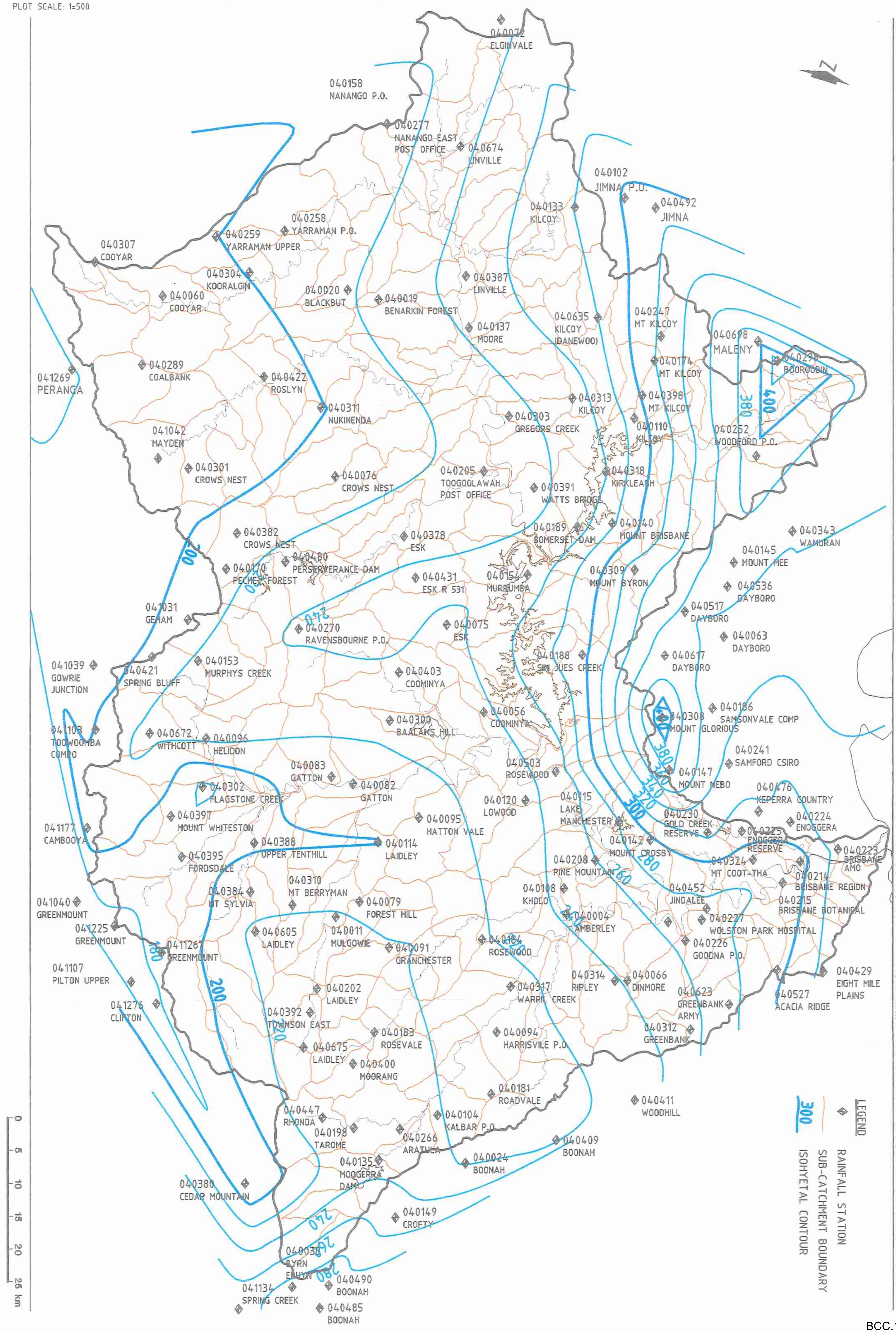
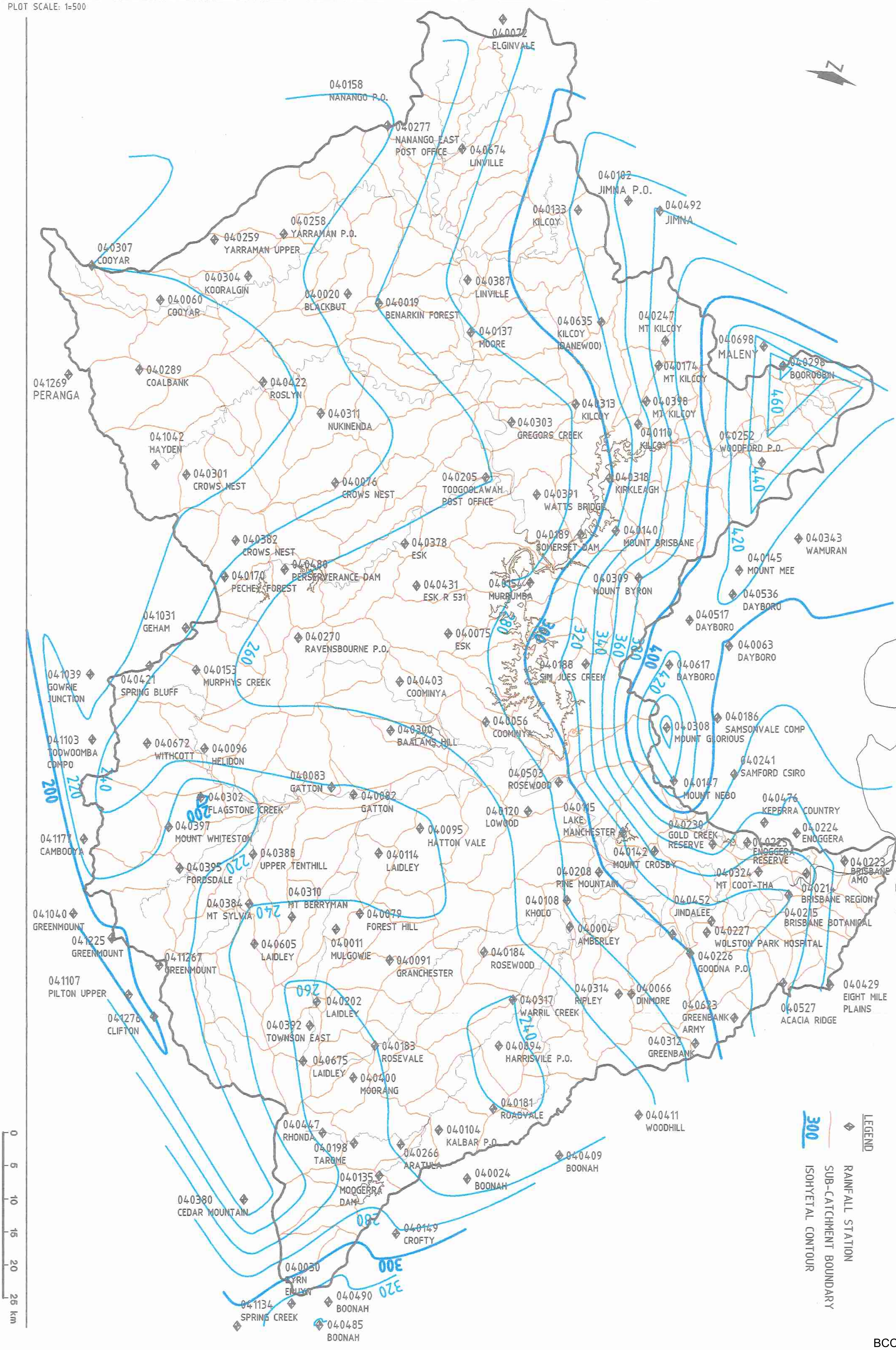


FIGURE 7-5

BRISBANE RIVER FLOOD STUDY

50 YEAR ARI 30 HOUR DURATION RAINFALL EVENT - BRISBANE RIVER CATCHMENT



SINCLAIR KNIGHT MERZ

FIGURE 7-6

BRISBANE RIVER FLOOD STUDY

100 YEAR ARI 30 HOUR DURATION RAINFALL EVENT - BRISBANE RIVER CATCHMENT

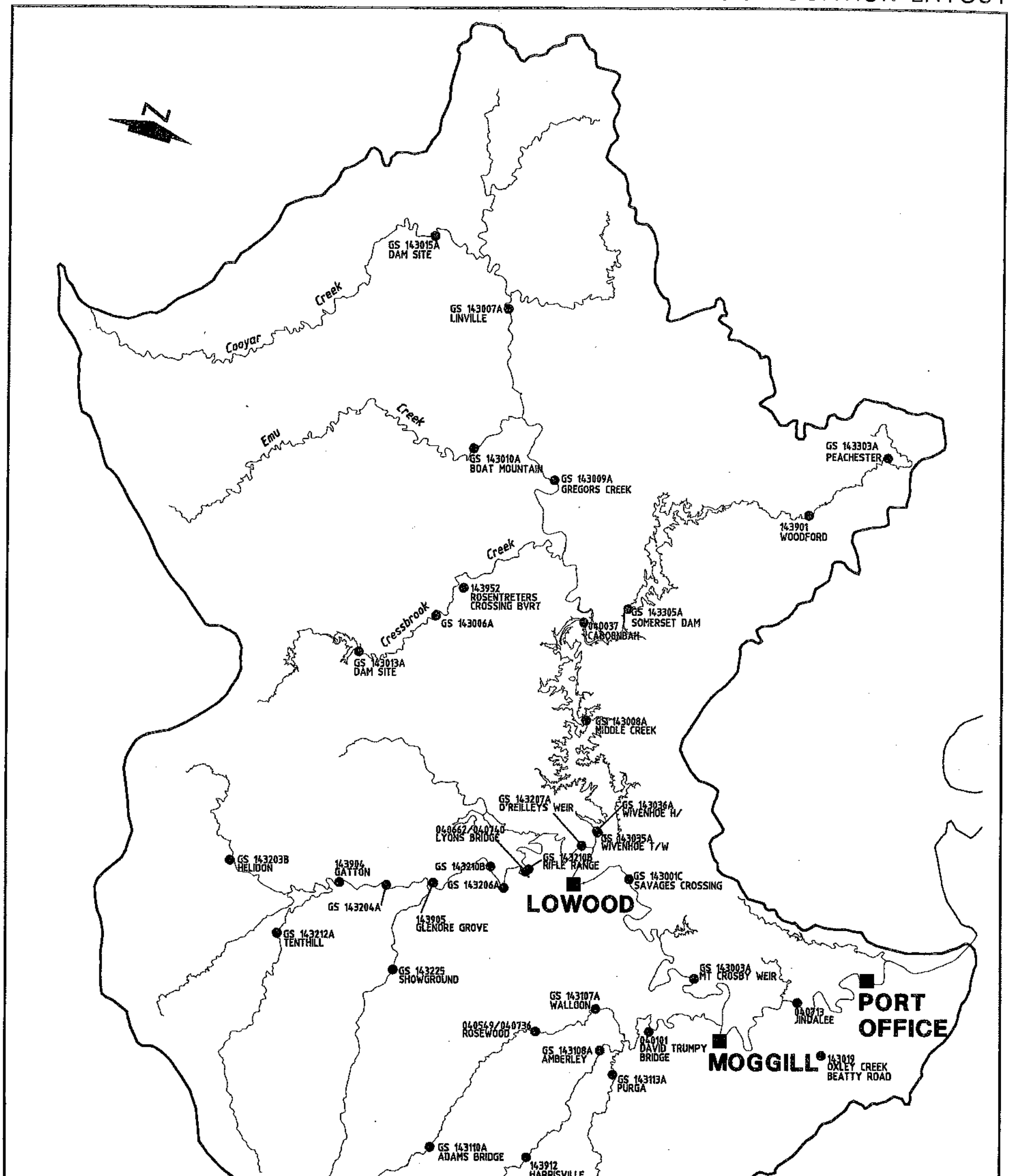
LEGEND

- RAINFALL STATION
- SUB-CATCHMENT BOUNDARY
- 300 ISOHYETAL CONTOUR

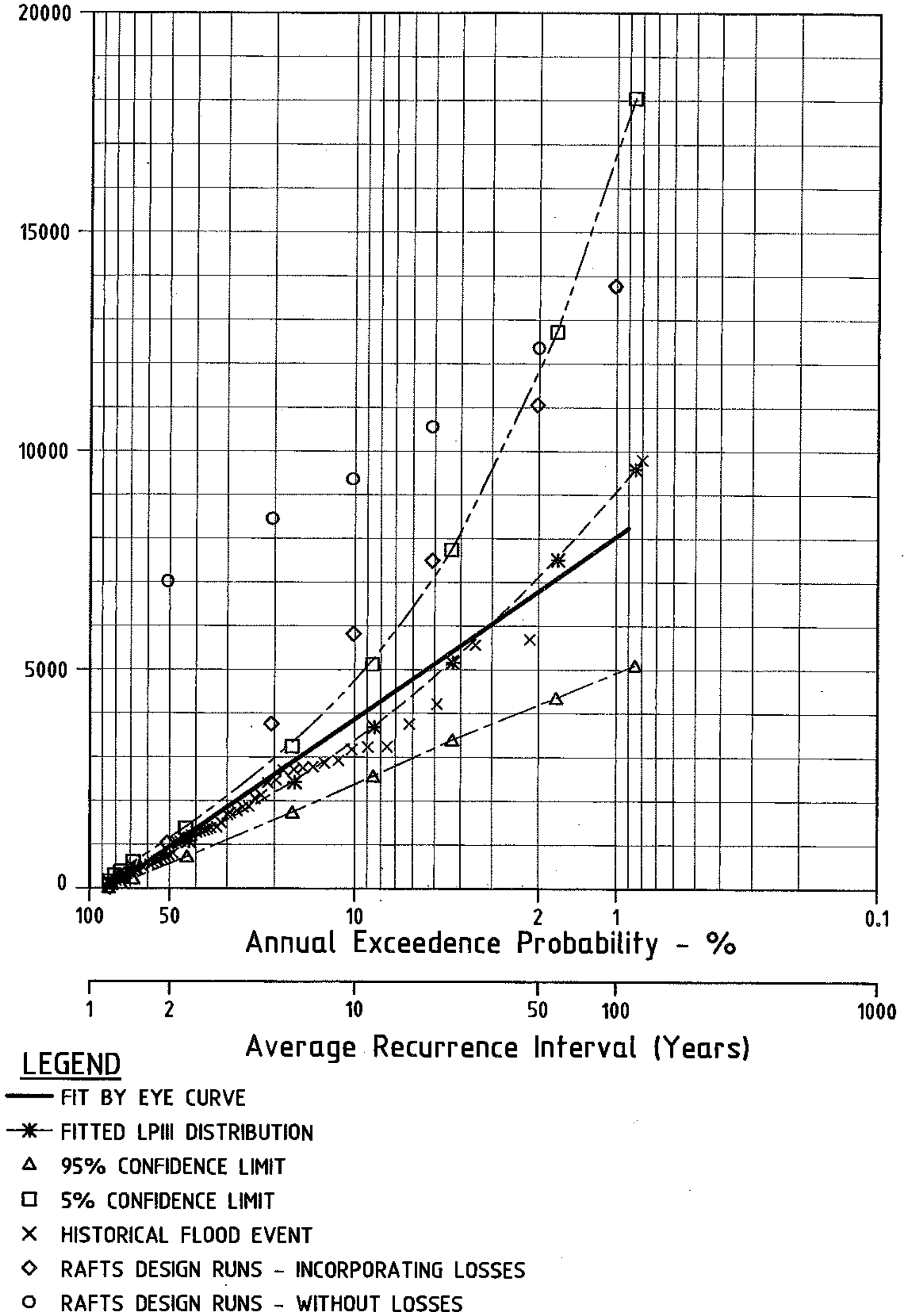
SINCLAIR KNIGHT MERZ

FIGURE 7-11

BRISBANE RIVER FLOOD STUDY
FLOOD FREQUENCY ANALYSIS LOCATION LAYOUT

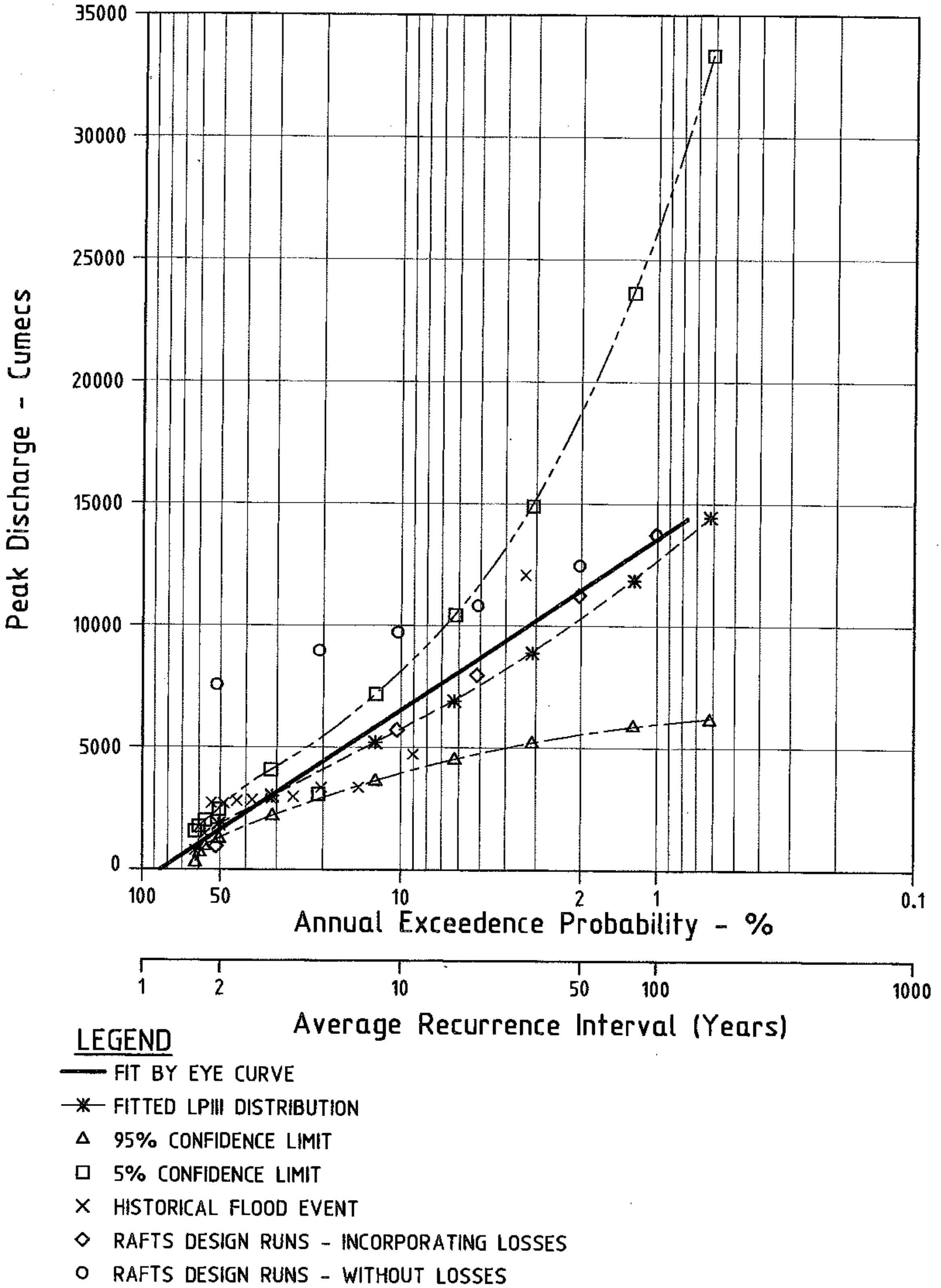


FILE NAME: 04157-30 DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 3-7-97



FILE NAME: 04157-31 DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 3-7-97

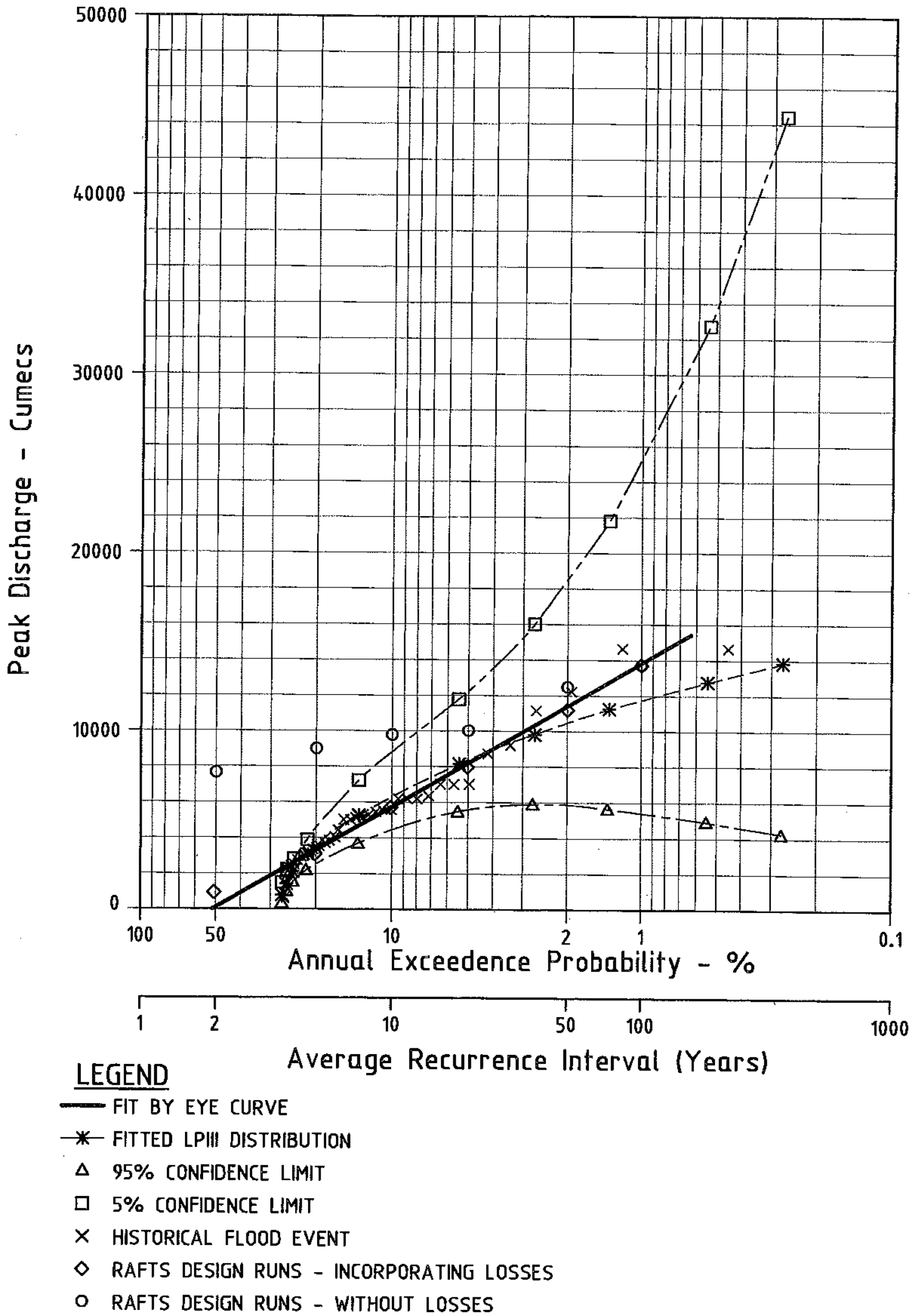
FIGURE 7-13
BRISBANE RIVER FLOOD STUDY
FLOOD FREQUENCY CURVE AT MOGGILL
- NO DAMS EFFECTIVE



FILE NAME: 04157-31 DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 3-7-97
PLC... ..LE: 1:..

FIGURE 7-14

BRISBANE RIVER FLOOD STUDY
FLOOD FREQUENCY CURVE AT PORT OFFICE
(-0.15m AHD) - NO DAMS EFFECTIVE

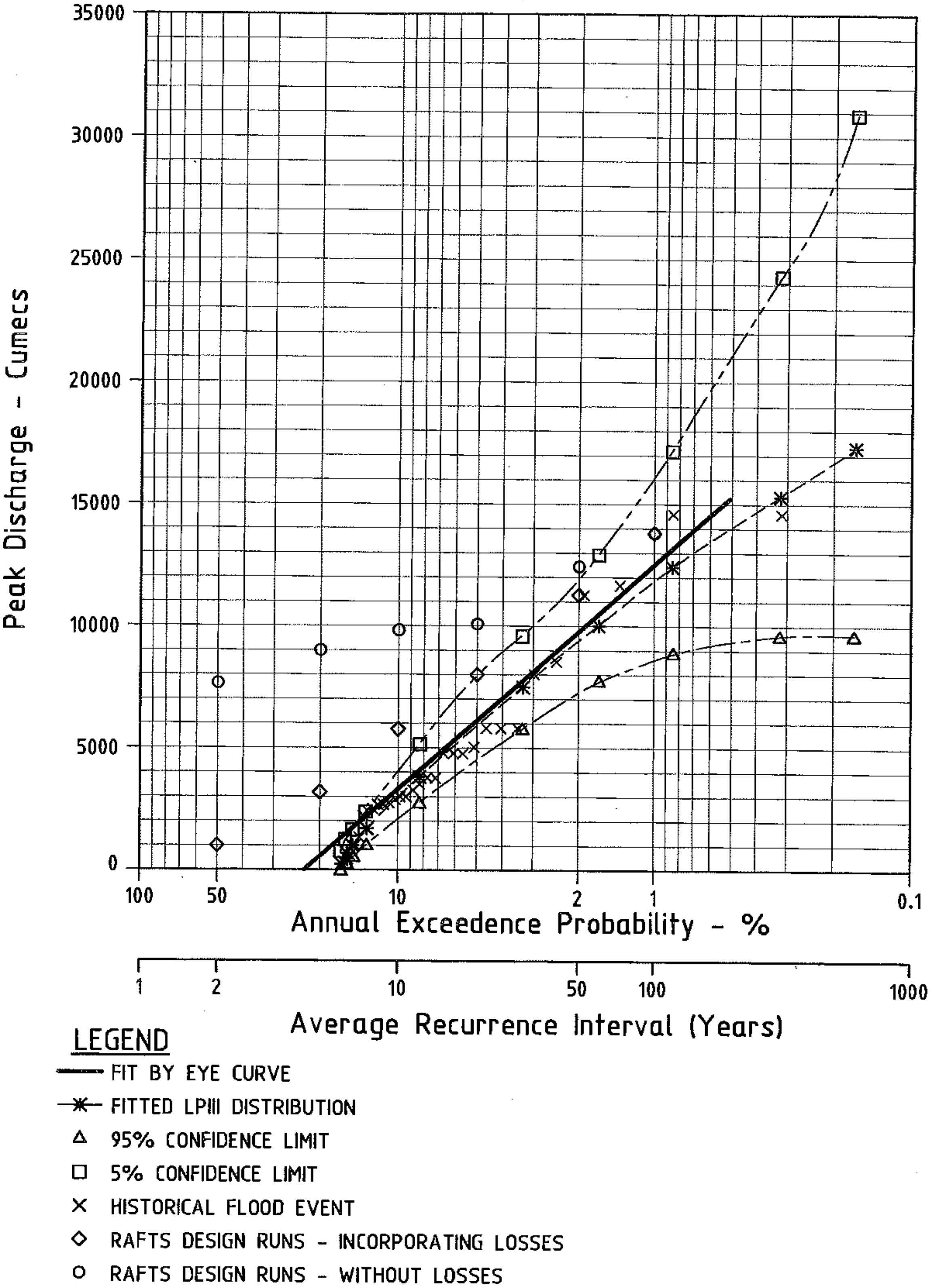


FILE NAME: 04157-31 DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 3-7-97
PLOT SCALE: 1

SINCLAIR KNIGHT MERZ

FIGURE 7-15

BRISBANE RIVER FLOOD STUDY
FLOOD FREQUENCY CURVE AT PORT OFFICE
(1.85m AHD, HIGHEST ASTRONOMICAL TIDE +0.15m)
- NO DAMS EFFECTIVE



FILE NAME: 04157-31 DISK N°: D:\DWG\BRISBANE N°: T004157 DATE: 3-7-97
PLL... SCALE: 1...

8. Design Event Hydraulics

8. Design Event Hydraulics

8.1 Tailwater Boundary Conditions

Tailwater boundary conditions for design model runs were selected for a number of tidal conditions at the Western Inner Bar. These conditions were:

- Mean High Water Spring Tide (RL 0.92 m AHD) and
- Mean Low Water Spring Tide (RL -0.89 m AHD).

These levels were used at the downstream end of the Brisbane River as boundary conditions for the MIKE 11 hydraulic model.

It was recognised that varying conditions at the mouth of the Brisbane River (Western Inner Bar) may be caused by storm surges in Moreton Bay. These conditions are likely to impact on flood profiles within the lower reaches of the Brisbane River and were therefore investigated. The storm surge conditions analysed in this study were;

(i) 100 year ARI river flood coinciding with a 20 year ARI Moreton Bay storm surge

(ii) 20 year ARI river flood coinciding with a 100 year ARI Moreton Bay storm surge

(iii) 100 year ARI river flood coinciding with a 100 year ARI Moreton Bay storm surge.

Peak storm surge levels for the Western Inner Bar (post Wivenhoe Dam) were supplied by Council and are presented in **Table 8-1 - Western Inner Bar Flood Levels**.

Table 8-1 - Western Inner Bar Flood Levels

Design ARI (years)	Storm Surge Level (m AHD)	Storm Surge Level + Greenhouse Effect Levels (m AHD)
20	1.75	2.10
100	2.14	2.50

Brisbane City Council requires that an allowance of 300 mm be added to storm surge levels to account for Greenhouse effects. Once this level was determined it was rounded up to the nearest 0.1 m as required. Design modelling for this study used the adjusted Greenhouse effect tailwater levels presented in **Table 8-1**.

The predicted flood profiles for the three combined flooding cases are presented in **Figure H-1 - Combined Tailwater and River Flooding Conditions - Moreton Bay Storm Surge**. These results are also tabulated in **Table H-1 - Combined Tailwater and River Flooding Conditions - Moreton Bay Storm Surge** in **Appendix H - MIKE 11 Model Results - Design Events**. The assessment assumed handrails at structures were blocked.

It can be seen that for the first case combining a 100 year ARI river flood with a 20 year ARI Moreton Bay storm surge, the tailwater level at the Western Inner Bar results in a 130 mm increase in flood level at the Walter Taylor Bridge (MIKE 11 model chainage 1037.11 km) when compared to a tailwater level of Mean High Water Spring Tide at the Inner Bar. An increase in water levels was predicted over the entire length of the Brisbane River with an increase at the Brisbane City Boundary of 30 mm.

The second case combined a 20 year ARI river flood with a 100 year ARI Moreton Bay storm surge. This case resulted in a significant increase in water levels throughout the lower Brisbane River reach when compared to the 20 year ARI design flood (MHWS). The increase in flood levels at the Walter Taylor Bridge and the Brisbane City Boundary were estimated to be 790 mm and 150 mm respectively.

The final configuration combined a 100 year ARI river flood with a 100 year Moreton Bay Storm surge. This combination caused an increase in water level of 190 mm at the Walter Taylor Bridge and 40 mm at the Brisbane City Boundary. Again the base case for this comparison was MHWS at the bar. This flooding combination of river flow and storm surge in Moreton Bay resulted in the highest predicted flooding levels throughout the Brisbane City Council Local Government Area of all the flooding cases considered. The joint probability of these events was considered to be in excess of 100 years ARI.

Following review of the cases assessed, due to the uncertainty of a storm surge occurring coincidentally with the peak flow in the river, Council advised that the 100 year ARI flood profile be generated as follows:

- Determine the 100 year ARI river flood profile for a mean high water springs tailwater.
- Establish the flood profile for the 100 year ARI storm surge level with zero river flow.
- Adopt the highest predicted levels from each profile to establish the design flood profile.

8.2 Design Flood Profiles

The inflow hydrographs calculated by the RAFTS model for the full range of design storms were run through the MIKE 11 model for the current extent of urbanisation to generate a series of design flood profiles. The flood profiles for the Brisbane River have been plotted for the range of return periods and are presented in the following figures and drawing sheets:

- **Figure H-2 - Design Profiles for the Brisbane River - Combined** and **Drawing Sheet W10581-55**
- **Figures H-3a to H-3i - MIKE 11 Design Flood Profiles for the 5, 20 & 100 Year ARI Events (MHWS)** and **Drawing Sheets W10581-19 to 27.**
- **Figures H-4a to H-4i - MIKE 11 Design Flood Profiles for the 2, 10 & 50 Year ARI Events (MHWS)** and **Drawing Sheets W10581- 28 to 36.**
- **Figures H-5a to H-5i - MIKE 11 Design Flood Profiles for the PMF & 10 000 Year ARI Events (MHWS)** and **Drawing Sheets W10581-37 to 45.**
- **Figures H-6a to H-6i - MIKE 11 Design Flood Profiles for the 2 000, 1 000, 500 & 200 Year ARI Events (MHWS)** and **Drawing Sheets W1058-46 to 54.**

Design flood discharges and peak water levels are presented in **Table H-2 - MIKE 11 Predicted Design Flood Levels (MHWS)** and **Table H-3 - MIKE 11 Predicted Design Discharges (MHWS).** It has been assumed that the handrails at all structures would be fully blocked by debris during the design events. A sensitivity analysis has been performed to test the sensitivity of this assumption and it was found that the effects of blocked handrails were negligible.

8.3 HEC-RAS Model Construction and Calibration

During the model calibration phase of this study, it was decided that the HEC-RAS model would only be used to check the performance of the MIKE 11 model at major river crossings. This process is detailed in **Section 6.8 - HEC-RAS Check of Major Creek Crossings** in the this report.

The construction of the HEC-RAS model involved linking the structures analysed in the calibration phase of this report to the remaining cross sectional information used in the MIKE 11 model. The HEC-RAS and MIKE 11 models are essentially a duplicate of each other in all aspects.

Following the model setup, the 100 year ARI peak water levels and discharges were taken from the MIKE 11 model. The peak discharges varied along the length of the Brisbane River due to attenuation effects and adjoining river branches. To account for this phenomenon discharges were placed at strategic locations in order to accurately represent the river flow regime throughout the model.

To account for the complex interaction of storage within Oxley Creek and the link branches across Indooroopilly Golf course, the Oxley Creek inflow had to be adjusted in the HEC-RAS model. The MIKE 11 model could model this area in a dynamic process, however, as HEC-RAS is only a steady state model flood levels from BN1060 (AMTD 34.935) to BN950 (AMTD 39.095) were significantly underestimated. The flow at Oxley Creek was reduced significantly in MIKE 11 (approx 900 m^3/s), however this was due to storage and the link branch across the floodplain. HEC-RAS is unable to account for storage and automatic flow distribution into link branches cannot be achieved. The flow predicted by MIKE 11 at BN950 was therefore input into HEC-RAS at BN950 and the Oxley Creek inflow was neglected. This produced results within the required tolerances.

Peak water levels extracted from MIKE 11 were inserted at each cross section in the HEC-RAS model. These levels were used in a comparison role during the calibration of the HEC-RAS model. The calibration of the HEC-RAS model was based on altering Manning's n values used in the MIKE 11 model by a constant scaling factor of 0.85.

Using this scaling factor the water levels determined by the HEC-RAS model were generally within 150 mm of that predicted by MIKE 11 with an absolute average difference of 105 mm for the 100 year ARI event and an absolute average difference of 27 mm for the 10 year ARI event. These results are presented in **Appendix I - HEC-RAS Model Results** in **Table I-1 - HEC-RAS Model Calibration**. The roughness coefficients adopted in the HEC-RAS model are summarised in **Table I-2 - Comparison of MIKE 11 & HEC-RAS Manning's n Roughnesses**

8.4 River Hydraulic Characteristics

The HEC-RAS model was used to determine the bank full channel flood by using a range of flows and identifying the bank full flow at each cross section. Bank full flow was considered to be the first low bank which is located above the 2 year ARI flood level. MIKE 11 results for the 100 year ARI and 20 year ARI floods were inserted at strategic locations in the HEC-RAS model to determine the velocities and conveyance at each section.

Left bank, right bank and main channel velocities for the 100 year ARI and bank full flood were determined using HEC-RAS. Conveyances for the left bank, right bank and channel for the 100 year ARI and 20 year ARI floods were determined. The results for velocities and conveyance are tabulated in **Table I-3 - HEC-RAS Predicted Velocities and Table I-4 - HEC-RAS Predicted Conveyances.**

It should be noted that these conveyances and velocities relate to the channel proper being at the extent of the tidal zone. During the calibration phase of the study, the MIKE 11 model was developed by defining the channel proper on the basis of roughness rather than a topographical basis. This was considered to be justified due to the significant differences between the roughness within the tidal zone and the roughness on the river banks and floodplains.

For consistency the calibration of the HEC-RAS model used the same parameters as those adopted by the MIKE 11 model and hence the channel proper is defined by the tidal zone within each cross section. This approach was also considered to be suitable for HEC-RAS as the model defines each cross section into three segments, these being:

- left overbank,
- channel, and
- right overbank.

Each of these segments define the distinct roughness appropriate to each cross section. This became a problem when the hydraulic characteristics had to be assessed. If the left and right overbanks are placed at bank full condition (based on topographical interpretation), then the HEC-RAS model calculates a composite roughness for the main channel using the formula:

$$n=\Sigma((P_i n_i)^{3/2})/P)^{2/3}$$

Due to both high wetted perimeters and relatively high Manning's n values along the Brisbane River banks, the composite channel roughnesses calculated by the HEC-RAS model were considered to be over estimated. This over estimation caused significant increases in water levels and decreases in conveyances for the entire cross section if roughness values consistent with MIKE 11 were used.

This meant that the HEC-RAS model would have to be calibrated as a stand alone model using a different Manning's n parameter set to that used in MIKE 11. After discussions with Brisbane City Council Officers, it was decided that it was most appropriate to use a consistent parameter set for this investigation.

9. Waterway Management

9. Waterway Management

9.1 General Strategy

This component of the study required application of the calibrated hydraulic model for the lower Brisbane River to determine a revegetation strategy and delineate flood regulation lines.

The brief required that the combined effect of revegetation and rehabilitation, encroachment of development on the floodplain outside the regulation line and crossings of the river (upgraded as necessary) does not increase the 100 year ARI flood level by more than approximately 150 mm. After discussions with council it was decided that increases in water level up to 170 mm would be acceptable in selected locations provided private residences were not significantly effected.

9.2 Collation of Environmental Data

Prior to the commencement of the Waterway Management Strategy it was necessary to liaise with the Bikeway, Transport Planning Section and the Environment Management and Planning Sections of the Brisbane City Council.

Through contact with the Environmental Management and Planning Departments a data sheet containing various names and addresses of Environmental Groups throughout Queensland was obtained.

Specific groups were identified according to their proximity to the Brisbane River and questionnaires were prepared and sent to these groups. Approximately 500 questionnaires to members of the specific community groups were sent however the response was considered poor.

Discussions with the Bikeway, Transport Planning Section revealed that no major works have been planned over the next five years with the exception of the construction of a new bikeway along Coronation Drive between the William Jolly Bridge and Victoria Bridge. These works involve the construction of a structure approximately 4.5 metres in width and about 1 metre above high tide level. The structure is to be built outside the existing freeway structure to avoid problems with freeway foundations.

This structure was not included in the hydraulic modelling as the decrease in conveyance due to the decrease in channel area would be negligible. Similarly due to the location and size of this structure it was considered that the resulting impacts would be negligible as the structure would be drowned out during a 100 year ARI event.

The existing bikeway running adjacent to Coronation Drive is also to be upgraded within the next few years however this project is in the preliminary phase and therefore no information was available.

9.3 Revegetation Strategy

It was proposed that the revegetation strategy would be developed primarily from information supplied by each of the surveyed community groups however due to the poor response limited revegetation locations were identified. Other areas had to therefore be located using photographic maps, topographical information and field surveys.

Most of the locations that have been identified for revegetation are currently open space areas. Revegetation of private residential areas has not been investigated as it was considered that these areas would generally be small and therefore have a negligible effect on the floodplain.

The combination of community groups input and the additional investigation resulted in a proposed revegetation strategy. This proposed revegetation strategy is presented in **Drawings W10581 Sheets 84 to 90**.

Drawings W10581 Sheets 84 to 90 also present locations where significant areas of vegetation currently exist. These locations may or may not represent areas of ecological significance. It is recommended that should development occur at any of the above locations some form of environmental investigation be undertaken to assess the possible ecological impacts.

The approach used to investigate the revegetation strategy for the Brisbane River was to increase mannings n roughness parameters within the calibrated hydraulic model (MIKE 11) to reflect changes imposed by the proposed revegetation.

Since the hydraulic model bank roughnesses at most locations exceeded 0.15 (to allow for bend losses), a sensitivity analysis was conducted to assess the impacts that revegetation would have on the 100 year flood level.

The sensitivity analysis was carried out by reducing the roughness values to 0.15 at the proposed revegetation locations. It was found that this reduction in roughness values caused the existing case 100 year ARI flood levels to decrease by 0 to 20 mm at these locations. The roughness values were then increased to their original values and 0.15 was added. This resulted in an increase in flood levels at these locations of between 0 to 20 mm above the existing 100 year ARI case. It was therefore concluded that the river was not sensitive to changes in bank roughness conditions.

The proposed revegetation strategy applies to locations where revegetation is below the 100 year ARI flood inundation level. Tree planting has been tested in all proposed locations as fully uncontrolled revegetation.

Fully unconstrained revegetation for the Brisbane River was defined as uncontrolled planting where manning roughnesses have been applied in the hydraulic model to a value of 0.15 above those values determined during the calibration of the MIKE 11 hydraulic model.

Extent of revegetation will be discussed on an individual reach basis in **Section 9-5 - Hydraulic Testing of Waterway Strategy Options** of this report.

9.4 Regulation Line Assessment

Regulation lines are used by council as a control on development encroaching onto the floodplains of major creeks and rivers. They are set to ensure that works such as placement of fill does not compromise existing flood immunity.

Interim regulation lines can be defined as offsets from real property boundaries. Interim lines for the Brisbane River have not been previously set by Council, hence regulation lines have been set using the calibrated MIKE 11 hydraulic model results.

This work was principally based on the worst case design scenario of the occurrence of the 100 year ARI flood under current catchment development superimposed with the regulation lines and revegetation strategy in place. The geometry of river cross sections was adjusted to reflect flood conveyance and storage in the areas outside the regulation lines. The combined effect of this encroachment and the revegetation strategy was considered as described in **Section 9-5 - Hydraulic Testing of Waterway Strategy Options** of this report.

In some reaches, several solutions to the regulation line location and revegetation strategy satisfy the hydraulic constraints. In these locations practical regulation lines were adopted after consideration of planning, environmental and economic criteria.

A final check was made to ensure that regulation lines provided a minimum 15 m buffer to the top of the river bank to manage future erosion and sedimentation problems. After discussions with Council it was decided that the top of bank was considered to be the first bank which was above the 2 year ARI flood level.

Development levels were then set at 300 mm above the 100 year ARI flood with the revegetation and regulation lines in place. Where the Moreton Bay 100 year ARI storm surge levels were higher than the 100 year ARI river levels the surge levels were used.

9.5 Hydraulic Testing of Waterway Strategy Options

The regulation lines were finalised on the above basis to produce a reasonable balance between regulation line requirements and water level increases.

Most emphasis was placed on existing developed areas and any recommended zoning adjustments have been based purely on a hydraulic basis and prior to a change of rezoning other factors should be considered.

Placement of the regulation lines are presented in **Drawings W10581 - Sheets 98 to 104** and corresponding flood level information is presented in **Table J-1 - Flood levels for the Regulation Lines and Revegetation Case for Flood Events 100 Year ARI to 2 Year ARI.** Corresponding flows are presented in **Table J-2 - Discharges for the Regulation Lines and Revegetation Case for Flood Events 100 Year ARI to 2 Year ARI.**

The following Tables present affluxes, placement of regulation lines and development levels for the Brisbane River:

- **Table J-3 - Affluxes Due to Regulation Lines, Revegetation Strategy and Combined Effects for the 100 Year ARI Flood.**
- **Table J-4 - Development Levels and Location of Regulation Lines for the Brisbane River.**

Flood profiles for the Regulation Lines and Revegetation Strategy are presented in the following figures and Drawings:

- **Figure J-1a to J1i - MIKE 11 Design Flood Profiles for the 5, 20 and 100 Year ARI Flood Profiles (MHWS) - Regulation Lines and Revegetation Strategy Case** and **Drawings W10581 Sheets 56 to 64.**

- **Figure J-2a to J2i - MIKE 11 Design Flood Profiles for the 2, 10 and 50 Year ARI Flood Profiles (MHWS) - Regulation Lines and Revegetation Strategy Case** and **Drawings W10581 Sheets 65 to 73.**

- **Figure J-3a to J3i - Afflux for the 100 Year ARI Design Flood (MHWS) - Regulation Lines and Revegetation Strategy Case** and **Drawings W10581 Sheets 74 to 82.**

During the regulation line assessment, it was found that the hydraulic model was sensitive to the placement of the regulation lines above the Centenary Bridge.

This sensitivity was most likely due to the regulation lines forming a relatively consistent cross section which in turn increased the peak discharges downstream in the order of 200 to 300 m^3/s.

This increase in discharge had a significant impact on flood levels downstream of the Centenary Bridge and hence the moving of regulation line upstream of Centenary Bridge was very restrictive. Generally the amount of fill required at most locations upstream of Centenary Bridge was significant and hence was considered to be impractical.

A summary of the processes involved and the decisions made in preparing the combined regulation line and revegetation strategy is provided in this section. References to potential flooding are based on the 100 year ARI inundation. The assessment is detailed on a reach by reach description.

Reach 1 - Upper Boundary

Cross Sections:	BN2020 to BN1980
Chainages:	1000 km to 1001.865 km
AMTD:	78.66 km to 76.795 km

Potential Flooding

No flooding of residences will occur in this reach. Any flooding which does occur will only inundate open space within the Brisbane City Boundary.

Revegetation

- No revegetation was assessed in this reach.
- As there is considerable natural vegetation throughout this reach, the riverbanks could be considered as areas of ecological importance.

Regulation Lines

- Regulation lines were generally set at the extent of inundation as major encroachments onto the floodplain caused an increase in discharge which increased affluxes to greater than 150 mm at the Merivale Bridge and downstream of the Centenary Bridge.
- BN1990 used a combination of moving the regulation line on the one bank and extent of inundation on the other bank to achieve the maximum allowable afflux.
- The range of affluxes in this reach with revegetation and regulation lines in place was from 0 to 30 mm.

Zoning Adjustments

- Current zoning through this reach is predominantly Open Space and Non-Urban. As no private residences are affected by the inundation lines, no rezoning for this reach has been recommended.

Reach 2 - Barellan Point

Cross Sections: BN1970 to BN1910
Chainages: 1002.35 km to 1005.325 km
AMTD: 76.310 km to 73.335 km

Potential Flooding

From BN1970 to BN1930, flooding will affect those properties along Hawkesbury Road. From BN1920 to BN1910, several properties in Hawkesbury Road, and one in Matfield Street will be affected by flooding during a 100 year ARI flood event.

Revegetation

- No revegetation was assessed in this reach.
- As there is considerable natural vegetation throughout this reach, the riverbanks could be considered as areas of ecological importance.

Regulation Lines

- Regulation lines were generally set at the extent of inundation as major encroachments onto the floodplain caused an increase in discharge which increased affluxes to greater than 150 mm at the Merivale Bridge and downstream of the Centenary Bridge.
- BN1970 used a combination of moving the regulation line on the one bank and extent of inundation on the other bank to achieve the maximum allowable afflux.
- The range of affluxes in this reach with revegetation and regulation lines in place was from 0 to 20 mm.

Zoning Adjustments

- Current zoning throughout this reach is Open Space and Non-Urban. As no private dwellings are affected by the inundation lines, no rezoning for this reach has been recommended.

Reach 3 - Riverview

Cross Sections: BN1900 to BN1870
Chainages: 1005.87 km to 1007.41 km
AMTD: 72.79 km to 71.25 km

Potential Flooding

Properties along Hawkesbury Road, Myora Street, Aitcheson Street and Moggill Road will be partially affected by flooding during a 100 year ARI flood event.

Revegetation

- At BN1870 (reserve at Moggill Ferry), full tree planting was tested with flood level increases of 20 mm.
- All revegetation is to a standard of roughness, n = 0.15
- As there is considerable existing vegetation throughout this reach, the riverbanks could be considered as areas of ecological significance.

Regulation Lines

- Regulation lines were generally set at the extent of inundation as major encroachments onto the floodplain caused an increase in discharge which increased affluxes to greater than 150 mm at the Merivale Bridge and downstream of the Centenary Bridge.
- BN1900, BN1880 and BN1870 used a combination of moving the regulation line on the one bank and extent of inundation on the other bank to achieve the maximum allowable afflux.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -60 to 0 mm.

Zoning Adjustments

- Zoning in this reach is predominantly Open Space along the riverbank and Future Urban.
- No rezoning has been recommended for this reach.

<u>Reach 4 - Redbank</u>
Cross-Sections: BN1860 to BN1770
Chainages: 1007.920 km to 1011.980 km
AMTD: 70.740 km to 66.680 km

Potential Flooding
The majority of flooding in this reach occurs onto open space.

At BN1860, flooding occurs back onto the start of Moggill Road, however the extent of flooding appears to occur over open space.

From BN1840 to BN1820, a localised area of flooding spreads back into Moggill Road inundating any properties in Aitcheson Street.

Flooding from BN1820 to BN1810 reaches Moggill / Malfield Road, but there does not appear to be any dwellings affected.

Properties along the river side of Prior's Pocket Road will be affected by flooding to some extent.

Revegetation
- No revegetation was assessed in this reach.
- There is considerable existing vegetation along the riverbanks, and also a large patch from BN1770 to BN1820, therefore the riverbanks could be considered zones of ecological significance.

Regulation Lines
- Regulation lines were generally set at the extent of inundation as major encroachments onto the floodplain caused an increase in discharge which increased affluxes to greater than 150 mm at the Merivale Bridge and downstream of the Centenary Bridge.
- BN1860, BN1830, BN1820, BN1780 and BN1770 used a combination of moving the regulation line on the one bank and extent of inundation on the other bank to achieve the maximum allowable afflux.
- From BN1840 to BN1830, regulation lines extend into some rural residential properties and non urban properties to a minor extent.
- From BN1860 to BN1850, regulation lines significantly affect several rural residential properties.
- The range of affluxes in this reach with revegetation and regulation lines in place was from -120 to -60 mm.

Zoning Adjustments
- From BN1860 to BN1850, sections of those Rural Residential zoned properties significantly affected by the regulation lines should be rezoned to Open Space (OS).
- Non Urban properties within this reach should be assessed on an individual basis and rezoned to Open Space if appropriate.

Reach 5 - Goodna

Cross Section: BN1760 to BN 1720
Chainage: 1012.475 km to 1014.110 km
AMTD: 66.185 km to 64.550 km

Potential Flooding

Considerable flooding will occur during a 100 year ARI event on Prior's pocket.

From BN1750 to BN1710, flooding extends right back to the kink in Priors Pocket Road, covering the entire point, except for two patches of higher ground.

Revegetation

- No revegetation was assessed in this reach.
- Considerable vegetation exists right along the riverbanks in this reach. The riverbanks could be considered as areas of ecological significance.

Regulation Lines

- Regulation lines were generally set at the extent of inundation as major encroachments onto the floodplain caused an increase in discharge which increased affluxes to greater than 150 mm at the Merivale Bridge and downstream of the Centenary Bridge.
- BN1750 used a combination of moving the regulation line on the one bank and extent of inundation on the other bank to achieve the maximum allowable afflux.
- The point at the end of Priors Pocket Road is almost completely inundated from BN1730 to BN1670.
- The range of affluxes in this reach with revegetation and regulation lines in place was from -40 to -20 mm.

Zoning Adjustments

- Properties throughout this reach are generally zoned Open Space.
- Non Urban and Particular Development properties within this reach should be assessed on an individual basis and rezoned to Open Space if appropriate.

Reach 6 - Wacol

Cross Section: BN1710 to BN 1610
Chainages: 1014.610 km to 1019.095 km
AMTD: 64.050 km to 59.565 km

Potential Flooding

From BN1710 to BN1670, Priors Pocket is flooded back until the kink in Priors Pocket Road.

From BN1660 to BN1650, properties in Priors Pocket Road and part of Avonmore Street will be affected by flooding in a 100 year ARI flood event.

From BN1640 to BN1630, flooding follows an unnamed creek (adjacent Stratford Street), and inundates the rear of several properties west of Livesay Road, inundation spreads north to Ellerby Street.

From BN1620 to BN1610, properties along Vanwall and Zelita Road will suffer inundation to some extent, as will the Department of Primary Industry Land.

Revegetation

- No revegetation was assessed in the Wacol reach.
- From BN1610 to BN1700 there is considerable existing vegetation. The riverbanks in these areas could be considered as areas of considerable ecological significance.

Regulation Lines

- Regulation lines were generally set at extent of inundation as encroachment onto the floodplain caused an increase in flood levels at the Merivale Bridge and downstream of the Centenary Bridge.
- BN 1690, BN1680, BN 1670 and BN 1660 used a combination of moving the regulation line on the one bank and extent of inundation on the other bank to achieve the maximum allowable afflux.
- BN 1650, BN1640 and BN 1630 used a combination of moving the regulation line on both banks to achieve the maximum allowable afflux.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -60 to 70 mm.

Zoning Adjustments

- Non Urban and Special Use properties within this reach should be assessed on an individual basis and rezoned to Open Space if appropriate.

Reach 7 - Riverhills

Cross Section: BN1600 to BN1530
Chainage: 1019.49 km to 1021.715 km
AMTD: 59.170 km to 59.945 km

Potential Flooding

At BN1530, a localised area of flooding inundates those properties adjacent to the park bounded by Juba and Zambesi Streets, with flooding extending up into Horizon Drive.

From BN1540 to BN1550, flooding extends over the largely undeveloped areas bounded by Pauluna, Loddon Streets and Westlake Drive. Numerous residences will also be inundated during a 100 year ARI flood event. On the western side of the river properties in Lather Road will suffer some extent of flooding.

From BN1570 to BN1600, an extensive area of flooding occurs in the Moggill Country Club, Booker Place and the swimming pool. However flooding does extend into a significant number of residential areas in Sugarwood Street, Ghost Gum Street up to Moggill Road, Birkin Road and across into Banyan Street.

At BN1600, flooding follows Wolston Creek, however the majority of this flooded area appears to be undeveloped.

Revegetation

- From BN1530 to BN1540 (Juba Street Park), full tree planting was tested with flood level increases of 20 mm.
- All revegetation is to a standard of roughness, n = 0.15
- From BN1560 to BN1600, there is considerable existing vegetation, therefore the riverbanks in this area could be considered zones of ecological significance.

Regulation Lines

- Regulation lines were generally set at the extent of inundation as major encroachments onto the floodplain caused an increase in discharge which increased affluxes to greater than 150 mm at the Merivale Bridge and downstream of the Centenary Bridge.
- BN1600, BN1590, BN1580, BN1570 and BN1540 used a combination of moving the regulation line on the one bank and extent of inundation on the other bank to achieve the maximum allowable afflux.
- BN1560, BN1550 and BN1530 used a combination of the 15 m buffer rule and extent of inundation to achieve the maximum allowable afflux.
- From BN1550 to BN1530, a block of property zoned as Future Urban will be affected considerably by the regulation lines.
- From BN1580 to BN1530, numerous residential properties will be affected by the regulation lines.

- The range of affluxes in this reach with revegetation and regulation lines in place ranges from 40 to 60 mm.

Zoning Adjustments

- The block of Future Urban property from BN1600 to BN1590 should be rezoned to Open Space
- From BN1580 to BN1530, those waterfront Residential A properties in Lather Street and Sumner Road should be rezoned to Open Space (OS).
- From BN1560 to BN1530, sections of those Rural Residential zoned properties significantly affected by the regulation lines should be rezoned to Open Space (OS).

Reach 8 - Westlake

Cross Section: BN1520 to BN1410
Chainages: 1021.895 km to 1026.680 km
AMTD: 56.765 km to 51.980 km

Potential Flooding

From BN1510 to BN1500, flooding generally follows Pullen Pullen Creek, with those properties bordering the creek suffering inundation during a 100 year ARI flood event. This area appears to be largely open space.

From BN1470 to BN1480, those properties in Westlake Drive will experience varying degrees of flooding.

Significant flooding occurs from BN1470 to BN1460, with floodwaters extending into Westlake and the properties surrounding it. Properties as far south as Raeside Street, east to Pending Street and west to the end of Westlake Drive will suffer flooding.

Another very large area of flooding occurs between BN1450 and BN1440 due to Mt Omaney Creek. The McLeod Country Golf Course, park, treatment works and the Jamboree Heights Primary school will all be inundated during a 100 year ARI flood event. Properties into Horizon Drive, Westlake Drive and Arrabri Avenue will also all suffer flooding.

At BN1400 flooding will occur along an unnamed creek (adjacent to Moggill Creek), with floodwaters extending into largely undeveloped land. Properties on the northern side of Moggill Creek will also suffer problems with inundation as will the University of Queensland Veterinary Farm.

Revegetation

- At BN1410 (Jindalee Park), full tree planting was tested with flood level increases of 10 mm.
- All revegetation is to a standard of roughness n = 0.15.
- There is considerable existing vegetation along the riverbanks throughout this reach. Therefore, the banks in this reach could be classified as zones of ecological significance.

Regulation Lines

- The regulation lines at BN1470, BN1430 and BN1420 have been set using the 15 m buffer rule as this is the governing criteria.
- BN1520, BN1510, BN1490, BN1460 and BN1440 used a combination of the 15 m buffer rule and extent of inundation to achieve the maximum allowable afflux.
- BN1500 and BN1450 used a combination of moving the regulation line on the one bank and extent of inundation on the other bank to achieve the maximum allowable afflux.

- BN1500, BN1480 and BN1410 used a combination of the buffer rule on one bank and the moving of the regulation line on the other bank until the maximum allowable afflux was obtained
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -40 to 70 mm.

Zoning Adjustments

- From BN1520 to BN1410, those riverside properties zoned Residential A should be rezoned to Open Space. Those properties in Callabonah Street, Barcoorah Street, Westlake Drive, Carnegie Street, Mt Omaney Drive and Coolaroo Drive will be most effected should rezoning occur.
- From BN1520 to BN1500 those properties zoned Rural Residential should be rezoned to Open Space.
- From BN1490 to BN1410 those properties zoned Special Use should be rezoned to Open Space

Reach 9 - Mermaid Reach

Cross Section:	BN1400 to BN1270
Chainages:	1026.900 km to 1031.995 km
AMTD:	51.76 km to 44.665 km

Potential Flooding

Extensive flooding of properties occurs throughout the whole of this reach. Between BN1270 and BN1280, a localised area of flooding inundates properties as far south as Cliveden Avenue with flooding occurring in parts of Teesdale Street, Richmond Street and Oxley Terrace and west to properties in Blackheath Road.

From BN1290 to BN1340, the largely undeveloped area bounded by Seventeen Mile Rocks Road will be inundated during a 100 year ARI flood event. Also in this region, properties in Newland Street and the Fig Tree Pocket Pony Club will also suffer flooding.

From BN1340 to BN1360 flooding occurs through the watercourse (located near Jindalee Bridge) and extends past Oldfield Road. Properties in Yallambee Road, Capitol Drive, Sinnamon Road and parts of Oldfield Road will all be inundated during a 100 year ARI flood event.

From BN1370 to BN1400, a large area of flooding occurs through a highly developed residential area. Flooding will extend as far South as Curragundi Road and into a section of Arabri Avenue between sections BN1380 and BN1390. From BN 1390 to BN1400, this flooding is limited to properties along Mt Omaney Drive and Bareena Avenue. On the northern side of the river, flooding occurs through mostly undeveloped land north into Scenic Road.

Revegetation

- At BN1400 (Jindalee Park), full tree planting was tested with flood level increases 0.01 m. All revegetation is to a standard of roughness, n = 0.15.
- There is considerable existing vegetation throughout this reach and the riverbanks may therefore be considered areas of ecological significance.

Regulation Lines

- The 15 meter buffer rule was generally used for cross sections in this reach.
- BN1400, BN1370 and BN1330 on one bank regulation line used the 15 m buffer rule and the other bank regulation line has been moved until the maximum allowable afflux has been achieved.
- At BN1360 one bank regulation line has been set at inundation and the other bank has been set using the 15 m buffer rule.
- From BN1270 through to BN1300, regulation lines are set along the riverbank affect Residential A and Future Urban areas.

- Regulation lines extend significantly into areas zoned as Residential A and Non Urban between sections BN1330 and BN1320.
- Between BN1300 and BN1310 a significant amount of General Industry land is affected by the regulation lines.
- Between BN1330 and BN1400 significant amounts of Residential A, Future Urban, Rural Residential, Particular Development and CN land is affected by the regulation lines.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -40 to 120 mm.

Zoning Adjustments

- The property zoned General Industry and Future Industry between sections BN1290 and BN1310, should be rezoned to Open Space, extending back to Sinnamon Road.
- Residential A properties within this reach should be assessed as to the extent to which regulation lines affect the properties and zoned Open Space as appropriate.
- Properties zoned Future Urban should be rezoned to Open Space.
- Particular development and CN properties should be assessed on an individual basis and rezoned to Open Space as appropriate.

Reach 10 - Sherwood Reach

Cross Section: BN1260 to BN1200
Chainage: 1032.230 km to 1034.890 km
AMTD: 46.430 km to 43.770 km

Potential Flooding

From BN1200 to BN1210, properties bounding Cubberla Creek will all suffer flooding during a 100 year ARI flood event, especially those properties in Jesmond Drive, Needham Street, Ningana Street, Aminga Street and Sprenga, Karella and Thiesfield Streets. On the Eastern side of the River, some properties in Molonga Terrace, Long Street and Kianga Streets will all experience flooding.

From BN1220 to BN1230, Sherwood Forest Park and those streets bounding it, will suffer inundation, especially Turner, Jolimont, Ferry and Joseph Streets. On the Western side, some properties in Jesmond road will experience a degree of flooding.

In the 100 year ARI event, extensive flooding into residential areas will occur between BN1240 and BN1260, with only the higher properties in the Cylene Court and Michelangelo / Botticelli Street vicinity being unaffected.

Revegetation

- From BN1250 to BN1260 (Mandalay Park) and at BN1220 (Sherwood Forest Park), full tree planting was tested with no increase in flood levels.
- All revegetation is to standard of roughness of n = 0.15
- From BN1240 to BN1260, there is considerable existing vegetation and therefore, the riverbanks may be considered as areas of ecological significance.

Regulation Lines

- The 15 m buffer rule has been applied to regulation lines throughout this reach.
- Between BN1200 and BN1210, regulation lines will extend into existing private residences and also into an area of land zoned as Non Urban.
- From BN1210 to BN1260, numerous private residences will be affected by the regulation lines to a certain extent.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 90 to 150 mm.

Zoning Adjustments

- The property designated as Future Urban should be partially rezoned to incorporate an Open Space corridor to the extent of the regulation lines between BN1210 and BN1220.
- From BN1200 to BN1260, properties zoned Residential A should be assessed to determine the extent to which regulation lines affect properties. Those properties significantly affected by the regulation lines should be rezoned to Open Space.
- Special Use, Particular Development and Non Urban properties should be assessed on an individual basis and rezoned as appropriate.

Reach 11 - Chelmer Reach

Cross Section: BN1190 to BN1150
Chainage: 1035.474 km to 1036.915 km
AMTD: 43.246 km to 41.745 km

Potential Flooding

In this reach, flooding is limited to a localised pocket between sections BN1160 and BN1170, with some flooding on the Eastern side.

The localised flooding between sections BN1160 and BN1170 extends as far inwards as Moggill Road and is bounded on the southern side by Boundary Road, with some flooding into Market and Minkara Streets. Flooding on the Northern side generally follows Witton Creek, with flooding extending into Kate Street, Vera Street and Aaron Place. On the eastern side, properties in Longman Terrace, Sutton and Morley Streets will all suffer inundation during a 100 year ARI flood.

Between sections BN1170 and BN1180, another localised area of flooding occurs causing inundation in properties located in Brinkworth Place, Jainba and Jerrang Streets.

From BN1180 to BN1190, properties bounding Cubberla Creek will experience flooding problems, especially those properties in Dobell Street and parts of Clandon and Forlong Streets.

Revegetation

- No revegetation was assessed in this reach.
- As there is considerable existing vegetation throughout this whole reach, the riverbanks and the areas bounding Cubberla Creek, could be considered an area of ecological significance.

Regulation Lines

- The 15 m buffer rule has been applied to regulation lines throughout this reach.
- Throughout this reach, regulation lines will extend significantly into private residential properties. Some properties will be affected by the regulation lines to a greater extent than others.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 110 to 140 mm.

Zoning Adjustments

- Rezone those Residential A and Residential B properties, significantly affected by the regulation lines, to Open Space (OS), especially those properties in Sutton Street and Morley Street.

Reach 12 - Indooroopilly Reach

Cross Section: BN1140 to BN1070
Chainage: 1037.090 km to 1039.100 km
AMTD: 41.570 km to 39.560 km

Potential Flooding

There is an extensive area of flooding of this whole reach, especially on the Chelmer side of the river. From BN1110 to BN1070, flooding occurs as far back as Kitchener / Appel Street with this corridor narrowing at BN1080 to Chanter Street. Chelmer Oval, Faulkner park, Graceville Memorial Park, the Graceville Primary School and a very large number of residences will all be inundated during a 100 year ARI flood event.

On the Eastern side of the river, flooding is limited to Thomas and Sir John Chandler Park, with some properties in Ivy Street, Clarence Road and Glencairn Avenue suffering some flooding.

Revegetation

- No revegetation was assessed in this reach.
- There is considerable existing vegetation throughout this reach, thus the riverbanks could be considered an area of ecological significance.

Regulation Lines

- The 15 m buffer rule has generally been applied to regulation lines throughout this reach.
- BN1140 regulation lines were set using the 15 m buffer rule on one side and adjusted on the other side until the maximum allowable afflux was achieved.
- BN1120 regulation lines were adjusted on both sides until the maximum allowable afflux was achieved.
- Regulation lines at BN1070 used the 15m buffer rule on the left bank and extent of cross section on the right bank due to lack of topographical and cadastral information at this location.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 60 to 150 mm.

Zoning Adjustments

- Rezone Residential A properties in Leybourne Street and Queenscroft Avenue between BN1070 and BN1080 to Open Space (OS).
- Properties in Ivy and Roseberry Streets should be rezoned from Residential A to Open Space.
- Particular Development and Special Use properties should be assessed on an individual basis and rezoned as appropriate.

Reach 13 - Canoe Reach

Cross Section: BN1060 to BN990
Chainage: 1039.565 km to 1041.960 km
AMTD: 39.095 km to 36.700 km

Potential Flooding

The majority of flooding in this reach is confined to the Oxley Creek / Moolabin Creek areas, with some localised pockets of inundation.

From BN1060 to BN1040, properties bounding Oxley Creek will all suffer inundation with the limits being Tweedale/Blackwood Street to the west and David Street to the east with those higher properties in King Arthur Terrace, Merlin and Camelot Streets being immune to flooding. Sir John Chandler Park and the Indooroopilly Golf Course will be completely inundated during a 100 year ARI flood event.

From BN1020 to BN1010, flooding occurs through the Yeerongpilly Animal Research Institute and floods some properties in Paragon and Ortive Streets. Flooding along Moolabin Creek is also a problem in this area, with the Brisbane Golf Course and properties back to Tennyson Memorial Avenue and Station Road being affected.

From BN1000 to BN990, the main problem areas in a 100 year ARI flood event will be Stevens Street and Nelson Street back to Fairfield Road. Some properties in Yeronga, Feez and Astolat Streets will also be affected by flooding to some extent.

Revegetation

- From BN1020 to BN1030 (adjacent Yeerongpilly Animal Research Institute), full tree planting was tested with flood level increases of the order of 0.01 m.
- All revegetation is to a standard of roughness of n = 0.15.
- There is considerable existing vegetation throughout this reach, thus the riverbanks could be considered an area of ecological significance.

Regulation Lines

- Regulation lines at BN1060 to BN 990 used the 15 m buffer rule on the left bank and extent of cross section on the right bank due to lack of topographical and cadastral information at these locations.
- From BN990 to BN1010 and from BN1030 to BN1050, regulation lines will extend into the rear of numerous private dwellings.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 80 to 130 mm.

Zoning Adjustments

- Rezoning of Residential B dwellings in Rome Street south, Astolat Street, Feez, Yeronga and Steven Streets to Open Space (OS) is recommended between BN990 and BN1010.
- It is also recommended that from sections BN1040 and BN1060, those Residential A properties in King Arthur Terrace, Verney Road East, Jarda Street and White Street should be rezoned to Open Space (OS).

Reach 14 - Long Pocket Reach

Cross Section: BN980 to BN910
Chainage: 1042.235 km to 1044.860 km
AMTD: 36.425 km to 33.800 km

Potential Flooding

The majority of flooding in this reach is confined to the Indooroopilly Golf Course, with some local flooding in the Yeronga area.

From BN980 to BN970, some minor flooding will occur to properties located in Instow Street and the Yeronga Animal Hospital will also be affected.

From BN960 to BN950, the flooding becomes more widespread with properties along the Esplanade, Diane Street, Ormadale Street, Oriana Crescent and Aranui Street all being affected. Flooding on the eastern side of the river will affect the CSIRO to some extent.

From BN940 to BN930, flooding is limited to Brisbane Corso and Orlando Road with some properties in Otaki and Ormuz Roads also being affected.

In a 100 year ARI flood event, flooding will extend to Hyde Road from BN920 to BN910, affecting properties as far south as Utzon, Grounds and Siedler Streets. Goodwin Park will also be inundated.

Revegetation

- From BN940 to BN960 (Sandy Creek), full tree planting was tested with flood level increases of the order of 10 mm.
- Community Groups suggest that existing vegetation on the banks around the confluence of Sandy Creek should be revegetated using native flora. This has therefore been included in the modelling to the n = 0.15 standard.
- There is considerable existing vegetation throughout the whole reach, and the riverbanks could therefore be considered an area of ecological significance.

Regulation Lines

- Regulation lines at BN980 to BN960 used the 15 m buffer rule on the left bank and extent of cross section on the right bank due to lack of topographical and cadastral information at these locations.
- From BN950 to BN910, regulation lines have been set using the 15 m buffer rule.
- Regulation lines will pass through numerous private residences throughout the reach.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 10 to 120 mm.

Zoning Adjustments

- Rezoning of waterfront existing Residential A properties in Brisbane Corso, Ormadale Road and Kadumba Street to Open Space (OS) is recommended throughout this reach.
- Special Use and Particular Development properties should be assessed on an individual basis and rezoned as appropriate.

Reach 15 - Cemetery Reach

Cross Section: BN900 to BN830
Chainage: 1045.400 km to 1047.915 km
AMTD: 33.260 km to 30.745 km

Potential flooding

There is considerable flooding in this reach from BN870 through to BN900.

At BN900, flooding mainly affects the Downs Oval, Leyshan Park and Fehlberg Oval. In a 100 year ARI flood event, properties as far back as the Railway line, Kadumba Street and a small area as far back as Cowper Street will all be affected by flooding. Properties in William Parade, Turner Avenue and Brougham Street will also suffer inundation.

From BN890 to BN880, a large area of flooding extends as far east as the railway line, south to Fairfield Road / Sydney Street/Cruthley Street and north into the cemetery.

Flooding is limited to the riverbank areas with some properties in Rosecliff and Borva Streets being affected by flooding from BN870 to BN840. It is anticipated that the University of Queensland will be affected by flooding as well. However, additional topographical and cadastral information is required before this can be finalised.

At BN830, a small area of localised flooding occurs during a 100 year flood event. Properties in Athens Street, Dudley Street and Glenfield will all be affected by flooding. On the southern side of the river, flooding extends as far back as to affect properties in Underhill Street.

Revegetation

- At BN900 (Brisbane Corso Reserve), full tree planting was tested with flood level increases of the order of 0 mm.
- All revegetation is to a standard of roughness of n = 0.15.
- There is considerable existing vegetation throughout this reach, and thus the riverbanks may be considered an area of ecological significance.

Regulation Lines

- The 15 m buffer rule has been applied to regulation lines throughout this reach.
- BN860 regulation lines have been set using the 15 m buffer rule on one bank and adjusted on the other bank until the maximum allowable afflux was achieved.
- From BN830 to BN860, regulation lines will extend past the Open Space buffer zone and into the rear of numerous Residential B dwellings. The University of Queensland will also be significantly affected by the regulation lines.

- From BN880 to BN890, the 15 m buffer rule causes regulation lines to extend into private residences.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 60 to 110 mm.

Zoning Adjustments

- Rezone waterfront Residential B dwellings in Dudley Street, Fraser Terrace, Rosecliff and Borva Streets to Open Space (OS).
- From BN880 to BN890, rezone waterfront residences in Brisbane Corso to Open Space (OS).
- Special Use properties within this reach should be assessed on an individual basis and rezoned as appropriate.

Reach 16 - St Lucia Reach

Cross Section: BN820 to BN810
Chainage: 1048.375 km to 1048.890 km
AMTD: 30.285 km to 29.770 km

Potential Flooding

There is a considerable flooding of residential areas in this reach.

On the St Lucia side, properties as far back as Sixth Avenue at BN820 and Sir Fred Schonell Drive at BN810 are inundated during a 100 year ARI flood event. Parts of Mitre, Durham and Warren Streets are also affected.

On the northern side, flooding extends as far as Jumna Street at BN820 and Cordaeux Street at BN810.

Revegetation

- At BN810 (Orliegh Park), full tree planting was tested with increases in flood levels of 10 mm.
- All revegetation is to a standard of roughness of n = 0.15.

Regulation Lines

- The 15 m buffer rule has been applied to regulation lines throughout this reach.
- From BN810 to BN820, due to the 15 m buffer rule, regulation lines will extend into numerous residential dwellings.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 60 to 80 mm.

Zoning Adjustments

- Although a zone of Open Space along Orliegh, Avebury and Glenfield Streets has already been defined, this should be extended to include those existing waterfront Residential B properties in these streets.
- On the St Lucia side, those waterfront Residential B properties in Hiron, Laurence and Macquarie Streets should be rezoned to Open Space (OS).

Reach 17 - Toowong Reach

Cross Section: BN800 to BN750
Chainage: 1049.120 km to 1050.860 km
AMTD: 29.540 km to 27.800 km

Potential Flooding

Flooding in this reach is concentrated around Toowong Creek and a few small areas of localised flooding. The Hill End / West End side of the River is consistently flooded.

At BN800, a small pocket of flooding occurs as far south as Armadale Street, east to Austral Street and west to Glen Olive Lane. On the northern side of the river, properties back to Drury Street/ Cordeaux Street will suffer inundation.

At BN 790, flooding in a 100 year ARI flood event is concentrated around Toowong Creek. Flooding occurs as far South in places as Whitmore Street and west to Josling Street with some properties in Mayne, Holmes and Herbert Streets being affected.

From BN780 to BN770, the main problems with flooding during a 100 year ARI flood event occurs through Hillend Terrace, Forbes, Drury Streets and Ferry Road. Some properties in Brisbane Street and Glen Road in Toowong will also suffer flooding problems.

From BN760 to BN750 there are large areas of flooding. On the West End side of the river, flooding extends as far back as Montague Road. On the Toowong side, there are two localised flooding areas, one extending along Landsborough Street up to Osyth / Cadell Street and back down to the railway line. The other pocket of flooding extends along Park Avenue to Milton Road and again back to the railway line. Higher properties in the area bounded by Dunmore Terrace, Lang Parade and Chasely Street are immune to flooding.

Revegetation

- From BN790 to BN800 (Orliegh Park) and at BN750 (Scott Street open Space), full tree planting was tested with no increase in flood levels.
- All revegetation is to a standard of roughness of n = 0.15.

Regulation Lines

- The 15 m buffer rule has been applied to regulation lines throughout this reach.
- BN 770 regulation lines were set using the 15 m buffer rule on one bank and adjusted on the other bank until the maximum allowable afflux was achieved.
- BN760 regulation lines have been set adjusting both banks until the maximum allowable afflux was achieved.

- At BN750, regulation lines are located at property boundaries.
- From BN 760 to BN790, regulation lines will pass through a block of Residential B dwellings and through numerous properties zoned Special Development.
- At BN800, regulation lines are located at the riverbank.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 15 to 100 mm.

Zoning Adjustments

- From BN760 through to BN790, those waterfront Residential B properties should be rezoned to Open Space (OS), particularly those located in Archer Street, Land Street, Glen Road, Brisbane Street and Sandford Street.
- Particular Development and Special Development properties should be assessed on an individual basis and rezoned as appropriate.

Reach 18 - Milton Reach

Cross Section: BN740 to BN700
Chainage: 1051.360 km to 1052.390 km
AMTD: 27.300 km to 26.270 km

Potential Flooding

Flooding in this reach is mainly concentrated on the West End side of the river, but a lack of contour information limits the determination of the extent of actual flooding.

At BN740, there is a localised area of flooding in Milton, extending back to Milton Road with several properties in Baroona Road being affected. This flooding extends out to Park Street at its worst.

From BN720 to BN700, problems with inundation during a 100 year ARI flood event occur as far back as Oxford Street on the eastern side of the river.

Revegetation

- No revegetation was assessed through this reach.

Regulation Lines

- The 15 m buffer rule has been applied to regulation lines throughout this reach.
- At BN730 the regulation lines were adjusted on both sides until the maximum allowable afflux was achieved.
- From BN720 through to BN740, the regulation lines extend into properties zoned as Special Development.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 80 to 110 mm.

Zoning Adjustments

- The majority of this reach is zoned Special Development, therefore no rezoning of this reach has been recommended.

Reach 19 - South Brisbane Reach

Cross Section: BN690 to BN600
Chainage: 1052.595 km to
AMTD: 26.065 km to

Potential Flooding

Properties along Garden's Point Road and Wharf Road will experience problems with flooding during a 100 year ARI flood event. Southbank will be inundated as will Stanley Street, Grey Street and parts of Melbourne Street.

Revegetation

- No revegetation was assessed throughout this reach.

Regulation Lines

- The 15 m buffer rule has been applied throughout this reach.
- At BN660 the regulation lines were adjusted on both sides until the maximum allowable afflux was achieved.
- From BN600 through to BN690, regulation lines are generally located at the riverbank.
- Affluxes in this reach with revegetation and regulation lines in place range from 50 to 160 mm.

Zoning Adjustments

- As no intrusion into private residences occurs in this reach, no rezoning adjustments are recommended.
- Special Use and Particular Development properties should be assessed on an individual basis and rezoned as appropriate.

Reach 20 - Town Reach

Cross Section: BN590 to BN500
Chainage: 1054.680 km to 1056.865 km
AMTD: 23.980 km to 21.965 km

Potential Flooding

The major areas of concern with respect to inundation during a 100 year ARI flood in this reach are sections of the city and Kangaroo Point.

From BN590 to BN550, properties along River Terrace, Lower River Terrace and Garden's Point Road will all experience problems with flood inundation.

From BN540 to BN530, the Botanic Gardens will be inundated as will the City back to Charlotte Street, with parts of Mary, Margaret, Albert and Edward Streets experiencing flooding. Properties in Felix and Eagle Streets will experience flooding as will parts of Bright, Thornton and Hamilton Streets.

From BN520 to BN500, properties on Kangaroo Point back to the end of Anderson Street will experience problems with flooding during a 100 year ARI flood. On the City side, properties in Howard Street up to Queen Street will suffer inundation. At BN500, some properties in Bowen Street will experience problems with flooding.

Revegetation

- From BN540 to BN560, full tree planting was tested with flood level increases in the order of 10 mm. All revegetation is to a standard of roughness of n = 0.15.
- At section BN520, there is considerable existing vegetation and may be classified as an area of ecological significance.

Regulation Lines

- The 15 m buffer rule has been applied throughout this reach.
- From BN500 to BN530, regulation lines will pass through existing properties zoned Special Development.
- From BN540 to BN590, regulation lines extend into property already zoned Open Space.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 30 to 70 mm.

Zoning Adjustments

- As the regulation lines do not affect any private residences, no rezoning for this reach has been recommended.
- Special Development, Particular Development and Central Business should be assessed on an individual basis and rezoned as appropriate.

Reach 21 - Shaftston Reach

Cross Section:	BN490 to BN440
Chainage:	1056.95 km to 1058.530 km
AMTD:	21.71 km to 20.130 km

Potential Flooding

From BN490 to BN480, properties along Bowen Terrace will suffer problems with inundation during a 100 year ARI flood event. From BN480 to BN460, properties along Dockside and Kangaroo point back to Wharf Street will all suffer flooding with Holman and Anderson Streets being completely inundated.

Flooding will be experienced by properties in Sydney and Griffith Streets from BN440 to BN450.

Revegetation

- No revegetation was assessed through this reach.

Regulation Lines

- The 15 m buffer rule has been applied throughout this reach.
- Through this reach, regulation lines are located through properties zoned as Special Development.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 20 to 40 mm.

Zoning Adjustments

- No residential areas are affected by regulation lines through this reach, however consideration should be given to rezoning the considerable number of waterfront Special Development areas throughout this reach to Open Space (especially along Kangaroo Point).

Reach 22 - Humbug Reach

Cross Section: BN430 to BN400
Chainage: 1058.735 km to 1059.990 km
AMTD: 19.925 km to 18.670 km

Potential Flooding

This reach has localised flooding problems associated with Norman Creek.

From BN420 to BN410, there is extensive flooding associated with properties adjacent to Norman Creek. Properties as far northeast as Overend and Wordsworth Streets will experience inundation, as will properties to the west in Barker, Ashfield and Clarendon Streets to Mowbray Terrace.

At BN420, a localised area of flooding occurs in Moray and Sargent Streets to Mountford Road with Oxlade Drive and parts of Hazelwood Street being inundated.

Revegetation

- No revegetation was assessed through this reach.

Regulation Lines

- The 15 m buffer rule has been applied throughout this reach.
- From BN400 to BN410, the 15m buffer rule has resulted in regulation lines being situated through private dwellings.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from 10 to 20 mm.

Zoning Adjustments

- Properties zoned Residential A along Wynnum Road and Wendell Street should be rezoned Open Space.
- Properties currently zoned Special Development should be assessed on an individual basis and rezoned as appropriate.

Reach 23 - Bulimba Reach

Cross Section: BN390 to BN330
Chainage: 1060.345 km to 1062.940 km
AMTD: 18.315 km to 15.720 km

Potential Flooding

From BN370 to BN350, there is a very large area of flooding primarily covering residential dwellings. The large industrial area bounded by Stuart and Barramul Streets will be flooded and the flooding will extend inwards as far as Riding Road in places, south to Orchard Street and north to Oxford Road.

At BN370, there will be some flooding associated with properties in Gordon, Scott and parts of Malcolm Streets.

From BN350 to BN330, another localised area of flooding extends through a primarily industrial area back to Commercial road, generally following Breakfast Creek Road north to Breakfast Creek. The higher properties in Newstead Avenue and Halford Streets are the exception to the flooding.

Revegetation

- At BN340 (Newstead Terrace Reserve), full tree planting was tested with no increases in flood level.
- All revegetation is a standard of roughness of n = 0.15.
- Sections of BN390 can be considered an area of ecological significance due to the existing vegetation.

Regulation Lines

- The 15 m buffer rule has been applied throughout this reach.
- From BN320 through to BN390, regulation lines are situated through numerous private dwellings and properties zoned service trades.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -10 to 10 mm.

Zoning Adjustments

- Blocks of Residential A dwellings along Quay Street, Leura Terrace, Barton Road, Gordon Street, Scott Street, Uhlman Street and Aaron Avenue should be rezoned to Open Space.
- Consideration to rezoning all waterfront service industries to Open Space should also be given consideration.

Reach 24 - Hamilton Reach

Cross Section: BN320 to BN260
Chainage: 1068.310 km to 1065.990 km
AMTD: 15.30 km to 12.670 km

Potential Flooding

At BN270, properties in Taylor Street and lower ends of Carbeen, Karthena and Michael Streets will experience flooding during a 100 year ARI flood event.

McConnell Street, Merry Street, Melrose, Cowper, River end of Kenbury, Bulimba, Banya, Johnston, Harrison, Tennyson and Shakespeare Streets will all suffer from flooding.

Revegetation

- No revegetation has been assessed for this reach.
- At BN290 there is existing vegetation and, as such, the riverbank in this area could be considered as a zone of ecological significance.

Regulation Lines

- The 15 m buffer rule has been applied throughout this reach.
- BN270 and BN 260 include a maximum allowance of allowance of 30 m for wharfs in lieu of the 15 m buffer rule.
- From BN290 to BN310, the 15m buffer rule has resulted in the regulation lines being situated through private residences along McConnell Street.
- At BN320, regulation lines are situated along the riverbank edge.
- The affluxes in this reach with revegetation and regulation lines in place are -20 mm.

Zoning Adjustments

- Properties zoned residential in McConnell Street between BN290 and BN300 should be rezoned to Open Space.
- Properties zoned Particular Development, Special Use and General Industry should be assessed on an individual basis and rezoned as appropriate.

Reach 25 - Quarries Reach

Cross Section: BN250 - BN220
Chainage: 1066.505 km to 1067.965 km
AMTD: 12.155 km to 10.695 km

Potential Flooding

At BN250, properties in Riverside Place back to Lytton Street will all suffer from inundation in a 1 in 100 year storm event.

From BN230 to BN220, flooding will occur onto the Royal Queensland Golf Course.

Revegetation

- From BN220 to BN230 (Royal Queensland Golf Course), full tree planting was tested with no increase in flood levels.
- All revegetation is to a standard of roughness of n = 0.15.

Regulation Lines

- Regulation lines in this reach include a maximum allowance of 30m for wharves and associated waterfront development. This is in lieu of the 15 m buffer rule.
- At BN250, regulation lines extend into existing properties. However, the flooding extends into properties zoned waterfront activities and an allowance has been made for wharves in lieu of the 15 m buffer zone.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -30 to 0 mm.

Zoning Adjustments

- Zoning through this reach is predominantly Waterfront Activities and industrial. As such, no recommendations for rezoning have been made.

Reach 26 - Lytton Reach

Cross Section: BN210 - BN110
Chainage: 1068.660 km to 1073.485 km
AMTD: 10.00 km to 5.175 km

Potential Flooding

At BN190, flooding during a 100 year ARI flood event will affect those properties along Macarthur Avenue.

From BN170 to BN160, flooding occurs into Unwin Road, Randle Street, parts of Macarthur Avenue and back into the airport.

From BN130 to BN120, flooding only appears to occur in open space areas.

Revegetation

- No revegetation was assessed in this reach.

Regulation Lines

- Regulation lines in this reach include an maximum allowance of 30 m for wharves and associated waterfront development. This is in lieu of the 15 m buffer rule.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -20 to 60 mm.

Zoning Adjustments

- Properties in this reach are predominantly zoned Industrial or Waterfront Industry. No modifications to the zonings is required.

Reach 27 - Lytton Rocks Reach

Cross Section: BN100 to BN70
Chainage: 1074 km to 1075.480 km
AMTD: 4.660 km to 3.180 km

Potential Flooding

This reach experiences extensive flooding, especially from BN110 to BN90, where floodwaters inundate properties in Pritchard Street, South Street, Lytton Road, Trade Street and Export Street. Flooding also affects properties in Pamela and Tingara Streets all the way through to Boggy Creek.

Revegetation

- At BN70 and BN90, full tree planting was tested with no increase in flood levels.
- All revegetation is a standard of roughness of n = 0.15.
- The occurrence of existing vegetation at section BN80 indicates that the riverbanks in this section could be considered a zone of ecological significance.

Regulation Lines

- Regulation lines in this reach include an maximum allowance of 30 m for wharves and associated waterfront development. This is in lieu of the 15 m buffer rule.
- Regulation lines in this reach generally follow the bank profile. From BN70 to BN80, some intrusion into the bank does occur, however in this instance an allowance has been made for wharves and associated waterfront development.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -10 to 0 mm.

Zoning Adjustments

- As this reach is predominantly zoned Industrial and Waterfront Development, no rezoning recommendations have been made.

Reach 28 - Pelican Banks Reach

Cross Section:	BN60 to BN40
Chainage:	1076 km to 1077.010 km
AMTD:	2.66 km to 1.650 km

Potential Flooding

No developed properties appear to be affected by flooding through this reach, although there will be some flooding throughout existing low lying areas.

Revegetation

- From BN40 to BN60, full tree planting was tested with no increase in flood levels.
- All revegetation is to a standard of roughness of n = 0.15.
- Due to the existing natural vegetation, the riverbanks at section BN40 could be considered a zone of ecological significance.

Regulation Lines

- Regulation lines in this reach include a maximum allowance of 30m for wharves and associated waterfront development from BN60. This is in lieu of the 15 m buffer rule.
- Regulation lines in this reach generally follow the riverbank. Some intrusion into the bank occurs at section BN50, however this is into undeveloped swampy land.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -10 to 0 mm.

Zoning Adjustments

- This reach is predominantly zoned Industrial and Waterfront Development. As such, no recommendations for rezoning have been made for this reach.

Reach 29 - Lower Reach

Cross Section: BN30 to BN0
Chainage: 1077.510 km to 1078.66 km
AMTD: 1.150 km to 0 km

Potential Flooding

During a 100 year ARI flood event, flooding will affect existing grain and container terminals on Fisherman Island to some extent.

Revegetation

- From BN10 to BN30, full tree planting was tested with no increase in flood levels.
- All revegetation is to a standard of roughness of n = 0.15.

Regulation Lines

- Regulation lines in this reach are generally located in low lying areas.
- The range of affluxes in this reach with revegetation and regulation lines in place varies from -10 to 0 mm.

Zoning Adjustments

- This reach is mainly zoned Industrial or Waterfront Industry. No rezoning through this reach is recommended.

10. Hydraulic Assessment of Structures

10. Hydraulic Assessment of Structures

10.1 Hydraulic Capacity of Crossings

The performances of seven major bridges were individually assessed under design flood conditions. These structures are listed in **Table 10-1 - List of Assessed Hydraulic Structures for Brisbane River**.

Table 10-1 - List of Assessed Hydraulic Structures for Brisbane River

No.	Structure Name	Cross Section Number	MIKE 11 Chainage (km)	AMTD (km)	Structure Description
1	Centenary	BN 1350	1 028.72	49.94	Major Public Bridge
2	Indooroopilly	BN 1130	1 037.11	41.55	Major Public Bridge
3	Merivale	BN 710	1 052.37	26.29	Major Public Bridge
4	William Jolly	BN 680	1 052.63	26.03	Major Public Bridge
5	Victoria	BN 640	1 053.36	25.83	Major Public Bridge
6	Captain Cook	BN 600	1 054.66	24.00	Major Public Bridge
7	Story	BN 495	1 056.92	21.74	Major Public Bridge

Note: All structures were modelled in MIKE 11 as irregular culverts and weirs.

A series of reference sheets were prepared and are compiled in **Appendix K - Hydraulic Structure Reference Sheets**. These are consistent with Council's standard hydraulic structure reference sheets and include:

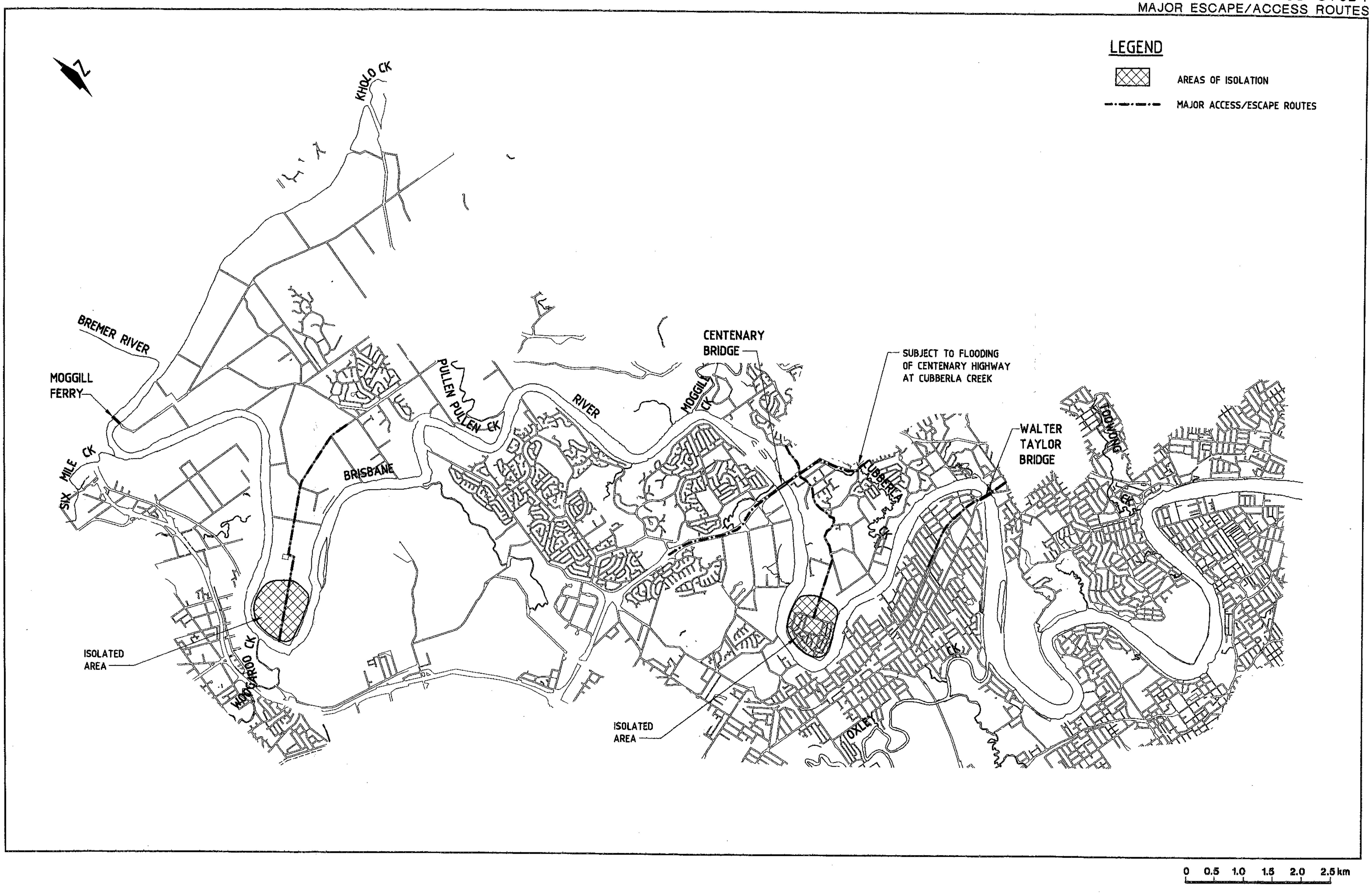
- Location of Structure
- Structure description and geometry including dimensions and key levels
- Reference to survey data
- Construction date and upgrade information
- General comments

Additional information has been included on the sheets regarding the hydraulic performance of the structure for design flows ranging from 2 year ARI to 100 year ARI.

Rating curves for the seven major structures were developed using the MIKE 11 hydraulic model for the Brisbane River. These rating curves were determined by taking the peak discharge and peak level for a range of design events directly upstream of each structure. Structure handrails and guardrails were assumed to be fully blocked by debris.

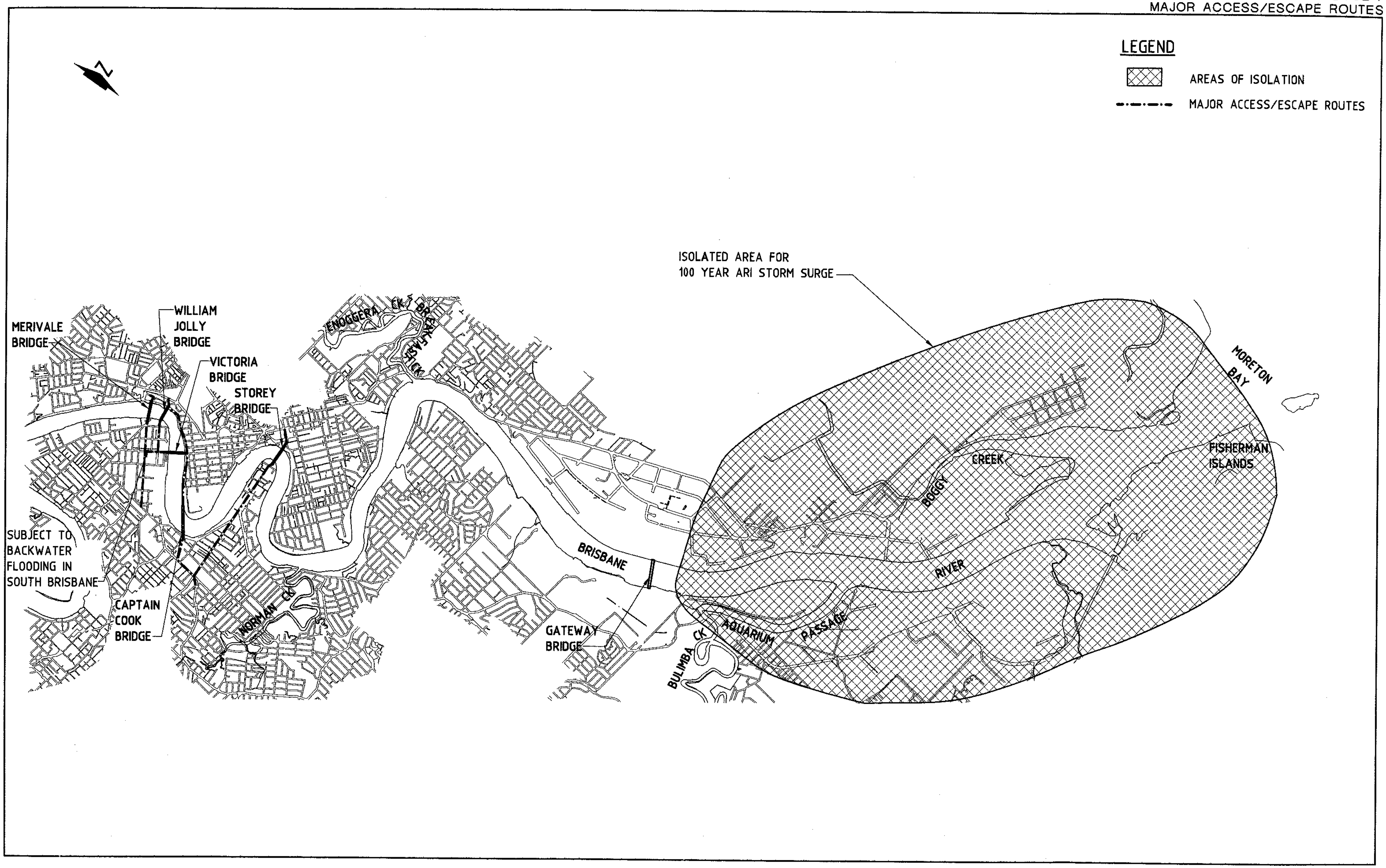
SINCLAIR KNIGHT MERZ

FIGURE 11-2a
BRISBANE RIVER FLOOD STUDY
MAJOR ESCAPE/ACCESS ROUTES



PLOT SCALE: 1=60

FIGURE 11-2b
BRISBANE RIVER FLOOD STUDY
MAJOR ACCESS/ESCAPE ROUTES



FILE: 41
PLOT SCALE: 1=60

A rating curve for the Gateway Bridge was not generated as it was considered that the afflux caused would be negligible because of the width of the section and deck level of the structure.

Rating curves were extracted from the reference sheets for incorporation into the Brisbane River Flood forecasting model which is discussed in **Section 11**.

The rating curves provide an indication of the design flood capacity of the structure (ie design flood that just overtops the roadway) and these are summarised in **Table 10-2 - Design Flood Capacities of Major Structures**. The structure capacity was taken as being the design flow having a peak flood level coincident with the lowest point of the structure weir (assuming unblocked handrails).

Appendix L - Rating Curves at Structures tabulates and plots the rating curves that have been generated. The curves also illustrate the recorded historical flood levels and calibrated discharge at the relevant locations. These curves show that some of the smaller historical events data points do not coincide with the generated rating curves. This is most likely due to tailwater conditions at the time of the events. The design events were run using a constant tailwater level of mean high water springs whereas the historical events were subject to varying tailwater levels which occurred at the time of the events. As expected, these effects are more pronounced for the smaller flood events and the structures closer to the river mouth.

Table 10-2 - Design Flood Capacities of Major Structures

No	Structure Name	Design Capacity (Years ARI)
1	Centenary Bridge	41
2	Indooroopilly Bridge	greater than 100
3	Merivale Bridge	greater than 100
4	William Jolly Bridge	greater than 100
5	Victoria Bridge	greater than 100
6	Captain Cook Bridge	greater than 100
7	Story Bridge	greater than 100

10.2 Upgrading of River Crossings

The upgrading of major river crossings was assessed using the following approach:

- Identify structures which have a 100 year ARI afflux exceeding 150 mm. In all cases, blocked handrails have been assumed.

- Based on available ground survey data, determine if these selected structures cause flooding of upstream property or houses for events up to the 100 year ARI flood.

- Discussions with council to determine the practical upgrade potential of some structures.

- Test and recommend upgrades of structures that have high affluxes and contribute to upstream flooding impacts.

The hydraulic structure reference sheets compiled in **Appendix K** were reviewed to identify high afflux structures. Affluxes at each structure are listed in **Table 10-3 - High Afflux Public Structures**.

Table 10-3 - High Afflux Public Structures

No.	Structure	100 Year ARI Afflux (mm)
1	Centenary Bridge	150
2	Indooroopilly Bridge	90
3	Merivale Bridge	170
4	William Jolly Bridge	510
5	Victoria Bridge	180
6	Captain Cook Bridge	80
7	Story Bridge	100

Note: Assumes blocked handrails and guardrails.

Table 10-3 demonstrates that the William Jolly Bridge has an afflux significantly greater than 150 mm for the 100 year ARI flood whilst the Merivale and Victoria Bridges just exceed the 150 mm maximum allowable afflux.

Review of the structure reference sheets indicates that the William Jolly Bridge creates a significant afflux for floods greater than 50 years ARI. This flood coincides with the commencement of inundation of the floodplain on the right bank in the vicinity of the structure. Several properties in this area will be affected by the flooding and the affluxes generated by the William Jolly Bridge and the Merivale Bridge. The exact number of properties affected can not be determined as floor survey data was not available.

Options for upgrading the structures in an efficient manner are limited.

For the Merivale Bridge possible options include improving the hydraulic efficiency of the right overbank area adjacent to the approach or raising the bridge structure. Improving the hydraulic efficiency of the right overbank is not practical due to the large number of buildings that would have to be removed and the associated high costs involved. Raising the bridge is also not practical due to design constraints associated with railway operations and the associated high costs of upgrading. Given that the bridge creates an afflux of 170 mm it is considered that the costs associated with upgrading the structure far exceed the benefits.

The William Jolly Bridge also has limited opportunities for upgrading. Improvement of the right floodplains conveyance is not practical due the large number of properties on the floodplain. Major modifications to the bridge structure such as abutment works or raising the deck are unlikely to be accepted due to the heritage value of the structure.

The Victoria bridge also has limited opportunities for upgrading as the costs involved far out weigh the benefits given that the maximum afflux is 180 mm.

Affluxes associated with the other structures were considered to be acceptable as the cost of upgrading these structures would be high.

11. Flood Forecasting Model

11. Flood Forecasting Model

11.1 Overview

The proposed flood forecasting model was to originally consist of a single RAFTS model which included rating curves derived by the MIKE 11 hydraulic model at structures and stream gauges to predict flood levels at these locations. Since RAFTS cannot account for tidal effects it was assumed that a number of rating curves (dependent on tailwater levels at Brisbane River mouth) would be developed at each structure and stream gauge location. Although RAFTS does not have the facility to link rating curves it was initially envisaged that Council would contract WP Software to develop such a facility. This would enable users to select a tailwater level and RAFTS would then select the appropriate rating curve at each location. Due to time restrictions and the availability of WP Software staff, Council decided that this was not an appropriate option and another methodology was developed.

After discussions with Council it was decided that the most appropriate method was to use both the calibrated RAFTS and calibrated MIKE 11 models. The RAFTS model was used to forecast flood discharge hydrographs at inflow locations and these hydrographs were input into the MIKE 11 model along with an appropriate tailwater level. MIKE 11 was then used to predict flood levels at the required locations.

11.2 RAFTS Model Development

The RAFTS flood forecasting model for the Brisbane River was based on the calibrated RAFTS model developed in the calibration/verification phase of the study.

Radio telemetry gauges within the Brisbane City Boundary were used as rainfall input into the hydrologic model. Each of the gauges were assigned a corresponding RAFTS node dependent on the area of influence of the catchment. The area of influence for each of the radio telemetry stations was determined by the application of a Thiessen polygon. **Table 11-1 - Radio Telemetry Rainfall Stations** presents each of the selected radio telemetry rainfall stations along with the assigned RAFTS node. Each RAFTS node has been assigned a primary gauge and a secondary gauge. The secondary rainfall station has been assigned so that in the event of the primary station failing, the secondary gauge can be used. RAFTS does not automatically select the secondary rainfall station if the primary station fails and therefore the secondary station should be selected manually. The RAFTS nodes assigned to the secondary rainfall station are also presented in **Table 11-1**. **Figure 11-1 - Thiessen Polygons For Radio Telemetry Rainfall Stations** illustrate the areas of influence for each rainfall station.

Radio telemetry rainfall stations in the Bremer and Upper catchments are not accessible and hence inflow hydrographs will have to be used for inflows into the RAFTS model. During flood events it is proposed that the DNR will provide these hydrographs as they have a flood forecasting model for these catchments. The locations of these inflow locations are illustrated on **Figure 11-1**. The main advantage of inputting inflow hydrographs at these locations is that the DNR model accounts for Wivenhoe and Somerset Dam operations.

Previous RAFTS modelling has shown that discharges in the lower reach of the Brisbane River (ie downstream of Mt Crosby) are significantly influenced by the operational procedures used for Wivenhoe and Somerset Dams. The primary effect that dam operations have on the lower Brisbane river is that dam discharges influence water levels at the Brisbane and Bremer Rivers confluence. The water level at this location has a profound impact on the discharge below this confluence due to superimposition of flood hydrographs and the storage effects and therefore an accurate assessment of the release discharge from Wivenhoe Dam was required.

The operational procedures for Wivenhoe and Somerset Dams are quite complex and they cannot be accurately modelled in RAFTS (see **Section 7.8**). The Department of Natural Resources has developed a dam operations model that accurately models dam operations and produces discharge hydrographs at the required locations. It was therefore decided that these inflows be used to complete the input to the MIKE 11 flood forecasting model.

The calibrated RAFTS model was truncated upstream of the Brisbane and Bremer River confluence and each of the nodes were assigned their respective primary rainfall station. Discharge hydrographs predicted by the RAFTS model were then extracted at the following locations:

- JIN1 - Upstream boundary of Brisbane City
- JIN 2 - Bremer River inflow
- POG1 - Oxley Creek inflow
- ENO-OUT - Enoggera Creek inflow
- BUL-OUT - Bulimba Creek inflow

These inflow hydrographs were then used to forecast flood levels using the MIKE 11 hydraulic model.

Table 11-1 - Radio Telemetry Rainfall Stations

	Primary Gauge		Secondary Gauge	
RAFTS Node	Rainfall Station Name	Station Number	Rainfall Station Name	Station Number
JIN1	NA	NA	NA	NA
JIN2	NA	NA	NA	NA
JIN3	Wacol	WSR518	Camira	WGR150
JIN4	Camira	WGR150	Wacol	WSR518
JIN5	Kenmore	GBR017	Kenmore Hills	MVR515
JIN6	Wacol	WSR518	Richlands	BLR116
JIN7	Kenmore Hills	MVR515	Kenmore	GBR017
JIN#	Wacol	WSR518	Camira	WGR150
JIN##	Pullenvale	PLR742	Wacol	WSR518
JIN-OUT	Kenmore	GBR017	Kenmore Hills	MVR515
POG1	Indooroopilly	SIR505	Taringa	TWR027
POG2	Greenbank	OXR104	Forestdale	OXR108
POG3	Forestdale	OXR108	Greenbank	OXR104
POG4	Acacia Ridge	OXR126	Inala	BLR736
POG5	Inala	BLR736	Acacia Ridge	OXR126
POG6	Inala	BLR736	Acacia Ridge	OXR126
POG7	Coopers Plains	SSR130	Calamvale	OXR114
POG8	Corinda	OXR020	Coopers Plains	SSR130
POG9	BAC	BCR015	Taringa	TWR027
POG#	Corinda	OXR020	Coopers Plains	SSR130
POG-OUT	BAC	BCR015	East Brisbane	NMR554
ENO1	Brookfield	GVR718	The Gap	EVR533
ENO2	Brookfield	GVR718	The Gap	EVR533
ENO3	The Gap	EVR533	Brookfield	GVR718
ENO4	The Gap	EVR533	Brookfield	GVR718
ENO5	Mt Coot-tha	IVR512	The Gap	EVR533
ENO6	Alderley	BVR578	Stafford	KVR542
ENO7	Mt Coot-tha	IVR512	The Gap	EVR533
ENO8	Mt Coot-tha	IVR512	Ithana	IVR536
ENO9	Ithana	IVR536	Alderley	BVR578
ENO#	Ithana	IVR536	Alderley	BVR578
ENO##	The Gap	EVR533	Brookfield	GVR718
ENO-OUT	Bowen Hills	BVR524	Toombul	KVR557

Table 11-1 - Radio Telemetry Rainfall Stations (cont)

	Primary Gauge		Secondary Gauge	
RAFTS Node	Rainfall Station Name	Station Number	Rainfall Station Name	Station Number
BUL1	Mt Gravatt	BMR138	Wishart	BMR803
BUL2	Rochedale	BMR709	Wishart	BMR803
BUL3	Carindale	BMR830	Wishart	BMR803
BUL4	Carindale	BMR706	Carindale	BMR830
BUL5	Carindale	BMR706	Morningside	PVR029
BUL6	Hemmant	BMR527	Wynnum	WVR521
BUL7	Hemmant	BMR527	Wynnum	WVR521
BUL#	Wishart	BMR803	Rochedale	BMR709
BUL-OUT	Hemmant	BMR527	Wynnum	WVR521
NRM1	Morningside	PVR029	Bowen Hills	BVR524
NRM2	Hemmant	BMR527	Toombul	KVR557
NRM3	Lytton	BNR739	Hemmant	BMR527

11.3 Conversion of RAFTS Hydrographs to MIKE 11 TXT Format

The Brisbane City Council has supplied the software program RTOM11 which generates a TXT file from the hydrographs exported from the RAFTS model. This RTOM11 program allows users to enter a start date, end date and base flow component and generates a file that can be directly imported into MIKE 11. This file is used to compile boundary series data in MIKE 11.

11.4 Development of the MIKE 11 Flood Forecasting Model

Initially it was conceived that the hydraulic portion of the flood forecasting model would be carried out using HEC-RAS. Preliminary work found that HEC-RAS was unsuitable in this instance due to the dynamic nature of the Brisbane River and hence an alternative approach was sought.

The MIKE 11 hydrodynamic hydraulic model was considered to be the most appropriate model for use as the flood forecasting model for the Brisbane River. The hydraulic flood forecasting model was based on the existing case model developed in the calibration phase of this study. During calibration of this model it was found that two sets of channel roughness parameters had to be adopted, one set for the smaller events and one set for the larger events (**Section 6.5.3**). Basically, two sets of roughness parameters had to be adopted to account for the additional losses at bends during larger flood events.

The requirement to validate the flood forecasting model was to replicate results of two flood events to within 150 mm. This demonstration was to use the largest calibration event since installation of the radio telemetry gauges and one large synthetic event. The two events used for this demonstration were:

- 100 year ARI design event, and
- the May 1996 calibration event.

100 Year ARI Event

The inflow hydrographs predicted by the hydrological flood forecasting model were converted and input into the MIKE 11 model at the five locations specified in **Section 2.2** of this report.

The 100 year flood was considered to be a large event and hence the large set of roughness parameters were used. The flood forecasting model predicted flood levels within 10 mm at all locations of those predicted during the design events phase of the study. A comparison of flood levels is presented in **Table M-1 - Flood Forecasting Model Results.**

1996 Calibration Event

The inflow hydrographs predicted by the hydrological flood forecasting model were converted and input into the MIKE 11 model at the five locations specified in **Section 2.2** of this report.

The 1996 flood was considered to be a small flood and hence the small set of roughness parameters were used. This resulted in predicted flood levels to within 80 mm of those predicted during the calibration phase of the study. A comparison of flood levels is presented in **Table M-1 - Flood Forecasting Model Results**. A comparison between peak flood levels and corresponding time of peak time between the recorded and predicted value is presented in **Table 11-2 - Summary of Recorded and Predicted Results for the May 1996 Event.**

Table 11-2 - Summary of Recorded and Predicted Results for the May 1996 Event

	Small Roughness Parameters		Large Roughness Parameters			
Gauge Location	Predicted Peak (m AHD)	Predicted Time of Peak (day)	Predicted Peak (m AHD)	Predicted Time of Peak (day)	Recorded Peak (m AHD)	Recorded Time of Peak (day)
Moggill	7.37	6/5/96 17:30	8.15	6/5/96 16:10	7.09	6/5/96 0:00
Western Inner Bar	1.51	2/5/96 21:00	1.51	2/5/96 21:00	1.51	2/5/96 21:00

From **Table 11-2** it can be seen that if the small roughness parameter set case is compared to the recorded levels that the flood forecasting model over predicts flood levels by 280 mm and is approximately 18 hours behind the recorded flood level at this location. This was also found to be the case during calibration and the problem was attributed to the poor performance of the rating curve at Moggill within this flow range. **Section 6.5.3** discusses this problem in more detail.

This can be justified by the performance of the RAFTS and MIKE 11 models for larger and smaller flows. **Table 11-3 - Summary of Recorded and Predicted Results for the January 1974 and June 1983 Events** shows that for these two events peak flood levels are within 70 mm and the peak flood levels occur within 2 hours.

The large roughness parameter set has been included in **Table 11-2** for completeness

Since the main influence is on inflows from the Bremer River and the Upper Boundary during long events, the RAFTS inflows produce the peak flood levels rather than the runoff calculated by the RAFTS flood forecasting model from the radio telemetry gauges. The smaller tributaries located within Brisbane City (ie. Oxley Creek) have a much smaller time of concentration than the Upper Brisbane River and therefore floods in the lower catchments are finished prior to the Upper Brisbane River flood arriving. Therefore the inflows from the Bremer River and Upper Brisbane River are generally the driving factor as far as peak flood levels and timing are concerned and this enables a comparison between flood forecasting results and calibration/verification results.

Table 11-3 - Summary of Recorded and Predicted Results for the January 1974 and June 1983 Events

Flood Event	Gauge Location	Predicted Peak (m AHD)	Predicted Time of Peak (day)	Recorded Peak (m AHD)	Recorded Time of Peak (day)
1974	Moggill	19.89	28/1/74 13:40	19.93	28/1/74 11:45
1974	Port Office	5.40	29/1/74 2:00	5.44	29/1/74 2:00
1974	Western Inner Bar	1.55	25/1/74 10:45	1.55	25/1/74 10:45
1983	Moggill	5.27	23/6/83 1:30	5.20	23/6/83 3:00
1983	Western Inner Bar	1.14	21/6/83 8:00	1.14	21/6/83 8:00

Note:
1. 1974 event presents flood levels for large roughness parameters.
2. 1983 event presents flood levels for small roughness parameter set.

A sensitivity check was also conducted to identify the impacts on flood levels if the set of large roughness parameters were used to analyse the small floods. For the 1996 event it was found that flood levels were over estimated by up to 850 mm.

Given the limited extent of flooding experienced within the lower Brisbane River in May 1996, most emphasis was placed on the 100 year ARI event as this size event would cause significant flooding throughout the reach.

The problem with the adoption of two sets of roughness parameters is the uncertainty as to what size flood constitutes the use of the large or small roughness parameter set. It was therefore recommended that one set of roughness parameters be adopted for the flood forecasting model and it was considered that it was most appropriate to adopt the large set of roughness parameters as this would ensure a conservative estimate of flood levels for smaller events.

11.5 Isolated Areas and Escape Routes

The effectiveness of the flood forecasting system for the Brisbane River is dependent upon the assessment of when river crossings are cut by flood waters and the duration of closure.

The majority of Brisbane City is urbanised to some extent and is well serviced by access roads from within and outside the City boundary. The major access/escape routes for all areas within the City boundary and the river crossings which are responsible for servicing these routes are shown on **Figure 11-2a** to **Figure 11-2b - Major Access/Escape Routes - Brisbane City.**

A detailed hydraulic analysis has been conducted for the major public bridges/crossings which are located on the access/escape routes.
Flood immunities , lowest weir level and time of inundation for each structure is listed in **Table 11-4 - Design Flood Capacities of Major Structures**. The structure capacity was taken as being the design flow having a peak flood level coincident with the lowest point of the weir structure. (assuming unblocked handrails). The crossing was assumed to be cut once a depth of flow of 300 mm occurred over the road.

Table 11-4 - Design Flood Capacities of Major Structures

Structure ID	Structure Name	Flood Immunity (years)	Lowest Weir Level (m AHD)	Duration of Closure 50 year ARI (hours)	Duration of Closure 100 year ARI (hours)
1	Centenary	41	10.0	29.5	59.5
2	Indooroopilly	>100	15.0	-	-
3	Merivale	>100	15.1	-	-
4	William Jolly	>100	14.3	-	-
5	Victoria	>100	9.2	-	-
6	Captain Cook	>100	8.8	-	-
7	Story	>100	29.8	-	-
8	Gateway	>PMF	>PMF	-	-

Within the Brisbane City Boundary many escape routes are available to the public. From **Table 11-4** it can be seen that all river crossings have a flood immunity of greater than 100 years except for the Centenary Bridge. The following discussion will relate to the 100 year ARI flood event unless otherwise specified.

Should the Centenary Bridge become inundated, escape routes are available in both directions along the Centenary Freeway. Depending on flood levels (ie 41 to 100 years ARI) the Centenary Freeway may become cut at the Cubberla Creek Crossing isolating the stretch of road between the Centenary Bridge and the Cubberla Creek Crossing. For these cases people may have to be evacuated.

The Merivale, William Jolly and Victoria Bridges have a flood immunity of greater than 100 years ARI however due to the detail of level information the immunity of the South Brisbane approaches for these structures is questionable.

Priors Pocket is another location were the public may become isolated during the 100 year ARI flood. Available topographical information shows that Priors Pocket Road is cut at approximately RL 17.0 m AHD. For the 100 year ARI flood this flood level is reached approximately 85 hours after the commencement of the event. Early warning should therefore provide residents with the opportunity to evacuate along Priors Pocket Road.

Another potential area of isolation is Fig Tree Pocket. Again, topographical information shows that Fig Tree Pocket Road is cut at RL 10.0 m AHD. The flood level is reached approximately 72 hours after the beginning of the 100 year ARI flood event. Residents will be able to escape along Fig Tree Pocket Road if given sufficient warning.

Areas between the River mouth and the Gateway Bridge become significantly inundated during the 100 Year ARI Moreton Bay Storm Surge plus Greenhouse Effects Case (Tailwater Level RL 2.5 m AHD). Should these conditions occur major evacuations would be required as possible escape routes are limited.

Backwater flooding for tributaries may cause the flooding of some escape routes in low lying areas. Although road crossing levels at these locations are unknown and beyond the scope of this study, a list of possible locations where this type of flooding may occur are listed below.

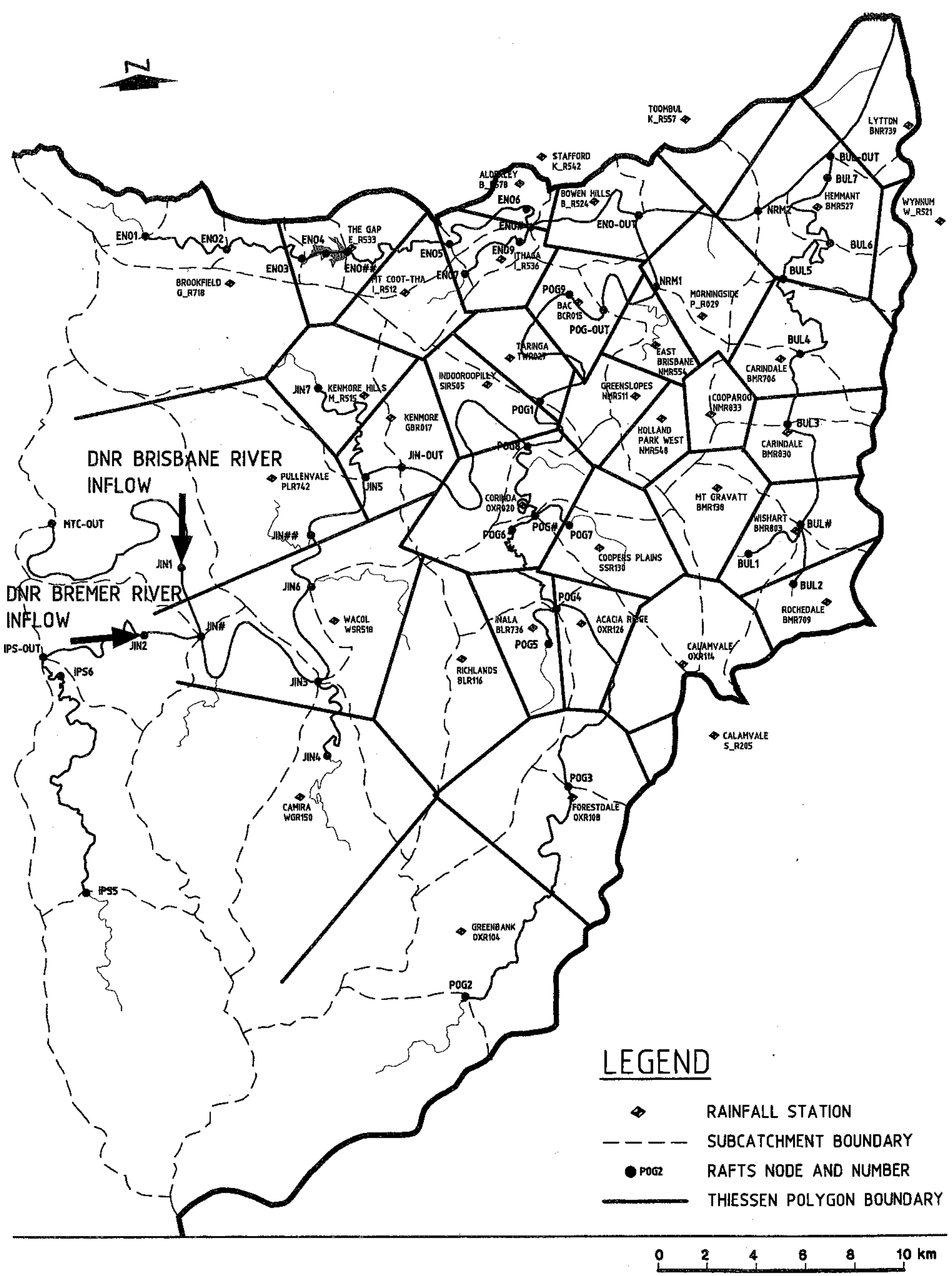
- Breakfast Creek - Kingsford Smith Drive and Breakfast Creek Road.
- Norman Creek - Stanley Street at East Brisbane.
- Hawthorne Road - at Hawthorne.
- South Brisbane - Boundary Road and Grey Street.
- Sandy Creek - Indooroopilly Road at Indooroopilly.
- Oxley Creek - Cunningham Arterial Highway at Rocklea.
- Cubberla Creek - Centenary Highway at Fig Tree Pocket.
- Moggill Creek - Moggill Road at Kenmore.
- Pullen Creek - Moggill Road at Bellbowrie.

These crossings should be monitored during periods of significant flooding to ensure that alternate routes are available should the roads listed above should become flooded.

SINCLAIR KNIGHT MERZ

FIGURE 11-1

BRISBANE RIVER FLOOD STUDY THIESSEN POLYGONS FOR RADIO TELEMETRY RAINFALL STATIONS



FILE NAME: 4157THES DISK N°: G:\T004157 JOB N°: T004157 DATE: 4-2-98

12. Flood Mapping

12. Flood Mapping

12.1 Overview

Topographical information provided by BIMAP was used for the flood mapping phase of the Brisbane River Flood Study. Inundation lines, flood contours and high/low hazard maps were generated with the aid of this information.

12.2 Design Flood Inundation Mapping

Following completion of the development level, regulation line and revegetation strategy, a series of 1:10000 scale maps were prepared illustrating the extent of inundation for the 100 year ARI and 20 year ARI flood events.

The maps appear as **Drawings W10581 Sheets 105 to 111** accompanying this report.

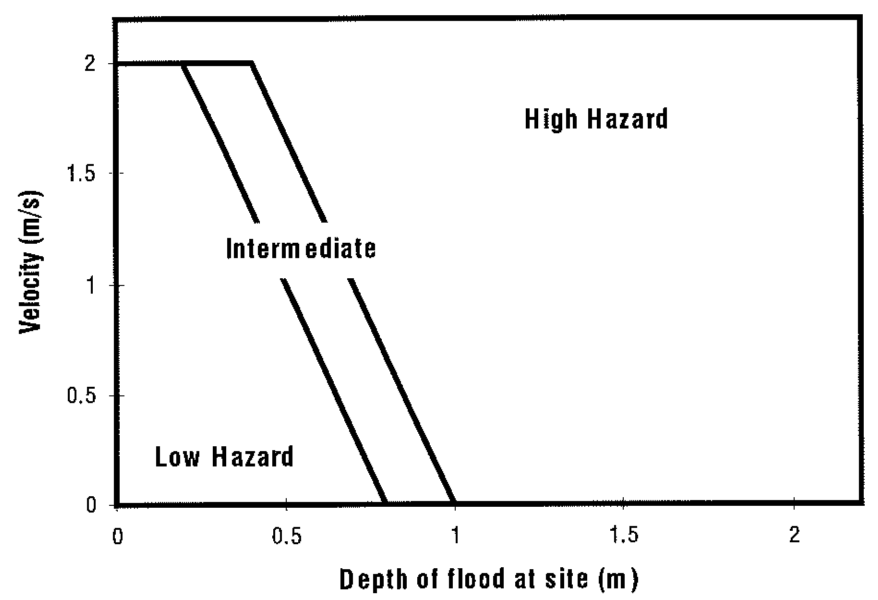
12.3 Flood Hazard Maps

Following the preparation of the HEC-RAS modelling and the inundation maps, the flood hazard mapping was prepared in accordance with the New South Wales Floodplain Development Manual. This manual specifies a depth and velocity criteria which defines whether a water depth and velocity combination is considered high or low flood hazard. **Figure 12-1 - New South Wales Floodplain Hazard Criteria** shows the relationship between depth and velocity when assessing high or low floodplain hazard.

The results from the HEC-RAS model for the 100 year ARI flood show that the overbank velocities are generally below 0.5 m/s with a maximum overbank velocity of 1.1 m/s. At the site where the velocity is 1.1 m/s the maximum allowable depth before the floodplain becomes high hazard according to **Figure 12-1** is approximately 0.75 m. Similarly for velocities below 0.5 m/s the maximum allowable depth before the floodplain becomes high hazard is 0.9 m.

Given these results and the fact that the minimum contour interval on the topographical maps is 1 m, it was considered that depth was the governing factor for high hazard areas on the floodplain. It was therefore assumed that at any site, if the depth of water was 1 m or greater the area was high hazard. This assumption was considered to be slightly conservative.

Figure 12-1 - New South Wales Floodplain Hazard Criteria



The flood hazard maps for the Brisbane River are presented in **Drawings W10581 Sheets 91 to 97** accompanying this report.

12.4 Flood Contouring

Initially the flood contouring phase of the study was to be conducted using the two dimensional hydrodynamic model FasTABS. This model uses digital terrain data (mesh) to generate a two dimensional water surface which can then be output as a DXF file and translated into a flood contour map.

The contour information held in BIMAP was provided in the form of a rectangular mesh over the Brisbane River. As this mesh was based on photogrammetry, no information was available for the river bathometry. In order to form a complete digital terrain model, the BIMAP data was merged with the bathmetric data obtained from the survey of the river.

The merged digital terrain model consisted of approximately 20 000 000 data points which exceeded the number of data points that can be used in the FastTABS model (1 000 000 points). The large amount of data points required for the two dimensional modelling of the Brisbane River, meant that the use of FastTABS would be an inefficient means of predicting two dimensional flow effects and an alternative methodology was developed.

The resulting methodology was to use levels predicted by the MIKE 11 hydraulic model and apply super-elevations at bends to account for the two dimensional flow effects.

Using the flood levels for the 100 year ARI flood event (regulation lines and revegetation in place) flood contours were calculated at 0.1 m flood level intervals along the Lower Brisbane River reach (upper city boundary to the river mouth) using linear interpolation methods between flood levels at model cross sections. These levels were assumed to be located at the AMTD line on the cross section.

Super-elevations at bends were then calculated using the formula (Chow 1959) :

$$\Delta h = V^2_{max}/g[20r_c/3b - 16r_c^3/b^3 + (4r_c^2/b^2 - 1)^2 \ln\{(2r_c + b)/(2r_c - b)\}]$$

where

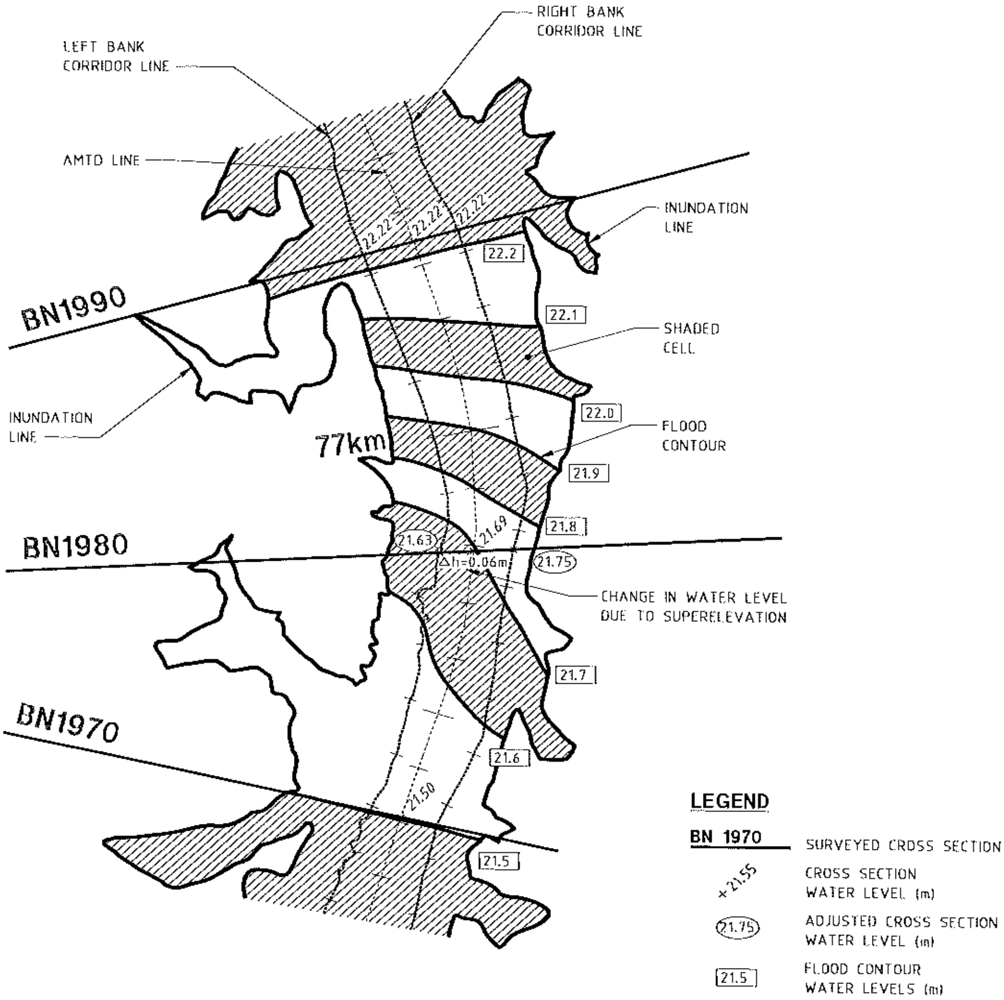
Δh = change in water level (m)
V^2_{max} = maximum velocity at bend (m/s)
g = gravity (9.81 m/s^2)
r_c = radius of bend at center of river (m) (ie AMTD line)
b = width of river (m) (assumed to be the distance between the cadastral boundaries defined for the river corridor)

Once Δh had been calculated this value was added or subtracted to the level at the AMTD line depending on whether the inside or the outside of the bend was being determined.

For example, in **Figure 12-2 - Flood Contouring Example** the MIKE 11 predicted water level at the AMTD line at the mid point of the bend (BN1980) was 21.69 m AHD. At this location a Δh of 0.06 m was calculated and therefore the water level at the inside of the bend was calculated to be 21.63 m AHD and the water level at the outside of the bend was calculated to be 21.75 m AHD. The MIKE 11 predicted water level at BN1990 was calculated to be 22.22 m AHD and this was assumed to be a constant level across the cross section. Water levels at 0.1 m increments were then calculated via linear interpolation between cross sections BN1990 and BN1980 along the left bank creek corridor line, the right bank creek corridor line and the AMTD line. This interpolation was then repeated between cross sections BN1980 and BN1970. Flood contours were then plotted by drawing a line through each point with the same water level along the AMTD, left bank creek corridor line, the right bank creek corridor line. The flood contours were then extended to the inundation lines. This extension of the flood contour lines was based on general trends of the flood contour between the left bank creek corridor line and the right bank creek corridor line.

The above procedure was repeated for each bend from the Brisbane River mouth to the upstream city boundary (BN2020). Flood cells were then formed by shading alternate cells between flood contours to form a database of local flood information.

Figure 12-2 - Flood Contouring Example



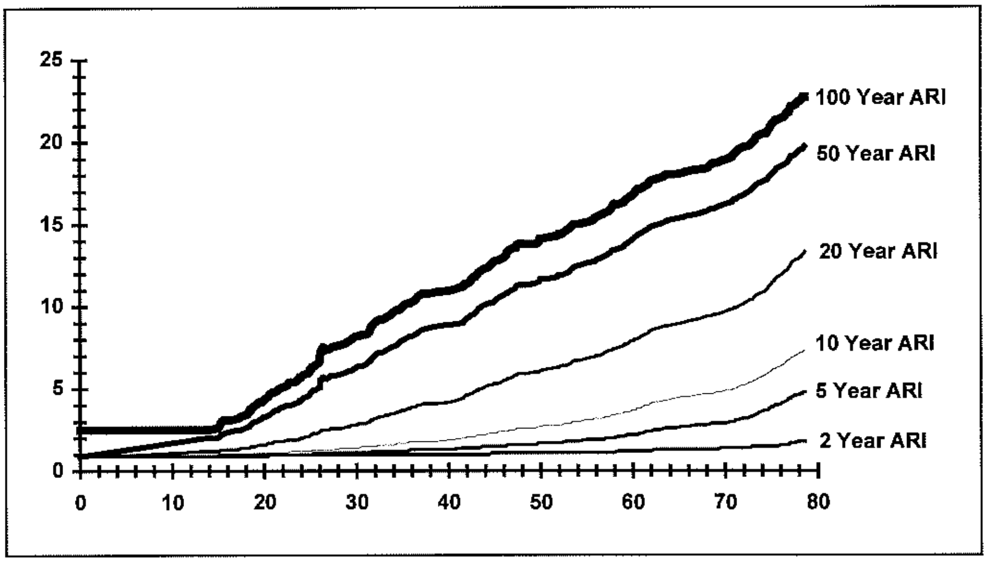
The flood contour maps are presented as **Drawings W10581 Sheets 112 to 121** accompanying this report.

12.5 Applicability of Flood Contours to Smaller Flood Events

The flood contours have been prepared based on the 100 year ARI flood with the regulation lines and revegetation strategy in place. The appropriateness of these contours to the smaller floods (2 year ARI to 50 year ARI) has been determined by comparing each of the respective profiles. **Figure 12-3 - Flood Contour Profile Comparison** illustrates the similarities and differences for the varying ARI flood events.

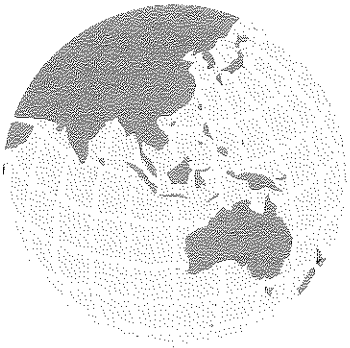
Below AMTD chainage 14 km (0 to 14 km AMTD) the 100 year ARI profile shows a flood contour level of 2.5 m AHD. This flood contour level reflects the 100 year ARI Moreton Bay storm surge flood level (0.21 m AHD) plus an allowance of 0.3 m for future greenhouse effects. From **Figure 12-3** it can be seen that between 0 - 14 km AMTD the adopted flood contours would not be applicable for floods other than the 100 year ARI event.

Figure 12-3 - Flood Contour Profile Comparison



Between AMTD chainage 14 - 78.6 km it can be seen from **Figure 12-3** that the 100 year and 50 year ARI flood levels are similar in characteristics and the adopted flood contours would generally be applicable with the use of an appropriate correction factor.

For the floods with an ARI less than 50 years the predicted profiles illustrate a high degree of derivation from the 100 year profile and therefore the adopted flood contours would not be applicable.



13. Community Consultation

13. Community Consultation

13.1 Information Bulletin

The community consultation activities programmed for the Brisbane River Flood Study were conducted through means of an Information Bulletin/Questionnaire. These bulletins were sent to various community groups along the Brisbane River. A set of plans was provided to each of the groups coordinators to enabled individuals to mark up areas where they believed riverbank rehabilitation or other works were required.

Approximately 500 Bulletins were sent to 13 community groups. These groups were selected based on proximity to the Brisbane River. The idea of targeting local community groups was due to the following factors:

- The shear number of residents situated close to Brisbane River would require in excess of 100 000 bulletins to be distributed. This would be a study within itself and was beyond the scope of this study.

- Community Groups have generally already discussed environmental issues within their local area and show a genuine interest in helping their environment. It was therefore considered that these groups would provide the Consultant with a good response to the issues being addressed.

From the five hundred Information Bulletins/Questionnaires sent only five were returned to the Consultant. This was considered to be a poor response however given that a total of thirteen groups were approached and if these bulletins were completed at a group meeting (with all members having an input) four responses could be considered good.

A list of the 11 community groups targeted in this study are presented in **Table 13-1 - Community Groups Bulletin List**. The names and addresses of these groups were supplied by the Brisbane City Council.

Table 13-1 - Community Groups Bulletin List

Community Group Name	No of Responses
BCC - Bushland Care Program	0
Brisbane River Management Group	0
Chelmer Bushcare Group	0
Corinda Bushcare	0
St Lucia Bushland Regeneration Group	2
Norman Creek Flood Action Group	0
Allen Creek Action Group	1
Oxley Creek Environment Group	0
Perrin Creek Bushland Group	1
River Mouth Action Group	1
Tenneriffe Bushland Park Group	0
Toowong Creek Working Group	0
Centenary Riverfront Advisory Committee	0

Note: BCC - Bushland Care Program Bulletin was returned as address not correct. Contact was attempted however messages weren't returned.

A copy of the information Bulletin/Questionnaire is presented in **Appendix N - Community Consultation Information Bulletin/Questionnaire.**

13.2 Issues Raised by Community Groups

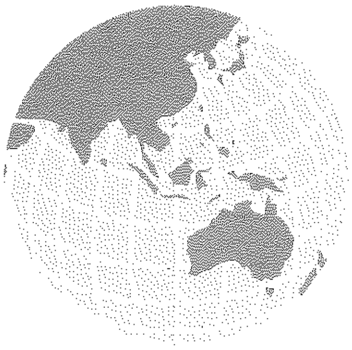
The following discussion summarises the responses to the Information Bulletin/Questionnaire for the individual community groups.

River Mouth Action Group - BN 340 to River Mouth

The River Mouth Action Group could not identify any damage that has occurred to the river banks after major storms however had strong opinions that revegetation and rehabilitation was required on both sides of the river bank from the Bulimba-Hamilton Area to the Mouth of River.

A number of other issues concerning the quality of industrial drainage, stormwater drainage and sewerage outlets or overflows that are currently entering the river were raised. The number of wharfs along the river mouth area was also of some concern.

Some additional uses for the river corridor along this section of the river were identified as fishing and access to the river. The response indicated that access to the river has been lost and that the edibility of the fish in this section of river is questionable.



14. References

14. References

1. South East Queensland Water Board, `Brisbane River Flood Hydrology - Runoff Routing Model Calibration', Volumes I and II, Qld DPI-Water Resources, September 1991.

2. Hausler G and Porter N, `Report on the Hydrology of Wivenhoe Dam' Qld DPI-Water Resources, 1977.

3. Weeks W D, `Wivenhoe Dam Design Flood Study', Qld DPI-Water Resources, 1983.

4. Deen A R, Craig R W and Sable I C, `Hawkesbury River Flood Model', Hydrology and Water Resources Symposium, Canberra 1988.

5. Australian Rainfall and Runoff, Institution of Engineers, Australia 1987.

6. South East Queensland Water Board `Brisbane River Flood Hydrology - Interim Report on Design Flood Estimation', by Qld DPI-Water Resources, March 1993.

7. South East Queensland Water Board `Brisbane River Flood Hydrology - Final Report on Downstream Flooding Estimation', by Qld DPI-Water Resources, August 1993.

8. SEQWB `Wivenhoe Dam - Moreton Bay Hydraulic Models. Model Calibration Volume III, Appendix II Derivation of Wivenhoe Dam Releases' by Qld DPI-Water Resources, October 1994.

9. Bureau of Meteorology `Severe Weather and Flooding South East Queensland May 1996' July 1996.

SINCLAIR KNIGHT MERZ

Brisbane City Council
June 1998

Brisbane River Flood Study

FINAL REPORT
Volume 2
Appendices

Sinclair Knight Merz Pty Ltd
A.C.N. 001 024 095
49 Annand Street
PO Box 839
Toowoomba QLD
Australia 4350
Telephone: (07) 4639 8400
Facsimile: (07) 4639 8490

Contents

Tables

Appendices

BCC.121.0103

Figures

Appendix L

Acknowledgments

Sinclair Knight Merz would like to thank the following organisations for their assistance throughout this study.

Department of Natural Resources (DNR)
Bureau of Meteorology (BOM)
South East Queensland Water Board (SEQWB)

In particular, we would like to thank Terry Malone (BOM), John Ruffini (DNR) and Garry Grant (SEQWB) for without their help and supply of information our task would have been much more difficult.

Document History and Status

Issue	Rev.	Issued To	Qty	Date	Reviewed	Approved
	0	Brisbane City Council	6	22/6/98	MDS	SAA
	0	SKM TOBA	3	22/6/98	MDS	SAA

Last Printed: 19 June 1998 2:39 PM
Last Saved: 19 June 1998 2:47 PM
File Name: \\TOBA1\DATA\WP\TO04157\RP349M.DOC
Project Manager: Scott Abbey
Name of Document: FINAL REPORT
Name of Organisation: Brisbane City Council
Document Version: Rev 0
Job Number: 19/6/98 TO04157

Appendix A - Rainfall and Pluviometer Stations

Appendix A - Rainfall and Pluviometer Stations

Table A-1 - Daily Rainfall Stations

Number	Station	Period
040004	Amberley AMO	1941 - Date
040007	Bald Knob	1927 - Date
040019	Benarkin Forestry	1925 - Date
040020	Blackbutt	1900 - Date
040214	Brisbane RO	1840 - Date
040223	Brisbane AMO	1949 - Date
040030	Bryn Euryn	1917 - 1972
040289	Coalbank	1961 - Date
040056	Coominya	1916 - Date
040060	Cooyar	1895 - Date
040382	Crows Nest	1894 - Date
041028	Emu Vale Railway	1893 - Date
040225	Enoggera Reservoir	1870 - Date
040075	Esk	1886 - Date
040083	Gatton PO	1894 - Date
040082	Gatton - Lawes (CSIRO)	1897 - Date
040091	Grandchester	1894 - Date
041042	Haden	1926 - Date
040094	Harrisville	1896 - Date
040096	Helidon	1870 - Date
040101	Ipswich (Composite)	1870 - Date
040102	Jimna	1927 - Date
040104	Kalbar	1897 - Date
040110	Kilcoy	1890 - Date
040318	Kirkleagh	1953 - Date
040114	Laidley	1889 - Date
040115	Lake Manchester	1917 - Date
040120	Lowood	1887 - Date
040121	Maleny PO	1915 - Date
040133	Monsildale	1913 - 1977
040135	Moongerah Dam	1917 - Date
040136	Mooloolah	1926 - Date
040137	Moore	1913 - 1977
040139	Mt Alford	1912 - Date
040140	Mt Brisbane	1890 - Date
040142	Mt Crosby	1894 - Date
040308	Mt Glorious	1962 - Date
040247	Mt Kilcoy (Lindfield)	1923 - Date
040145	Mt Mee	1909 - Date
040147	Mt Nebo	1947 - Date
040153	Murphy's Creek	1895 - Date

Number	Station	Period
040158	Nanango	1882 - Date
040311	Nukinenda	1961 - Date
040169	Peachester	1915 - Date
040270	Ravensbourne PO	1954 - Date
040183	Rosevale	1915 - Date
040184	Rosewood	1894 - Date
040421	Spring Bluff	1895 - Date
040198	Tarome	1912 - Date
041046	The Head (Riverdale)	1913 - Date
041165	The Head (Bonnie Brae)	1913 - Date
040202	Thornton	1915 - Date
040205	Toogoolawah	1909 - Date
041103	Toowoomba (Fire Stn)	1869 - Date
040227	Wacol (Wolston Pk)	1893 - Date
040424	West Haldon	1915 - Date
040252	Woodford	1887 - Date
040258	Yarraman Ck	1913 - Date

Table A-2 - Pluviometers

Number	Station	Agency	Period of Record
040004	Amberley AMO	BM	1961 - Date
040062	Crohamhurst	BM	1960 - Date
040019	Benarkin Forestry	BM	1961 - Date
040020	Blackbutt	BM	Unknown
040214	Brisbane RO	BM	1911 - Date
040223	Brisbane AMO	BM	1950 - Date
541032	Bryn Euryn	DNR	1985 - Date
040382	Crows Nest	TCC	1965 - Date
040531	Deagon	BCC	1973 - Date
040225	Enoggera Reservoir	BCC	1961 - Date
040075	Esk	BCC	1964 - Date
040082	Gatton - Lawes CSIRO	BM	1963 - Date
040094	Harrisville PO	BM	1971 - Date
040101	Ipswich (Composite)	BM	1975 - Date
040102	Jimna PO	BM	1972 - Date
040104	Kalbar	BM	1978 - Date
040318	Kirkleagh	BM	1959 - Date
040115	Lake Manchester	BCC	1961 - Date
040133	Monsildale	BCC	1963 - 1977
040135	Moongerah Dam	BM	1958 - Date
040308	Mt Glorious	BM	1969 - Date
040526	Mt Nebo	BCC	1966 - Date
040674	Mt Stanley	BM	1977 - Date
040480	Perseverance Dam	TCC	1971 - Date
040270	Ravensbourne	TCC	1965 - Date
040076	Robyn Dale	BM	1972 - Date
040503	Rosewood	BM	1977 - Date
040241	Samford (CSIRO)	CSIRO	1967 - Date
040202	Thornton	BM	1970 - Date
040528	Three Way Catchment	BCC	1970 - Date
041467	Toowoomba	TCC	1954 - Date
040675	Townson	BM	1977 - Date
040628	Woodford (BCC)	BCC	1964 - Date
040079	Forest Hill	DNR	1894 - Date
040095	Hatton Vale	DNR	1908- Date
040107	Beaudesert	DNR	1917 - Date
040124	Marburg	DNR	1887 - Date

Table A-2 - Pluviometers (Continued)

Number	Station	Agency	Period of Record
040149	Boonah	DNR	1924 - 1990
040150	Mundoolun	DNR	1881 - Date
040154	Murrumba (Fairview)	DNR	1926 - 1974
040155	Mudtapilly	DNR	1917 - 1957
040156	Innisplain	DNR	1913 - Date
040159	Narangbar	DNR	1920 - 1987
040163	Rathdowney	DNR	1925 - 1972
040170	Crows Nest (Peachy SF)	DNR	1927 - Date
040171	Petrie (Australian Paper Mills)	DNR	1886 - Date
040179	Redbank	DNR	1888 - 1978
040180	Margate	DNR	1886 - Date
040181	Roadvale	DNR	1907 - 1983
040186	Samsonvale Composite	DNR	1919 - Date
040197	Mount Tamborine	DNR	1888 - Date
040208	Pine Mountain	DNR	1925 - Date
040212	Ascot Racecourse	DNR	1920 - Date
040213	Bald Hills	DNR	1895 - 1993
040215	Brisbane Botanic Gardens	DNR	1890 - 1984
040216	Brisbane Show Grounds	DNR	1889 - Date
040226	Goodna	DNR	1870 Date
040224	Enoggera	DNR	1899 - Date

Note: BM = Bureau of Meteorology
NDR = Department of Natural Resources
TCC = Toowoomba City Council
BCC = Brisbane City Council

January 1974 Flood Event

Date	Daily Rainfall from 9 AM to 9AM (mm)					
	Benarkin Forrest	Moogerah Dam	Woodford PO	Ravensbourne PO	Mt Glorious	Brisbane Bot
24/01/74	75.2	10.2	1.2	0.5	237.2	107.3
25/01/74	104.9	158.9	244.4	101.9	293.6	323.1
26/01/74	139.5	227.4	278.0	115.9	394.0	186.6
27/01/74	51.4	39.2	84.3	35.2	120.2	33.2
28/01/74	0.0	0.0	3.1	1.3	0.0	0.0

July 1973 Flood Event

Date	Daily Rainfall from 9 AM to 9AM (mm)			
	Brisbane Bot	Moogerah Dam	Benarkin Forest	Ravensbourne PO
4/07/73	17.1	0.0	2.8	8.9
5/07/73	90.1	16.5	65.6	67.5
6/07/73	334.7	41.1	16.8	36.1
7/07/73	193.6	2.4	166.7	82.6
8/07/73	14.5	0.0	17.1	8.0

June 1983 Flood Event

Date	Daily Rainfall from 9 AM to 9AM (mm)				
	Brisbane Bot	Kirkleagh	Benarkin Forest	Ravensbourne PO	Moogerah Dam
20/06/83	7.5	15.2	14.1	87.6	5.3
21/06/83	89.4	69.1	84.0	188.9	55.9
22/06/83	73.1	83.2	58.7	141.4	24.6
23/06/83	0.0	0.0	0.0	0.0	0.0

Early April1989A Flood Event

Date	Daily Rainfall from 9 AM to 9AM (mm)				
	Amberley	Kirkleagh	3 Way Catchment	Gatton Lawes	Blackbutt
1/04/89	110.7	63.5	173.3	90.3	7.2
2/04/89	47.5	175.1	31.3	59.7	63.6
3/04/89	38.8	8.6	19.5	0.0	1.2

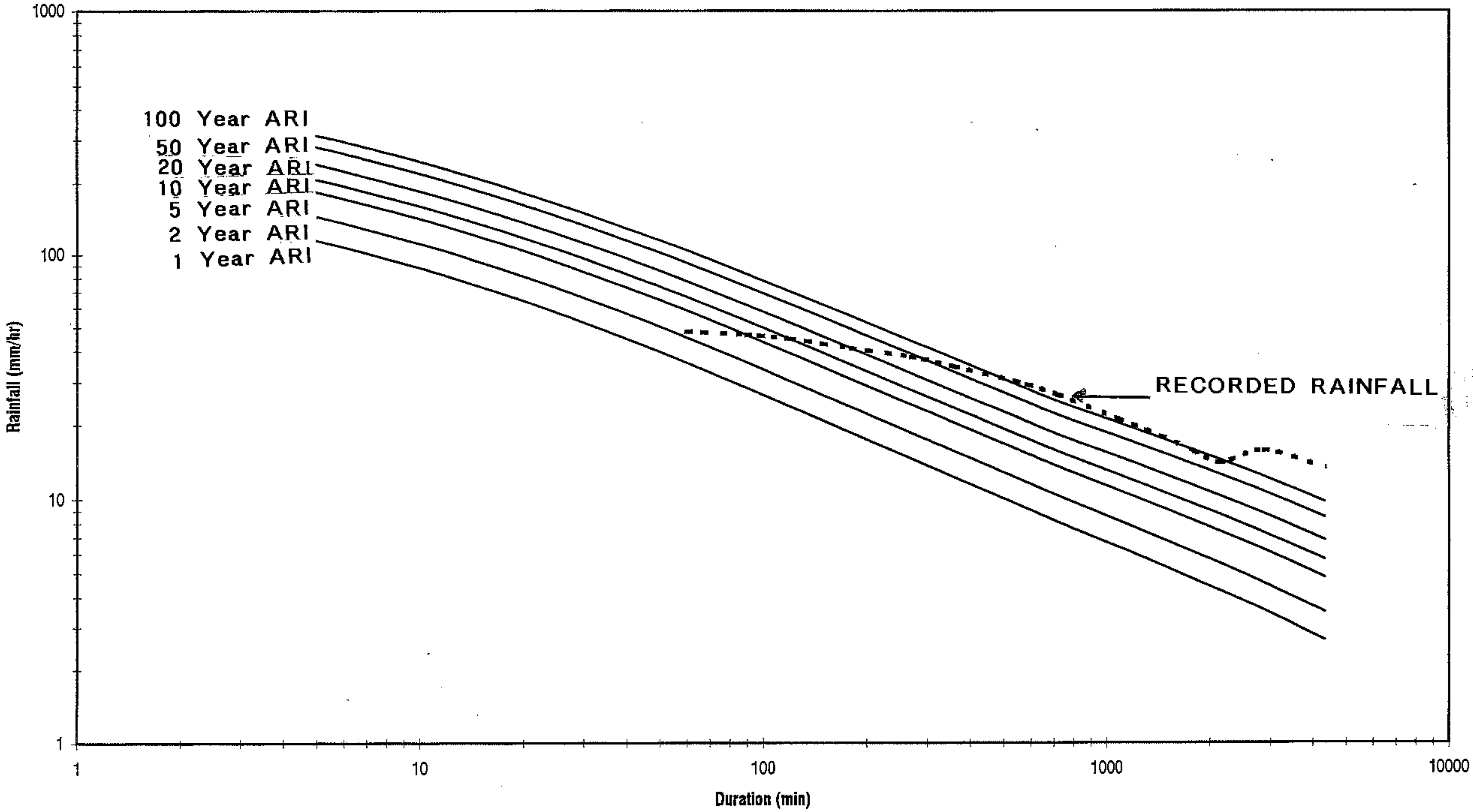
Late April 1989B Flood Event

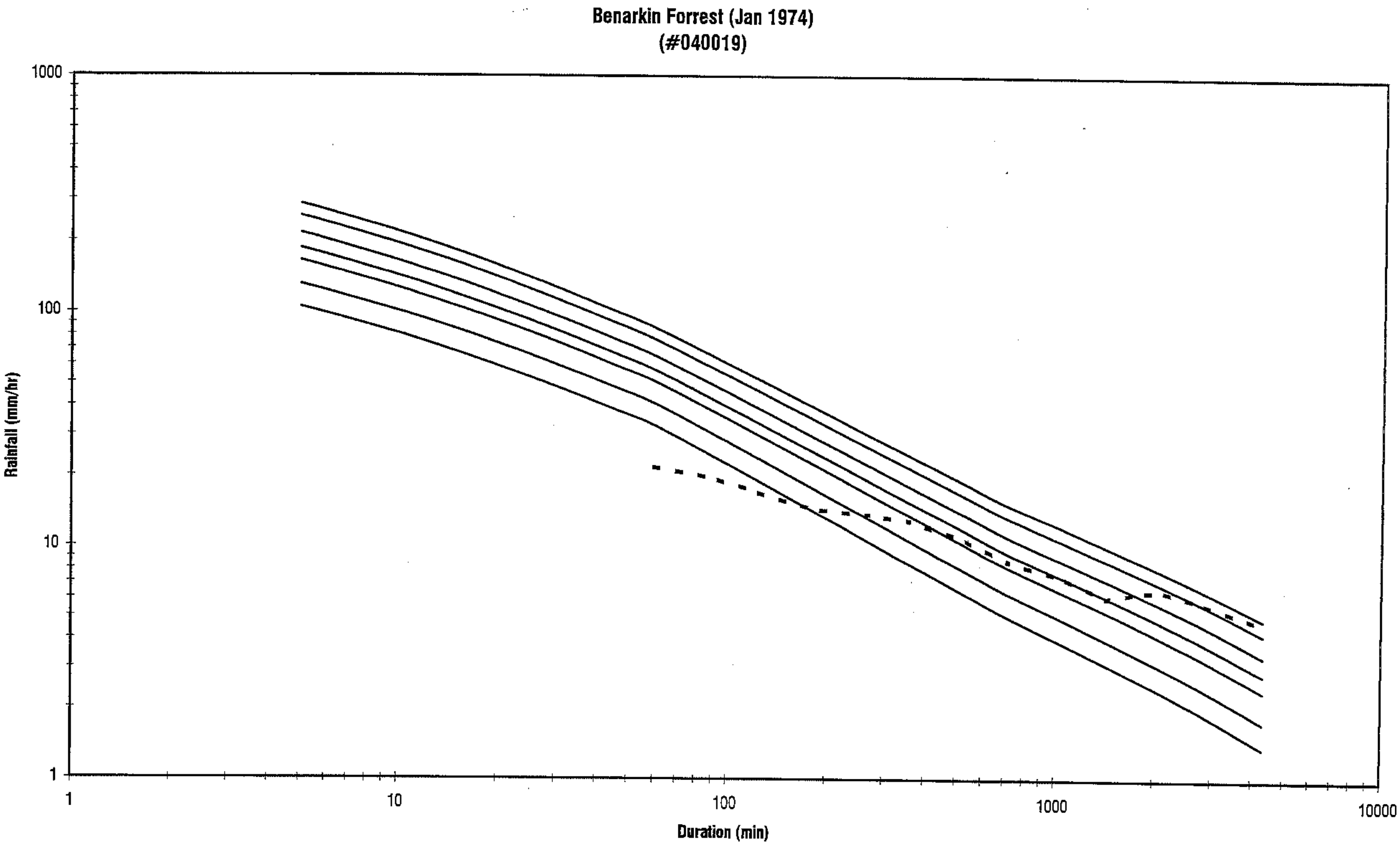
Date	Daily Rainfall from 9 AM to 9AM (mm)			
	Amberley	Kirkleagh	Moogerah Dam	Ravensbourne PO
23/04/89	12.5	53.4	10.0	30.4
24/04/89	18.1	47.4	19.5	56.1
25/04/89	62.4	91.2	65.4	100.5

May 1996 Flood Event

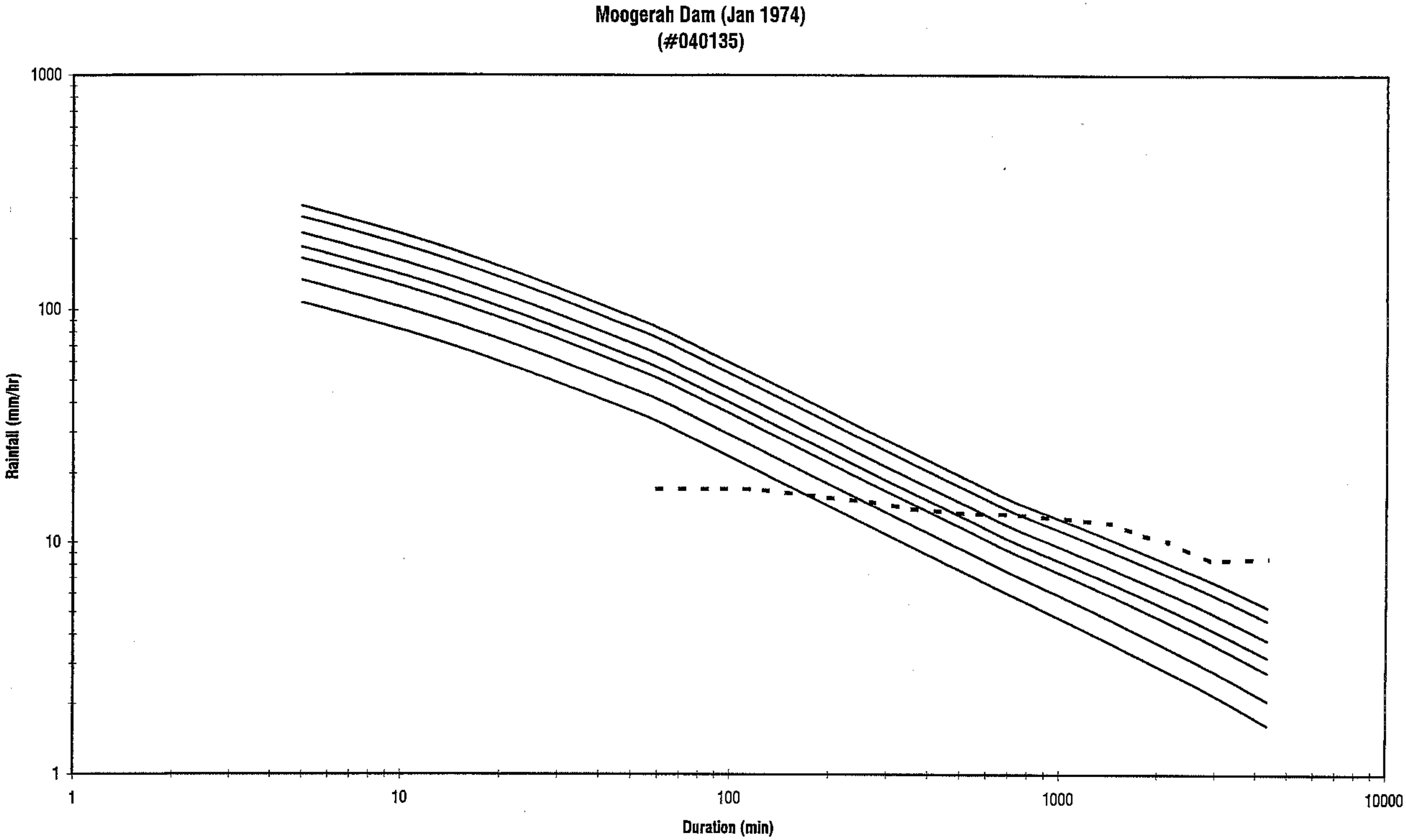
Date	Daily Rainfall from 9 AM to 9AM (mm)			
	Brisbane	Gatton Lawes	Woodford PO	Amberley
30/04/96	47.3	43.5	6.8	5.5
1/05/96	154.8	96.3	96.2	126.7
2/05/96	161.4	80.5	150.9	117.0
3/05/96	79.9	74.8	29.4	29.4
4/05/96	147.0	126.3	21.0	47.9
5/05/96	34.8	16.7	17.9	42.4
6/05/96	24.8	0.9	2.7	9.0

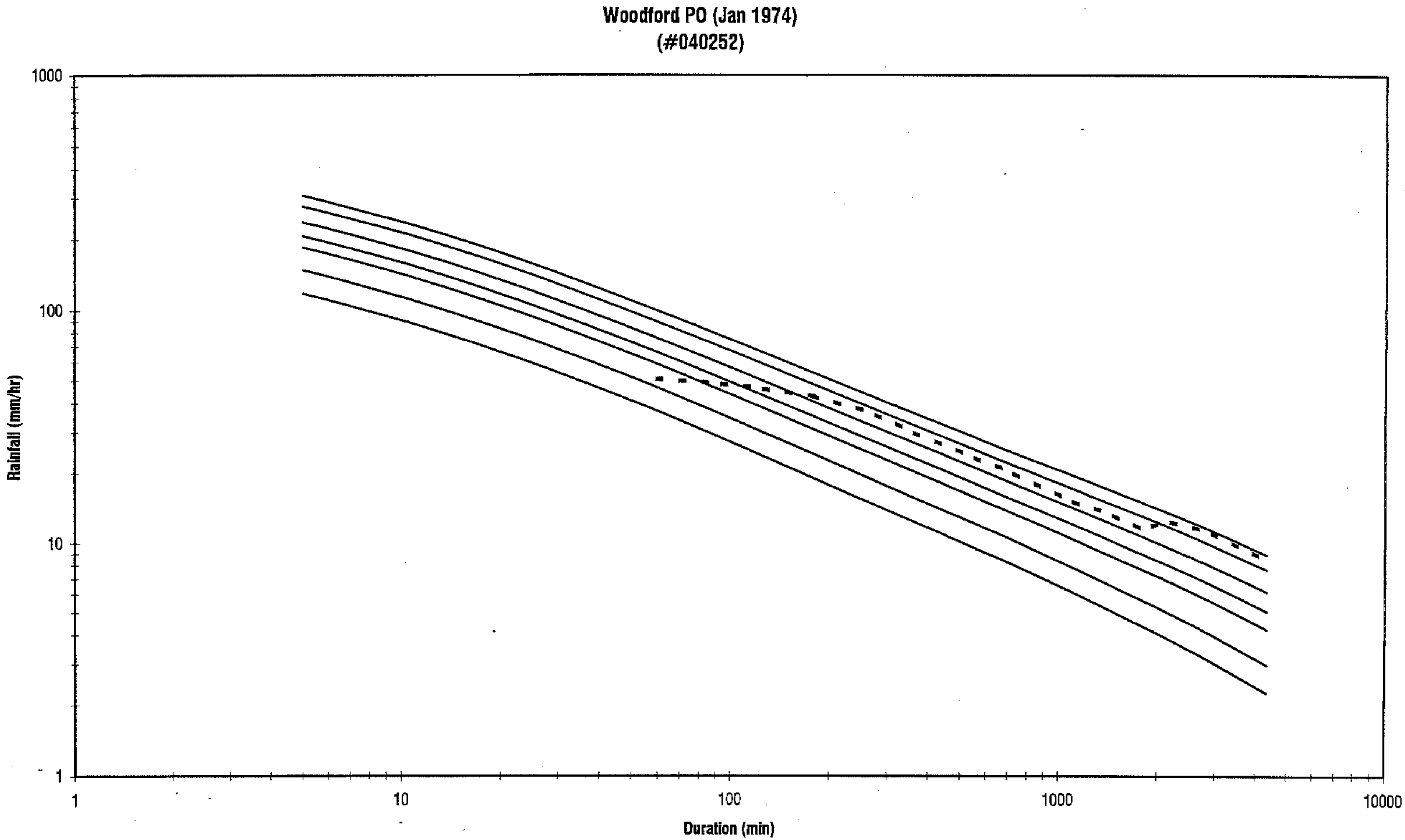
RECORDED RAINFALL/IFD COMPARISON LEGEND

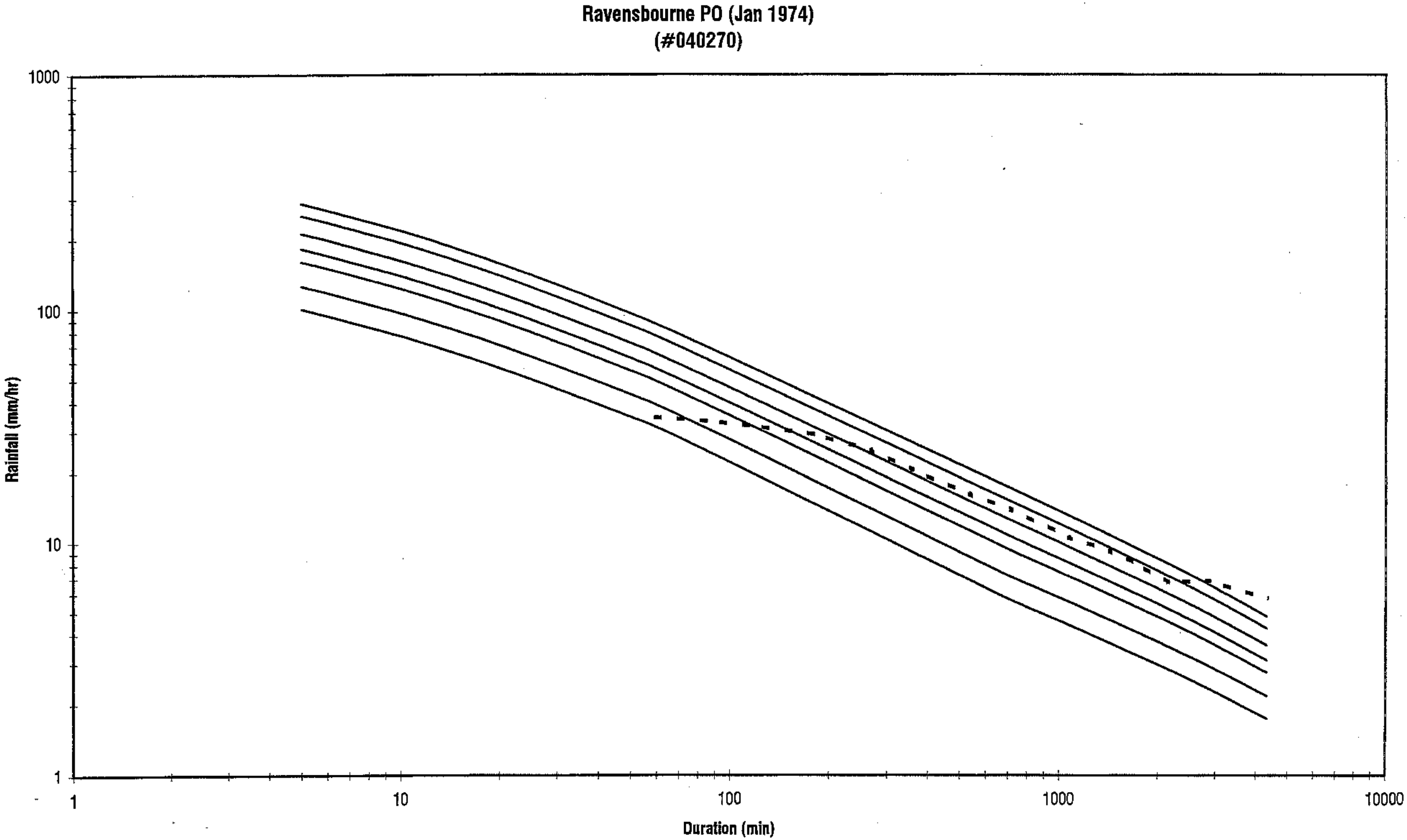


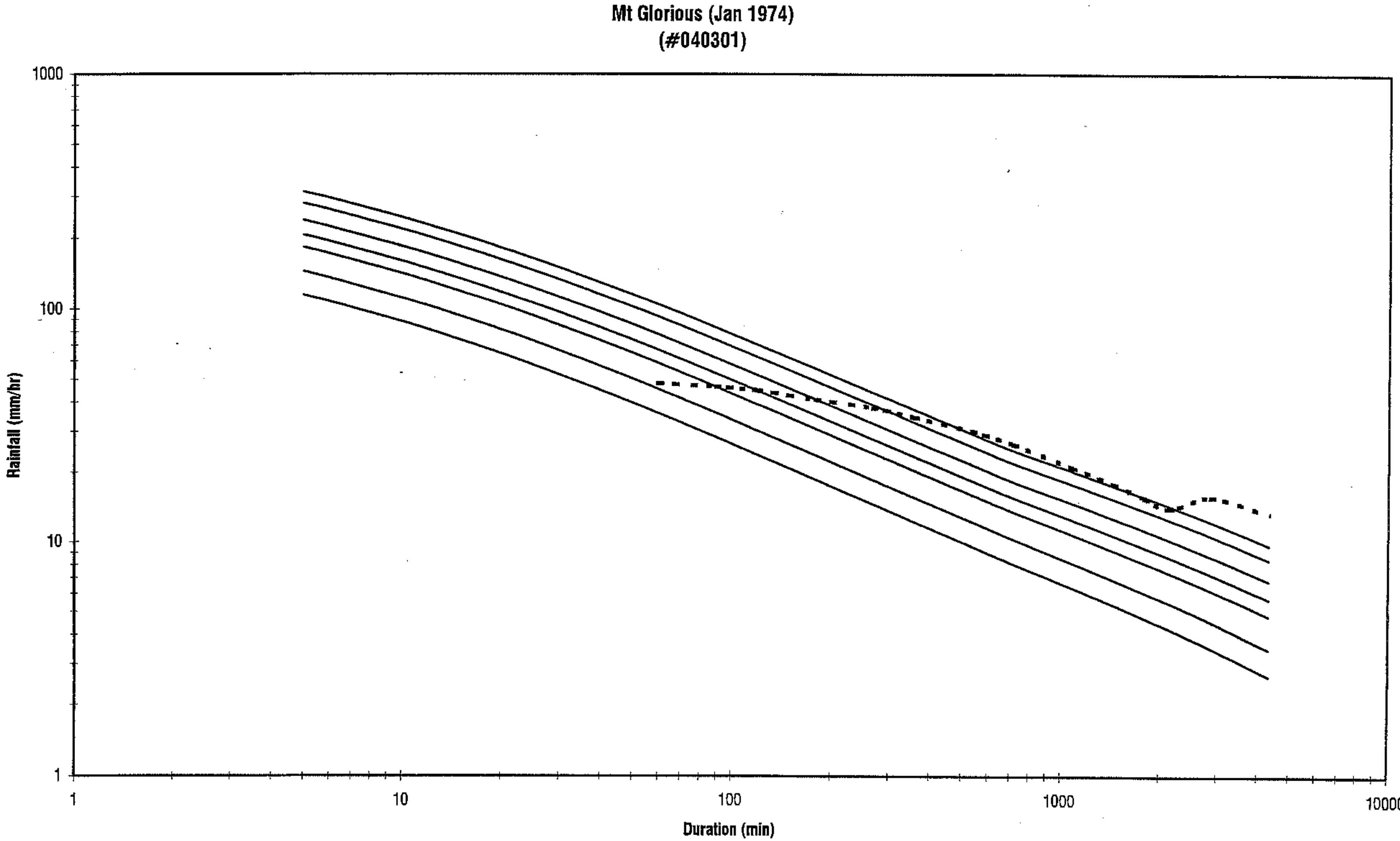

Benarkin Forrest (Jan 1974)
(#040019)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

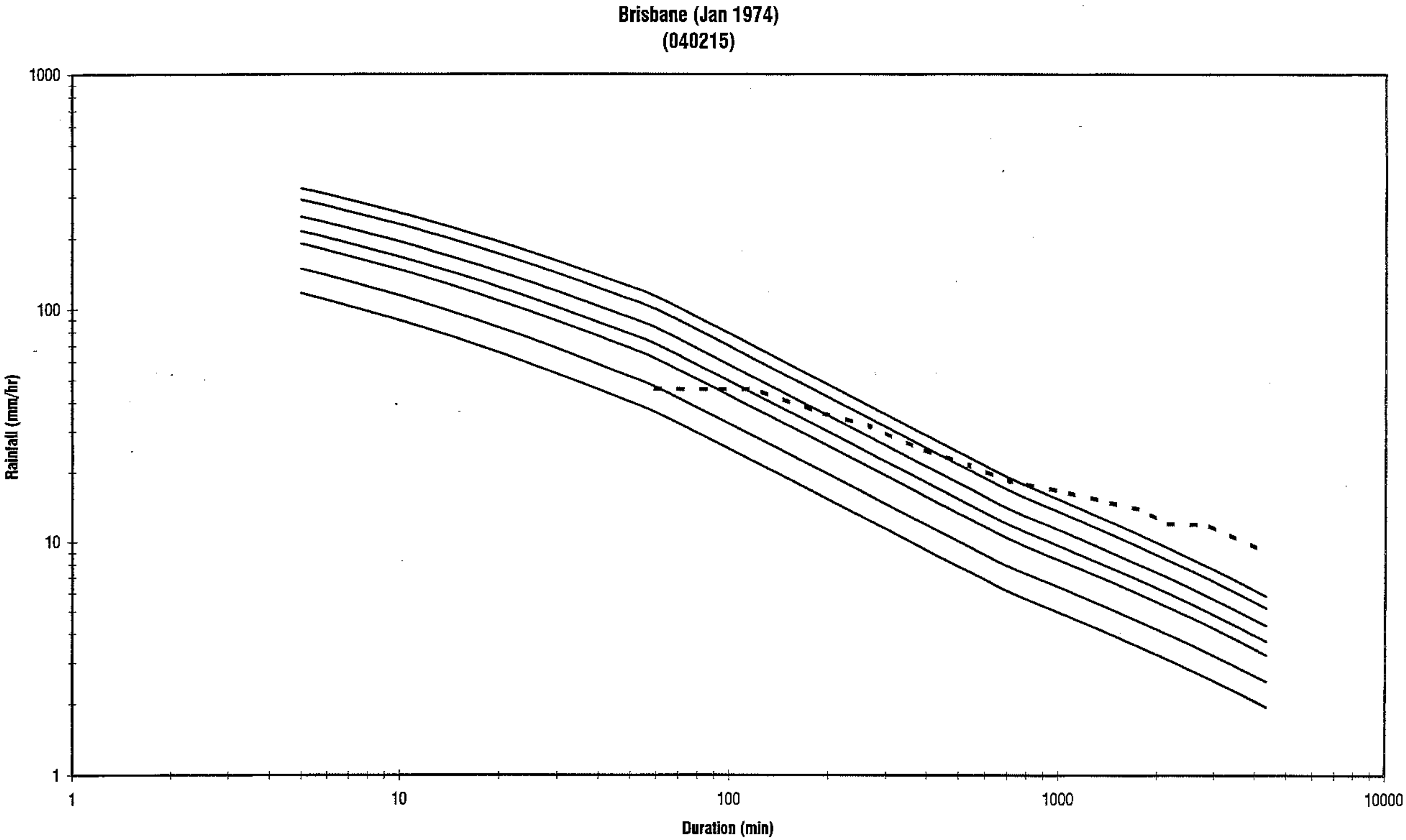
BCC.121.0118

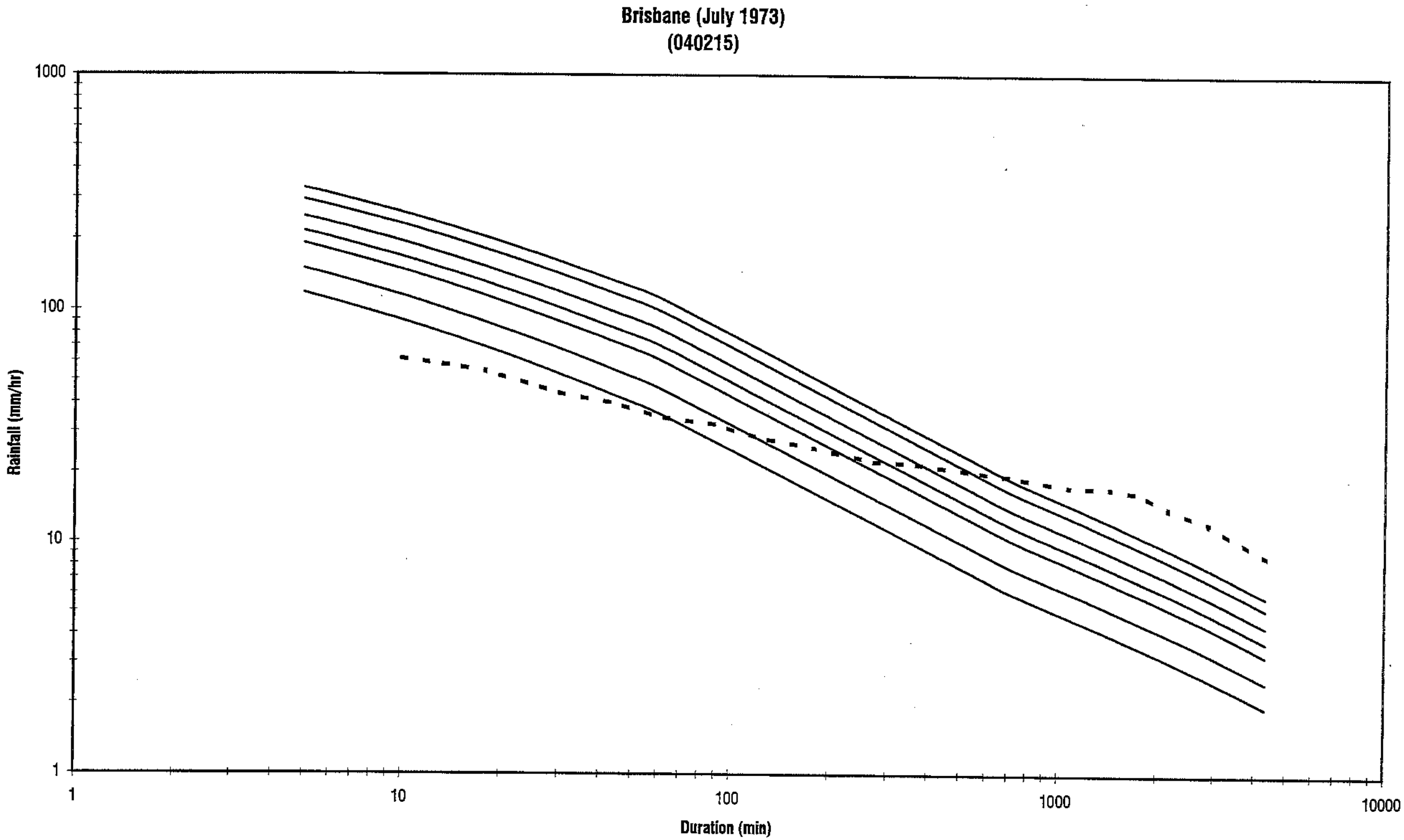

Moogerah Dam (Jan 1974)
(#040135)
1000
100
10
1
1
10
100
1000
10000
Rainfall (mm/hr)
Duration (min)


Woodford PO (Jan 1974)
(#040252)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

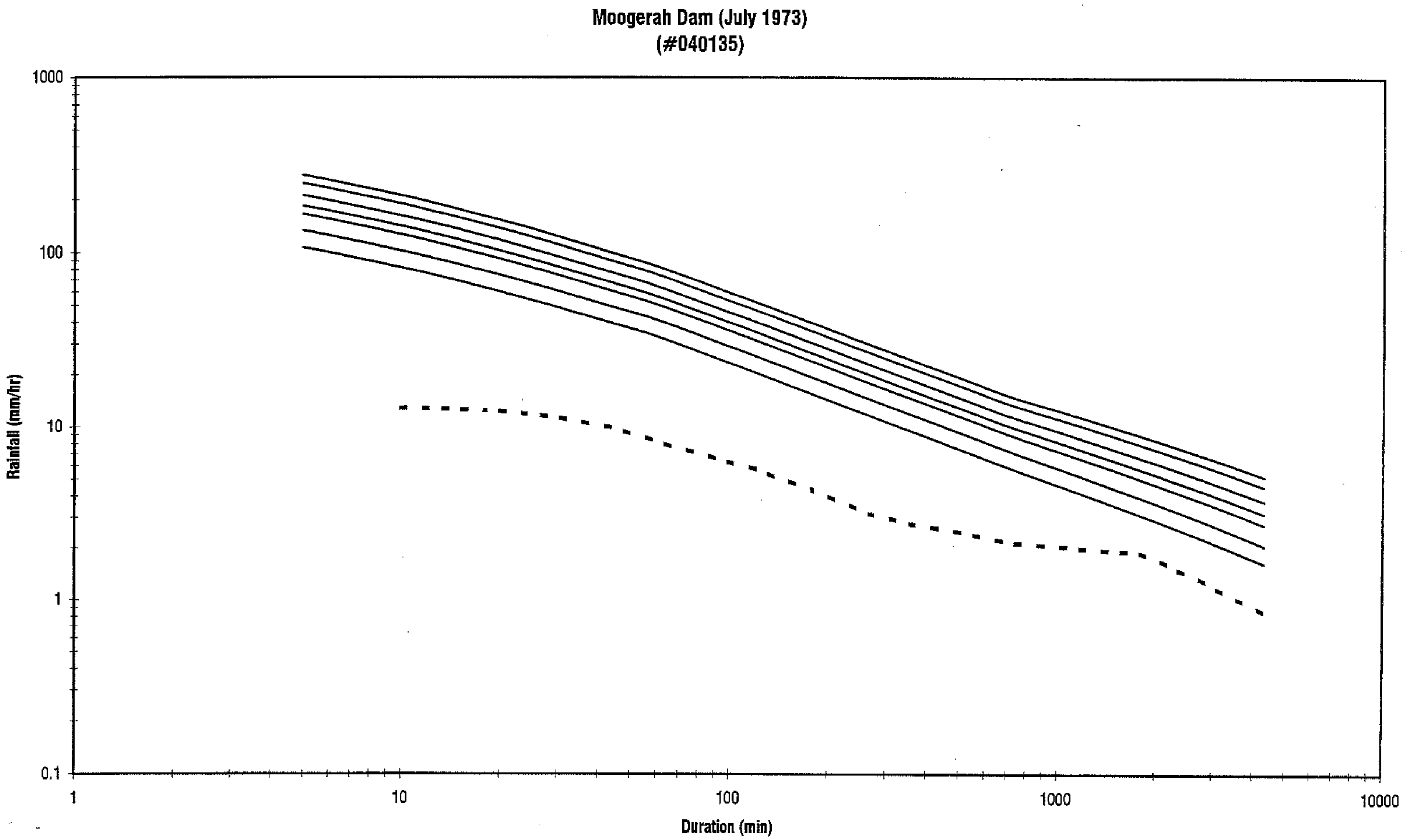

Ravensbourne PO (Jan 1974)
(#040270)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

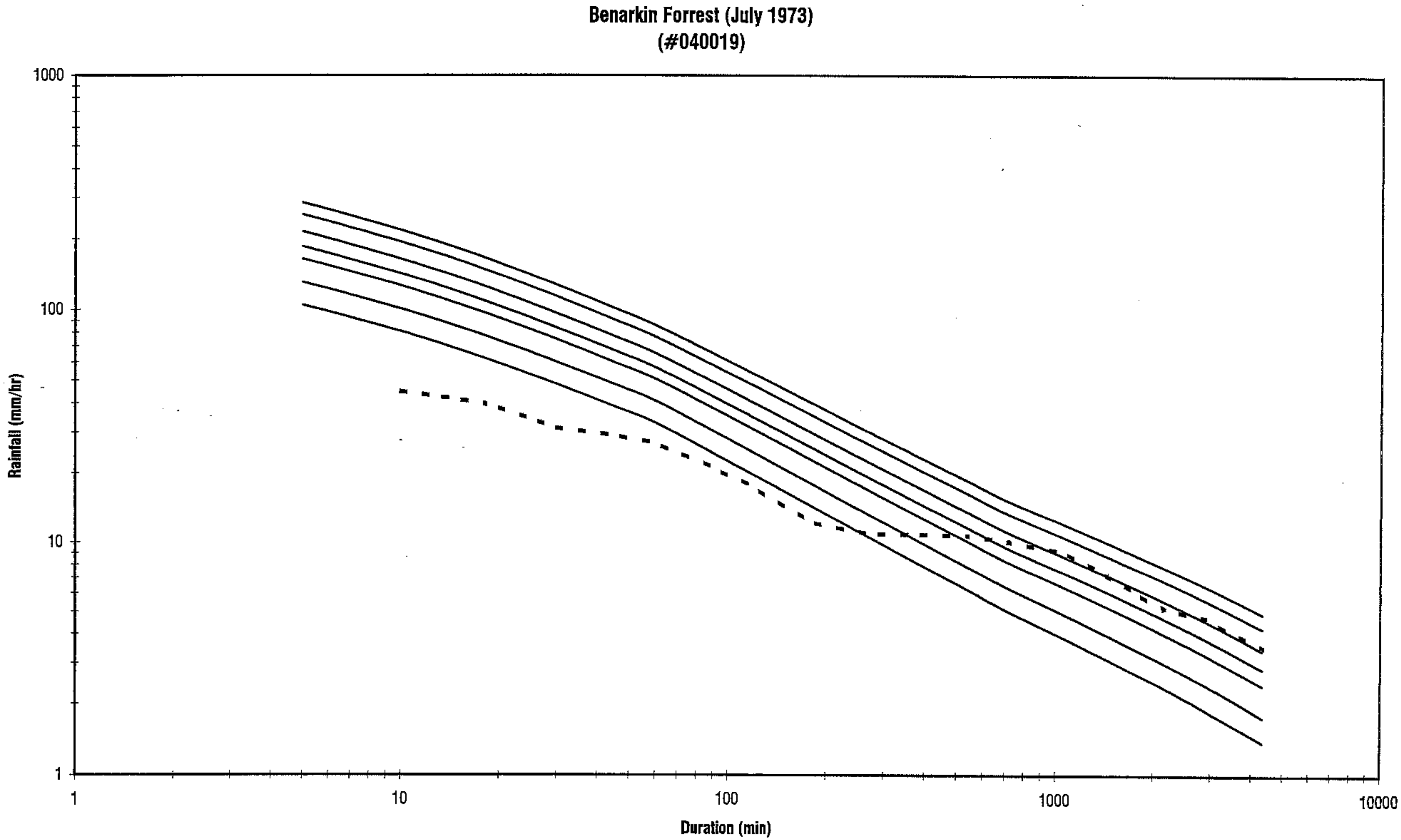

Mt Glorious (Jan 1974)
(#040301)
Rainfall (mm/hr)
1000
100
10
1
Duration (min)
1
10
100
1000
10000


Brisbane (Jan 1974)
(040215)
Rainfall (mm/hr)
1000
100
10
1
1
10
100
1000
10000
Duration (min)

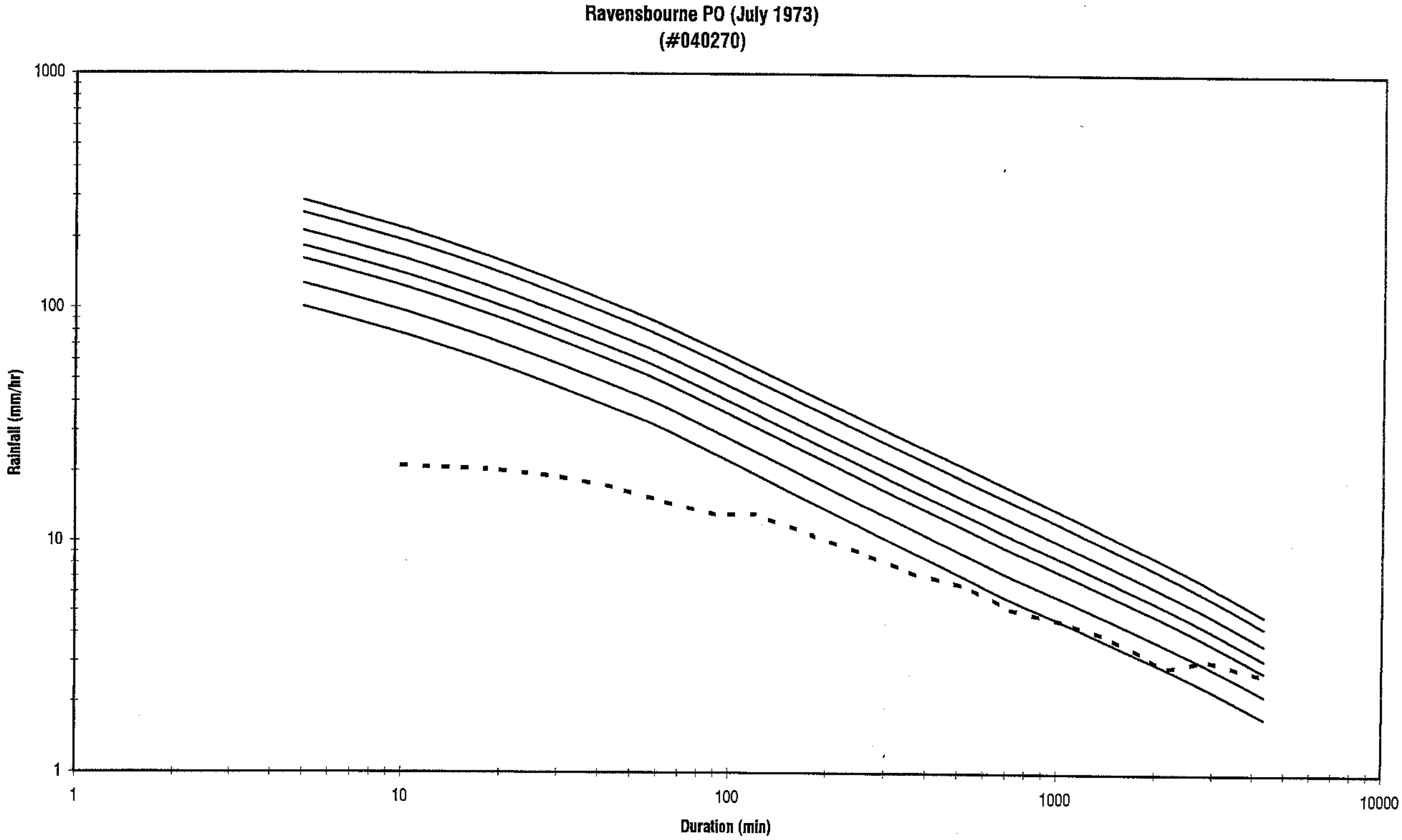

Brisbane (July 1973)
(040215)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

BCC.121.0124

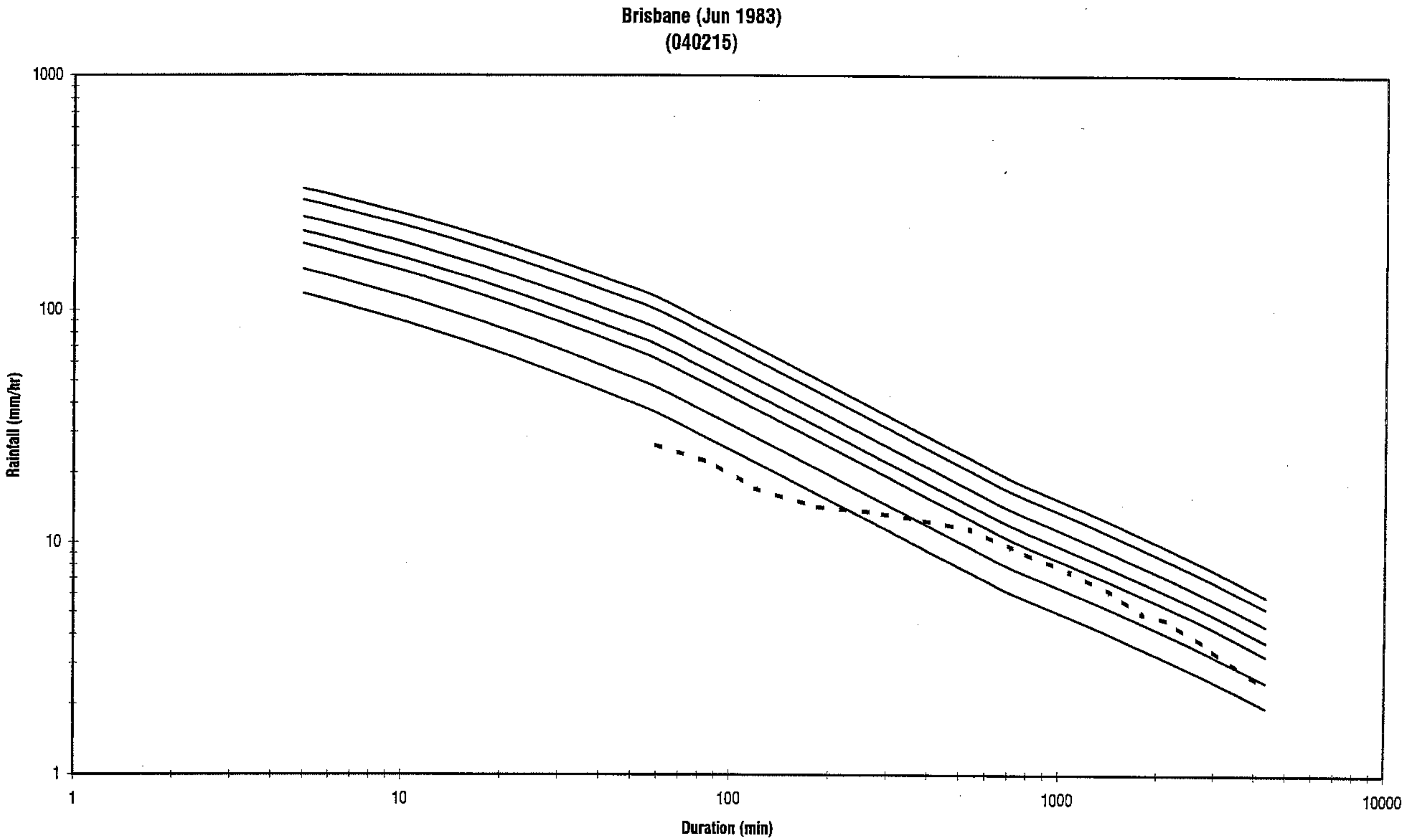

Moogerah Dam (July 1973)
(#040135)
1000
100
10
1
0.1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

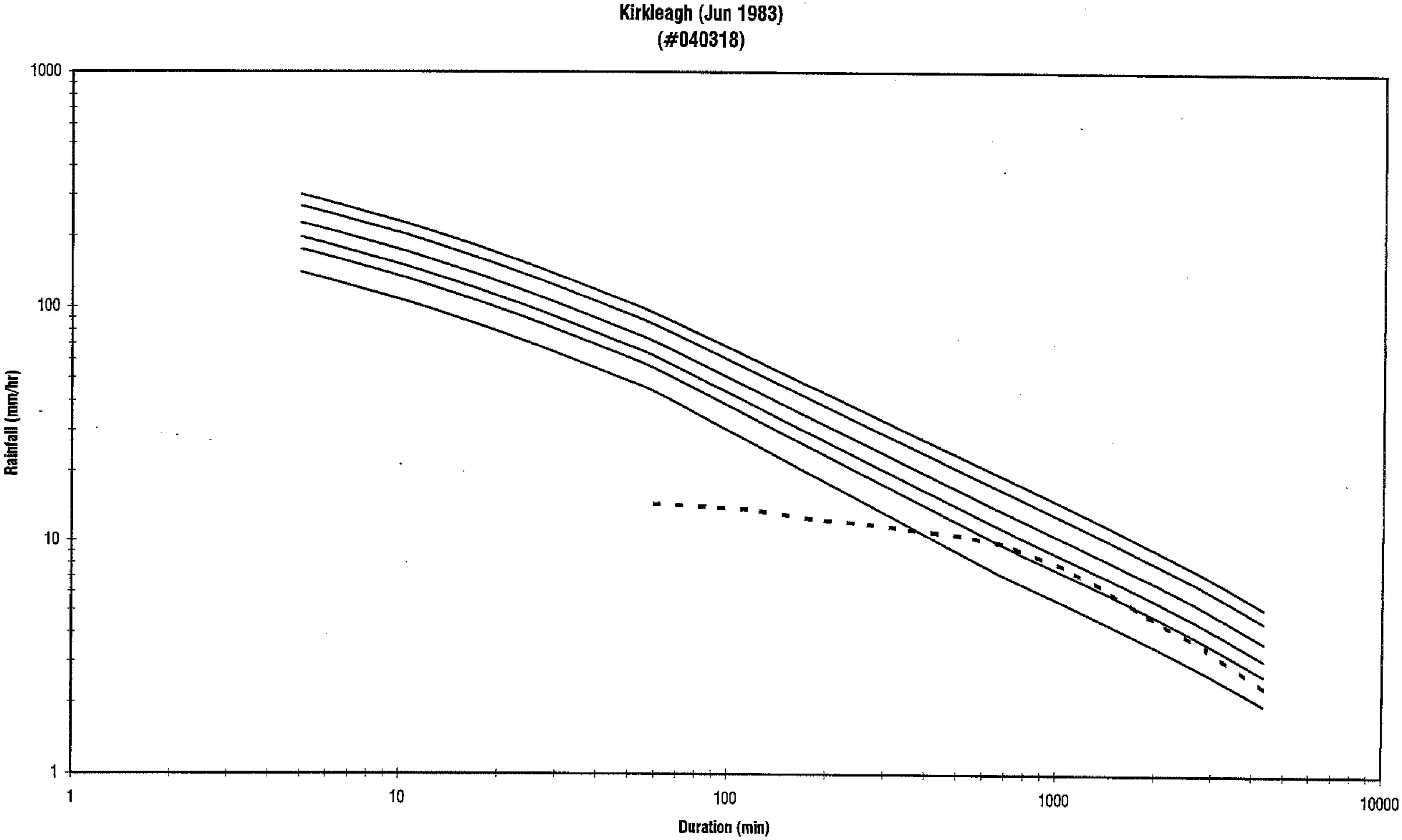

Benarkin Forrest (July 1973)
(#040019)
1000
100
10
1
1
10
100
1000
10000
Rainfall (mm/hr)
Duration (min)

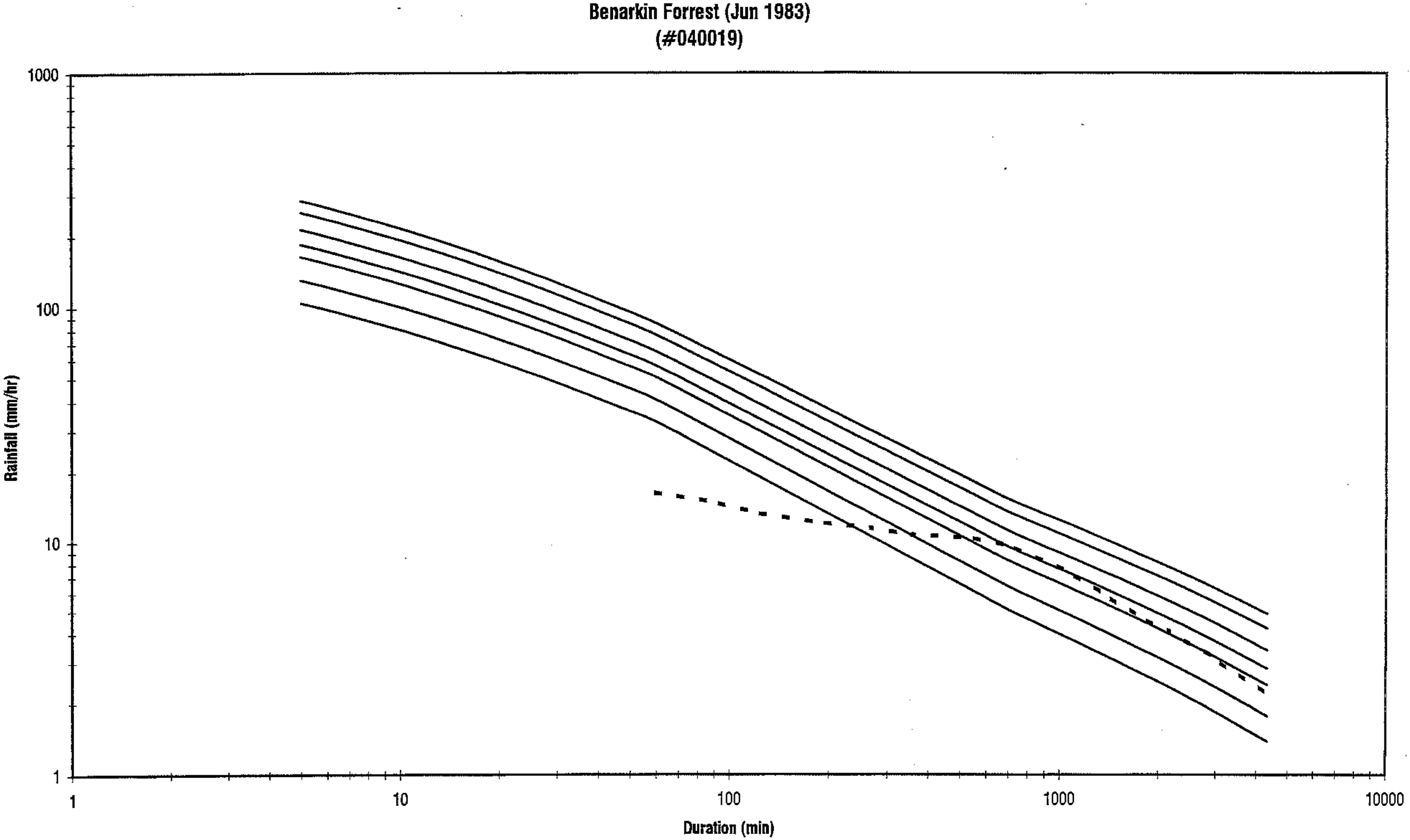
BCC.121.0126


Ravensbourne PO (July 1973)
(#040270)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

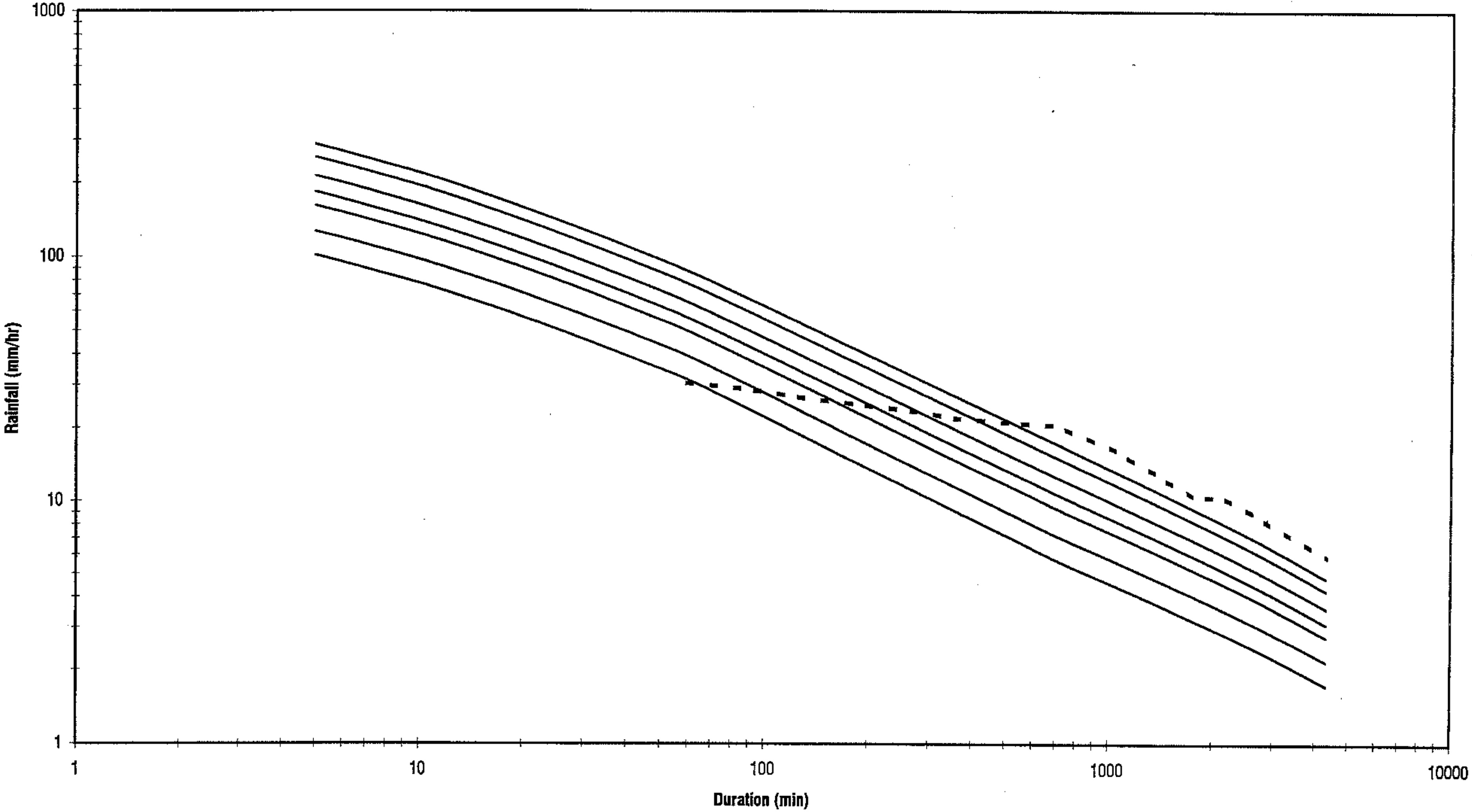
BCC.121.0127

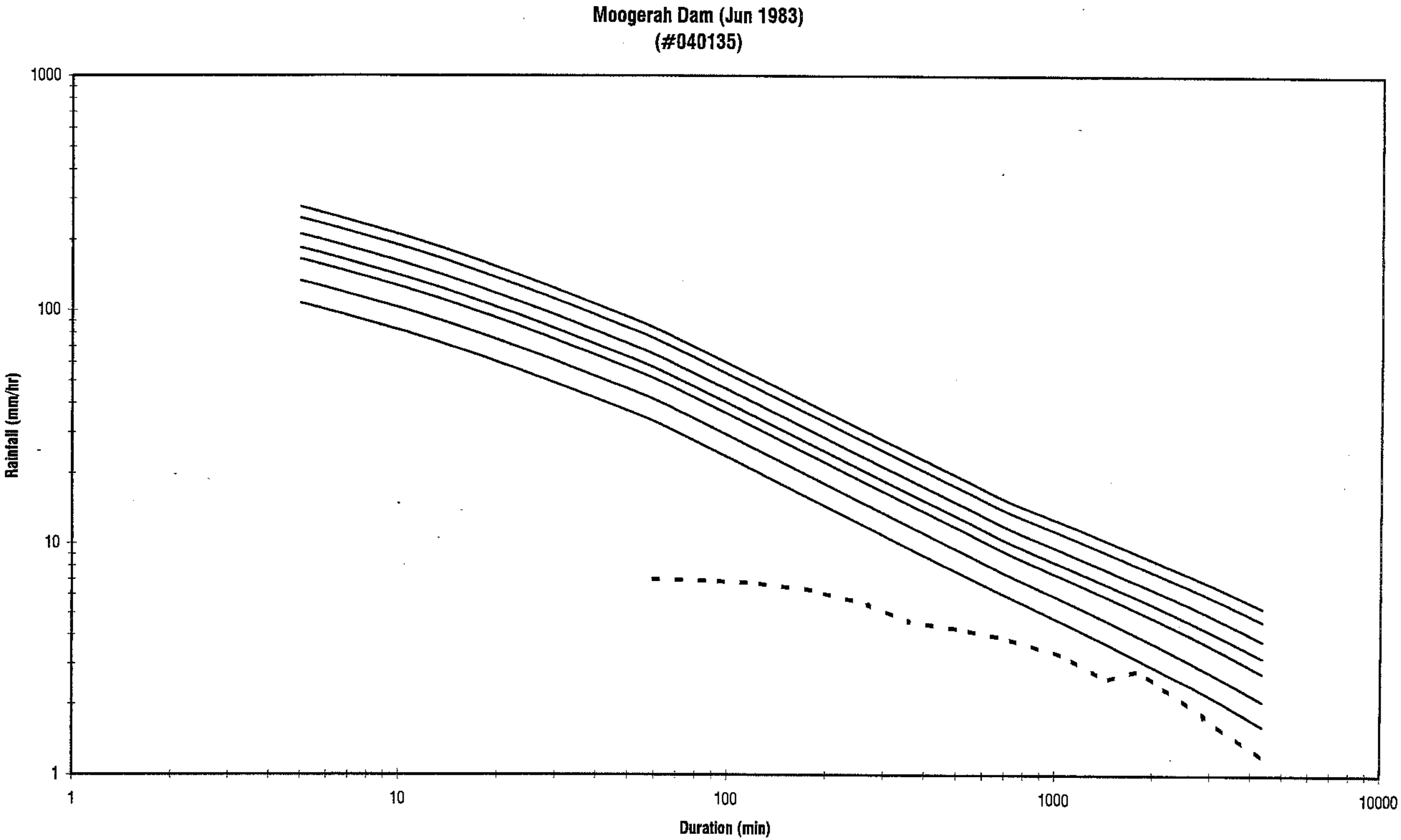

Brisbane (Jun 1983)
(040215)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

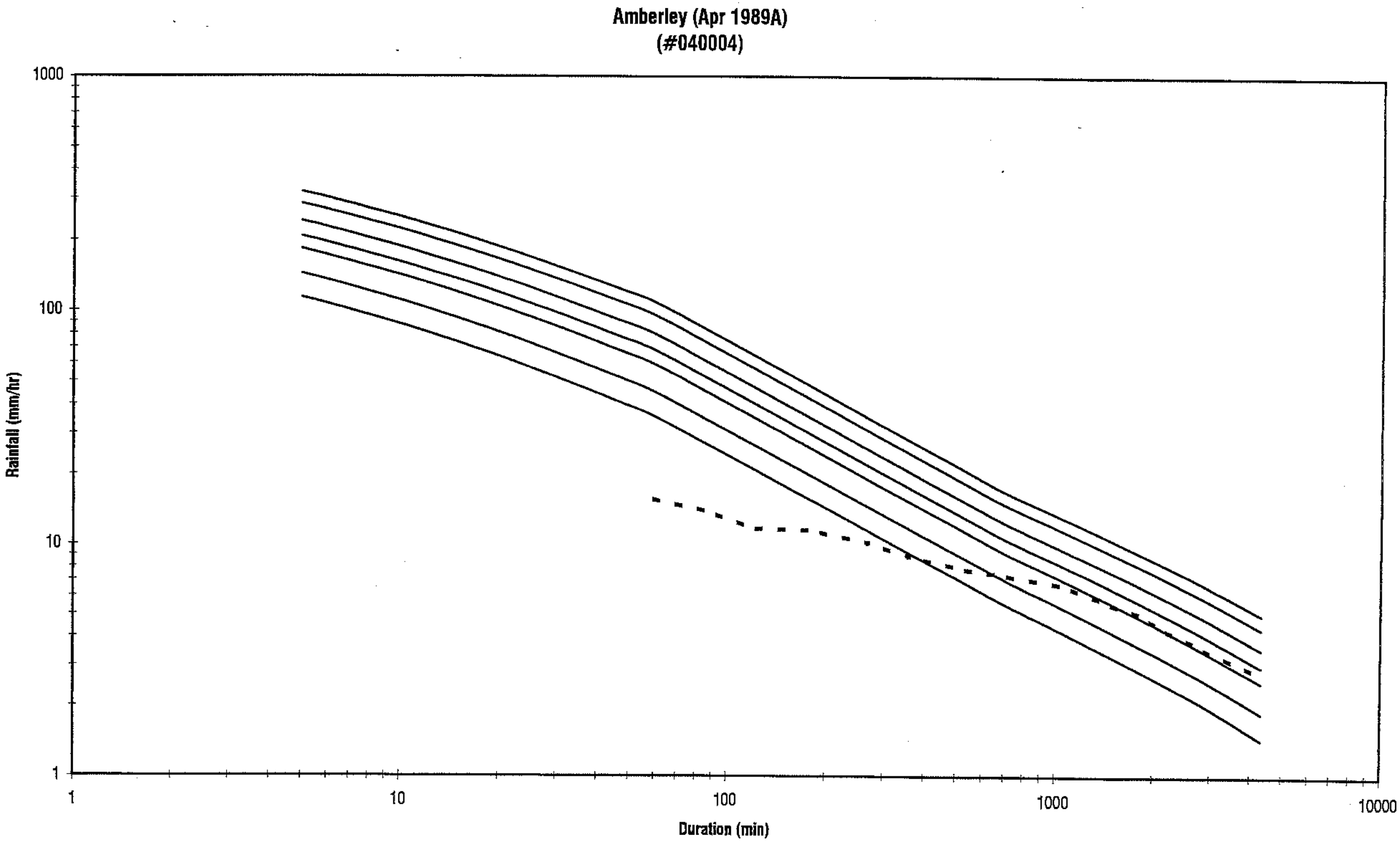

Kirkleagh (Jun 1983)
(#040318)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)


Benarkin Forrest (Jun 1983)
(#040019)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

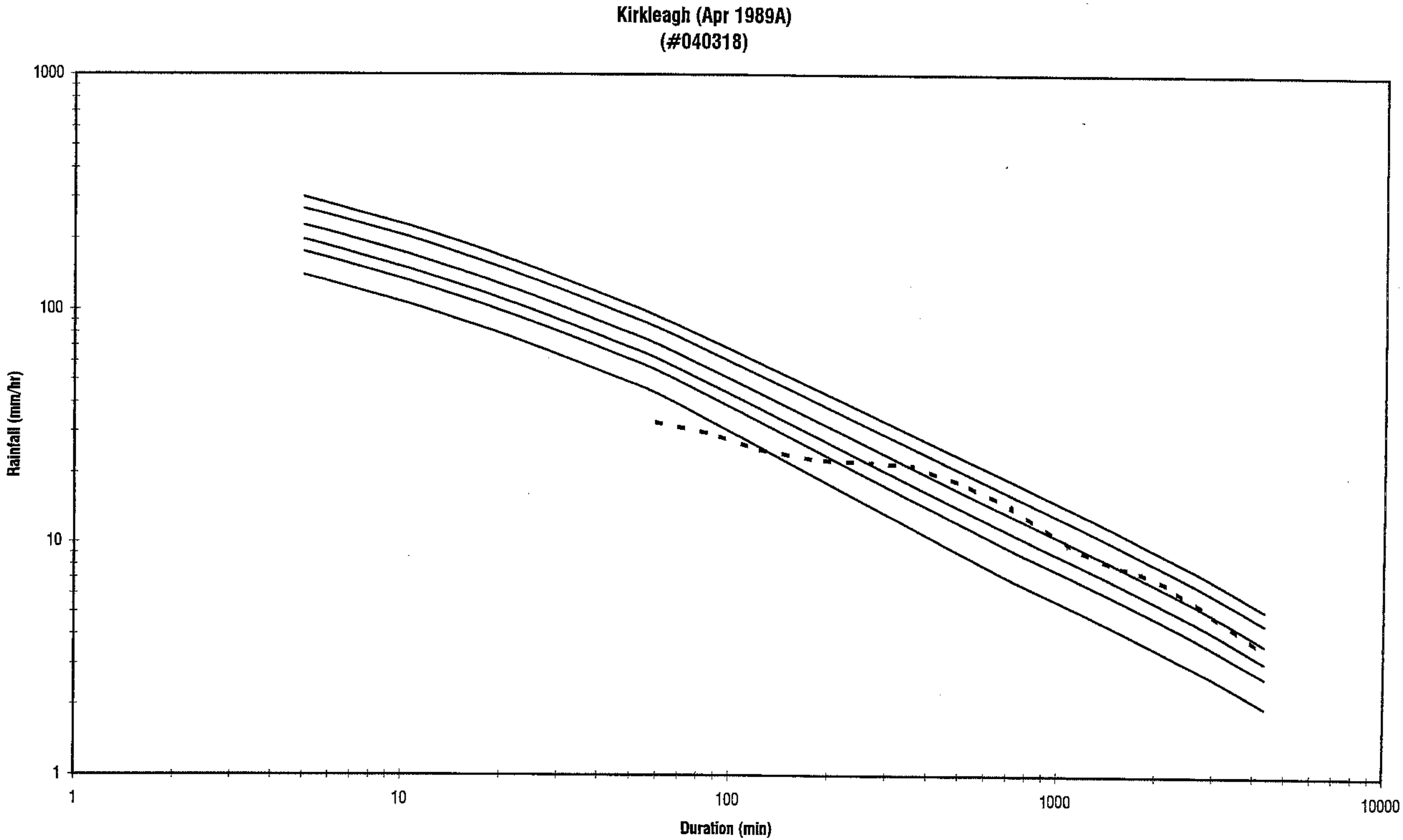
Ravensbourne PO (Jun 1983)
(#040270)

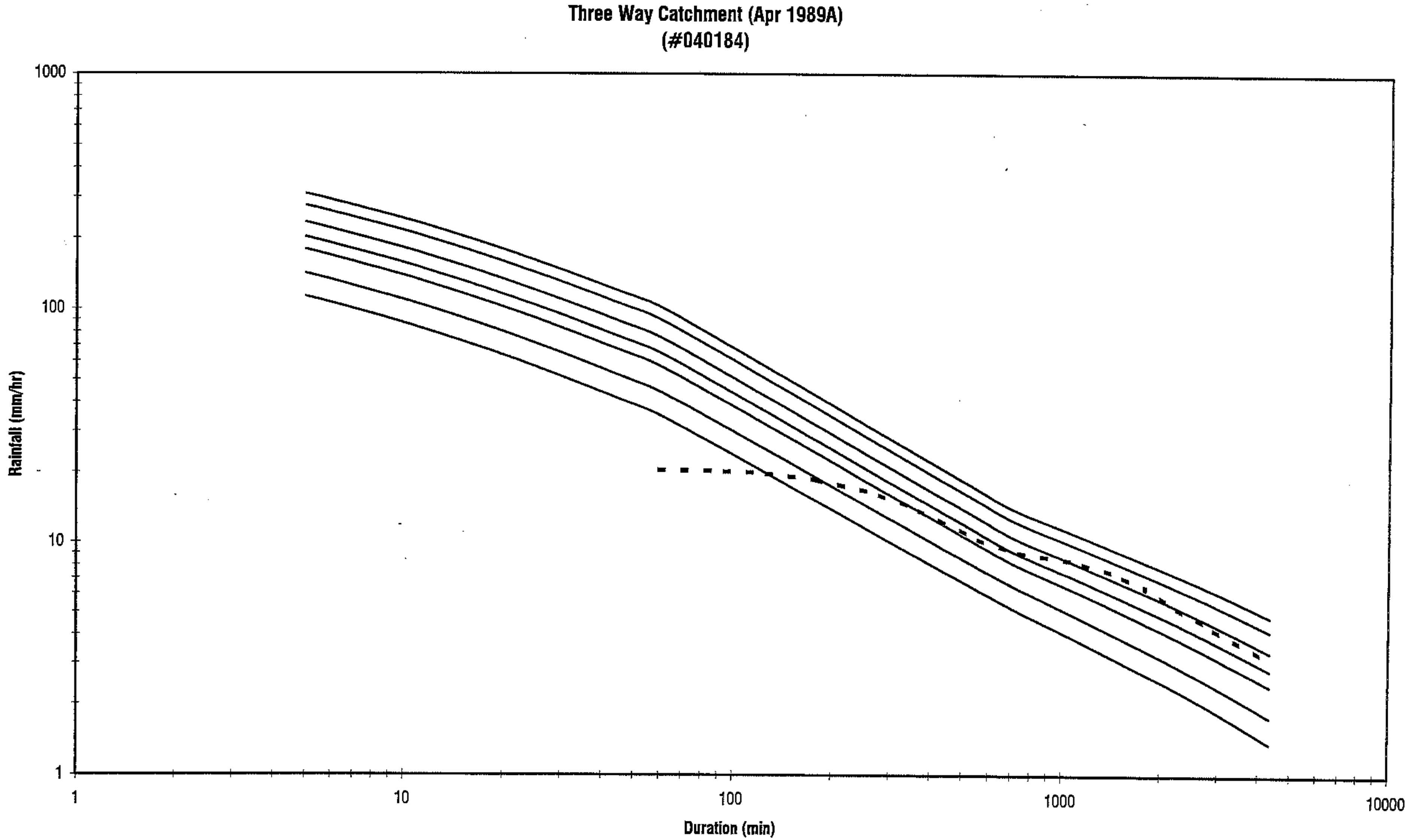



Moogerah Dam (Jun 1983)
(#040135)
Rainfall (mm/hr)
1000
100
10
1
1
10
100
1000
10000
Duration (min)

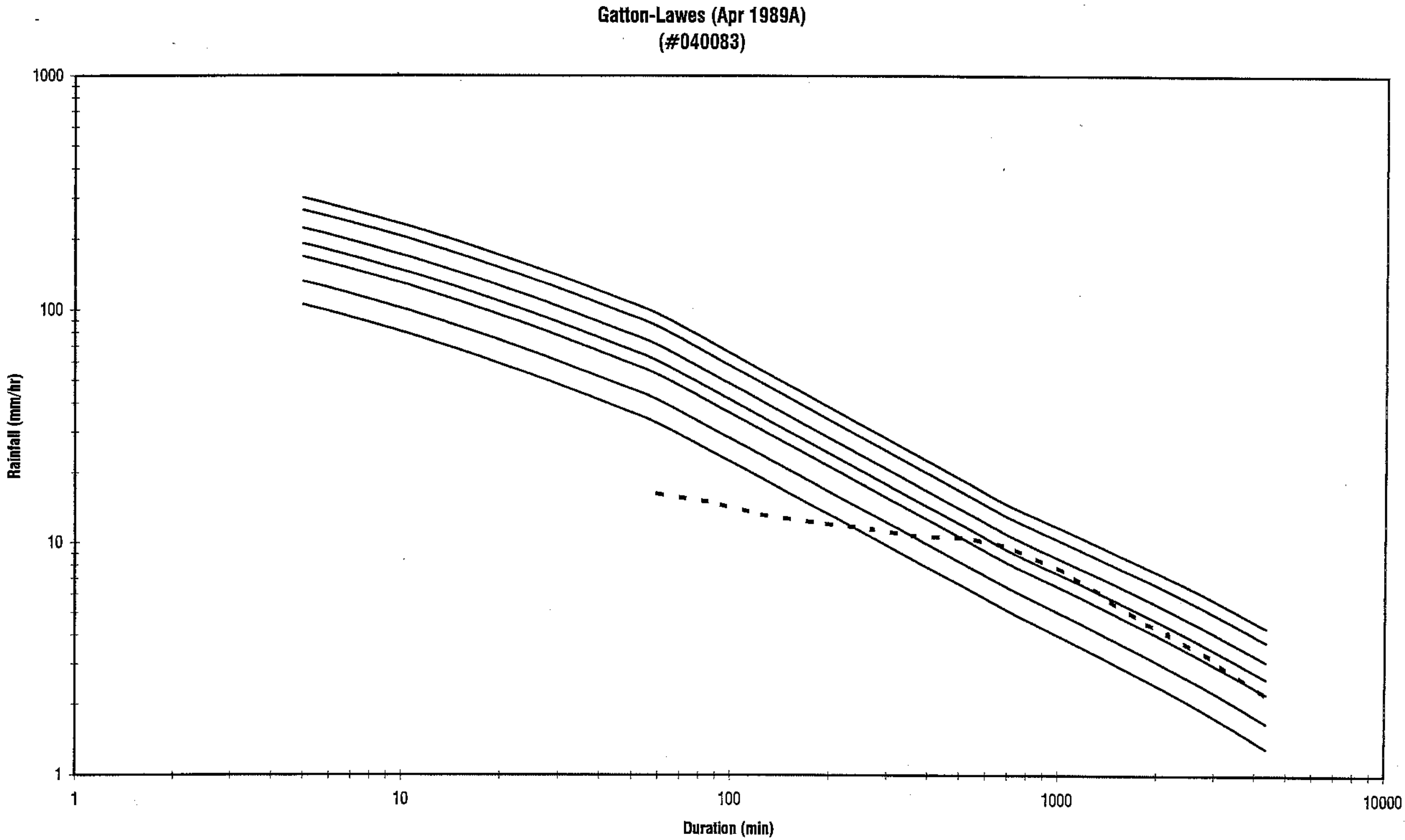

Amberley (Apr 1989A)
(#040004)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

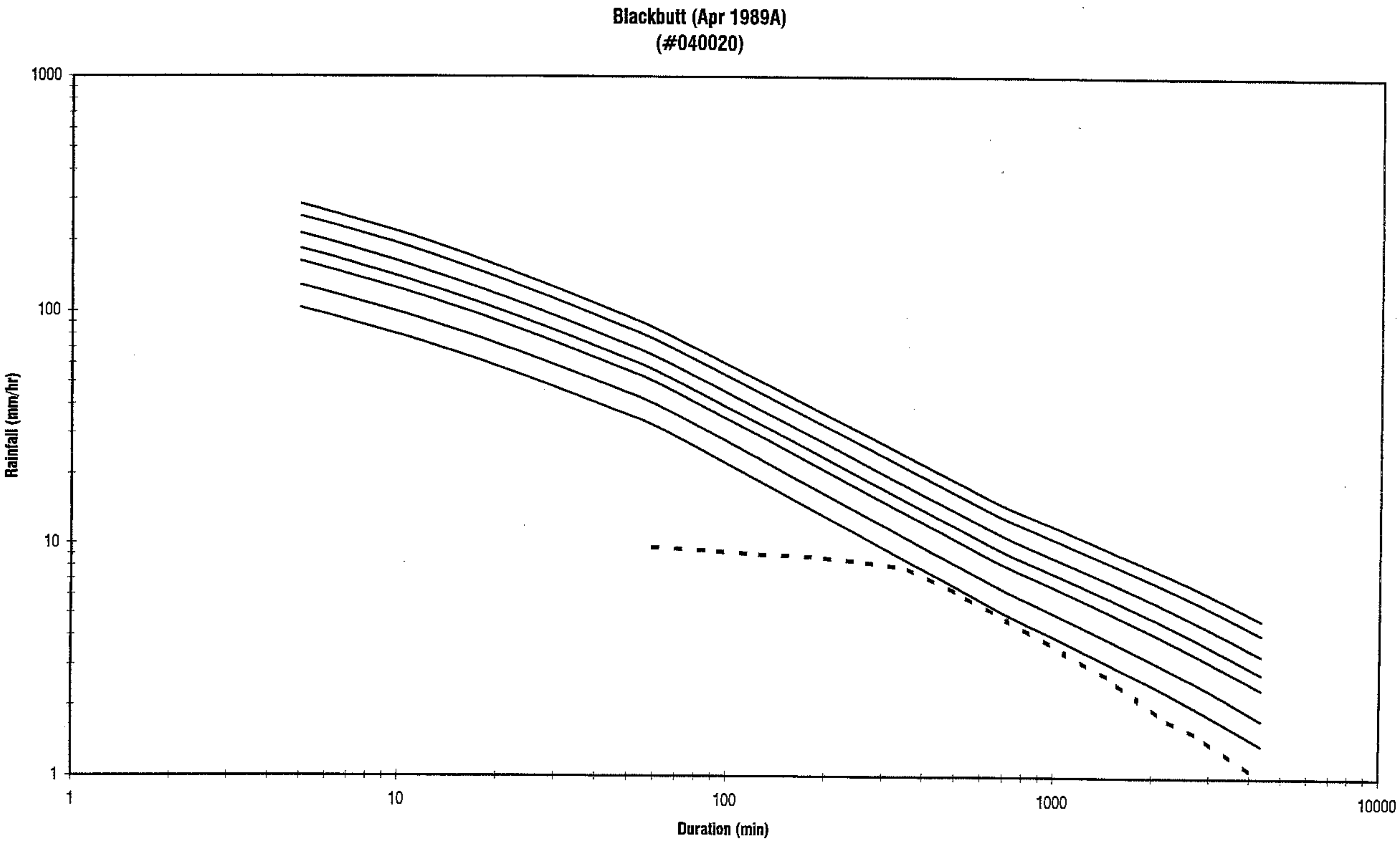
BCC.121.0133


Kirkleagh (Apr 1989A)
(#040318)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

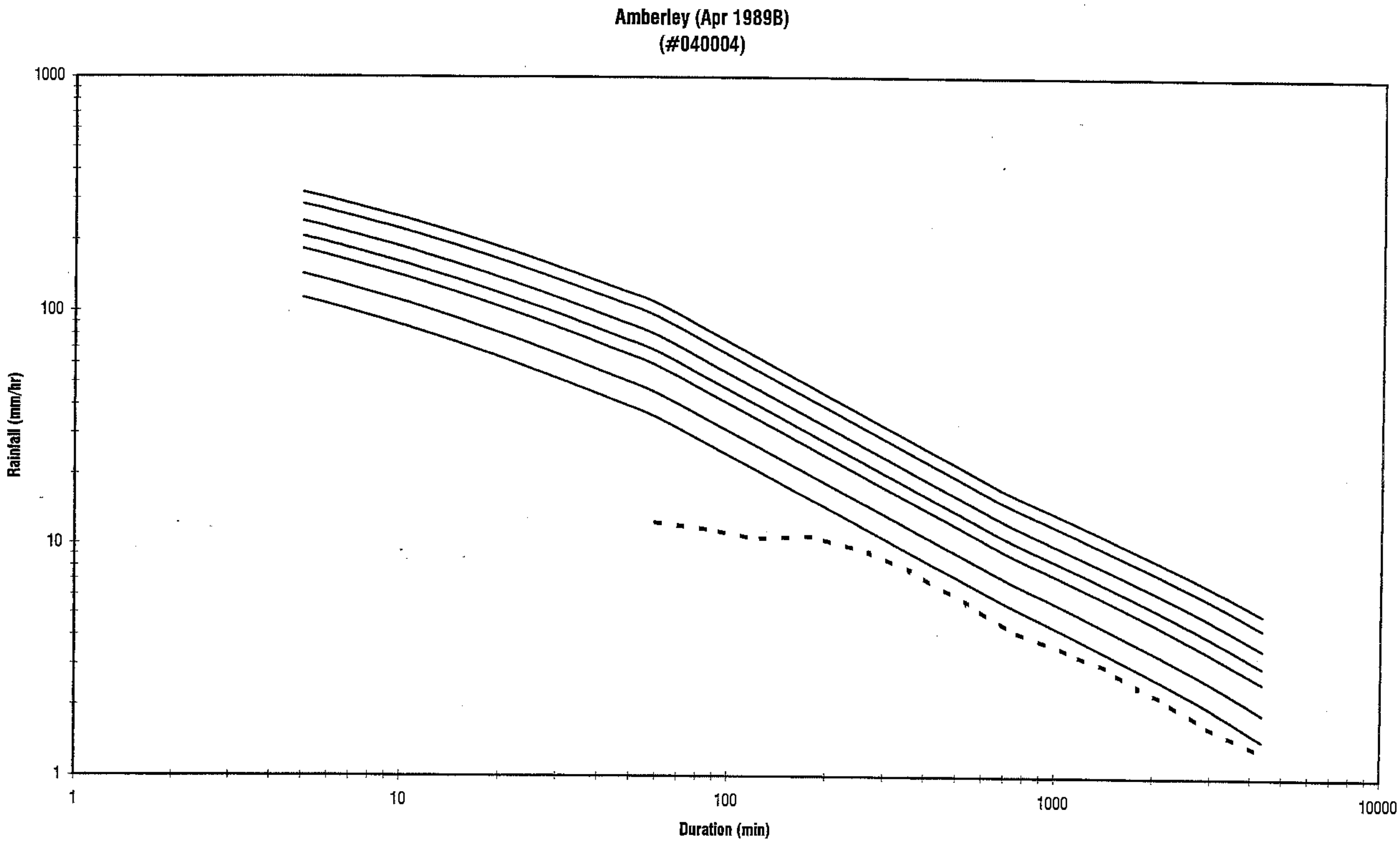

Three Way Catchment (Apr 1989A)
(#040184)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

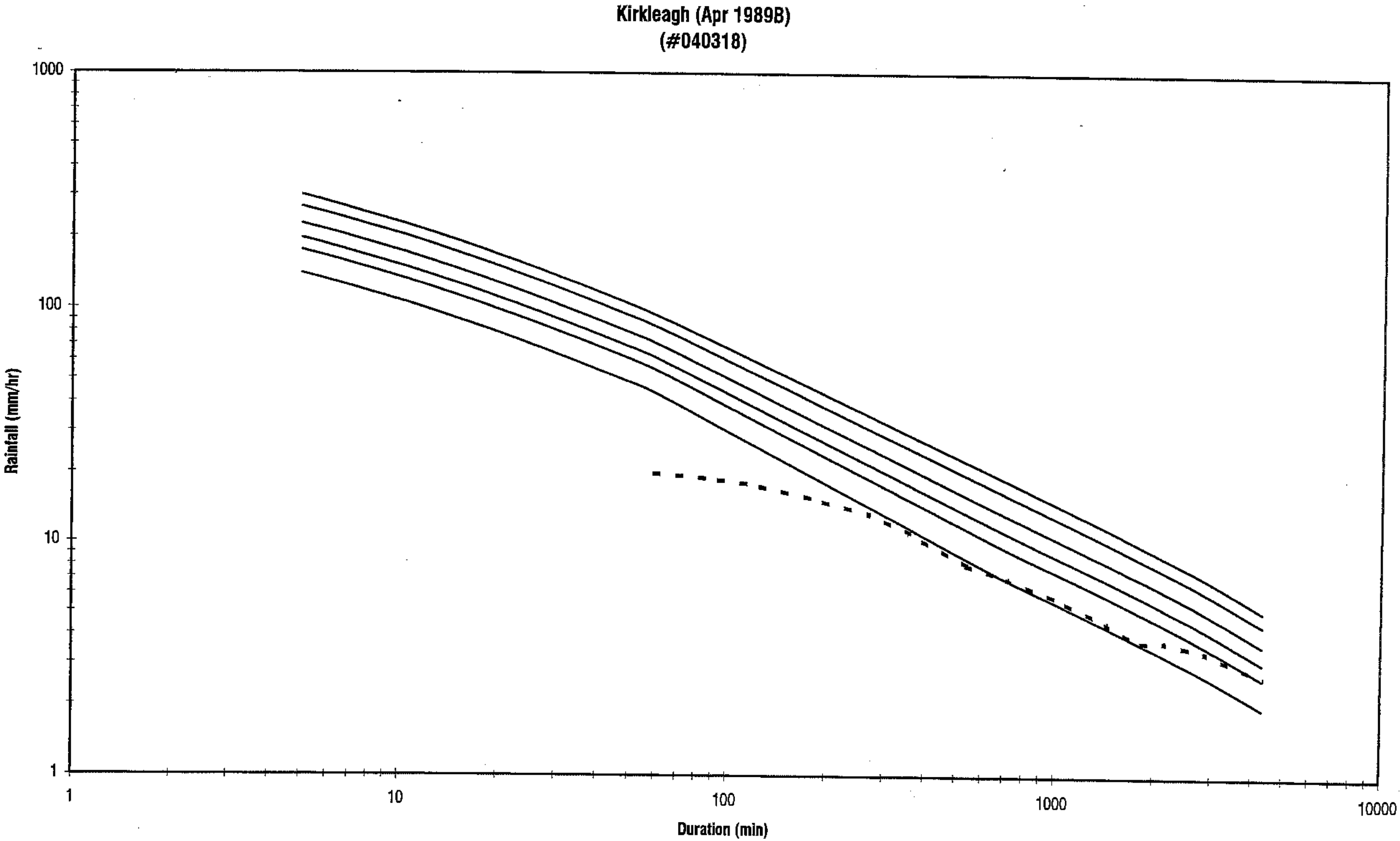
BCC.121.0135

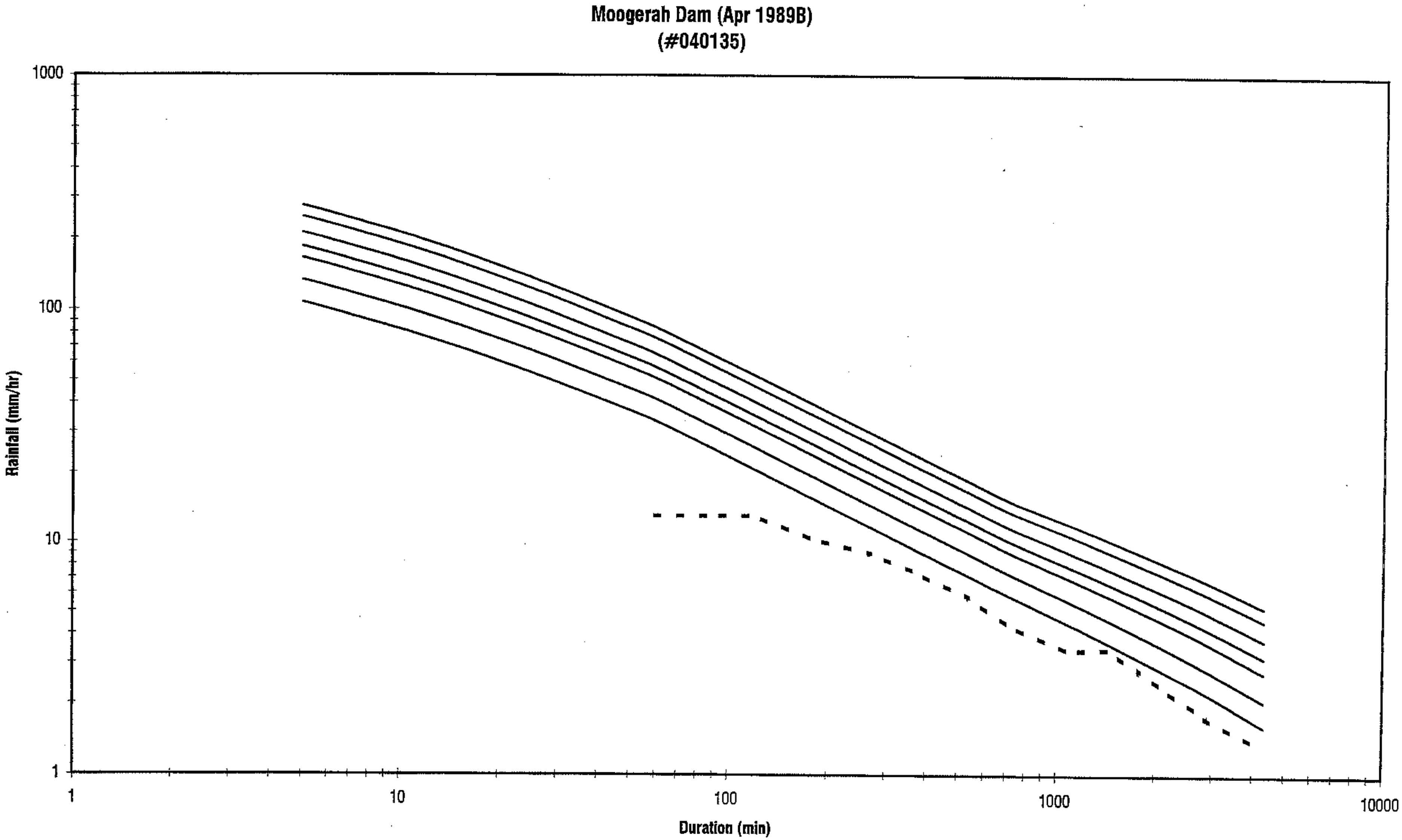

Gatton-Lawes (Apr 1989A)
(#040083)
Rainfall (mm/hr)
1000
100
10
1
1
10
100
1000
10000
Duration (min)

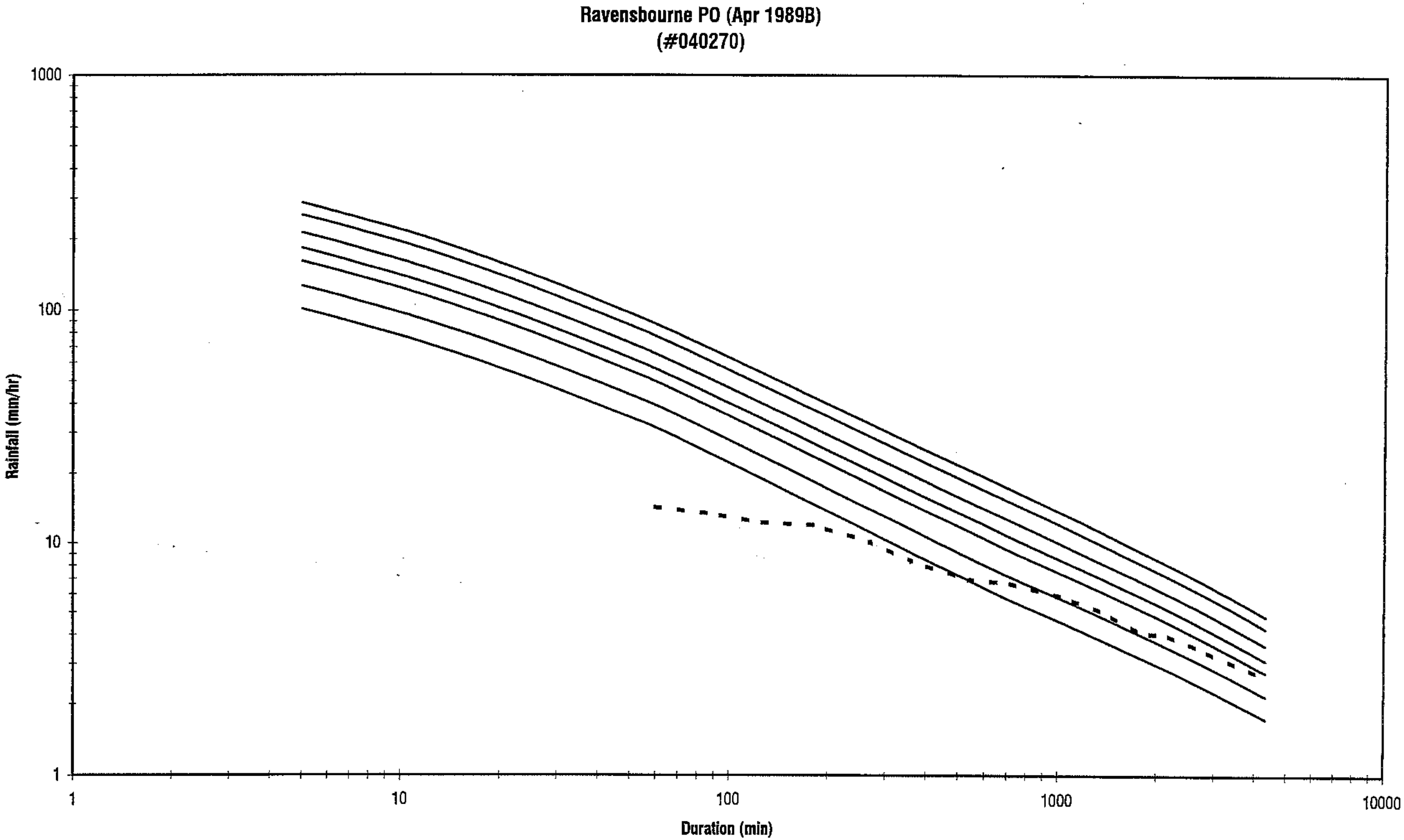

Blackbutt (Apr 1989A)
(#040020)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

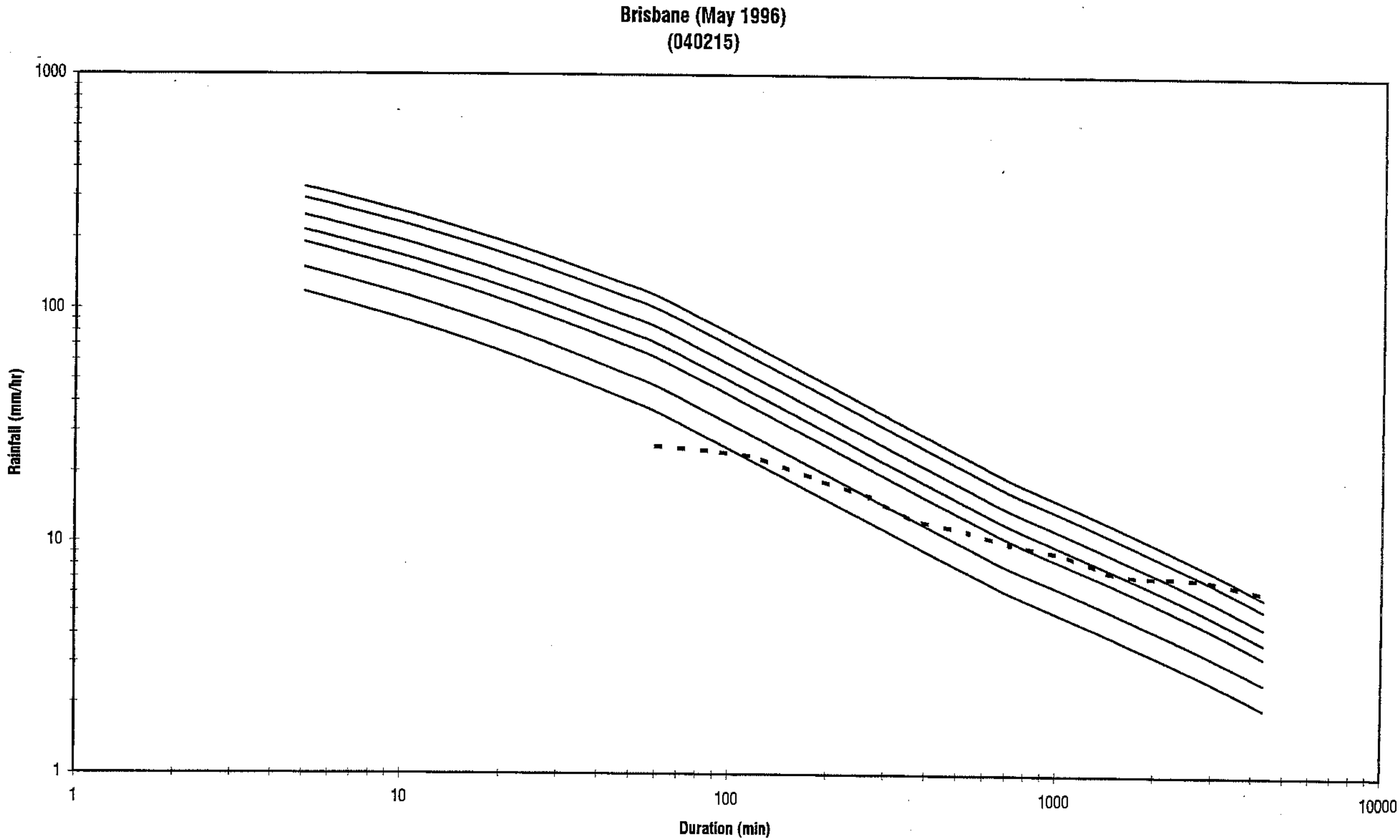
BCC.121.0137

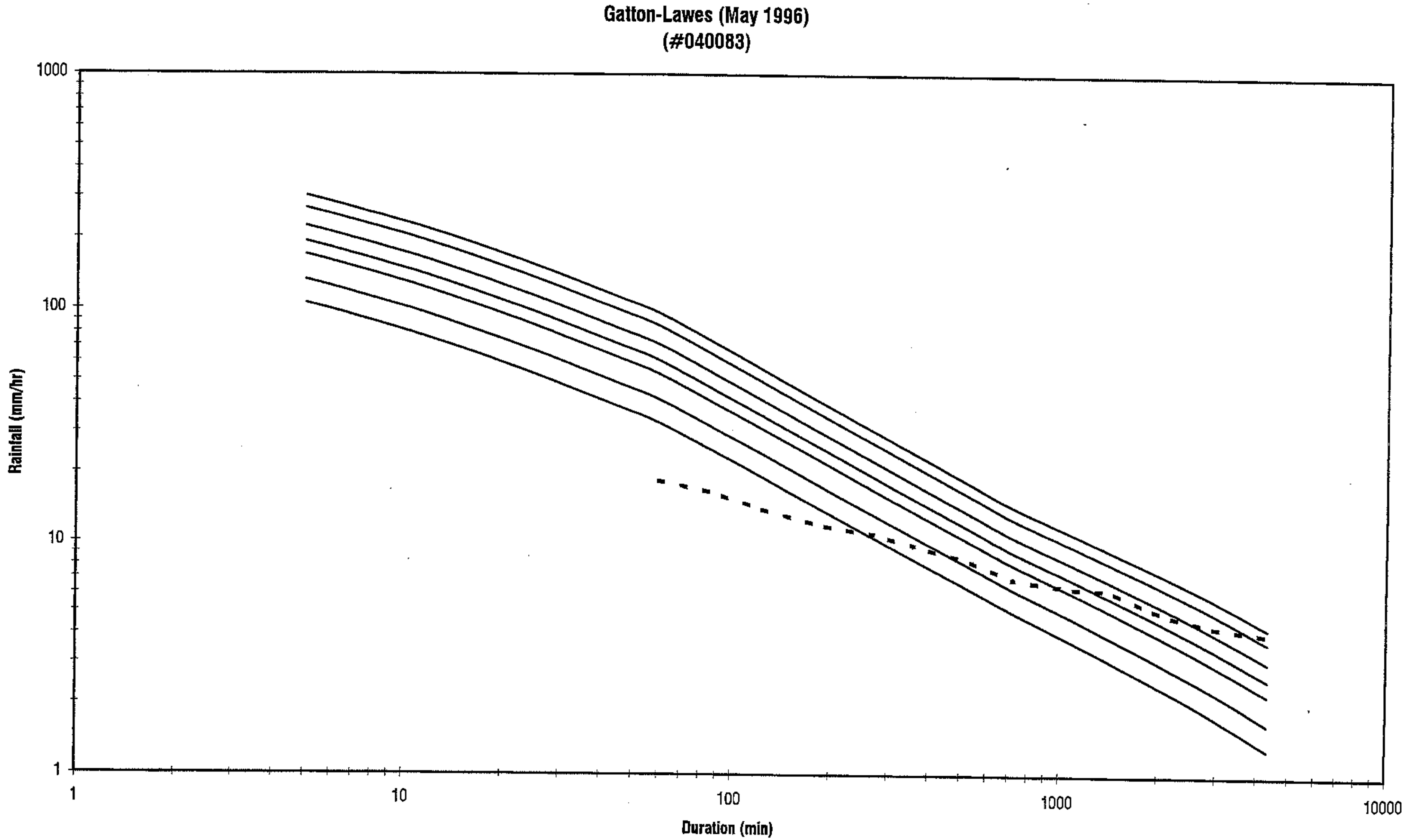

Amberley (Apr 1989B)
(#040004)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)


Kirkleagh (Apr 1989B)
(#040318)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

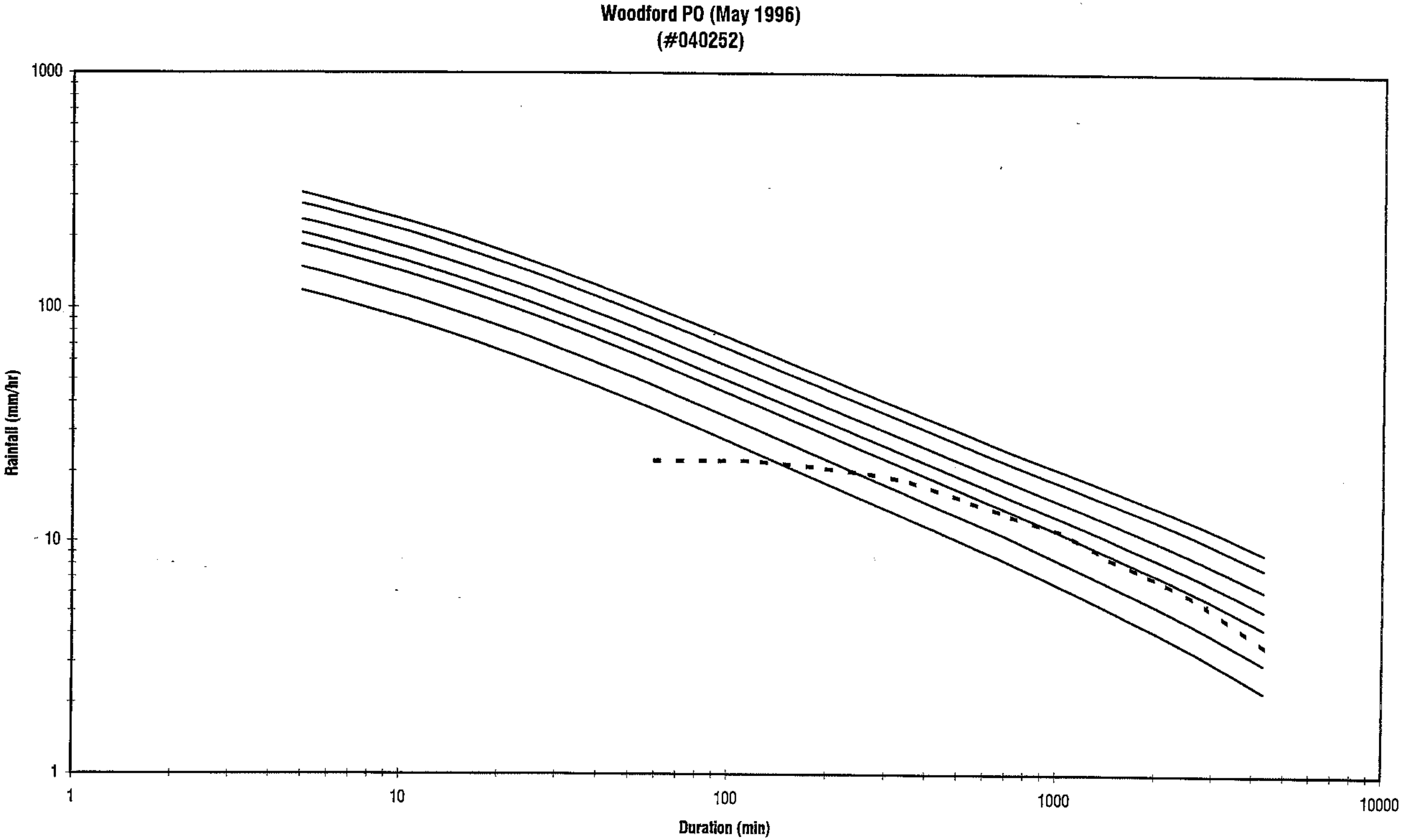

Moogerah Dam (Apr 1989B)
(#040135)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)

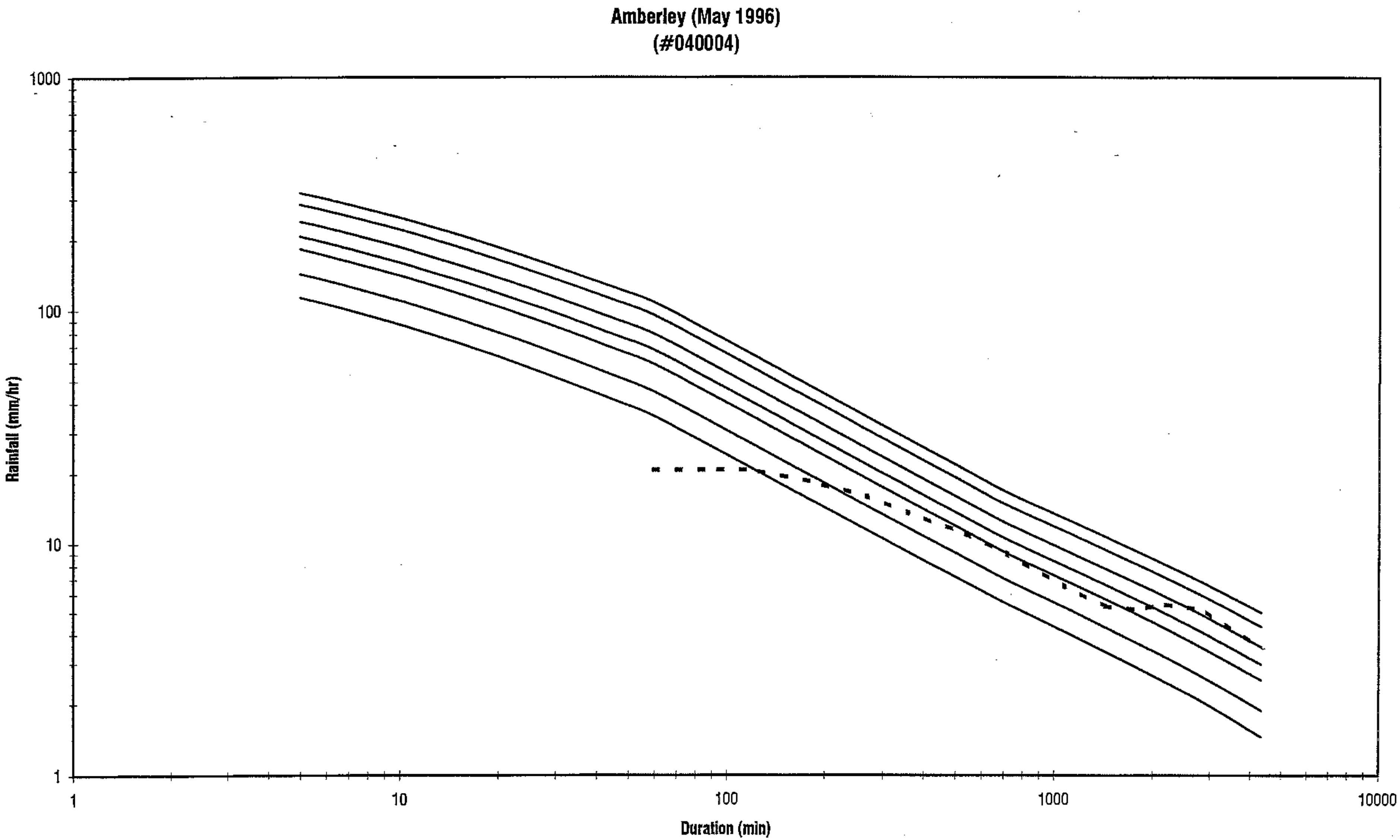

Ravensbourne PO (Apr 1989B)
(#040270)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)


Brisbane (May 1996)
(040215)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)



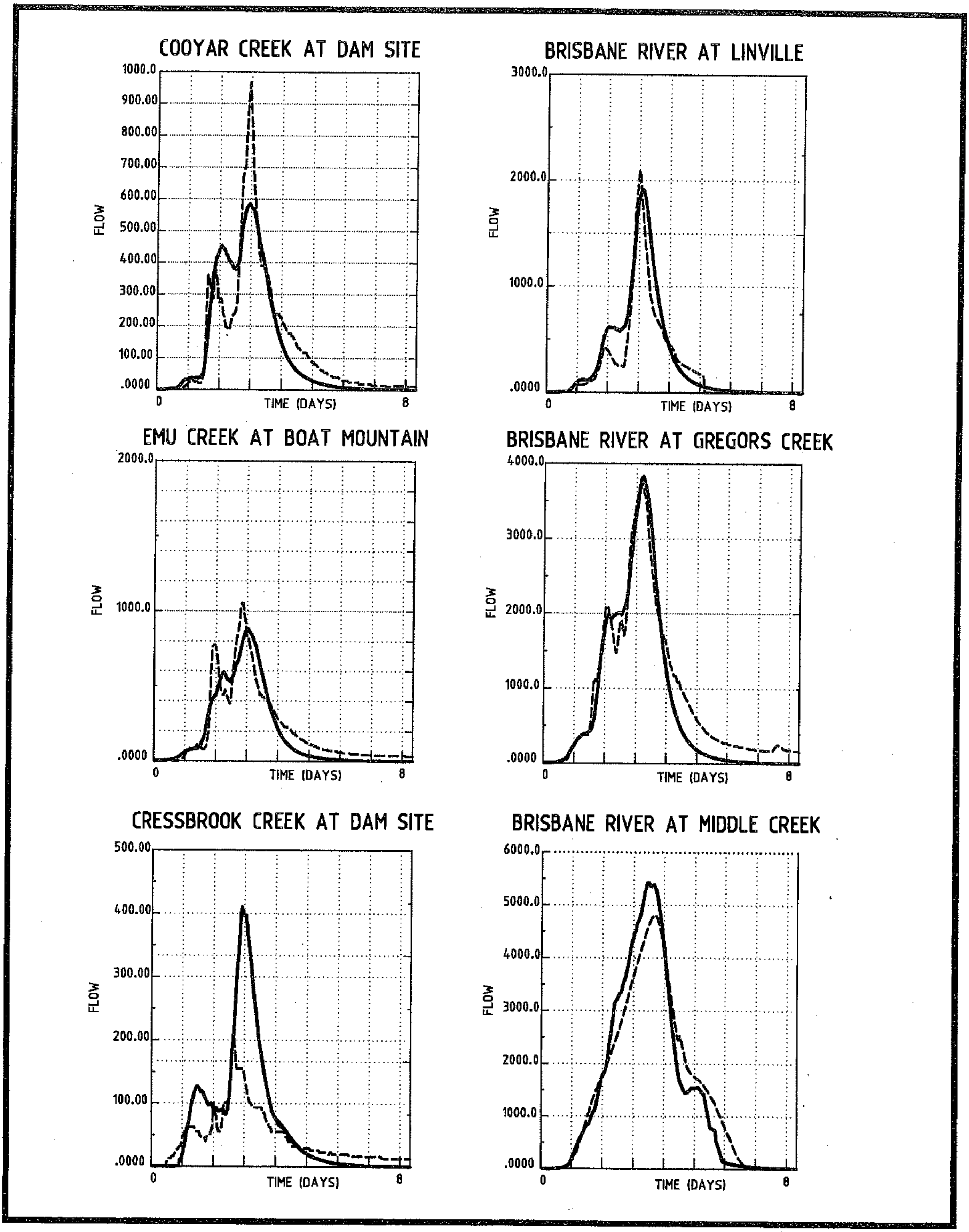
Gatton-Lawes (May 1996)
(#040083)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)


Woodford PO (May 1996)
(#040252)
1000
100
10
1
Rainfall (mm/hr)
1
10
100
1000
10000
Duration (min)


Amberley (May 1996)
(#040004)
Rainfall (mm/hr)
1000
100
10
1
1
10
100
1000
10000
Duration (min)

Appendix B - Recorded and RAFTS Predicted Hydrographs

FIGURE B-1a
BRISBANE RIVER FLOOD STUDY
JANUARY 1974 FLOOD HYDROGRAPHS



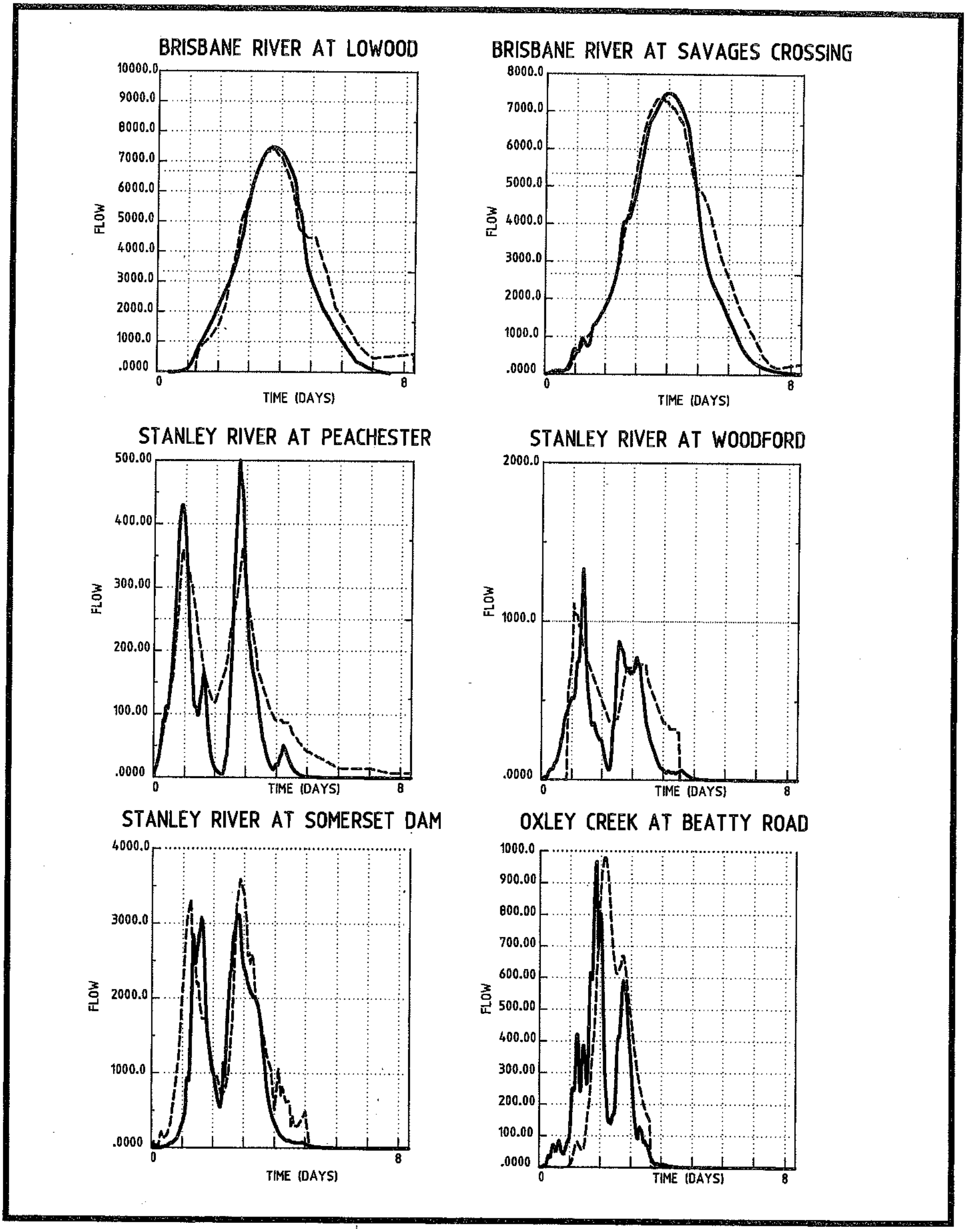
LEGEND

- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

FIGURE B-1b

BRISBANE RIVER FLOOD STUDY
JANUARY 1974 FLOOD HYDROGRAPHS



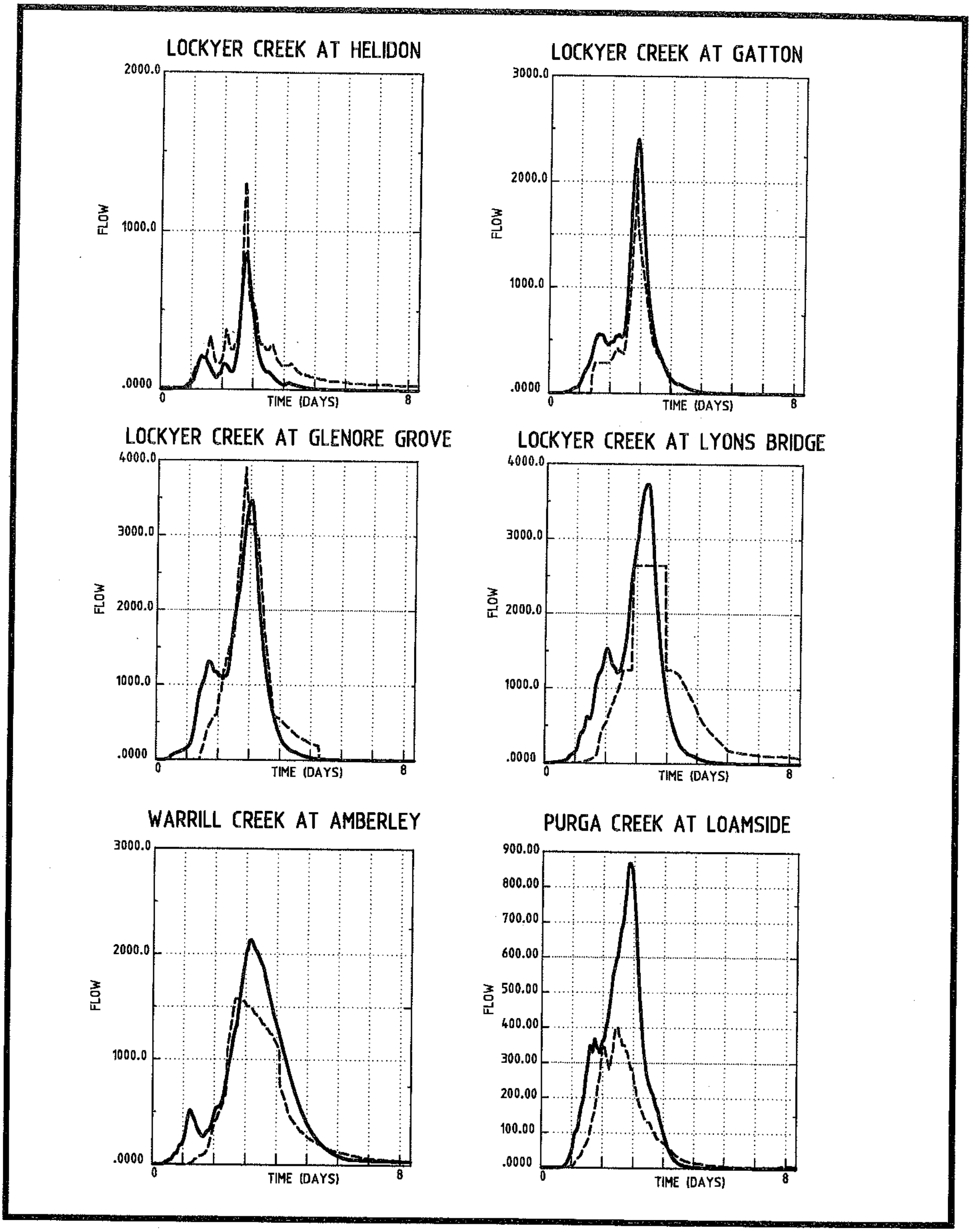
LEGEND

- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

FIGURE B-1c

BRISBANE RIVER FLOOD STUDY
JANUARY 1974 FLOOD HYDROGRAPHS



LEGEND

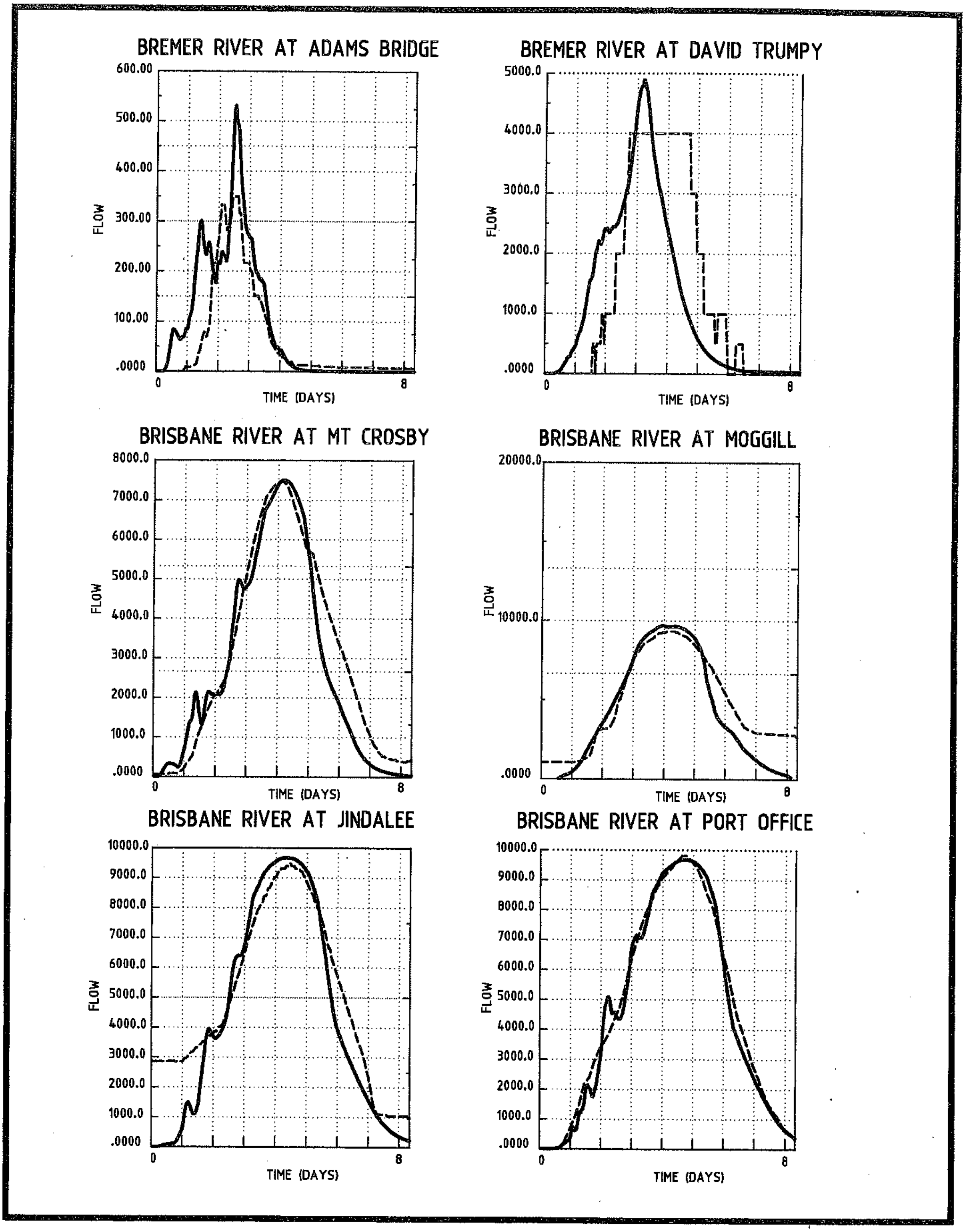
- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

FILE NAME: FIG-B1 PLO LE: 1= DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

SINCLAIR KNIGHT MERZ

FIGURE B-1d
BRISBANE RIVER FLOOD STUDY
JANUARY 1974 FLOOD HYDROGRAPHS



LEGEND

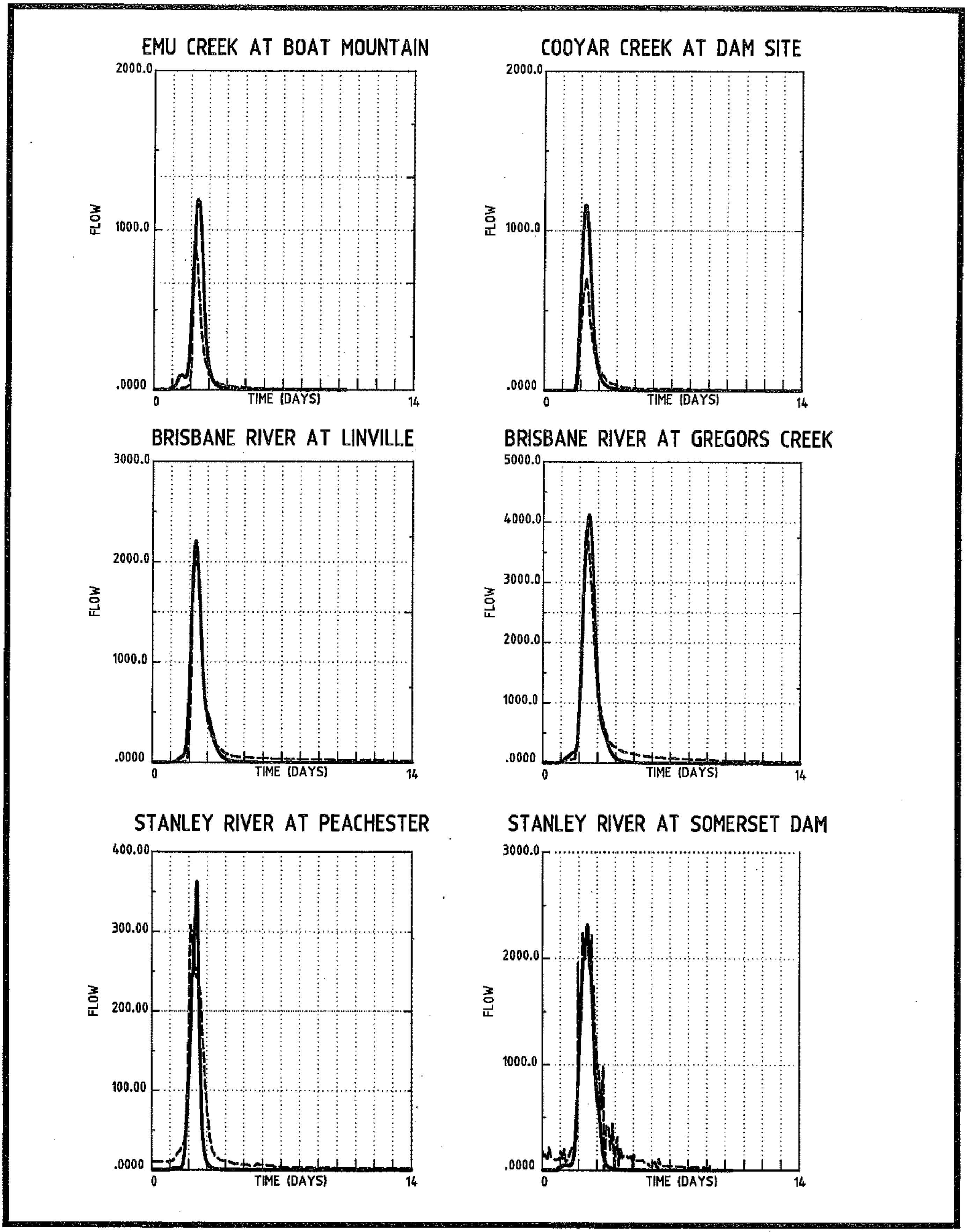
- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

FILE NAME: FIG-B1 PLO... LE: 1=. DISK N°: G:\ JOB N°: T004157 DATE 17-2-98

FIGURE B-2a

BRISBANE RIVER FLOOD STUDY
JUNE 1983 FLOOD HYDROGRAPHS



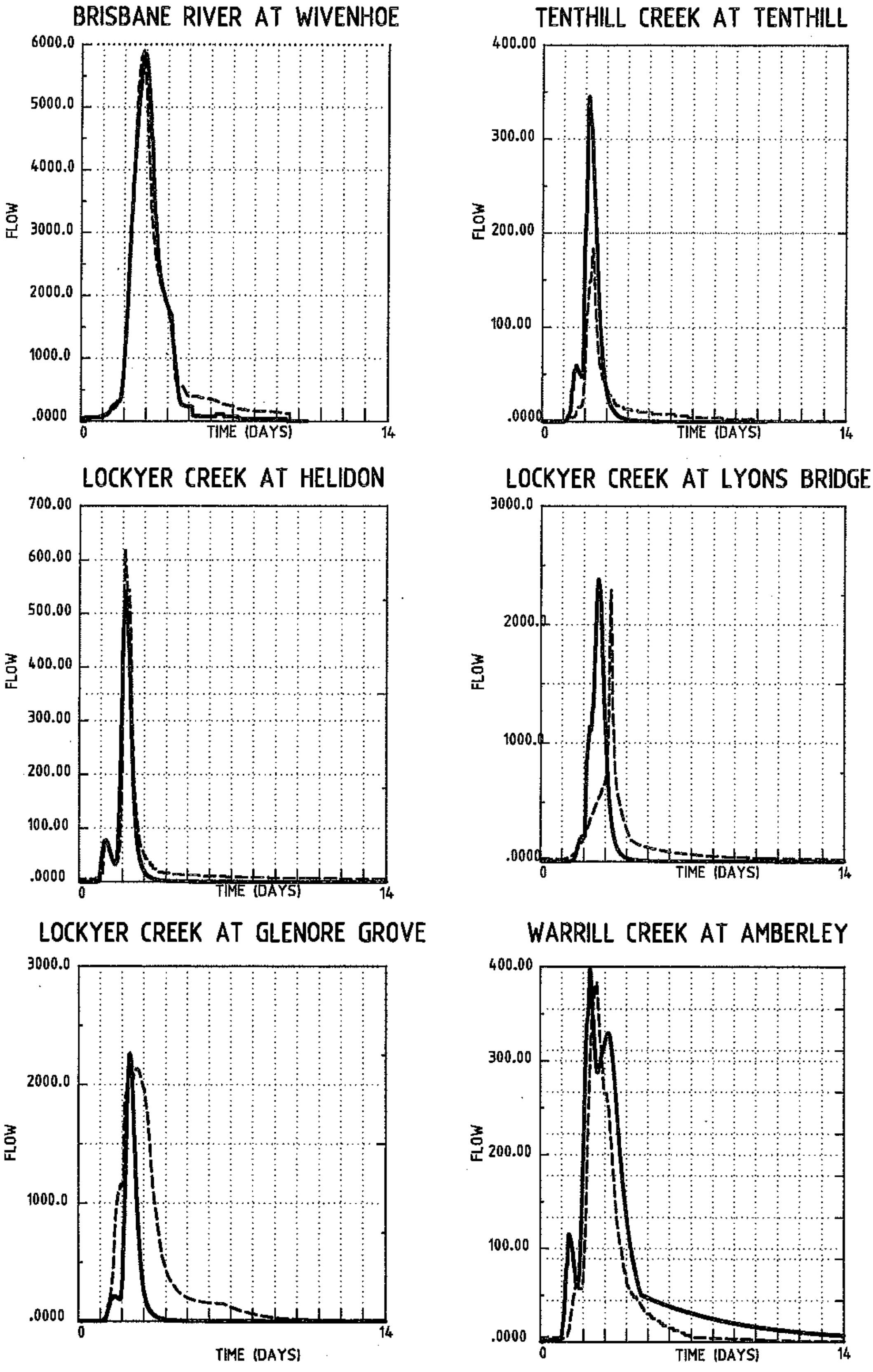
LEGEND

- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

FILE NAME: FIG-B2 PLO. ...LE: 1=. DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

FIGURE B-2b
BRISBANE RIVER FLOOD STUDY
JUNE 1983 FLOOD HYDROGRAPHS



LEGEND

-------- RECORDED DISCHARGE

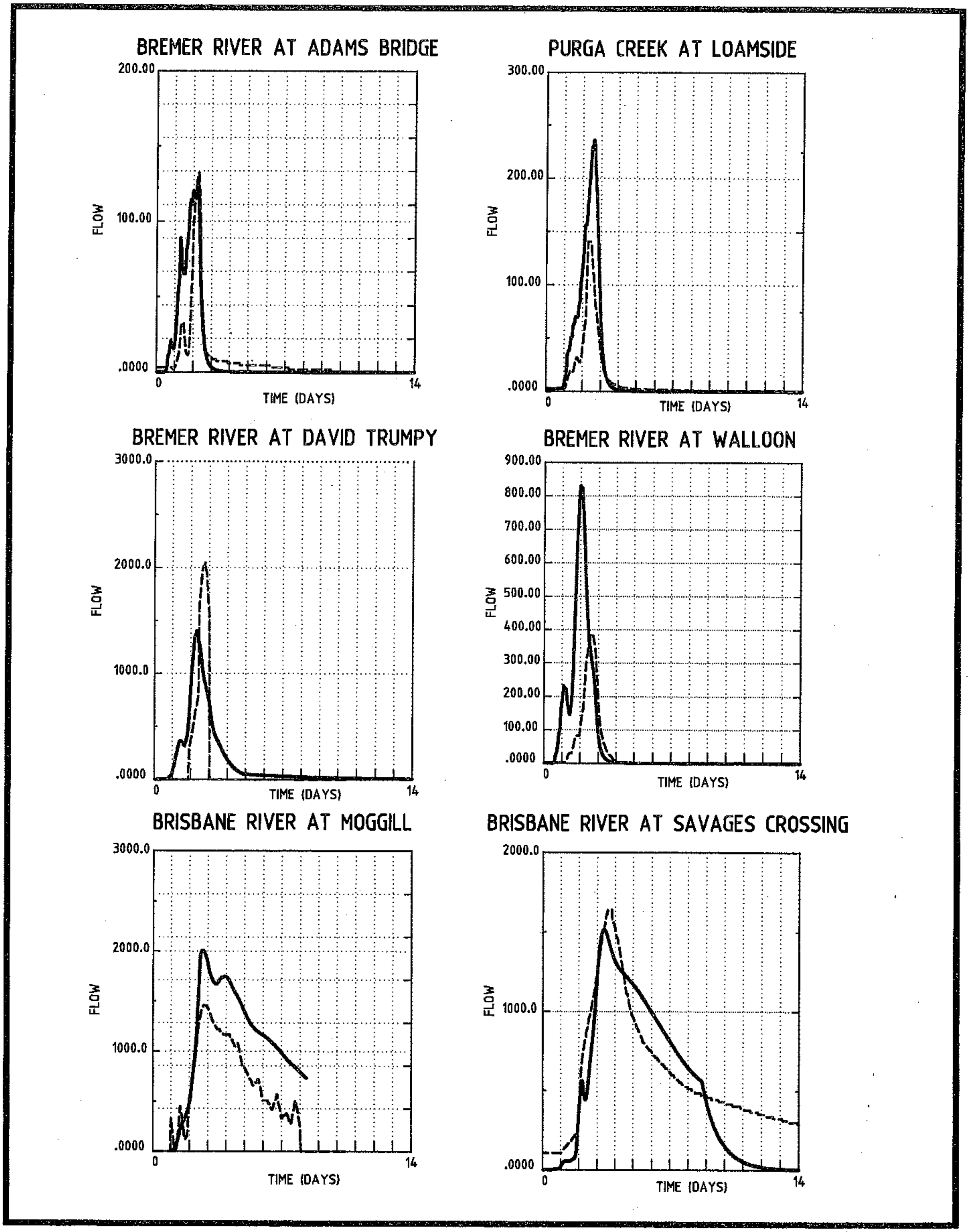
——— PREDICTED DISCHARGE

FILE NAME: FIG-B2 PLO... LE: 1=..   DISK N°: G:\   JOB N°: T004157   DATE: 17-2-98

SINCLAIR KNIGHT MERZ

FIGURE B-2c

BRISBANE RIVER FLOOD STUDY
JUNE 1983 FLOOD HYDROGRAPHS



LEGEND

- - - - - - - RECORDED DISCHARGE

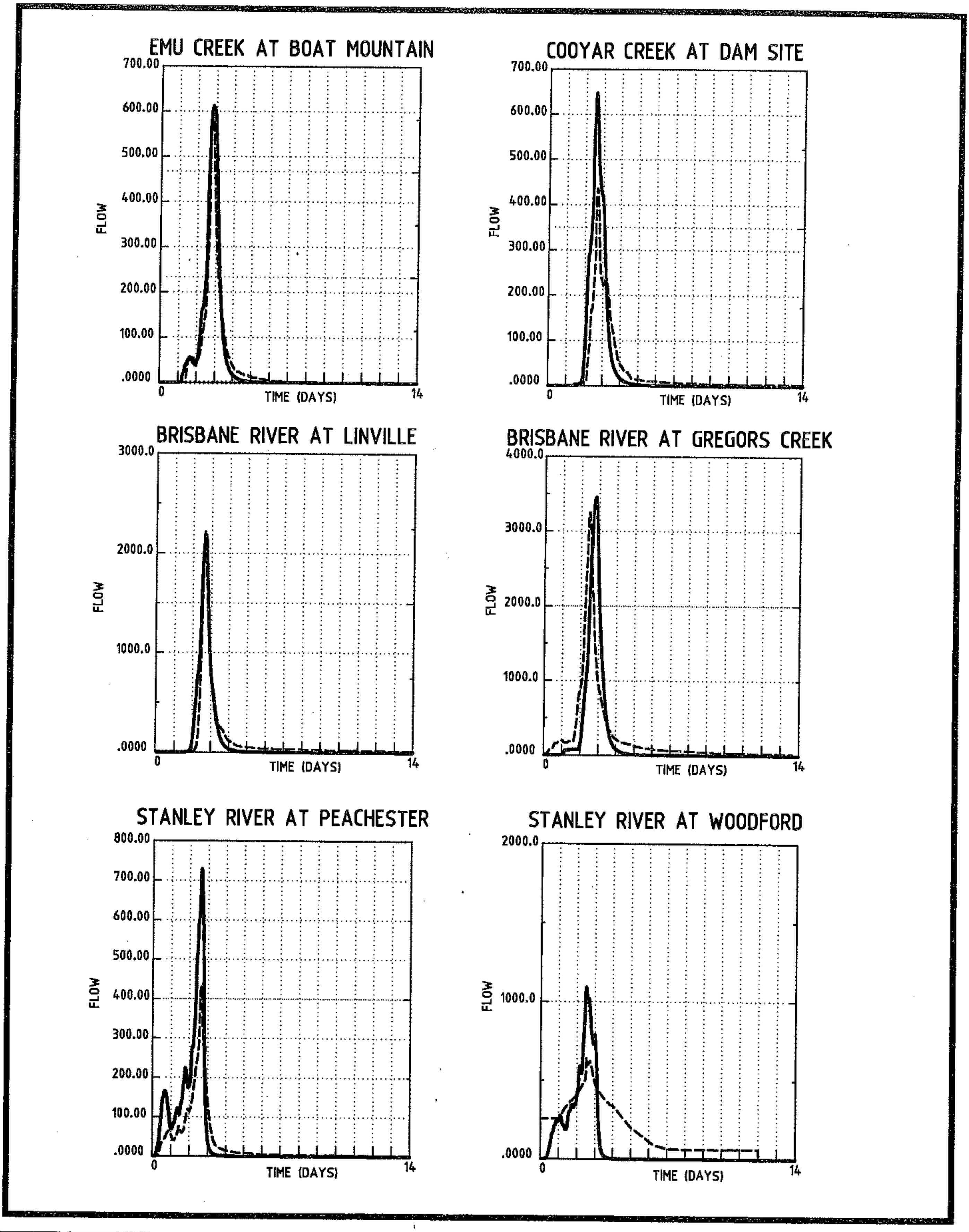
———————— PREDICTED DISCHARGE

FILE NAME: FIG-B2 PLO. SCALE: 1:1 DISK Nº: G:\ JOB Nº: T004157 DATE: 17-2-98

SINCLAIR KNIGHT MERZ

FIGURE B-3a

BRISBANE RIVER FLOOD STUDY
LATE APRIL 1989 FLOOD HYDROGRAPHS



LEGEND

-------- RECORDED DISCHARGE

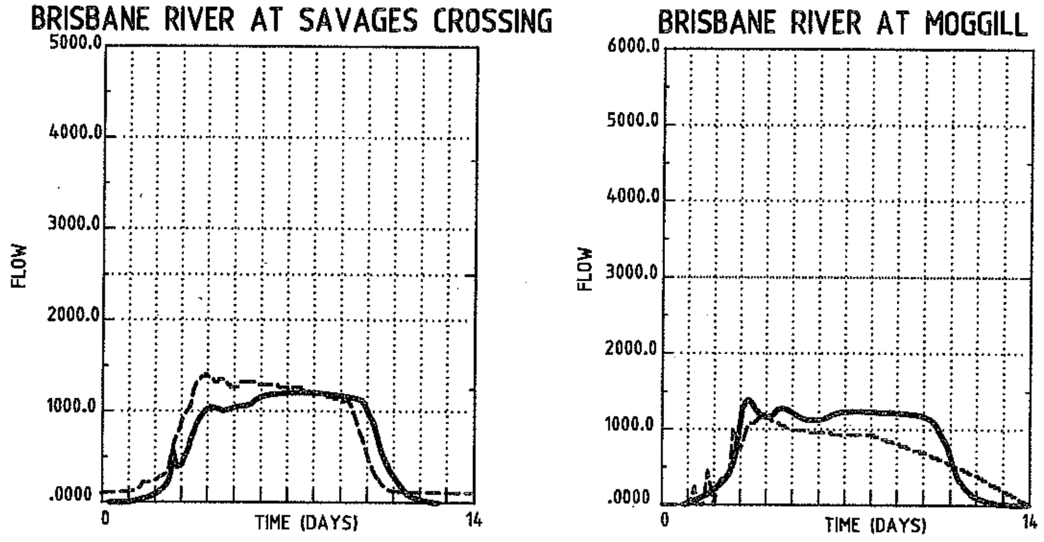
——— PREDICTED DISCHARGE

FILE NAME: FIG-B3 DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

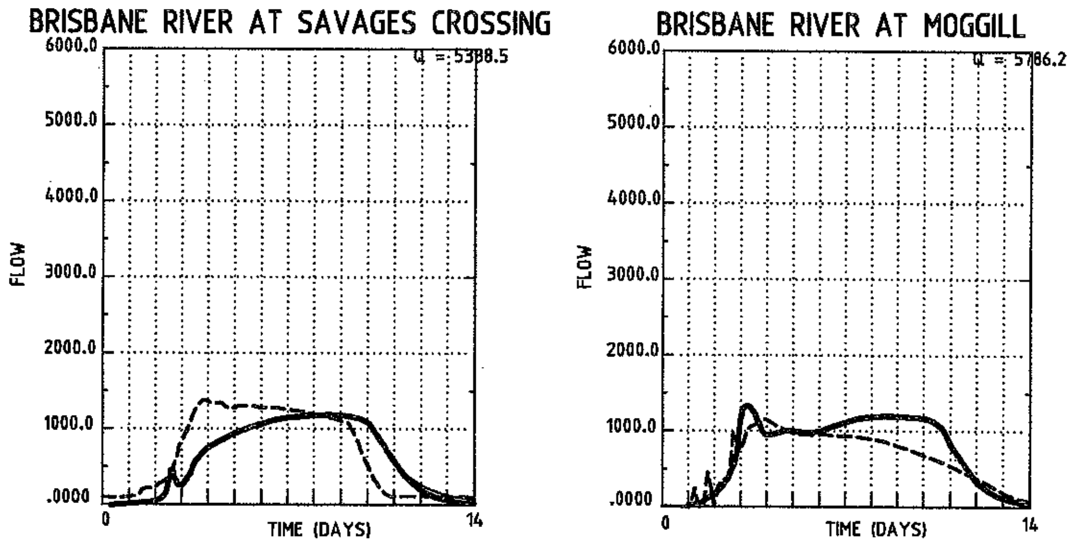
PLC LE 1:

FIGURE B-3b

BRISBANE RIVER FLOOD STUDY
LATE APRIL 1989 FLOOD HYDROGRAPHS



STORAGE CURVE A

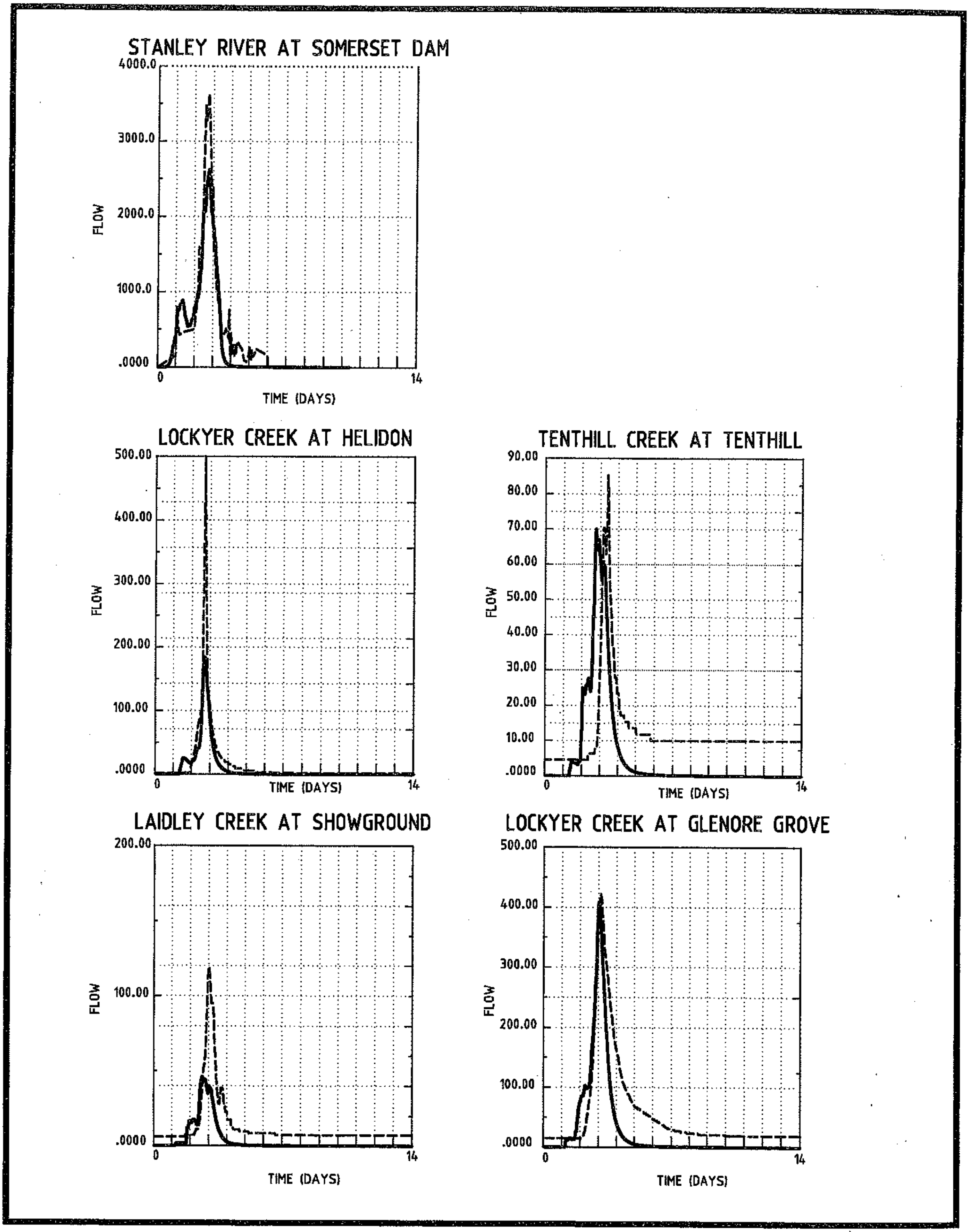


STORAGE CURVE B

LEGEND
-------- RECORDED DISCHARGE
——— PREDICTED DISCHARGE

FILE NAME: 4157-232 DISK N°: G:\ JOB N°: T00457 DATE: 17-2-98
PLOT SCALE: 1=1

FIGURE B-3c
BRISBANE RIVER FLOOD STUDY
LATE APRIL 1989 FLOOD HYDROGRAPHS



LEGEND

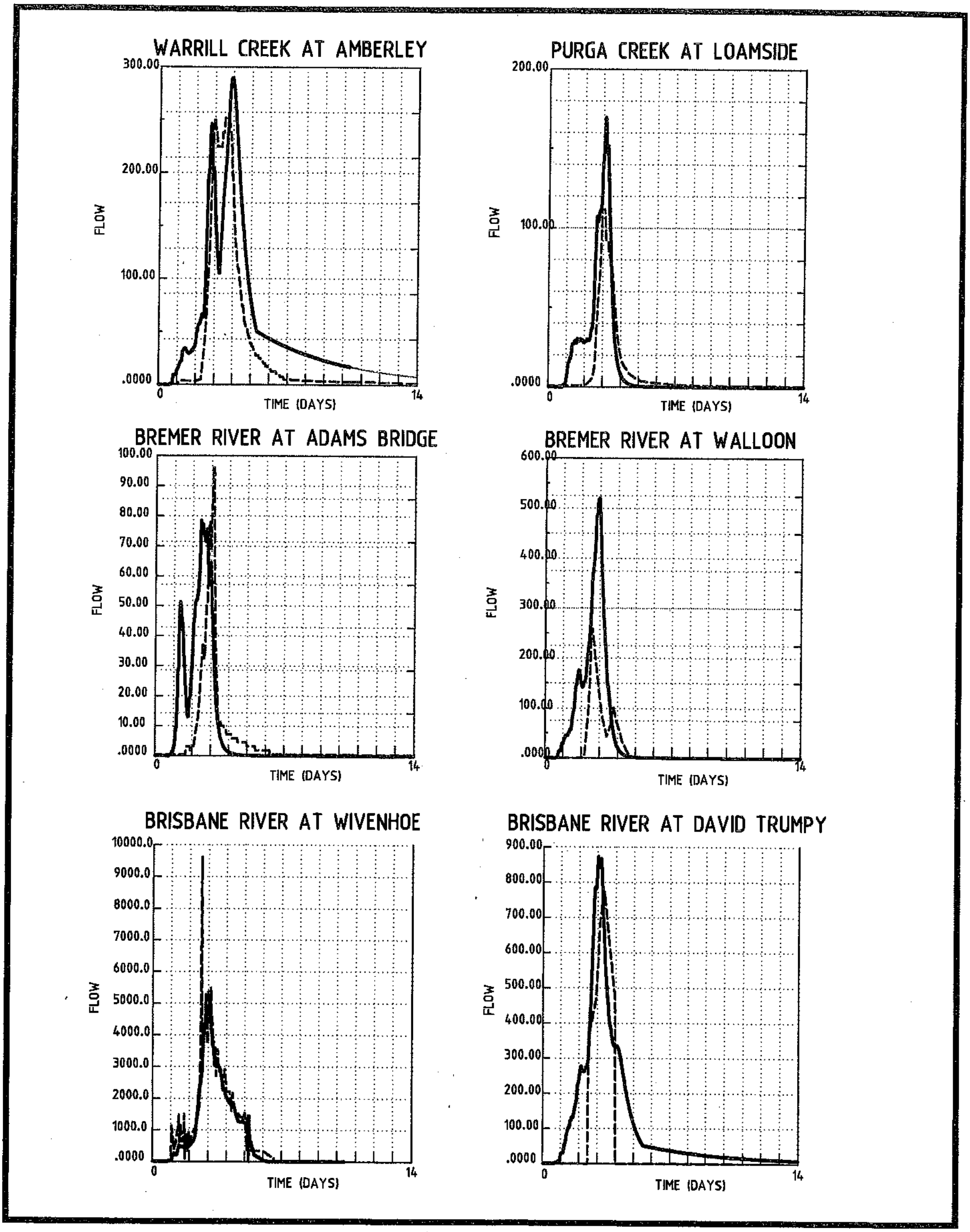
- - - - - - - RECORDED DISCHARGE

——————— PREDICTED DISCHARGE

SINCLAIR KNIGHT MERZ

FIGURE B-3d

BRISBANE RIVER FLOOD STUDY
LATE APRIL 1989 FLOOD HYDROGRAPHS

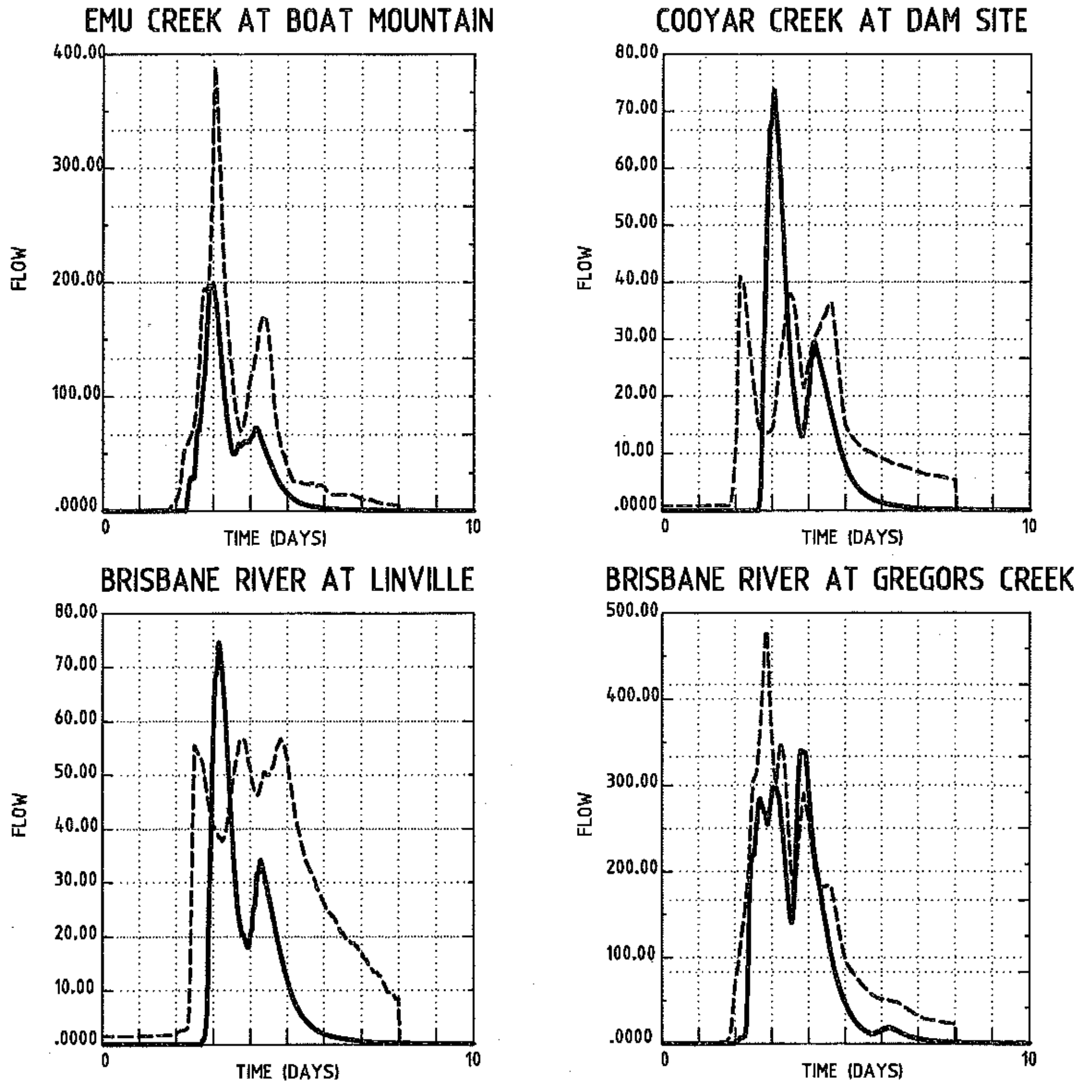


LEGEND
------- RECORDED DISCHARGE
——— PREDICTED DISCHARGE

SINCLAIR KNIGHT MERZ

FIGURE B-4a

BRISBANE RIVER FLOOD STUDY
MAY 1996 FLOOD HYDROGRAPHS



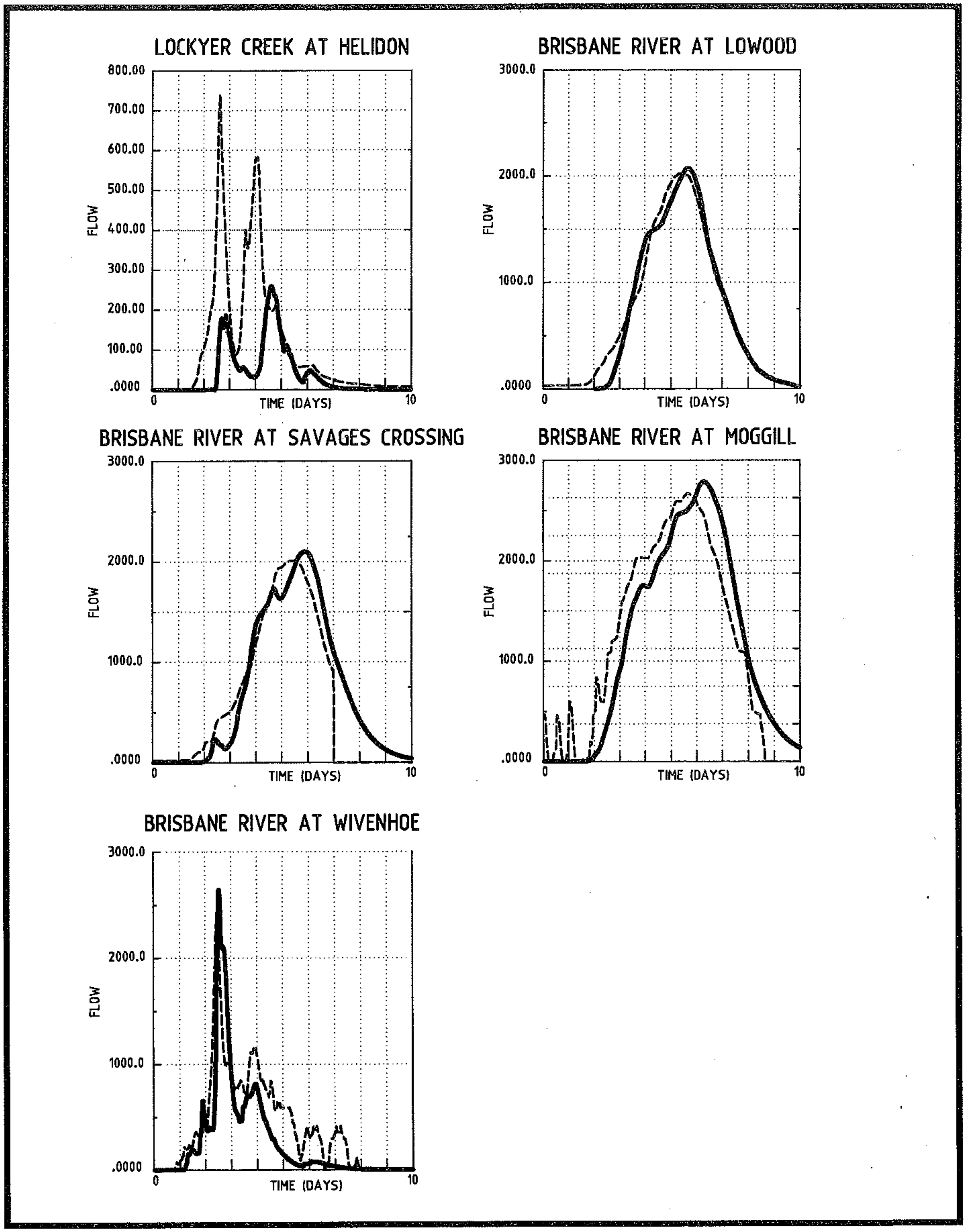
LEGEND

- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

FILE NAME: FIG-B4
PLOT SCALE: 1:100
DISK N°: G:\
JOB N°: T004157
DATE: 17-2-98

FIGURE B-4b
BRISBANE RIVER FLOOD STUDY
MAY 1996 FLOOD HYDROGRAPHS



LEGEND

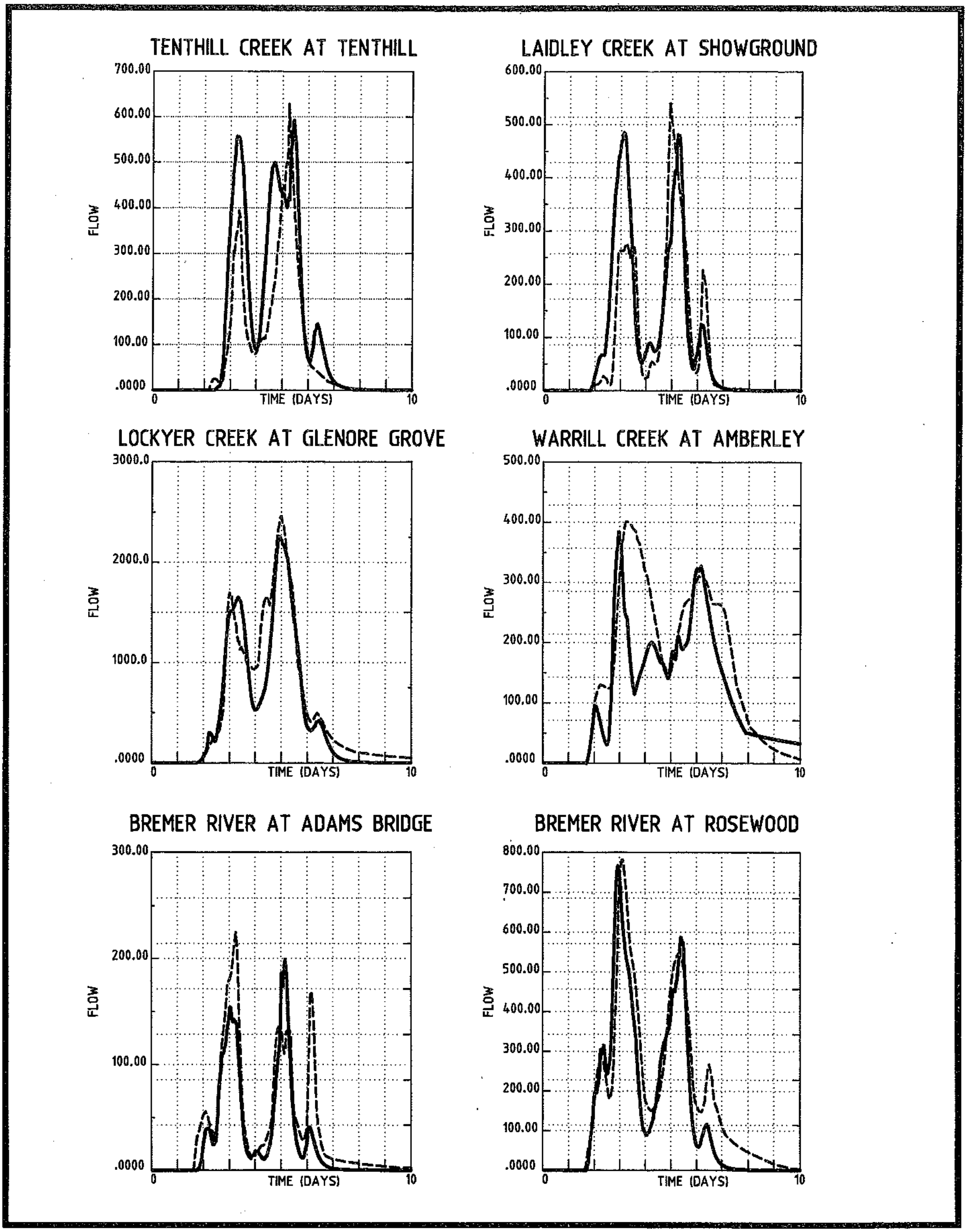
- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

FILE NAME: FIG-B' PLOT SCALE: 1=100 DISK No. G:\ JOB No. T004' DATE 17-2-98

FIGURE B-4c

BRISBANE RIVER FLOOD STUDY
MAY 1996 FLOOD HYDROGRAPHS



LEGEND

- - - - - - RECORDED DISCHARGE

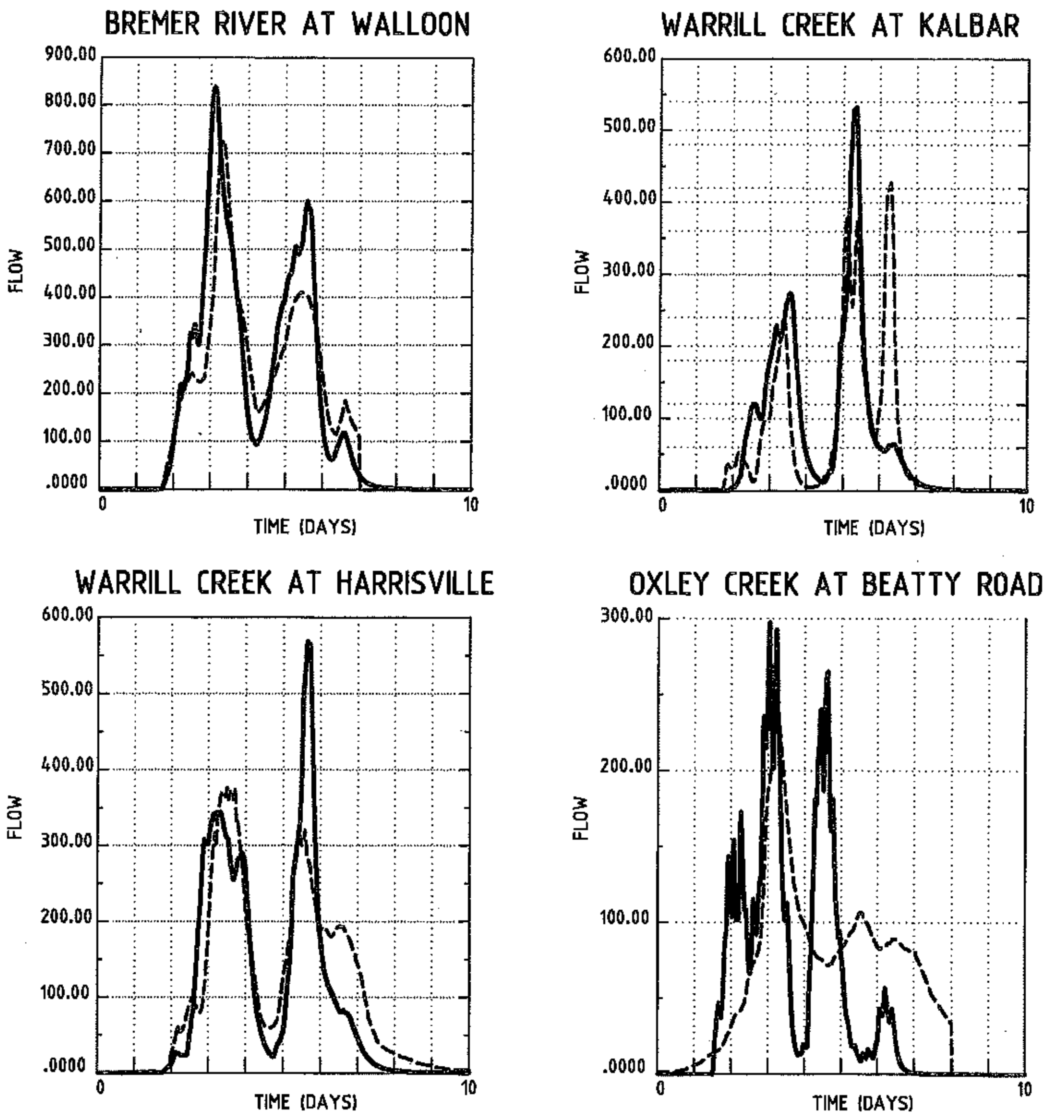
———— PREDICTED DISCHARGE

FILE NAME: FIG-B4 DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

PLOT SCALE: 1=...

FIGURE B-4d

BRISBANE RIVER FLOOD STUDY
MAY 1996 FLOOD HYDROGRAPHS



LEGEND

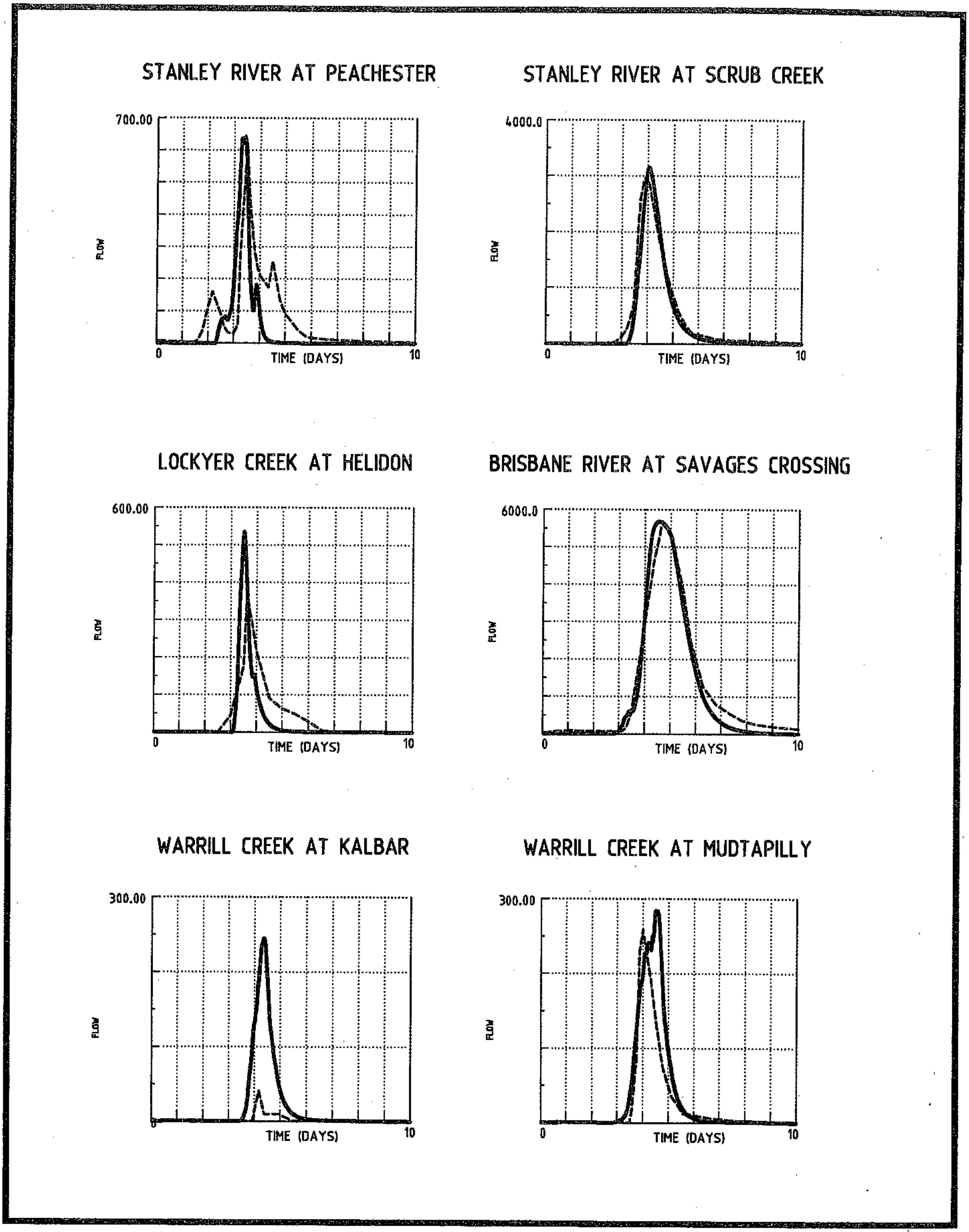
- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

FILE NAME: FIG-B4 DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

PLOT SCALE: 1=100

FIGURE B-5
BRISBANE RIVER FLOOD STUDY
FEBRUARY 1931 FLOOD HYDROGRAPHS



LEGEND

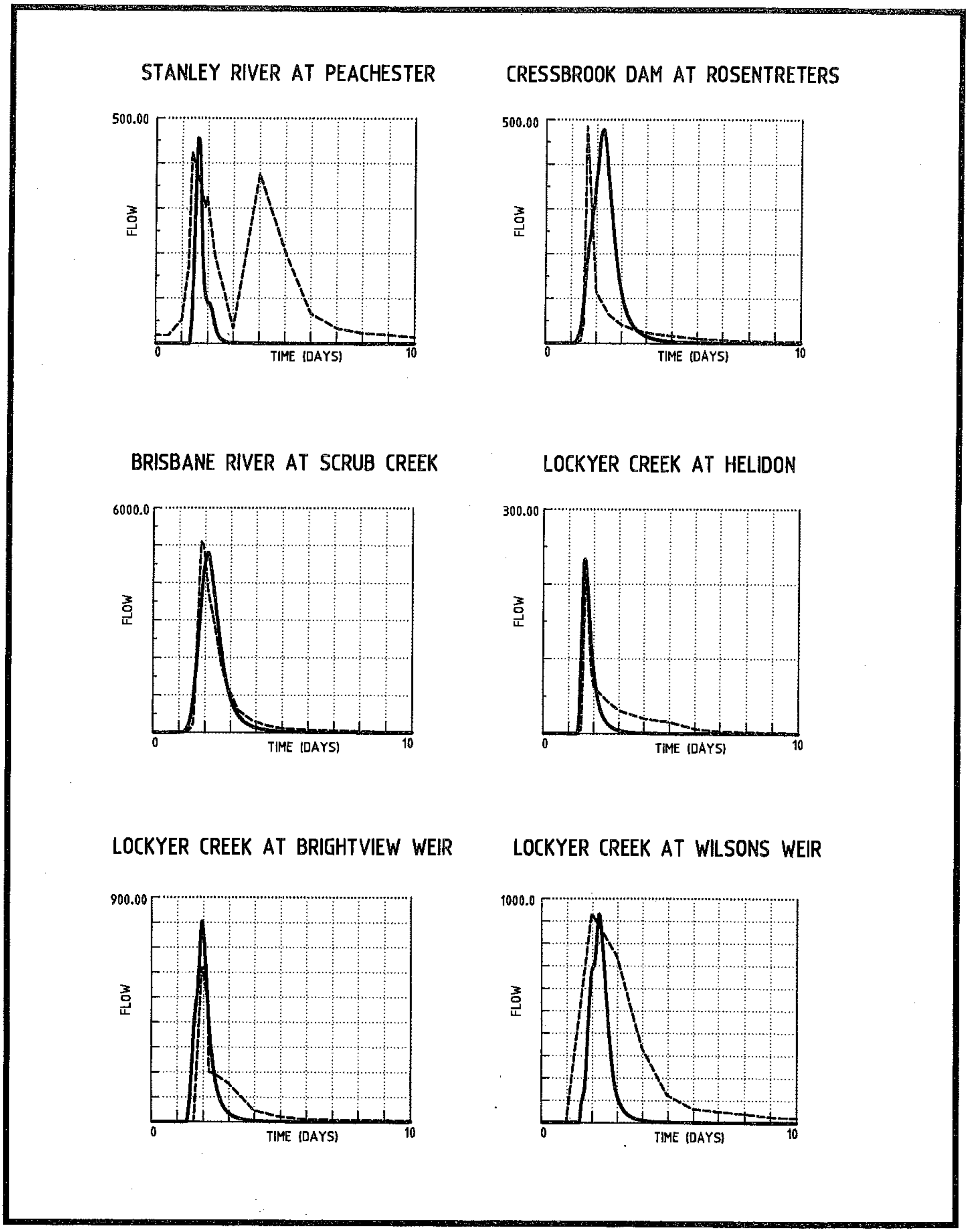
- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

FILE NAME: 4157-234 DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

PLOT SCALE: 1=100

SINCLAIR KNIGHT MERZ



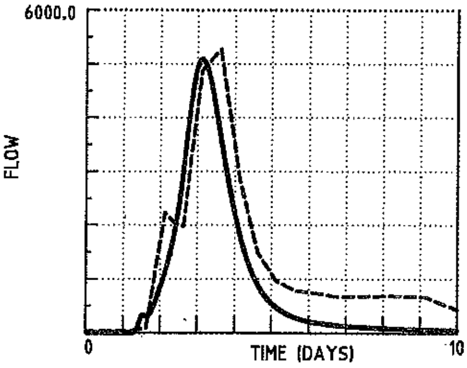
LEGEND

---------- RECORDED DISCHARGE

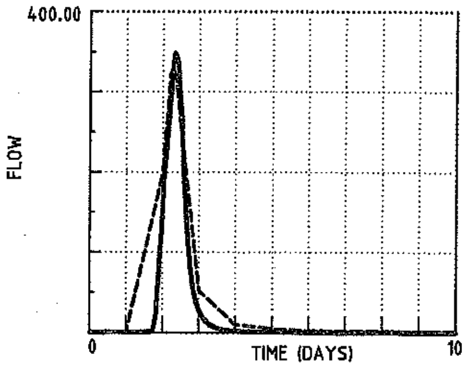
———————— PREDICTED DISCHARGE

FILE NAME: 04157-57 DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98
PLOT SCALE: 1:100

BRISBANE RIVER AT SAVAGES CROSSING



WARRILL CREEK AT KALBAR

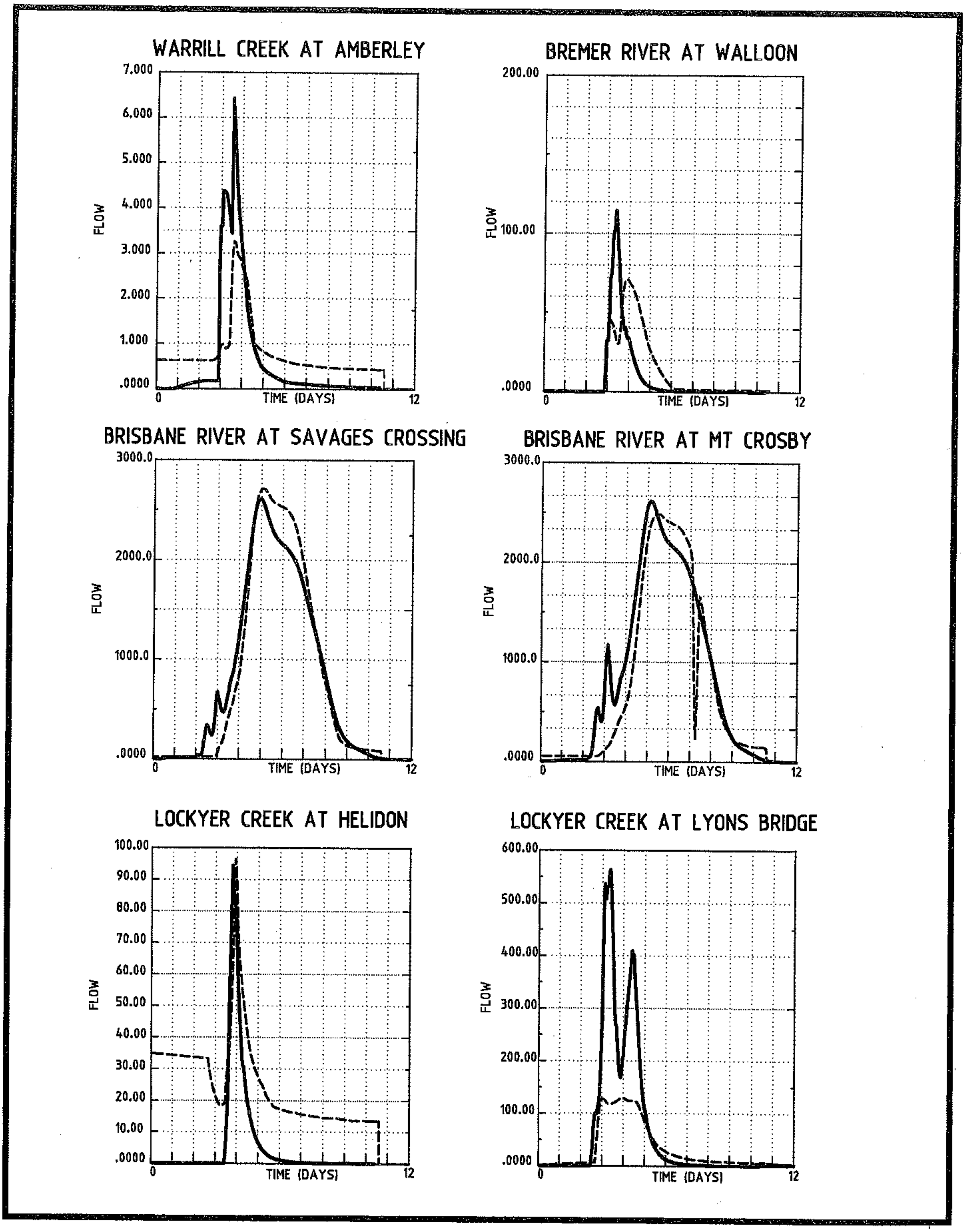


LEGEND
------------ RECORDED DISCHARGE
———————— PREDICTED DISCHARGE

PLOT SCALE: 1=100

SINCLAIR KNIGHT MERZ

FIGURE B-7a
BRISBANE RIVER FLOOD STUDY
JULY 1973 FLOOD HYDROGRAPHS



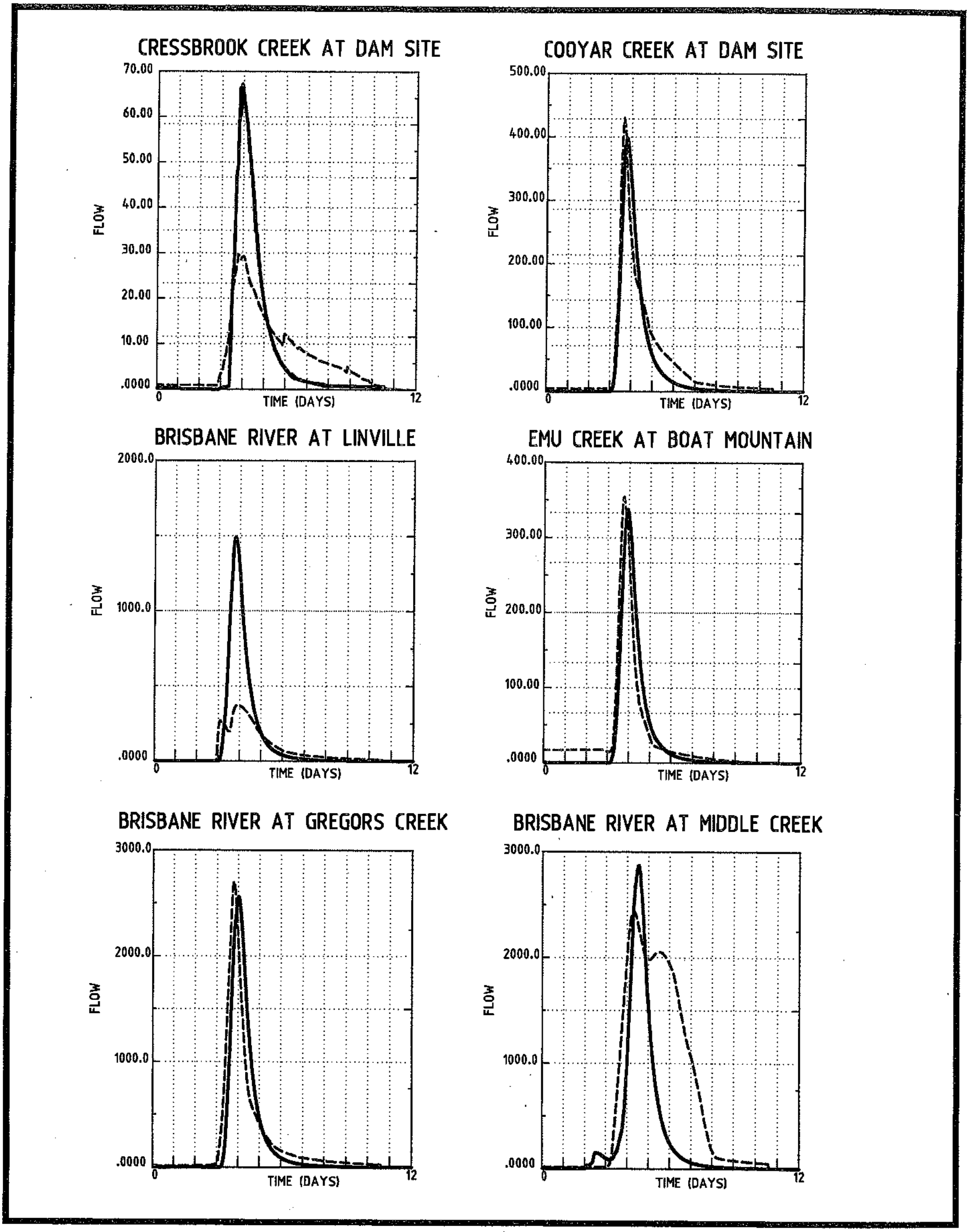
LEGEND
-------- RECORDED DISCHARGE
———— PREDICTED DISCHARGE

FILE NAME: FIG-B7A PLOT FILE: 1= DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

SINCLAIR KNIGHT MERZ

FIGURE B-7b

BRISBANE RIVER FLOOD STUDY
JULY 1973 FLOOD HYDROGRAPHS



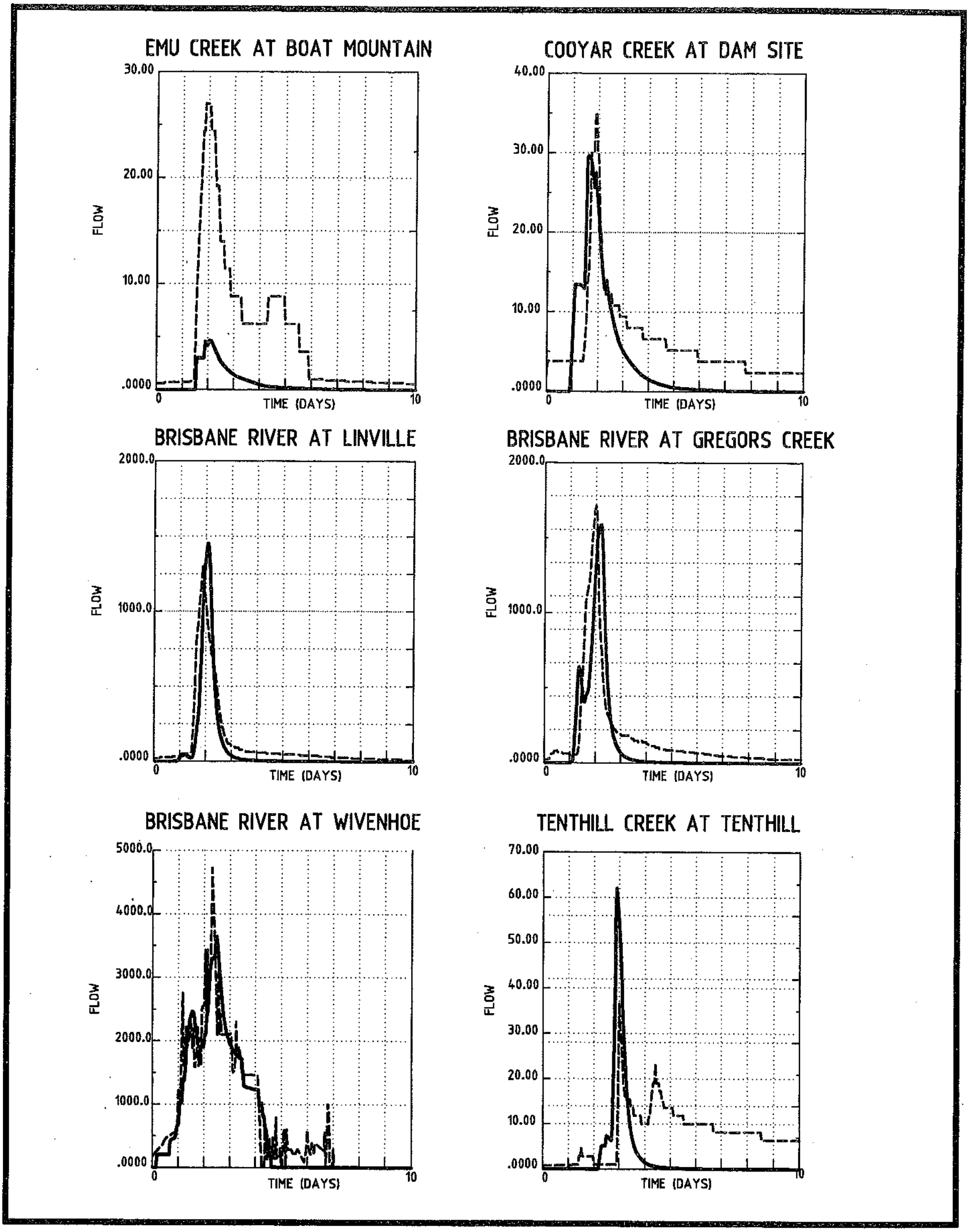
LEGEND

-------- RECORDED DISCHARGE

———— PREDICTED DISCHARGE

FILE NAME: FIG-B7A DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

PLO... LE: 1=

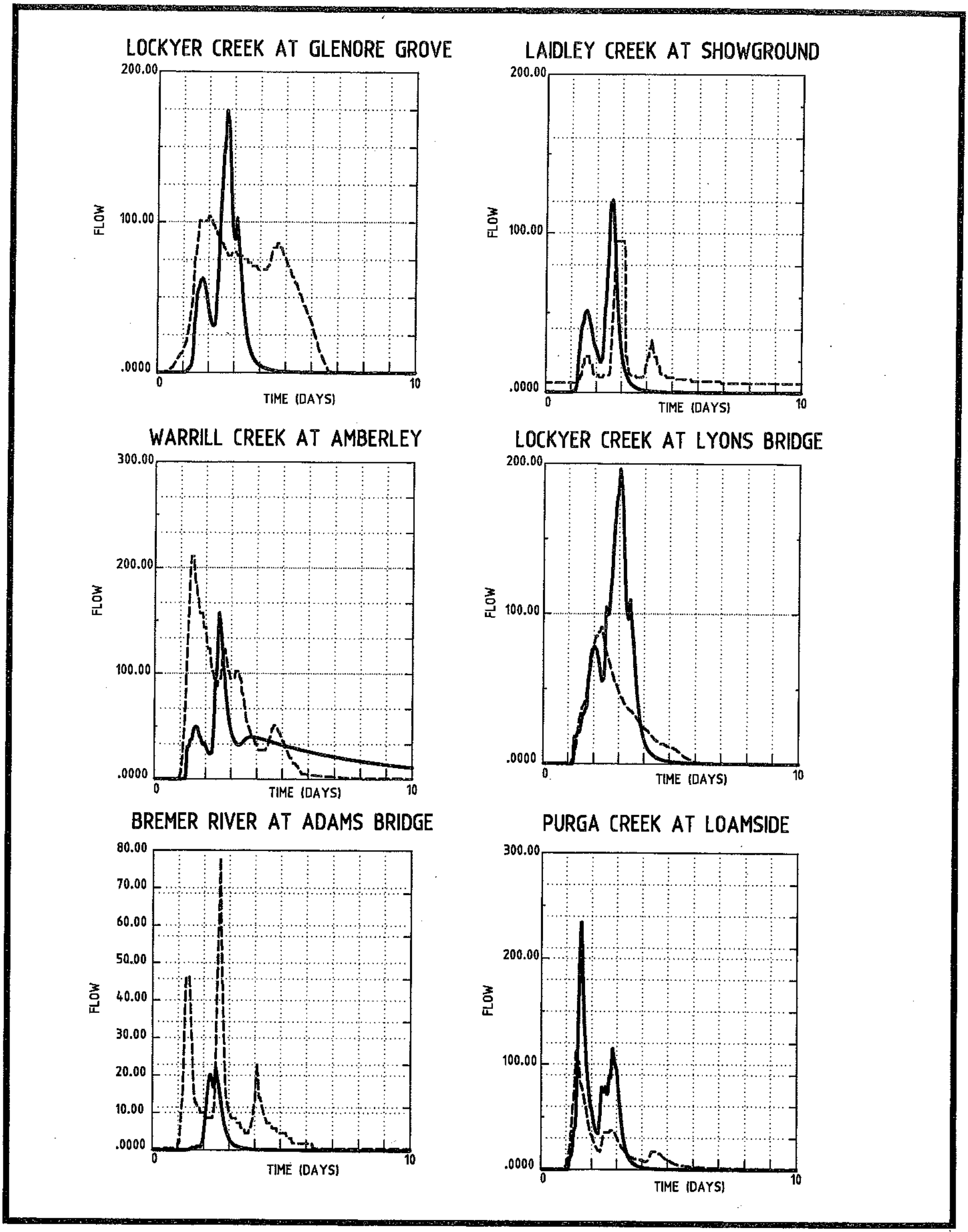


LEGEND

-------- RECORDED DISCHARGE

———— PREDICTED DISCHARGE

FILE NAME: FIG-B7A DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98



LEGEND

- - - - - - - - RECORDED DISCHARGE

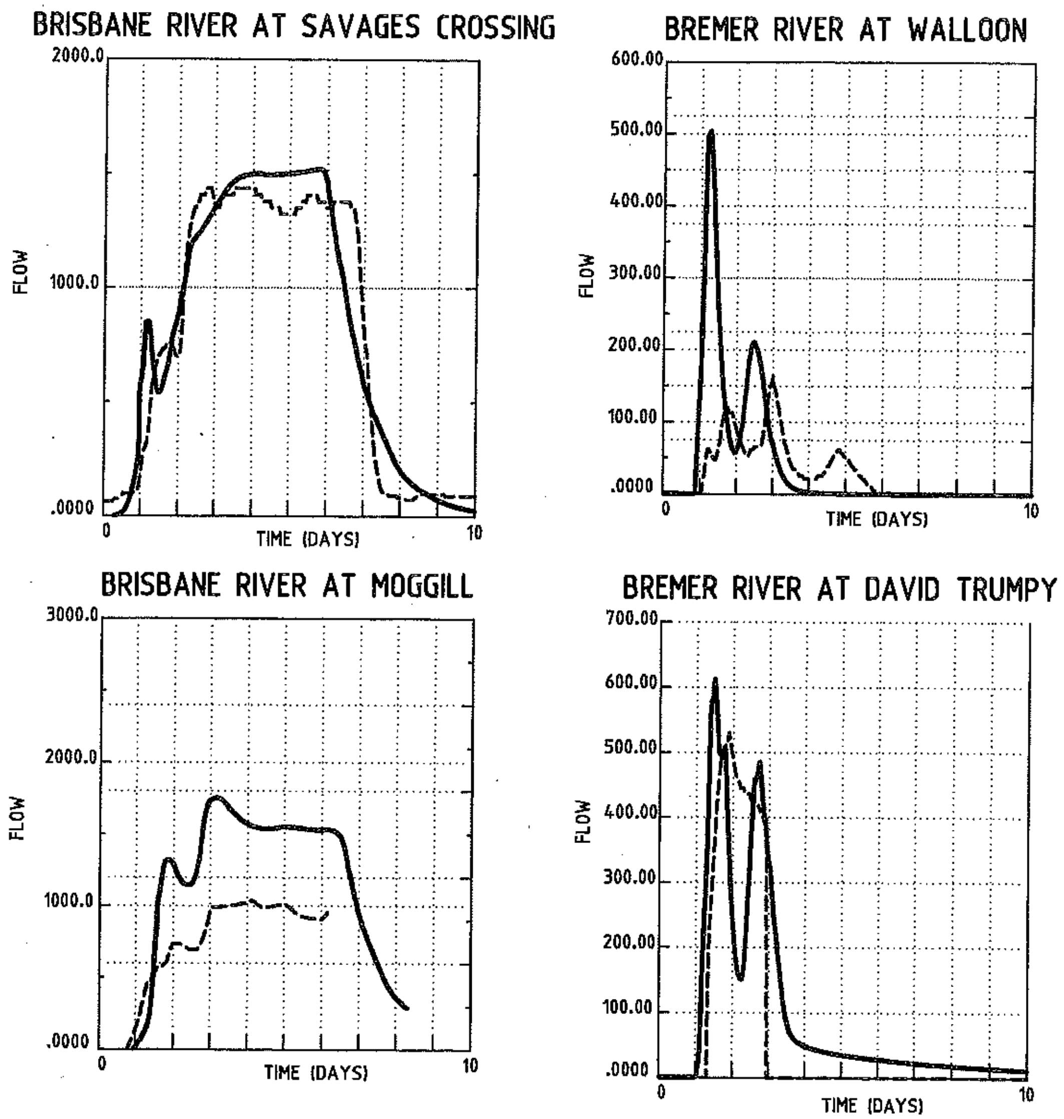
———— PREDICTED DISCHARGE

FILE NAME: FIG-B7A DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

SINCLAIR KNIGHT MERZ

FIGURE B-8c

BRISBANE RIVER FLOOD STUDY
EARLY APRIL 1989 FLOOD HYDROGRAPHS



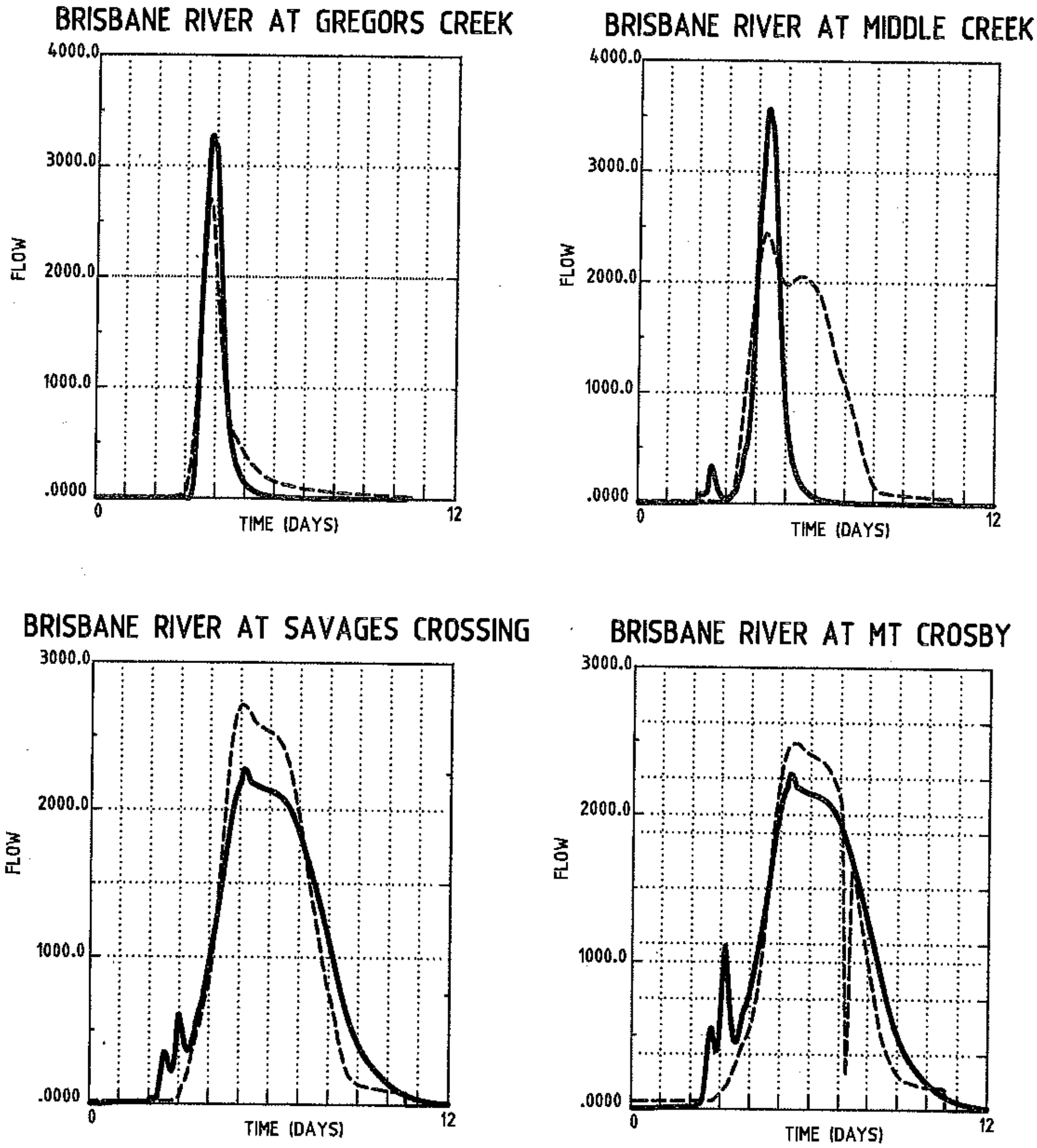
LEGEND

-------- RECORDED DISCHARGE

———— PREDICTED DISCHARGE

FILE NAME: FIG-R7A DISK N°: G:\ JOB N°: T00/... DATE: 17-2-...
PLOT SCALE: 1=1

FIGURE B-9
BRISBANE RIVER FLOOD STUDY
JULY 1973 FLOOD SENSITIVITY ANALYSIS
POST WIVENHOE PERN VALUES



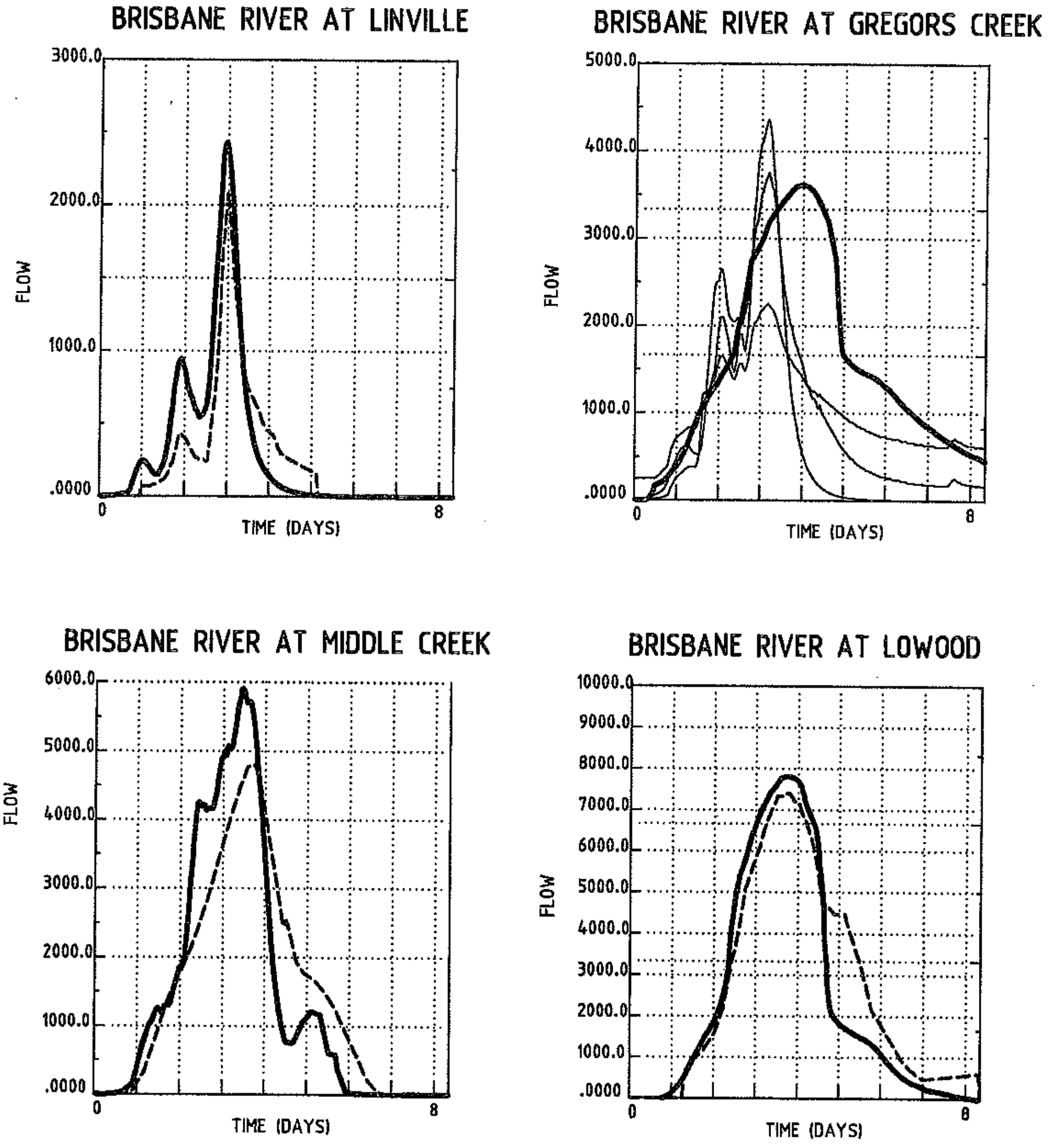
NOTE:
WIVENHOE STORAGE HAS NOT BEEN MODELLED.

FILE NAME: 4157-238 PLO ...LE: 1:. DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

FIGURE B-10a

BRISBANE RIVER FLOOD STUDY
JANUARY 1974 FLOOD SENSITIVITY ANALYSIS
POST WIVENHOE PERN VALUES

SINCLAIR KNIGHT MERZ



NOTE:
WIVENHOE STORAGE HAS NOT BEEN MODELLED.

LEGEND

- - - - - - - - RECORDED DISCHARGE

———————— PREDICTED DISCHARGE

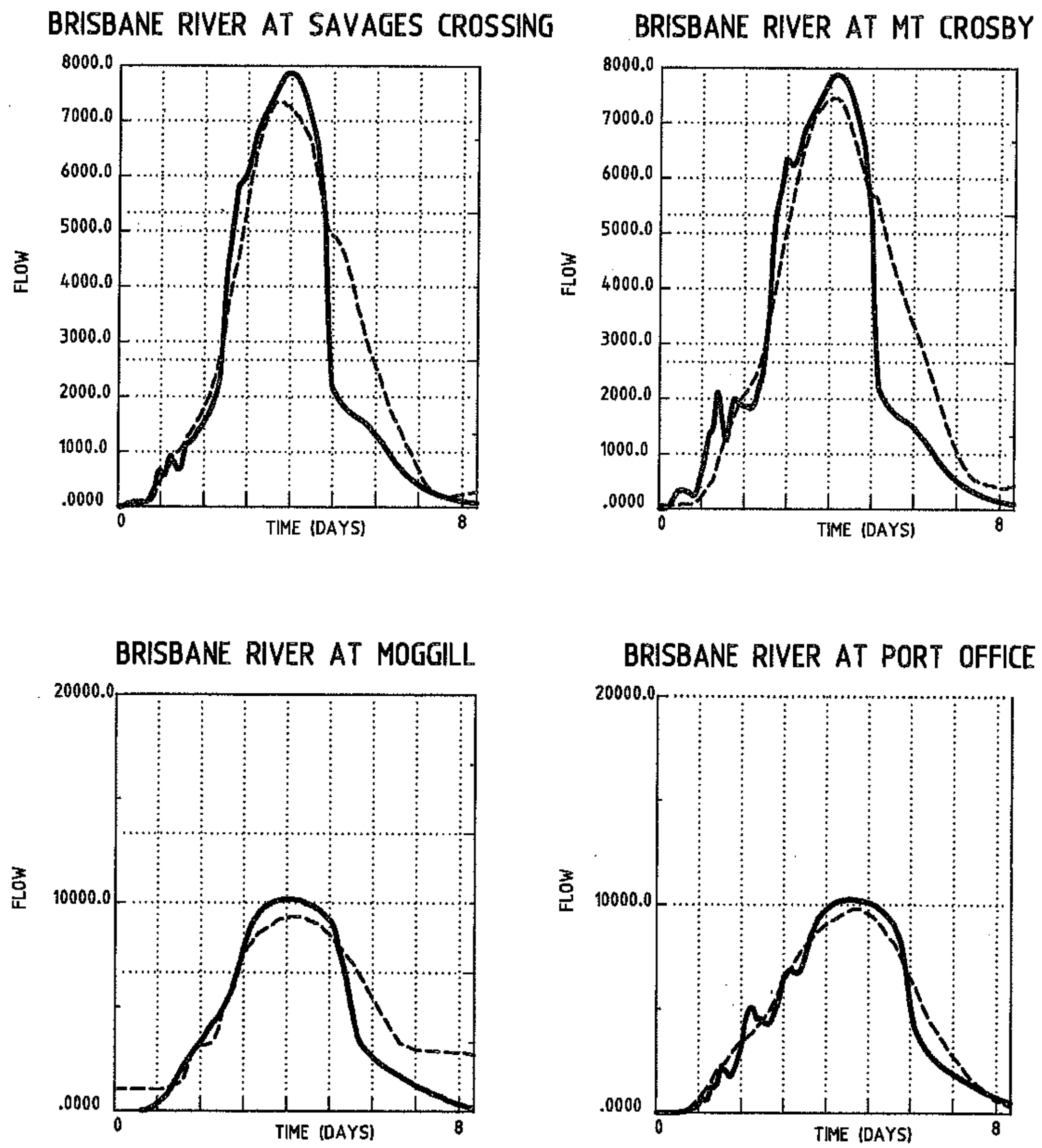
FILE NAME: 4157-739 DISK N°: G:\ JOB N°: T00/157 DATE: 17-2-98
PLOT SCALE: 1:1

BCC.121.0171

FIGURE B-10b

BRISBANE RIVER FLOOD STUDY
JANUARY 1974 FLOOD SENSITIVITY ANALYSIS
POST WIVENHOE PERN VALUES

SINCLAIR KNIGHT MERZ



NOTE:
WIVENHOE STORAGE HAS NOT BEEN MODELLED.

FILE NAME: 415? ??? DISK No. G:\ JOB No. T00157 DATE: 17-2-98
PLOT SCALE: 1:1

LEGEND
- - - - - - RECORDED DISCHARGE
——— PREDICTED DISCHARGE

Appendix C - Mike 11 Model Results - Calibration/Verification

TABLE C-1 - Predicted & Recorded Flood Levels for Calibration\Verification Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	CALIBRATION EVENTS																VERIFICATION EVENTS											
					1974 PREDICTED WL (m AHD)	1974 RECORDED WL (m AHD)	1974 RECORDED WL (m AHD)	1974 DIFFERENCE (m)	1996 PREDICTED WL (m AHD)	1996 RECORDED WL (m AHD)	1996 DIFFERENCE (m)	1983 PREDICTED WL (m AHD)	1983 RECORDED WL (m AHD)	1983 DIFFERENCE (m)	1989B PREDICTED WL (m AHD)	1989B RECORDED WL (m AHD)	1989B DIFFERENCE (m)	1931 PREDICTED WL (m AHD)	1931 RECORDED WL (m AHD)	1931 DIFFERENCE (m)	1955 PREDICTED WL (m AHD)	1955 RECORDED WL (m AHD)	1955 DIFFERENCE (m)	1973 PREDICTED WL (m AHD)	1973 RECORDED WL (m AHD)	1973 DIFFERENCE (m)	1989A PREDICTED WL (m AHD)	1989A RECORDED WL (m AHD)	1989A DIFFERENCE (m)
BRISBANE	1000	78.66	BN 2020		22.05	22.17		-0.12	9.49			7.02			5.59			17.08			14.91			9.58			6.91		
BRISBANE	1000.285	78.375	BN 2010		21.91	21.92		-0.01	9.4			6.94			5.52			16.91			14.73			9.46			6.82		
BRISBANE	1000.775	77.885	BN 2000		21.70	21.68		0.02	9.23			6.78			5.36			16.67			14.46			9.22			6.64		
BRISBANE	1001.315	77.345	BN 1990		21.63	21.5		0.13	9.09			6.61			5.18			16.55			14.31			9.01			6.45		
BRISBANE	1001.865	76.795	BN 1980		21.25	21.1		0.15	8.84			6.37			4.94			16.11			13.86			8.64			6.18		
BRISBANE	1002.35	76.310	BN 1970		21.12				8.57			6.11			4.70			15.88			13.57			8.23			5.90		
BRISBANE	1002.785	75.875	BN 1960		21.10				8.47			5.98			4.55			15.84			13.51			8.07			5.74		
BRISBANE	1003.275	75.385	BN 1950		20.87				8.25			5.76			4.33			15.53			13.18			7.73			5.54		
BRISBANE	1003.775	74.885	BN 1940		20.68	20.83		-0.15	8.06			5.55			4.15			15.29			12.91			7.43			5.36		
BRISBANE	1004.3	74.360	BN 1930		20.37	20.25		0.12	7.8			5.42			4.00			14.87			12.44			7.04			5.15		
BRISBANE	1004.81	73.850	BN 1920		20.35	20.25	20.25	0.10	7.68			5.37			3.92			14.80			12.34			6.84			5.03		
BRISBANE	1005.325	73.335	BN 1910		20.23				7.53			5.32			3.84			14.63			12.18			6.59			4.86		
BRISBANE	1005.87	72.790	BN 1900		20.02	19.97	19.93	0.05	7.38			5.27			3.78			14.35			11.86			6.35			4.71		
BRISBANE	1006.3	72.360	BN 1890	Moggill Gauge	19.89	20.04	19.93	-0.04	7.37	7.09	0.28	5.27	5.26	0.01	3.77	4.02	-0.25	14.23			11.75			6.34	6.32	0.02	4.70	3.73	0.97
BRISBANE	1006.91	71.750	BN 1880		19.70				7.27			5.18			3.70			14.02			11.56			6.24			4.62		
BRISBANE	1007.41	71.250	BN 1870		19.67	19.33		0.34	7.21			5.11			3.61			13.97			11.50			6.17			4.55		
BRISBANE	1007.92	70.740	BN 1860		19.38	19.33	19.6	0.05	7.04			4.98			3.51			13.74			11.28			6.02			4.43		
BRISBANE	1008.445	70.215	BN 1850		19.20	19.21	19.46	-0.01	6.99			4.93			3.48			13.62			11.18			5.97			4.39		
BRISBANE	1008.925	69.735	BN 1840		19.14				6.93			4.88			3.44			13.57			11.13			5.92			4.35		
BRISBANE	1009.4	69.260	BN 1830		19.05				6.85			4.82			3.40			13.48			11.04			5.84			4.29		
BRISBANE	1009.72	68.940	BN 1820		19.04	18.88		0.16	6.81			4.79			3.38			13.45			11.01			5.81			4.26		
BRISBANE	1010.49	68.170	BN 1810		18.69	18.69		0.00	6.65			4.67			3.31			13.21			10.81			5.66			4.16		
BRISBANE	1010.725	67.935	BN 1800		18.71				6.65			4.66			3.31			13.22			10.81			5.66			4.15		
BRISBANE	1010.98	67.680	BN 1790		18.63				6.6			4.63			3.29			13.16			10.76			5.62			4.12		
BRISBANE	1011.51	67.150	BN 1780		18.62	18.3	18.63	-0.01	6.54			4.58			3.25			13.13			10.72			5.58			4.08		
BRISBANE	1011.98	66.680	BN 1770		18.62	18.8		-0.18	6.47			4.52			3.22			13.08			10.66			5.50			4.03		
BRISBANE	1012.475	66.185	BN 1760		18.52	18.6	18.63	-0.08	6.39			4.46			3.18			12.99			10.56			5.43			3.97		
BRISBANE	1012.935	65.725	BN 1750		18.42	18.6		-0.18	6.32			4.40			3.14			12.90			10.50			5.37			3.93		
BRISBANE	1013.445	65.215	BN 1740		18.33	18.63		-0.30	6.28			4.35			3.11			12.81			10.41			5.30			3.88		
BRISBANE	1013.91	64.750	BN 1730		18.28			18.28	6.19			4.28			3.06			12.75			10.35			5.23			3.82		
BRISBANE	1014.31	64.350	BN 1720		18.25	18.3		-0.05	6.11			4.22			3.02			12.68			10.28			5.16			3.76		
BRISBANE	1014.61	64.050	BN 1710	Goodna Hospital Gauge	18.28	18.43		-0.15	6.06			4.17			2.99			12.64			10.23			5.11	5.11	0.00	3.72		
BRISBANE	1015.09	63.570	BN 1700		18.14	18.3		-0.16	6.05			4.17			2.99			12.58			10.19			5.11			3.72		
BRISBANE	1015.56	63.100	BN 1690		18.00	18.33	17.96	0.04	5.97			4.11			2.96			12.48			10.10			5.04			3.67		
BRISBANE	1016.14	62.520	BN 1680		17.90	17.78	18.15	0.12	5.91			4.07			2.93			12.40			10.03			4.99			3.63		
BRISBANE	1016.64	62.020	BN 1670		17.80	17.63		0.17	5.8			3.97			2.87			12.28			9.91			4.88			3.56		
BRISBANE	1017.13	61.530	BN 1660		17.57	17.54		0.03	5.66			3.84			2.78			12.09			9.73			4.75			3.44		
BRISBANE	1017.61	61.050	BN 1650		17.45	17.66	17.29	0.16	5.56			3.77			2.74			11.90			9.54			4.66			3.39		
BRISBANE	1017.92	60.740	BN 1640		17.29				5.48			3.71			2.71			11.75			9.40			4.59			3.33		
BRISBANE	1018.2	60.460	BN 1630		17.21	17.26		-0.05	5.49			3.71			2.71			11.71			9.36			4.59			3.33		
BRISBANE	1018.725	59.935	BN 1620		16.89				5.42			3.67			2.69			11.48			9.18			4.54			3.30		
BRISBANE	1019.095	59.565	BN 1610		16.75	16.83		-0.08	5.37			3.63			2.68			11.33			9.05			4.49			3.26		
BRISBANE	1019.49	59.170	BN 1600		16.64	16.65		-0.01	5.33			3.60			2.65			11.24			8.96			4.46			3.24		
BRISBANE	1019.865	58.795	BN 1590		16.34	16.47		-0.13	5.28			3.57			2.63			11.04			8.80			4.41			3.21		
BRISBANE	1020.115	58.545	BN 1580		16.44	16.71	16.56	-0.12	5.28			3.55			2.62			11.07			8.80			4.40			3.20		
BRISBANE	1020.525	58.135	BN 1570		16.42				5.27			3.54			2.61			11.03			8.76			4.39			3.19		
BRISBANE	1020.83	57.830	BN 1560		16.27	17.02		-0.75	5.23			3.51			2.60			10.92			8.67			4.36			3.16		
BRISBANE	1021.095	57.565	BN 1550		16.06	16.26		-0.20	5.16			3.47			2.57			10.77			8.55			4.30			3.13		
BRISBANE	1021.539	57.121	BN 1540		15.89	16.04		-0.15	5.1			3.42			2.55			10.62			8.40			4.25			3.09		
BRISBANE	1021.715	56.945	BN 1530		15.92	15.98		-0.06	5.1			3.42			2.54			10.62			8.39			4.24			3.08		
BRISBANE	1021.895	56.765	BN 1520		15.85	16.74		-0.89	5.09			3.41			2.54			10.57			8.35			4.23			3.08		
BRISBANE	1022.105	56.555	BN 1510		15.73	15.86		-0.13	5.09			3.41			2.54			10.52			8.31			4.23			3.08		
BRISBANE	1022.575	56.085	BN 1500		15.65	15.52		0.13	5.02			3.36			2.51			10.42			8.22			4.17			3.04		
BRISBANE	1023.04	55.620	BN 1490		15.41	15.31		0.10	4.92			3.30			2.48			10.24			8.07			4.10			2.99		
BRISBANE	1023.57	55.090	BN 1480		15.32	15.31		0.01	4.88			3.27			2.46			10.20			8.05			4.06			2.97		
BRISBANE	1024.08	54.580	BN 1470		15.27	15.13		0.14	4.81			3.22			2.44			10.13			7.98			4.00			2.93		
BRISBANE	1024.563	54.097	BN 1460		15.21	15.4		-0.19	4.72			3.15			2.40			10.06			7.90			3.92			2.87		
BRISBANE	1025.07	53.590	BN 1450		15.12	15.19		-0.07	4.67			3.11			2.37			9.97			7.82			3.87			2.84		
BRISBANE	1025.36	53.300	BN 1440		14.97				4.6			3.06			2.35			9.86			7.73			3.81			2.80		
BRISBANE	1025.59	53.070	BN 1430		14.81	14.94		-0.13	4.54			3.02			2.33			9.74			7.63			3.76			2.77		
BRISBANE	1026.17	52.490	BN 1420		14.69	14.64		0.05	4.51			3.00			2.32			9.67	10.74	-1.07	7.57			3.73			2.75		
BRISBANE	1026.68	51.980	BN 1410	Mt Ommaney Gauge	14.58	14.58	14.55	0.00	4.43			2.94			2.29			9.55			7.46			3.66			2.70		
BRISBANE	1026.9	51.760	BN 1400		14.46	14.55	14.24	-0.09	4.38			2.91			2.27			9.46			7.39			3.62			2.68		
BRISBANE	1027.16	51.500	BN 1390		14.32	14.46	14.24	0.08	4.35			2.89			2.26			9.38			7.33			3.60			2.66		
BRISBANE	1027.68	50.980	BN 1380		14.38	14.32		0.06	4.32			2.86			2.24			9.38			7.31			3.56			2.64		
BRISBANE	1028.18	50.480	BN 1370		14.40	14.3	14.12	0.10	4.27			2.83			2.22			9.38			7.30			3.52			2.61		
BRISBANE	1028.68	49.980	BN 1360		14.27				4.17			2.76			2.19			9.27			7.22			3.44			2.55		
BRISBANE	1028.72	49.940	BN1350	Centenary Bridge																									
BRISBANE	1028.76	49.900	BN 1340		14.12				4.08			2.70			2.16			9.27			7.22			3.37			2.51		
BRISBANE	1029.2	49.460	BN 1330		14.01	14.09		-0.08	3.98			2.64			2.13			9.17			7.13			3.30			2.46		
BRISBANE	1029.68	48.980	BN 1320		14.03	13.97		0.06	3.95			2.61			2.11			9.17			7.13			3.27			2.44		
BRISBANE	1030.22	48.440	BN 1310		14.03	13.63		0.40	3.89			2.58			2.10			9.18			7.13			3.22			2.41		
BRISBANE	1030.87	47.790	BN 1300		13.96				3.79			2.51			2.06			9.12	9.40	-0.28	7.08	7.17	-0.09	3.15			2.36		
BRISBANE	1031.26	47.400	BN 1290		13.80	13.73	13.51	0.07	3.71			2.46			2.03			9.02			7.00			3.08			2.32		
BRISBANE	1031.7	46.960	BN 1280	Darra Wharf Gauge	13.41	13.79	13.36	0.05	3.59			2.40			2.00			8.78			6.80			3.00	3.15	-0.15	2.27		
BRISBANE	1031.995	46.665	BN 1270		13.52				3.6			2.39			2.00			8.75			6.76			3.00			2.26		
BRISBANE	1032.23	46.430	BN 1260		13.39	13.18		0.21	3.57			2.38			1.99			8.68	8.99	-0.31	6.70	6.70	0.00	2.98			2.25		
BRISBANE	1032.585	46.075	BN 1250		13.15	13.33	12.9	-0.18	3.52			2.35			1.97			8.52			6.57			2.94			2.23		
BRISBANE	1033.08	45.580	BN 1240		13.00	12.99		0.01	3.48			2.33			1.97			8.39			6.46			2.92			2.21		
BRISBANE	1033.37	45.290	BN 1230		12.89	13.02	12.9	-0.13	3.43			2.30			1.95			8.31	8.67	-0.36	6.40	6.41	-0.01	2.88			2.19		
BRISBANE	1033.9	44.760	BN 1220		12.65	12.98	12.57	0.08	3.35			2.26			1.93			8.16			6.27			2.82			2.15		
BRISBANE	1034.37	44.290	BN 1210		12.49	12.26		0.23	3.29			2.23			1.91			8.05	8.13		6.19	6.23	-0.04	2.78			2.13		
BRISBANE	1034.89	43.770	BN 1200	Sherwood Gauge	12.40	12.52		-0.12	3.23			2.20			1.89			7.95			6.10			2.73			2.10		
BRISBANE	1035.414	43.248	BN 1190		12.14	12.14		0.00	3.15			2.15			1.87			7.78			5.95			2.67			2.06		
BRISBANE	1035.9	42.760	BN 1180		11.86	11.87		-0.01	3.06			2.10			1.84			7.55			5.77			2.60			2.02		
BRISBANE	1036.46	42.200	BN 1170		11.55	11.77	11.74	-0.19	2.98			2.07			1.82			7.33			5.59			2.55			1.99		
BRISBANE	1036.77	41.890	BN 1160		11.47	11.59	11.24	-0.12	2.95			2.05			1.81			7.26	7.69	-0.43	5.52	5.47	0.05	2.53			1.97		
BRISBANE	1036.915	41.745	BN 1150		11.31	11.65	11.32	-0.01	2.92			2.04			1.81			7.16			5.45			2.51			1.96		

TABLE C-1 - Predicted & Recorded Flood Levels for Calibration\Verification Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	CALIBRATION EVENTS: 1974 PREDICTED WL (m AHD)	1974 RECORDED WL (m AHD)	1974 RECORDED WL (m AHD)	1974 DIFFERENCE (m)	1996 PREDICTED WL (m AHD)	1996 RECORDED WL (m AHD)	1996 DIFFERENCE (m)	1983 PREDICTED WL (m AHD)	1983 RECORDED WL (m AHD)	1983 DIFFERENCE (m)	1989B PREDICTED WL (m AHD)	1989B RECORDED WL (m AHD)	1989B DIFFERENCE (m)	VERIFICATION EVENTS: 1931 PREDICTED WL (m AHD)	1931 RECORDED WL (m AHD)	1931 DIFFERENCE (m)	1955 PREDICTED WL (m AHD)	1955 RECORDED WL (m AHD)	1955 DIFFERENCE (m)	1973 PREDICTED WL (m AHD)	1973 RECORDED WL (m AHD)	1973 DIFFERENCE (m)	1989A PREDICTED WL (m AHD)	1989A RECORDED WL (m AHD)	1989A DIFFERENCE (m)
BRISBANE	1037.09	41.570	BN 1140		11.26	11.84	11.2	0.06	2.93			2.04			1.81			7.14			5.44			2.51			1.96		
BRISBANE	1037.11	41.550	BN 1130	Indooroopilly Bridge																									
BRISBANE	1037.175	41.485	BN 1120		11.16	11.47	11.13	0.03	2.79			2.03			1.80			7.13			5.40			2.49			1.95		
BRISBANE	1037.285	41.375	BN 1110	Clarence Road Gauge	11.11	11.2		-0.09	2.77			2.01			1.79			7.09	7.46	-0.37	5.36	5.56	-0.20	2.47			1.94		
BRISBANE	1037.625	41.035	BN 1100		11.10	11.1	11.07	0.00	2.73			1.99			1.78			7.05			5.32			2.44			1.92		
BRISBANE	1038.085	40.575	BN 1090		11.12	11.1		0.02	2.72			1.99			1.78			7.02			5.30			2.43			1.92		
BRISBANE	1038.6	40.060	BN 1080		11.10	11.04		0.06	2.63			1.94			1.75			6.99			5.25			2.37			1.88		
BRISBANE	1039.1	39.560	BN 1070		11.10	11.07		0.03	2.54			1.90			1.73			6.95	6.97	-0.02	5.22	5.16	0.06	2.31			1.84		
BRISBANE	1039.565	39.095	BN 1060	Oxley Creek Gauge	11.11	11.01		0.10	2.49			1.87			1.71			6.94			5.21			2.27			1.82		
BRISBANE	1040.09	38.570	BN 1050	King Authur Terrace Gauge	11.03	11.04		-0.01	2.46			1.86			1.71			6.92	6.78	0.14	5.20	5.10	0.10	2.25			1.81		
BRISBANE	1040.49	38.170	BN 1040		10.88	11.01		-0.13	2.4			1.83			1.69			6.83			5.13			2.21			1.79		
BRISBANE	1041.01	37.650	BN 1030		10.92	10.89		0.03	2.38			1.82			1.69			6.84	6.62	0.22	5.14	5.02	0.12	2.20			1.78		
BRISBANE	1041.23	37.430	BN 1020		10.88	10.83		0.05	2.36			1.80			1.68			6.80			5.10			2.19			1.77		
BRISBANE	1041.46	37.200	BN 1010	Tennyson Power House Gauge	10.79	10.83		-0.04	2.32			1.78			1.68			6.75			5.06			2.17	2.17	0.00	1.75		
BRISBANE	1041.7	36.960	BN 1000		10.75	10.83		-0.08	2.32			1.78			1.68			6.73			5.04			2.17			1.76		
BRISBANE	1041.96	36.700	BN 990	Yeronga Street Gauge	10.60	10.83		-0.23	2.27			1.76			1.66			6.62	6.40	0.22	4.96	4.95	0.01	2.13			1.74		
BRISBANE	1042.235	36.425	BN 980		10.43	10.42		0.01	2.21			1.74			1.65			6.62			4.89			2.10			1.72		
BRISBANE	1042.515	36.145	BN 970		10.42	10.43		-0.01	2.2			1.73			1.65			6.50			4.87			2.09			1.71		
BRISBANE	1042.91	35.750	BN 960		10.35	10.25	10.16	0.10	2.12			1.69			1.63			6.41	6.17	0.24	4.78	4.80	-0.02	2.04			1.68		
BRISBANE	1043.725	34.935	BN 950		10.03	9.95		0.08	1.94			1.62			1.59			6.17			4.59			1.93			1.62		
BRISBANE	1044.06	34.600	BN 940	Sandy Creek Gauge	9.86	9.81		0.05	1.91			1.61			1.59			6.10	6.01	0.09	4.64	4.64	-0.10	1.91			1.61		
BRISBANE	1044.34	34.320	BN 930		9.69	9.61		0.08	1.86			1.59			1.58			5.99			4.45			1.88			1.60		
BRISBANE	1044.605	34.055	BN 920		9.64	9.49		0.15	1.84			1.58			1.57			5.94			4.41			1.87			1.59		
BRISBANE	1044.86	33.800	BN 910		9.60	9.55		0.05	1.81			1.57			1.57			5.89	5.80	0.09	4.37	4.49	-0.12	1.86			1.58		
BRISBANE	1045.4	33.260	BN 900		9.41	9.31		0.10	1.73			1.55			1.55			5.74			4.24			1.81			1.55		
BRISBANE	1045.885	32.775	BN 890		9.28	9.46	9.15	-0.18	1.71			1.52			1.54			5.57			4.10			1.77			1.53		
BRISBANE	1046.18	32.480	BN 880		9.19	9.49		-0.30	1.71			1.52			1.53			5.54			4.08			1.77			1.53		
BRISBANE	1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	9.12	9.57		-0.45	1.71			1.52			1.53			5.51	5.48	0.03	4.07	4.12	-0.05	1.76			1.53		
BRISBANE	1046.58	32.080	BN 860		9.07				1.7			1.51			1.53			5.47			4.03			1.75			1.52		
BRISBANE	1046.9	31.760	BN 850		8.88	9.03		-0.15	1.7			1.49			1.52			5.34			3.93			1.72			1.50		
BRISBANE	1047.35	31.310	BN 840		8.49	8.61	8.38	-0.12	1.7			1.47			1.51			5.09			3.75			1.69			1.48		
BRISBANE	1047.915	30.745	BN 830	Highgate Hill Gauge	8.26	8.36		-0.10	1.7			1.46			1.50			4.94	5.10	-0.16	3.63	3.82	-0.19	1.67			1.47		
BRISBANE	1048.375	30.285	BN 820		8.32	8.3	8.36	0.02	1.69			1.45			1.50			4.96			3.64			1.66			1.47		
BRISBANE	1048.89	29.770	BN 810	St Lucia Ferry Gauge	8.08	8.09		-0.01	1.69			1.42			1.48			4.79			3.50			1.61	1.53	0.08	1.44		
BRISBANE	1049.12	29.540	BN 800		8.02	8.24	8.27	-0.22	1.69			1.41			1.48			4.75			3.48	3.55	-0.07	1.60			1.43		
BRISBANE	1049.37	29.290	BN 790		7.83				1.69			1.39			1.47			4.64	4.76	-0.12	3.40	3.51	-0.11	1.57			1.42		
BRISBANE	1049.59	29.070	BN 780		7.82				1.68			1.39			1.47			4.63	4.73	-0.10	3.39	3.50	-0.11	1.57			1.42		
BRISBANE	1049.87	28.790	BN 770		7.70	7.9	7.57	0.13	1.68			1.38			1.46			4.56			3.34			1.55			1.41		
BRISBANE	1050.43	28.230	BN 760		7.69	7.75		-0.06	1.68			1.37			1.46			4.49			3.28			1.54			1.40		
BRISBANE	1050.86	27.800	BN 750		7.55	7.48	7.57	-0.02	1.67			1.35			1.45			4.42	4.41	0.01	3.23	3.19	0.04	1.52			1.39		
BRISBANE	1051.36	27.300	BN 740		7.55				1.67			1.35			1.45			4.42			3.23			1.51			1.39		
BRISBANE	1051.895	26.785	BN 730		7.37	7.29	7.14	0.08	1.67			1.33			1.43			4.28			3.12			1.47			1.37		
BRISBANE	1052.31	26.350	BN 720		7.47	7.17	7.08	0.30	1.66			1.33			1.43						3.16			1.48			1.37		
BRISBANE	1052.37	26.290	BN 710	Merivale Bridge														4.34											
BRISBANE	1052.39	26.270	BN 700		7.36	7.23		0.13	1.66			1.32			1.43			4.28			3.11			1.46			1.36		
BRISBANE	1052.595	26.065	BN 690		7.26				1.66			1.31			1.42			4.23			3.09			1.46			1.36		
BRISBANE	1052.607	26.053	BN 680	William Jolly Bridge																									
BRISBANE	1052.64	26.020	BN 670		6.72	7.05	6.35	-0.33	1.65			1.30			1.42			4.02	4.03	-0.01	3.05	2.81	0.24	1.43			1.35		
BRISBANE	1052.865	25.795	BN 660	Montague Road Gauge	6.58	6.56		0.02	1.65			1.30			1.41			3.96			3.01			1.43			1.35		
BRISBANE	1053.32	25.340	BN 650		6.50	6.44		0.06	1.65			1.29			1.41			3.91			2.97			1.42			1.35		
BRISBANE	1053.356	25.304	BN 640	Victoria Bridge																									
BRISBANE	1053.385	25.275	BN630		6.31	6.44		-0.13	1.65			1.28			1.40			3.84	3.88	-0.04	2.91	2.66	0.25	1.39			1.33		
BRISBANE	1053.9	24.760	BN 620		5.92	6.04		-0.12	1.64			1.26			1.39			3.59			2.72			1.37			1.32		
BRISBANE	1054.64	24.020	BN 610		5.84				1.64			1.26			1.39			3.52			2.68			1.37			1.32		
BRISBANE	1054.66	24.000	BN 600	Captain Cook Bridge																									
BRISBANE	1054.68	23.980	BN 590		5.76	5.77	6.26	-0.01	1.64			1.25			1.38			3.52	3.65	-0.13	2.68	2.43	0.25	1.36			1.31		
BRISBANE	1054.97	23.690	BN 560		5.50	5.59		-0.09	1.64			1.23			1.38			3.40			2.59			1.33			1.30		
BRISBANE	1055.28	23.380	BN 550		5.45				1.64			1.22			1.38			3.37			2.57			1.32			1.30		
BRISBANE	1055.42	23.240	BN 540		5.46	5.44		0.02	1.64			1.22			1.37			3.37			2.57			1.32			1.30		
BRISBANE	1055.96	22.700	BN 530	Port Office Gauge	5.40	5.44	4.95	-0.04	1.63			1.21			1.37			3.33	3.42	-0.09	2.54	2.28	0.26	1.31	1.11	0.20	1.29		
BRISBANE	1056.4	22.260	BN 520		5.14	5.31	5.31	-0.17	1.63			1.19			1.36			3.20			2.46			1.28			1.28		
BRISBANE	1056.695	21.965	BN 510		5.07				1.63			1.19			1.36			3.16			2.43			1.27			1.28		
BRISBANE	1056.865	21.795	BN 500		5.28	5.4	4.76	-0.12	1.63			1.19			1.36			3.26			2.49			1.28			1.28		
BRISBANE	1056.92	21.740	BN 495	Story Bridge																									
BRISBANE	1056.95	21.710	BN 490		5.17	5.47	4.8	-0.30	1.63			1.19			1.35			3.26			2.46	2.15	0.31	1.27			1.28		
BRISBANE	1057.09	21.570	BN 480		5.01	5.28	4.8	-0.27	1.63			1.18			1.35			3.19			2.41			1.26			1.27		
BRISBANE	1057.53	21.130	BN 470		4.87	4.86		0.01	1.63			1.18			1.35			3.13			2.37			1.25			1.26		
BRISBANE	1058.04	20.620	BN 460		4.61	4.4	4.21	0.21	1.62			1.18			1.34			2.99			2.28			1.22			1.25		
BRISBANE	1058.23	20.430	BN 450		4.53				1.62			1.18			1.34			2.95			2.25			1.21			1.25		
BRISBANE	1058.53	20.130	BN 440		4.39	4.79	4.49	-0.10	1.62			1.18			1.33			2.89			2.21			1.21			1.24		
BRISBANE	1058.735	19.925	BN 430		4.43	4.58	4.22	-0.15	1.62			1.18			1.33			2.90			2.22			1.21			1.24		
BRISBANE	1059.035	19.625	BN 420		4.14	4.03	3.85	0.11	1.62			1.18			1.33			2.78	2.74	0.04	2.14	1.98	0.16	1.21			1.23		
BRISBANE	1059.54	19.120	BN 410		4.09	4.09	3.91	0.00	1.61			1.18			1.33			2.75			2.11			1.21			1.22		
BRISBANE	1059.99	18.670	BN 400		3.88	4	3.48	-0.12	1.61			1.19			1.32			2.65			2.04			1.21			1.22		
BRISBANE	1060.345	18.315	BN 390		3.64	3.27		0.37	1.61			1.19			1.32			2.55	2.59	-0.04	1.98	1.98	0.00	1.21			1.21		
BRISBANE	1060.535	18.125	BN 380		3.48	3.33	3.21	0.15	1.61			1.19			1.32			2.48			1.94			1.21			1.21		
BRISBANE	1061.015	17.645	BN 370		3.44	3.18		0.26	1.61			1.19			1.31			2.45			1.92			1.21			1.20		
BRISBANE	1061.53	17.130	BN 360		3.21				1.6			1.19			1.31			2.36			1.86			1.21			1.20		
BRISBANE	1062.02	16.640	BN 350		3.13	3.15	3.06	-0.02	1.6			1.19			1.30			2.33			1.83			1.21			1.19		
BRISBANE	1062.535	16.125	BN 340		3.08	3.15	2.6	-0.07	1.6			1.19			1.30			2.30	2.36	-0.06	1.81	1.82	-0.01	1.21			1.19		
BRISBANE	1062.94	15.720	BN 330		3.08				1.59			1.19			1.30			2.30			1.81			1.22			1.18		
BRISBANE	1063.31	15.350	BN 320	Newstead Park Gauge	2.96	3.3	2.6	-0.34	1.59			1.19			1.29			2.25	2.28	-0.03	1.78	1.75	0.03	1.22	1.28	-0.06	1.18		
BRISBANE	1063.645	15.015	BN 310	Cresent Road Gauge	2.69	2.63	2.63	0.06	1.59			1.19			1.29			2.13			1.70			1.21			1.17		
BRISBANE	1064	14.660	BN 300		2.65	2.78		-0.13	1.59			1.18			1.29			2.12			1.69			1.21			1.17		
BRISBANE	1064.49	14.170	BN 290		2.53	2.42	2.39	0.11	1.58			1.18			1.28			2.06			1.66			1.21			1.16		
BRISBANE	1065.01	13.650	BN 280		2.55	2.48		0.07	1.58			1.18			1.28			2.07			1.66			1.21			1.16		
BRISBANE	1065.503	13.157	BN 270		2.51	2.51		0.00	1.58			1.17			1.28			2.06			1.65			1.21			1.16		
BRISBANE	1065.99	12.670	BN 260	Cairncross Dock Gauge	2.52	2.49		0.03	1.58			1.17			1.27			2.08			1.65			1.21	1.05	0.16	1.16		

TABLE C-1 - Predicted & Recorded Flood Levels for Calibration\Verification Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	CALIBRATION EVENTS													VERIFICATION EVENTS											
					1974 PREDICTED WL (m AHD)	1974 RECORDED WL (m AHD)	1974 RECORDED WL (m AHD)	1974 DIFFERENCE (m)	1996 PREDICTED WL (m AHD)	1996 RECORDED WL (m AHD)	1996 DIFFERENCE (m)	1983 PREDICTED WL (m AHD)	1983 RECORDED WL (m AHD)	1983 DIFFERENCE (m)	1989B PREDICTED WL (m AHD)	1989B RECORDED WL (m AHD)	1989B DIFFERENCE (m)	1931 PREDICTED WL (m AHD)	1931 RECORDED WL (m AHD)	1931 DIFFERENCE (m)	1955 PREDICTED WL (m AHD)	1955 RECORDED WL (m AHD)	1955 DIFFERENCE (m)	1973 PREDICTED WL (m AHD)	1973 RECORDED WL (m AHD)	1973 DIFFERENCE (m)	1989A PREDICTED WL (m AHD)	1989A RECORDED WL (m AHD)	1989A DIFFERENCE (m)
BRISBANE	1066.505	12.155	BN 250		2.45	2.51		-0.06	1.57			1.17			1.27			2.03			1.64			1.21			1.15		
BRISBANE	1067.02	11.640	BN 240		2.41	2.36	2.42	0.05	1.57			1.16			1.27			2.02			1.63			1.20			1.15		
BRISBANE	1067.485	11.175	BN 230		2.31	2.36	2.42	-0.05	1.57			1.16			1.26			1.97			1.60			1.20			1.15		
BRISBANE	1067.965	10.695	BN 220		2.19	2.02		0.17	1.57			1.16			1.26			1.92			1.57			1.20			1.14		
BRISBANE	1068.66	10.000	BN 210		2.03	2.02		0.01	1.56			1.16			1.25			1.86			1.52			1.20			1.14		
BRISBANE	1069.045	9.615	BN 200		1.96	1.9		0.06	1.56			1.16			1.25			1.83			1.51			1.20			1.14		
BRISBANE	1069.535	9.125	BN 190	Bulimba Power House Gauge	1.90	1.9		0.00	1.56			1.15			1.25			1.81			1.49			1.20			1.13		
BRISBANE	1070.025	8.635	BN 180		1.84	1.85		-0.01	1.55			1.15			1.24			1.79			1.48			1.20			1.13		
BRISBANE	1070.53	8.130	BN 170		1.75				1.55			1.15			1.24			1.75			1.46			1.20			1.13		
BRISBANE	1071.04	7.620	BN 160		1.67				1.55			1.14			1.23			1.72			1.44			1.20			1.12		
BRISBANE	1071.52	7.140	BN 150		1.70				1.54			1.14			1.23			1.74			1.45			1.20			1.12		
BRISBANE	1072.015	6.645	BN 140		1.61				1.54			1.13			1.23			1.70			1.42			1.19			1.12		
BRISBANE	1072.515	6.145	BN 130		1.60				1.54			1.13			1.22			1.68			1.41			1.19			1.12		
BRISBANE	1072.995	5.665	BN 120		1.60				1.53			1.13			1.22			1.66			1.40			1.19			1.12		
BRISBANE	1073.485	5.175	BN 110		1.59				1.53			1.13			1.22			1.63			1.38			1.19			1.11		
BRISBANE	1074	4.660	BN 100		1.59				1.53			1.13			1.21			1.61			1.37			1.19			1.11		
BRISBANE	1074.46	4.200	BN 90		1.58				1.52			1.13			1.21			1.59			1.35			1.19			1.10		
BRISBANE	1074.985	3.675	BN 80		1.58				1.52			1.12			1.21			1.54			1.33			1.18			1.10		
BRISBANE	1075.48	3.180	BN 70		1.58				1.51			1.12			1.21			1.54			1.33			1.18			1.10		
BRISBANE	1076	2.660	BN 60		1.57				1.51			1.13			1.20			1.54			1.33			1.18			1.10		
BRISBANE	1076.495	2.165	BN 50		1.57				1.51			1.13			1.20			1.51			1.31			1.18			1.10		
BRISBANE	1077.01	1.650	BN 40		1.56				1.51			1.14			1.20			1.51			1.31			1.19			1.10		
BRISBANE	1077.51	1.150	BN 30		1.56				1.51			1.14			1.20			1.52			1.31			1.19			1.10		
BRISBANE	1078.04	0.620	BN 20		1.56				1.51			1.14			1.20			1.51			1.31			1.19			1.10		
BRISBANE	1078.525	0.135	BN 10		1.56				1.51			1.14			1.20			1.50			1.30			1.19			1.10		
BRISBANE	1078.66	0.000	-	Western Inner Bar Gauge	1.55	1.55		0.00	1.51	2.75	0.00	1.14	1.14	0.00	1.20	1.2	0.00	1.50			1.30	1.30	0.00	1.19	1.19	0.00	1.10	1.10	0.00
BREMER	599.4	-	-		19.94				7.37			5.24			3.75			14.25			11.77			6.34			4.70		
BREMER	600	-	-		19.94				7.38			5.27			3.78			14.25			11.77			6.34			4.71		
OXLEY	599.4	-	-		11.07				2.47			1.87			1.71			6.93			5.20			2.26			1.81		
OXLEY	600	-	-		11.07				2.47			1.87			1.71			6.93			5.20			2.26			1.81		
BREAKFAST	599.4	-	-		3.05				1.59			1.19			1.29			2.29			1.80			1.22			1.18		
BREAKFAST	600	-	-		3.05				1.59			1.19			1.29			2.29			1.80			1.22			1.18		
BULIMBA	599.4	-	-		1.61				1.55			1.15			1.23			1.70			1.42			1.20			1.12		
BULIMBA	600	-	-		1.61				1.54			1.13			1.23			1.70			1.42			1.19			1.12		
CENTWEIR	0	-	-		14.27				4.17			2.76			2.19			-			-			3.44			2.55		
CENTWEIR	0.08	-	-		14.12				4.08			2.70			2.16			-			-			3.37			2.51		
INDOORWEIR	0	-	-		11.26				2.93			2.04			1.81			-			5.44			2.51			1.96		
INDOORWEIR	0.085	-	-		11.16				2.79			2.03			1.80			-			5.40			2.49			1.95		
WILLIAMWEIR	0	-	-		7.26				1.66			1.31			1.42			4.23			3.09			1.46			1.36		
WILLIAMWEIR	0.045	-	-		6.72				1.65			1.30			1.42			4.02			3.05			1.43			1.35		
VICTORIAWEIR	0	-	-		6.50				1.65			1.29			1.41			-			-			1.42			1.35		
VICTORIAWEIR	0.065	-	-		6.31				1.65			1.28			1.40			-			-			1.39			1.33		
CAPTAINWEIR	0	-	-		5.84				1.64			1.26			1.39			-			-			1.37			1.32		
CAPTAINWEIR	0.04	-	-		5.76				1.64			1.25			1.38			-			-			1.36			1.31		
STORYWEIR	0	-	-		5.28				1.63			1.19			1.36			-			2.49			1.28			1.28		
STORYWEIR	0.085	-	-		5.17				1.63			1.19			1.35			-			2.46			1.27			1.28		
MERIVALEWEIR	0	-	-		-				1.66			1.33			1.43			-			-			-			1.37		
MERIVALEWEIR	0.08	-	-		-				1.66			1.32			1.43			-			-			-			1.36		
GOODNALINK1	0	-	-		18.38				6.29			4.38			3.13			12.86			10.45			5.34			3.90		
GOODNALINK1	1	-	-		17.71				5.72			3.90			2.82			12.19			9.83			4.80			3.48		
GOODNALINK2	0	-	-		18.31				6.22			4.31			3.08			12.78			10.38			5.26			3.85		
GOODNALINK2	1.07	-	-		17.95				5.95			4.09			2.94			12.44			10.07			5.01			3.65		
STLUCIALINK1	0	-	-		11.10				2.53			1.89			1.73			6.95			5.22			2.30			1.84		
STLUCIALINK1	1.05	-	-		10.27				2.06			1.67			1.62			6.35			4.72			2.00			1.66		
STLUCIALINK2	0	-	-		11.09				2.48			1.87			1.71			6.94			5.21			2.27			1.82		
STLUCIALINK2	1.05	-	-		10.31				2.09			1.68			1.62			6.37			4.75			2.02			1.67		
STLUCIALINK3	0	-	-		10.97				2.44			1.85			1.70			6.89			5.18			2.24			1.80		
STLUCIALINK3	0.85	-	-		10.43				2.2			1.73			1.65			6.50			4.87			2.09			1.71		

TABLE C-2 - Predicted Discharges for Calibration\Verification Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CALIBRATION EVENTS 1974 Q (m³/s)	1996 Q (m³/s)	1983 Q (m³/s)	1989B 0 (m³/s)	VERIFICATION EVENTS 1931 Q (m³/s)	1955 Q (m³/s)	1973 Q (m³/s)	1989A Q (m³/s)
BRISBANE	1000.14	78.52	7504	2159	1518	1190	5919	5104	2613	1606
BRISBANE	1000.53	78.13	7504	2157	1518	1190	5917	5102	2613	1605
BRISBANE	1001.05	77.62	7505	2156	1517	1190	5913	5098	2612	1603
BRISBANE	1001.59	77.07	7506	2153	1517	1191	5908	5094	2610	1599
BRISBANE	1002.11	76.55	7507	2152	1517	1191	5905	5091	2609	1598
BRISBANE	1002.57	76.09	7508	2151	1517	1191	5901	5087	2608	1597
BRISBANE	1003.03	75.63	7508	2150	1517	1192	5897	5083	2607	1595
BRISBANE	1003.53	75.14	7509	2150	1517	1192	5893	5079	2605	1593
BRISBANE	1004.04	74.62	7510	2150	1516	1192	5889	5075	2603	1591
BRISBANE	1004.56	74.11	7511	2150	1516	1193	5884	5070	2602	1589
BRISBANE	1005.07	73.59	7513	2150	1516	1193	5877	5062	2600	1586
BRISBANE	1005.60	73.06	7514	2151	1516	1194	5869	5054	2596	1582
BRISBANE	1006.04	72.63	7516	2151	1516	1195	5863	5047	2594	1579
BRISBANE	1006.25	72.41	9626	2749	1903	1514	5679	4396	2339	1738
BRISBANE	1006.61	72.06	9625	2748	1902	1513	5678	4394	2339	1737
BRISBANE	1007.16	71.50	9623	2748	1899	1512	5676	4391	2339	1734
BRISBANE	1007.67	71.00	9621	2747	1896	1511	5674	4387	2338	1732
BRISBANE	1008.18	70.48	9618	2746	1893	1509	5672	4384	2337	1730
BRISBANE	1008.69	69.98	9617	2746	1892	1508	5671	4382	2337	1730
BRISBANE	1009.16	69.50	9616	2745	1891	1506	5669	4380	2336	1731
BRISBANE	1009.56	69.10	9615	2745	1890	1505	5668	4378	2336	1731
BRISBANE	1010.11	68.56	9612	2744	1890	1504	5666	4374	2336	1732
BRISBANE	1010.61	68.05	9611	2744	1889	1503	5665	4372	2335	1733
BRISBANE	1010.85	67.81	9610	2744	1889	1503	5664	4371	2335	1733
BRISBANE	1011.25	67.42	9609	2744	1889	1502	5663	4370	2335	1734
BRISBANE	1011.75	66.92	9607	2743	1888	1500	5661	4367	2334	1735
BRISBANE	1012.23	66.43	9605	2742	1888	1499	5659	4363	2333	1736
BRISBANE	1012.71	65.96	9602	2742	1888	1497	5657	4360	2333	1737
BRISBANE	1013.06	65.60	9600	2741	1889	1496	5656	4357	2332	1738
BRISBANE	1013.32	65.34	9546	2741	1889	1495	5654	4356	2332	1738
BRISBANE	1013.56	65.10	9544	2741	1889	1494	5653	4354	2332	1739
BRISBANE	1013.80	64.87	9522	2740	1890	1494	5652	4352	2331	1739
BRISBANE	1014.11	64.55	9520	2739	1891	1491	5650	4349	2330	1741
BRISBANE	1014.46	64.20	9517	2739	1892	1489	5648	4346	2330	1743
BRISBANE	1014.85	63.81	9514	2738	1893	1487	5645	4341	2329	1744
BRISBANE	1015.33	63.34	9512	2737	1894	1486	5644	4340	2328	1745
BRISBANE	1015.71	62.96	9511	2737	1895	1485	5643	4338	2328	1746
BRISBANE	1016.00	62.67	9531	2736	1895	1484	5642	4337	2327	1747
BRISBANE	1016.39	62.27	9530	2736	1896	1483	5641	4336	2327	1748
BRISBANE	1016.77	61.90	9528	2735	1897	1481	5640	4334	2326	1749
BRISBANE	1017.01	61.65	9582	2735	1898	1480	5639	4332	2326	1750
BRISBANE	1017.37	61.29	9580	2734	1899	1479	5637	4330	2325	1751
BRISBANE	1017.77	60.90	9578	2734	1899	1478	5636	4328	2324	1752
BRISBANE	1018.06	60.60	9576	2734	1900	1477	5634	4327	2324	1753
BRISBANE	1018.46	60.20	9575	2733	1901	1475	5633	4325	2324	1754
BRISBANE	1018.91	59.75	9573	2733	1902	1474	5632	4324	2323	1755
BRISBANE	1019.29	59.37	9572	2733	1902	1473	5631	4322	2323	1756
BRISBANE	1019.68	58.98	9571	2732	1904	1471	5630	4321	2322	1757
BRISBANE	1019.99	58.67	9570	2732	1904	1470	5629	4320	2321	1758
BRISBANE	1020.32	58.34	9568	2731	1906	1468	5628	4317	2320	1760
BRISBANE	1020.68	57.98	9567	2730	1907	1465	5626	4315	2319	1762
BRISBANE	1020.96	57.70	9566	2730	1908	1464	5626	4314	2319	1763
BRISBANE	1021.32	57.34	9565	2730	1909	1463	5625	4313	2320	1764
BRISBANE	1021.63	57.03	9564	2730	1910	1461	5624	4312	2320	1765
BRISBANE	1021.81	56.86	9564	2729	1910	1460	5624	4311	2321	1766
BRISBANE	1022.00	56.66	9563	2729	1911	1459	5623	4310	2321	1767
BRISBANE	1022.34	56.32	9562	2729	1912	1458	5622	4309	2322	1768
BRISBANE	1022.81	55.85	9561	2729	1913	1456	5621	4307	2323	1770
BRISBANE	1023.31	55.36	9559	2728	1914	1454	5620	4306	2323	1771
BRISBANE	1023.83	54.84	9558	2728	1915	1453	5619	4305	2324	1773
BRISBANE	1024.32	54.34	9557	2728	1916	1451	5618	4303	2325	1774
BRISBANE	1024.82	53.84	9556	2728	1918	1448	5617	4302	2326	1776
BRISBANE	1025.22	53.45	9554	2727	1919	1446	5616	4300	2327	1778
BRISBANE	1025.48	53.19	9553	2727	1920	1445	5615	4299	2327	1779
BRISBANE	1025.88	52.78	9552	2727	1922	1444	5614	4298	2328	1780
BRISBANE	1026.43	52.24	9551	2727	1923	1442	5613	4297	2329	1782
BRISBANE	1026.79	51.87	9550	2727	1925	1441	5612	4296	2329	1784

TABLE C-2 - Predicted Discharges for Calibration\Verification Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CALIBRATION EVENTS				VERIFICATION EVENTS			
			1974 Q (m^3/s)	1996 Q (m^3/s)	1983 Q (m^3/s)	1989B Q (m^3/s)	1931 Q (m^3/s)	1955 Q (m^3/s)	1973 Q (m^3/s)	1989A Q (m^3/s)
BRISBANE	1027.03	51.63	9549	2727	1926	1440	5612	4295	2330	1785
BRISBANE	1027.42	51.24	9548	2727	1927	1438	5611	4294	2330	1786
BRISBANE	1027.93	50.73	9546	2727	1930	1435	5610	4292	2332	1789
BRISBANE	1028.43	50.23	9544	2726	1933	1432	5608	4290	2333	1793
BRISBANE	1028.72	49.94	9147	2726	1934	1431	5607	4289	2334	1794
BRISBANE	1028.98	49.68	9542	2726	1935	1430	5607	4288	2334	1795
BRISBANE	1029.44	49.22	9539	2726	1937	1428	5605	4286	2335	1798
BRISBANE	1029.95	48.71	9535	2726	1939	1426	5604	4285	2337	1800
BRISBANE	1030.55	48.11	9531	2726	1942	1424	5600	4280	2338	1804
BRISBANE	1031.07	47.59	9528	2725	1945	1421	5599	4279	2339	1807
BRISBANE	1031.48	47.18	9527	2725	1947	1420	5598	4278	2340	1809
BRISBANE	1031.85	46.81	9526	2725	1948	1419	5597	4277	2341	1811
BRISBANE	1032.11	46.55	9525	2725	1950	1418	5596	4276	2342	1813
BRISBANE	1032.41	46.25	9523	2725	1951	1422	5595	4275	2343	1815
BRISBANE	1032.83	45.83	9522	2725	1953	1426	5594	4274	2344	1818
BRISBANE	1033.23	45.44	9521	2725	1955	1430	5593	4272	2345	1820
BRISBANE	1033.64	45.03	9519	2725	1957	1435	5592	4271	2346	1822
BRISBANE	1034.14	44.53	9518	2724	1959	1439	5591	4270	2347	1825
BRISBANE	1034.63	44.03	9517	2724	1961	1445	5590	4269	2348	1828
BRISBANE	1035.15	43.51	9514	2724	1964	1450	5588	4267	2350	1832
BRISBANE	1035.66	43.00	9513	2724	1966	1457	5587	4265	2351	1835
BRISBANE	1036.18	42.48	9511	2724	1969	1462	5586	4264	2352	1839
BRISBANE	1036.62	42.05	9510	2724	1971	1467	5585	4263	2353	1842
BRISBANE	1036.84	41.82	9509	2723	1973	1470	5584	4262	2354	1844
BRISBANE	1037.00	41.66	9509	2723	1973	1472	5584	4261	2355	1845
BRISBANE	1037.11	41.55	9508	2723	1974	1473	5583	4261	2355	1846
BRISBANE	1037.23	41.43	9508	2723	1974	1474	5583	4261	2355	1846
BRISBANE	1037.46	41.21	9508	2723	1976	1477	5583	4260	2356	1848
BRISBANE	1037.86	40.81	9506	2723	1978	1483	5582	4259	2357	1852
BRISBANE	1038.34	40.32	9500	2723	1982	1490	5580	4257	2359	1856
BRISBANE	1038.85	39.81	9495	2722	1986	1498	5575	4253	2362	1862
BRISBANE	1039.15	39.51	9492	2723	1989	1504	5572	4250	2364	1866
BRISBANE	1039.38	39.28	9400	2723	1991	1509	5570	4248	2366	1869
BRISBANE	1039.62	39.04	9398	2723	1994	1513	5568	4246	2367	1873
BRISBANE	1039.75	38.91	9324	2723	1996	1516	5567	4245	2368	1875
BRISBANE	1039.96	38.70	9202	2785	2160	1552	5463	4158	2421	1915
BRISBANE	1040.17	38.49	9202	2785	2162	1556	5462	4157	2423	1918
BRISBANE	1040.37	38.29	9139	2785	2164	1560	5462	4157	2424	1921
BRISBANE	1040.75	37.91	9139	2785	2167	1565	5462	4157	2425	1925
BRISBANE	1041.12	37.54	9138	2785	2170	1571	5461	4156	2427	1930
BRISBANE	1041.35	37.32	9137	2785	2173	1576	5461	4156	2429	1934
BRISBANE	1041.58	37.08	9136	2785	2175	1580	5461	4156	2430	1937
BRISBANE	1041.83	36.83	9136	2785	2177	1584	5461	4156	2431	1940
BRISBANE	1042.10	36.56	9135	2785	2179	1588	5461	4156	2433	1943
BRISBANE	1042.37	36.29	9135	2785	2180	1591	5461	4156	2434	1945
BRISBANE	1042.51	36.15	9196	2785	2181	1593	5461	4156	2434	1947
BRISBANE	1042.71	35.95	9196	2785	2183	1596	5460	4156	2435	1949
BRISBANE	1042.96	35.70	9196	2785	2185	1600	5460	4155	2436	1952
BRISBANE	1043.05	35.61	9274	2785	2186	1601	5460	4155	2437	1954
BRISBANE	1043.10	35.57	9274	2785	2186	1602	5460	4155	2437	1954
BRISBANE	1043.42	35.24	9365	2784	2189	1607	5460	4155	2439	1958
BRISBANE	1043.89	34.77	9364	2784	2193	1615	5460	4155	2441	1965
BRISBANE	1044.20	34.46	9364	2784	2195	1621	5460	4155	2443	1969
BRISBANE	1044.47	34.19	9364	2784	2198	1625	5460	4155	2444	1972
BRISBANE	1044.73	33.93	9363	2784	2200	1629	5460	4155	2445	1976
BRISBANE	1045.13	33.53	9364	2784	2205	1637	5459	4155	2448	1983
BRISBANE	1045.64	33.02	9368	2784	2211	1649	5459	4154	2452	1992
BRISBANE	1046.03	32.63	9371	2784	2216	1657	5459	4154	2455	1999
BRISBANE	1046.26	32.40	9372	2784	2219	1662	5459	4154	2456	2003
BRISBANE	1046.46	32.20	9372	2784	2221	1665	5458	4154	2457	2005
BRISBANE	1046.74	31.92	9374	2784	2224	1671	5458	4154	2459	2010
BRISBANE	1047.13	31.54	9374	2784	2228	1679	5458	4154	2462	2017
BRISBANE	1047.63	31.03	9372	2784	2232	1686	5458	4154	2464	2022
BRISBANE	1048.15	30.52	9373	2784	2236	1692	5458	4154	2467	2028
BRISBANE	1048.63	30.03	9376	2784	2241	1702	5458	4154	2470	2036
BRISBANE	1049.01	29.65	9387	2784	2246	1711	5458	4154	2473	2044
BRISBANE	1049.25	29.42	9394	2784	2249	1716	5458	4154	2475	2048

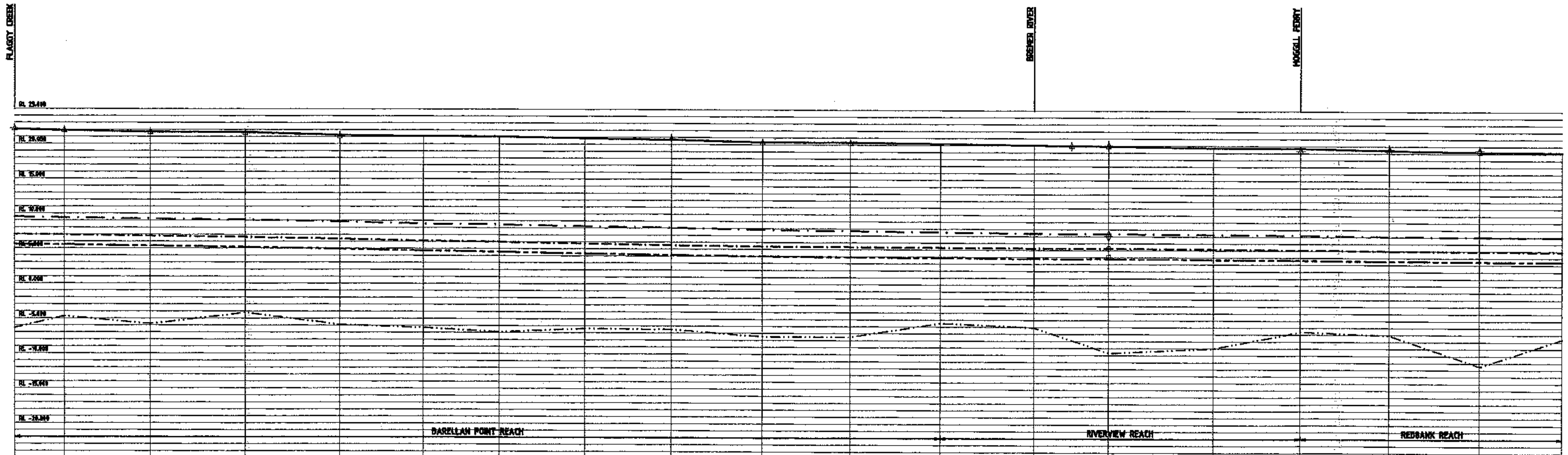
TABLE C-2 - Predicted Discharges for Calibration\Verification Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CALIBRATION EVENTS 1974 Q (m³/s)	1996 Q (m³/s)	1983 Q (m³/s)	1989B Q (m³/s)	VERIFICATION EVENTS 1931 Q (m³/s)	1955 Q (m³/s)	1973 Q (m³/s)	1989A Q (m³/s)
BRISBANE	1049.48	29.18	9399	2784	2252	1720	5457	4154	2476	2051
BRISBANE	1049.73	28.93	9408	2785	2255	1724	5457	4154	2478	2055
BRISBANE	1050.15	28.51	9418	2785	2260	1731	5457	4153	2481	2061
BRISBANE	1050.65	28.02	9435	2785	2267	1742	5457	4153	2485	2070
BRISBANE	1051.11	27.55	9447	2785	2272	1751	5457	4153	2488	2077
BRISBANE	1051.63	27.03	9471	2786	2278	1760	5457	4153	2492	2085
BRISBANE	1052.10	26.56	9539	2786	2284	1768	5457	4153	2495	2092
BRISBANE	1052.35	26.31	9554	2786	2287	1775	5457	4153	2497	2098
BRISBANE	1052.49	26.17	9566	2786	2289	1777	5457	4153	2498	2100
BRISBANE	1052.63	26.04	9580	2786	2290	1779	5457	4153	2499	2101
BRISBANE	1052.75	25.91	9566	2786	2291	1781	5457	4153	2500	2103
BRISBANE	1053.09	25.57	9559	2787	2294	1786	5457	4153	2502	2107
BRISBANE	1053.36	25.31	9540	2787	2299	1794	5457	4153	2505	2114
BRISBANE	1053.64	25.02	9522	2787	2304	1801	5457	4153	2508	2121
BRISBANE	1054.27	24.39	9474	2788	2315	1815	5457	4153	2515	2133
BRISBANE	1054.66	24.00	9455	2789	2326	1830	5457	4153	2521	2146
BRISBANE	1054.83	23.84	9448	2789	2330	1835	5457	4153	2523	2151
BRISBANE	1055.13	23.54	9442	2789	2335	1842	5457	4153	2526	2157
BRISBANE	1055.35	23.31	9437	2790	2339	1847	5457	4153	2529	2161
BRISBANE	1055.69	22.97	9430	2790	2344	1854	5457	4153	2532	2168
BRISBANE	1056.18	22.48	9427	2791	2354	1868	5457	4153	2538	2180
BRISBANE	1056.55	22.11	9428	2791	2361	1877	5457	4153	2543	2188
BRISBANE	1056.78	21.88	9427	2791	2364	1882	5457	4153	2545	2192
BRISBANE	1056.92	21.74	9424	2791	2370	1889	5457	4153	2549	2199
BRISBANE	1057.02	21.64	9422	2792	2373	1894	5457	4153	2551	2204
BRISBANE	1057.31	21.35	9419	2792	2378	1901	5457	4153	2555	2210
BRISBANE	1057.79	20.87	9413	2793	2386	1912	5457	4153	2560	2220
BRISBANE	1058.14	20.53	9407	2793	2393	1919	5457	4153	2564	2227
BRISBANE	1058.38	20.28	9403	2793	2398	1925	5457	4153	2567	2233
BRISBANE	1058.63	20.03	9399	2793	2403	1930	5457	4153	2570	2237
BRISBANE	1058.89	19.78	9393	2794	2408	1936	5457	4153	2573	2243
BRISBANE	1059.29	19.37	9387	2794	2414	1943	5457	4153	2576	2249
BRISBANE	1059.77	18.89	9372	2795	2427	1957	5457	4153	2583	2262
BRISBANE	1060.17	18.49	9382	2795	2439	1971	5457	4153	2591	2275
BRISBANE	1060.44	18.22	9387	2796	2444	1976	5457	4153	2594	2280
BRISBANE	1060.78	17.88	9393	2796	2449	1983	5457	4153	2598	2287
BRISBANE	1061.27	17.39	9405	2797	2461	1997	5457	4153	2606	2300
BRISBANE	1061.78	16.88	9413	2797	2472	2009	5457	4153	2614	2312
BRISBANE	1062.28	16.38	9422	2798	2484	2025	5457	4153	2623	2328
BRISBANE	1062.74	15.92	9431	2799	2503	2045	5457	4153	2636	2347
BRISBANE	1063.03	15.63	9436	2800	2517	2058	5457	4153	2645	2361
BRISBANE	1063.22	15.44	9453	2858	2561	2081	5457	4153	2661	2385
BRISBANE	1063.48	15.18	9456	2859	2572	2092	5457	4153	2668	2395
BRISBANE	1063.82	14.84	9460	2859	2583	2103	5457	4153	2675	2406
BRISBANE	1064.25	14.42	9467	2859	2596	2116	5457	4153	2684	2419
BRISBANE	1064.75	13.91	9475	2859	2618	2131	5457	4153	2694	2434
BRISBANE	1065.26	13.40	9486	2859	2648	2149	5457	4153	2706	2453
BRISBANE	1065.75	12.91	9498	2859	2680	2170	5457	4154	2719	2474
BRISBANE	1066.25	12.41	9509	2860	2713	2191	5457	4154	2734	2496
BRISBANE	1066.76	11.90	9520	2860	2745	2212	5457	4154	2749	2517
BRISBANE	1067.25	11.41	9534	2860	2781	2235	5457	4154	2765	2540
BRISBANE	1067.73	10.94	9549	2861	2822	2258	5457	4154	2782	2564
BRISBANE	1068.31	10.35	9563	2861	2862	2282	5457	4154	2798	2587
BRISBANE	1068.85	9.81	9574	2861	2903	2305	5457	4154	2815	2612
BRISBANE	1069.29	9.37	9583	2861	2934	2324	5457	4154	2828	2633
BRISBANE	1069.78	8.88	9594	2861	2971	2346	5457	4154	2843	2658
BRISBANE	1070.28	8.38	9605	2862	3009	2368	5457	4154	2859	2684
BRISBANE	1070.79	7.87	9620	2862	3050	2392	5457	4154	2875	2713
BRISBANE	1071.28	7.38	9636	2862	3091	2416	5457	4154	2892	2741
BRISBANE	1071.77	6.89	9650	2862	3132	2441	5457	4154	2911	2771
BRISBANE	1072.02	6.64	9658	2863	3155	2455	5457	4154	2921	2787
BRISBANE	1072.27	6.39	9794	2937	3426	2971	5458	4154	3034	2973
BRISBANE	1072.76	5.90	9810	2938	3472	2998	5458	4154	3052	3003
BRISBANE	1073.24	5.42	9828	2938	3521	3026	5458	4154	3071	3035
BRISBANE	1073.74	4.92	9848	2938	3574	3056	5458	4154	3091	3069
BRISBANE	1074.23	4.43	9868	2938	3627	3084	5458	4154	3111	3103
BRISBANE	1074.72	3.94	9889	2938	3681	3113	5458	4154	3132	3140

TABLE C-2 - Predicted Discharges for Calibration\Verification Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CALIBRATION EVENTS				VERIFICATION EVENTS			
			1974 Q (m^3/s)	1996 Q (m^3/s)	1983 Q (m^3/s)	1989B Q (m^3/s)	1931 Q (m^3/s)	1955 Q (m^3/s)	1973 Q (m^3/s)	1989A Q (m^3/s)
BRISBANE	1075.23	3.43	9911	2938	3735	3141	5458	4154	3152	3176
BRISBANE	1075.74	2.92	9949	2938	3816	3185	5458	4154	3184	3232
BRISBANE	1076.25	2.41	9999	2937	3932	3245	5458	4154	3228	3311
BRISBANE	1076.75	1.91	10042	2938	4026	3293	5458	4154	3264	3374
BRISBANE	1077.26	1.40	10107	2938	4166	3365	5458	4154	3317	3469
BRISBANE	1077.78	0.88	10151	2938	4261	3413	5458	4154	3353	3533
BRISBANE	1078.28	0.38	10192	2953	4353	3460	5458	4154	3388	3596
BRISBANE	1078.59	0.07	10207	2963	4386	3476	5458	4154	3400	3617
BREMER	599.70	-	3743	1326	1212	941	1297	1073	367	584
OXLEY	599.70	-	1077	475	382	288	831	297	246	264
BREAKFAST	599.70	-	131	390	221	407	433	211	426	141
BULIMBA	599.70	-	1433	495	554	758	713	337	785	279
CENTWEIR	0.04	-	439	0	0	0	-	-	0	0
INDOORWEIR	0.04	-	0	0	0	0	-	0	0	0
WILLIAMWEIR	0.02	-	0	0	0	0	0	0	0	0
VICTORIAWEIR	0.03	-	0	0	0	0	-	-	0	0
CAPTAINWEIR	0.02	-	0	0	0	0	-	-	0	0
STORYWEIR	0.04	-	0	0	0	0	-	0	0	0
MERIVALEWEIR	0.04	-	-	0	0	0	-	-	-	0
GOODNALINK1	0.50	-	59	0	0	0	0	0	0	0
GOODNALINK2	0.54	-	23	0	0	0	0	0	0	0
STLUCIALINK1	0.53	-	91	0	0	0	0	0	0	0
STLUCIALINK2	0.53	-	79	0	0	0	0	0	0	0
STLUCIALINK3	0.43	-	62	0	0	0	0	0	0	0

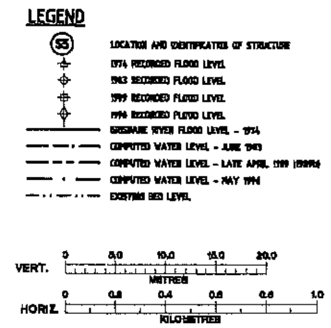
FIGURE C-1a
BRISBANE RIVER FLOOD STUDY
MIKE 11 CALIBRATION PROFILE



DATUM RL. -25.000

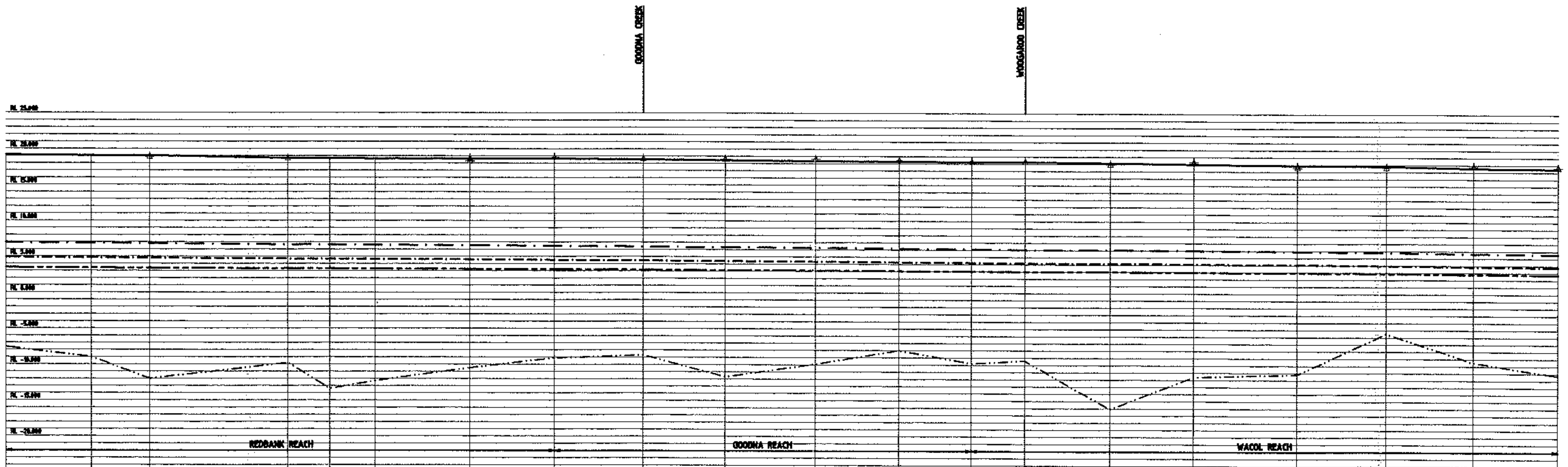
1996 PREDICTED FLOOD LEVEL	9.490	9.400	9.230	9.090	8.840	8.570	8.470	8.250	8.060	7.800	7.600	7.530	7.380	7.320	7.270	7.240	7.040	6.990	6.930
1989b PREDICTED FLOOD LEVEL	5.590	5.520	5.360	5.180	4.940	4.700	4.550	4.330	4.150	4.050	3.920	3.840	3.780	3.710	3.700	3.610	3.510	3.460	3.440
1983 PREDICTED FLOOD LEVEL	7.020	6.940	6.780	6.410	6.370	6.110	5.950	5.760	5.550	5.420	5.370	5.320	5.220	5.270	5.180	5.110	4.980	4.930	4.980
1974 PREDICTED FLOOD LEVEL	22.050	21.910	21.760	21.630	21.250	21.120	21.010	20.820	20.480	20.370	20.350	20.230	20.020	19.890	19.700	19.670	19.380	19.200	19.160
BED LEVEL (m AHD)	-4.600	-4.700	-5.000	-4.200	-5.900	-6.300	-6.900	-6.400	-6.500	-7.500	-7.500	-5.600	-6.100	-9.700	-9.000	-6.600	-7.100	-11.500	-7.600
CROSS SECTION NUMBER	BN 2020	BN 2010	BN 2000	BN 1990	BN 1980	BN 1970	BN 1960	BN 1950	BN 1940	BN 1930	BN 1920	BN 1910	BN 1900	BN 1890	BN 1880	BN 1870	BN 1860	BN 1850	BN 1840
MIKE 11 CHAINAGE (km)	1000.000	1000.285	1000.775	1001.315	1001.845	1002.350	1002.785	1003.275	1003.775	1004.304	1004.810	1005.325	1005.878	1006.364	1006.910	1007.410	1007.920	1008.445	1008.925
AMTD CHAINAGE (km)	78.660	78.375	77.885	77.345	76.795	76.310	75.875	75.385	74.885	74.360	73.850	73.335	72.790	72.340	71.750	71.250	70.760	70.235	69.735

BRISBANE RIVER - BN 2020 TO BN 1840



PLOT SCALE: 1=30

FIGURE C-1b
BRISBANE RIVER FLOOD STUDY
MIKE 11 CALIBRATION PROFILE



DATUM RL. -25.000

1996 PREDICTED FLOOD LEVEL	6.934	6.850	6.810	6.650	6.650	6.680	6.560	6.470	6.380	6.320	6.280	6.190	6.130	6.060	6.050	5.970	5.910	5.800	5.640	5.560
1989b PREDICTED FLOOD LEVEL	3.640	3.400	3.380	3.310	3.310	3.290	3.250	3.220	3.180	3.140	3.110	3.060	3.020	2.990	2.990	2.960	2.930	2.870	2.780	2.740
1983 PREDICTED FLOOD LEVEL	4.880	4.820	4.790	4.670	4.660	4.630	4.580	4.520	4.460	4.400	4.350	4.280	4.220	4.170	4.170	4.110	4.070	3.970	3.840	3.770
1974 PREDICTED FLOOD LEVEL	19.140	19.050	19.040	18.470	18.710	18.630	18.620	18.420	18.520	18.430	18.330	18.280	18.250	18.280	18.140	18.080	17.940	17.800	17.570	17.450
BED LEVEL (m AHD)	-7.680	-9.600	-12.860	-9.880	-13.140	-12.310	-10.540	-9.100	-6.780	-11.780	-8.900	-8.000	-9.800	-9.400	-14.900	-11.600	-11.280	-5.500	-9.500	-11.300
CROSS SECTION NUMBER	BN 1840	BN 1830	BN 1820	BN 1810	BN 1800	BN 1790	BN 1780	BN 1770	BN 1760	BN 1750	BN 1740	BN 1730	BN 1720	BN 1710	BN 1700	BN 1690	BN 1680	BN 1670	BN 1660	BN 1650
MIKE 11 CHAINAGE (km)	1008.925	1009.480	1009.728	1010.490	1010.725	1010.980	1011.510	1011.984	1012.475	1012.935	1013.445	1013.910	1014.310	1014.610	1015.090	1015.560	1016.140	1016.640	1017.130	1017.410
AMTD CHAINAGE (km)	69.735	69.260	68.964	68.170	67.935	67.680	67.150	66.680	66.185	65.725	65.215	64.750	64.350	64.050	63.570	63.100	62.520	62.000	61.530	61.050

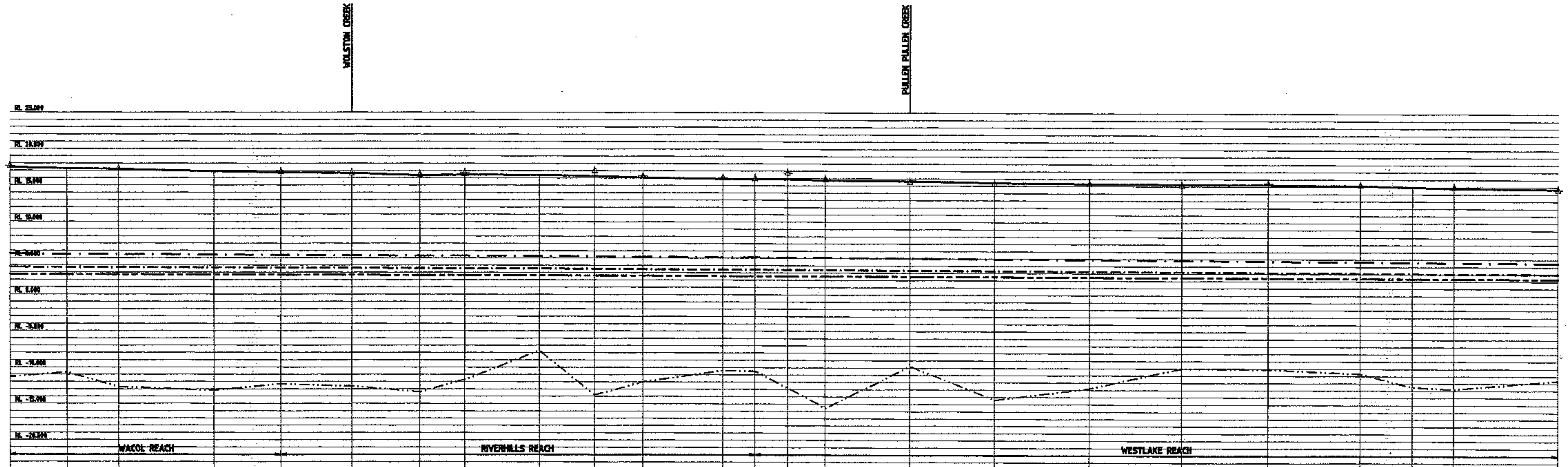
LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 1974 RECORDED FLOOD LEVEL
- 1983 RECORDED FLOOD LEVEL
- 1989 RECORDED FLOOD LEVEL
- 1996 RECORDED FLOOD LEVEL
- BRISBANE RIVER FLOOD LEVEL - 1974
- COMPUTED WATER LEVEL - JUNE 1983
- COMPUTED WATER LEVEL - LATE APRIL 1989 (1989b)
- COMPUTED WATER LEVEL - MAY 1996
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

PLOT SCALE: 1:30



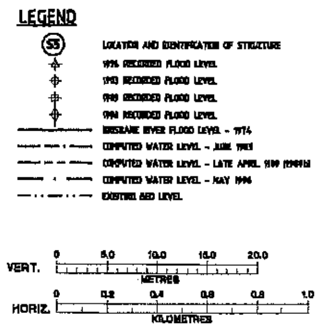
DATUM RL. -25.000

	BN 1650	BN 1640	BN 1630	BN 1620	BN 1610	BN 1600	BN 1590	BN 1580
1996 PREDICTED FLOOD LEVEL	5.540	5.480	5.490	5.420	5.370	5.330	5.280	5.280
1989b PREDICTED FLOOD LEVEL	2.740	2.710	2.710	2.690	2.660	2.650	2.630	2.620
1983 PREDICTED FLOOD LEVEL	3.770	3.710	3.710	3.670	3.630	3.600	3.570	3.550
1974 PREDICTED FLOOD LEVEL	17.450	17.290	17.210	16.890	16.750	16.640	16.340	16.440
BED LEVEL (m AHD)	-11.300	-10.790	-12.790	-13.280	-12.380	-13.680	-13.600	-11.700
CROSS SECTION NUMBER	BN 1650	BN 1640	BN 1630	BN 1620	BN 1610	BN 1600	BN 1590	BN 1580
MIKE 11 CHAINAGE (km)	1017.440	1017.920	1018.200	1018.725	1019.095	1019.490	1019.865	1020.115
AMTD CHAINAGE (km)	61.050	60.740	60.440	59.935	59.565	59.170	58.795	58.545

	BN 1570	BN 1560	BN 1550	BN 1540	BN 1530	BN 1520	BN 1510	BN 1500
1996 PREDICTED FLOOD LEVEL	5.270	5.230	5.160	5.100	5.100	5.090	5.090	5.020
1989b PREDICTED FLOOD LEVEL	2.610	2.600	2.570	2.550	2.540	2.540	2.540	2.510
1983 PREDICTED FLOOD LEVEL	3.540	3.530	3.470	3.420	3.420	3.410	3.410	3.360
1974 PREDICTED FLOOD LEVEL	16.420	16.270	16.060	15.890	15.920	15.850	15.730	15.650
BED LEVEL (m AHD)	-7.700	-13.800	-12.000	-10.600	-10.500	-12.800	-15.400	-9.800
CROSS SECTION NUMBER	BN 1570	BN 1560	BN 1550	BN 1540	BN 1530	BN 1520	BN 1510	BN 1500
MIKE 11 CHAINAGE (km)	1020.525	1020.830	1021.095	1021.539	1021.715	1021.895	1022.105	1022.575
AMTD CHAINAGE (km)	58.135	57.830	57.565	57.121	56.945	56.765	56.555	56.085

	BN 1490	BN 1480	BN 1470	BN 1460	BN 1450	BN 1440	BN 1430	BN 1420
1996 PREDICTED FLOOD LEVEL	4.920	4.880	4.810	4.720	4.670	4.600	4.560	4.510
1989b PREDICTED FLOOD LEVEL	2.480	2.460	2.440	2.400	2.370	2.350	2.330	2.320
1983 PREDICTED FLOOD LEVEL	3.300	3.270	3.220	3.150	3.110	3.060	3.020	3.000
1974 PREDICTED FLOOD LEVEL	15.410	15.320	15.270	15.210	15.120	14.970	14.810	14.690
BED LEVEL (m AHD)	-14.400	-12.800	-10.000	-10.100	-10.700	-12.500	-12.800	-11.600
CROSS SECTION NUMBER	BN 1490	BN 1480	BN 1470	BN 1460	BN 1450	BN 1440	BN 1430	BN 1420
MIKE 11 CHAINAGE (km)	1023.040	1023.570	1024.080	1024.563	1025.070	1025.360	1025.590	1026.170
AMTD CHAINAGE (km)	55.620	55.090	54.580	54.097	53.590	53.300	53.070	52.490

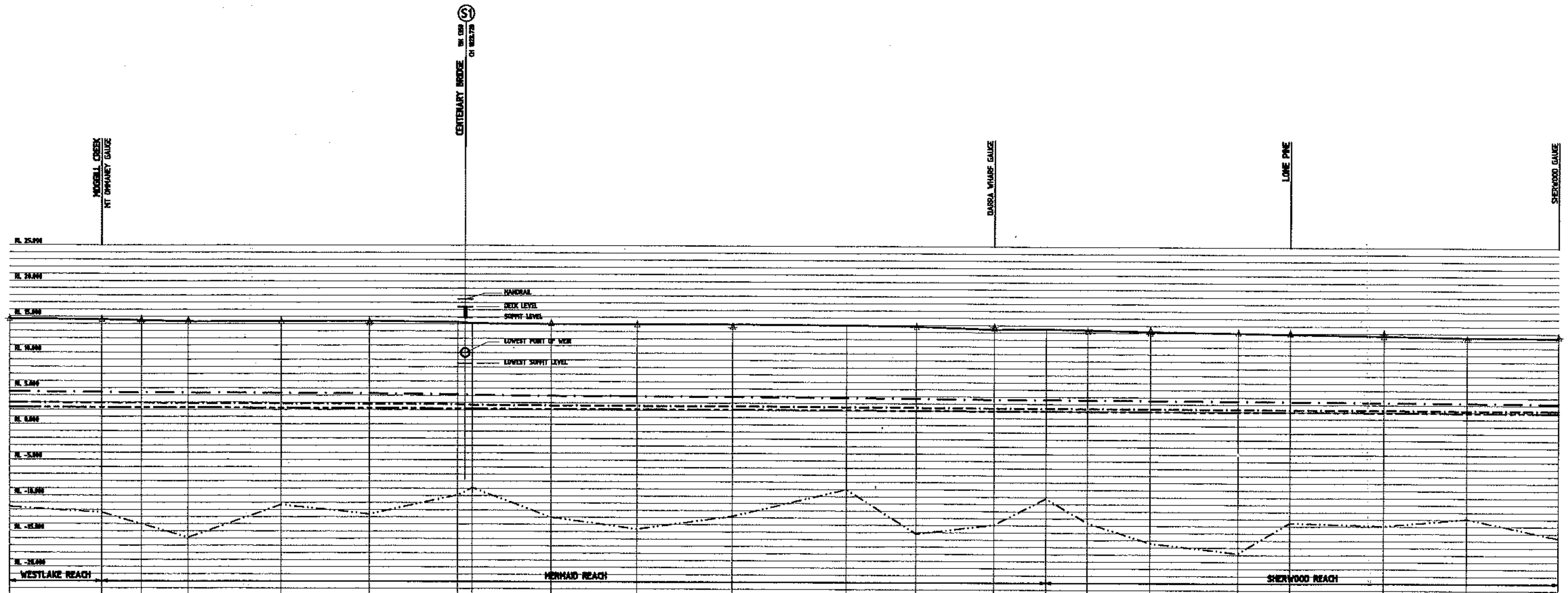
BRISBANE RIVER - BN 1650 TO BN 1420



PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE C-1d
BRISBANE RIVER FLOOD STUDY
MIKE 11 CALIBRATION PROFILE



DATUM RL. -25.000

1996 PREDICTED FLOOD LEVEL	4.570	4.430	4.380	4.350	4.320	4.270	4.170	4.080	3.980	3.950	3.890
1989b PREDICTED FLOOD LEVEL	2.320	2.290	2.270	2.248	2.248	2.220	2.190	2.560	2.150	2.110	2.100
1983 PREDICTED FLOOD LEVEL	3.000	2.940	2.910	2.899	2.840	2.830	2.740	2.700	2.660	2.610	2.580
1974 PREDICTED FLOOD LEVEL	14.690	14.580	14.460	14.320	14.380	14.450	14.270	14.120	14.010	14.034	14.030
BED LEVEL (m AHD)	-11.680	-12.400	-14.010	-15.990	-11.300	-12.690	-9.910	-8.980	-13.080	-14.400	-12.800
CROSS SECTION NUMBER	BN 1420	BN 1410	BN 1404	BN 1398	BN 1380	BN 1370	BN 1360	BN 1340	BN 1330	BN 1320	BN 1310
MIKE 11 CHAINAGE (km)	1024.170	1026.680	1026.904	1027.160	1027.600	1028.100	1028.600	1028.764	1029.206	1029.680	1030.220
AMTD CHAINAGE (km)	52.490	51.980	51.760	51.500	50.980	50.480	49.980	49.900	49.460	48.980	48.440

1996 PREDICTED FLOOD LEVEL	3.790	3.710	3.590	3.600	3.570	3.520	3.440	3.430	3.350	3.290	3.230
1989b PREDICTED FLOOD LEVEL	2.040	2.030	2.000	2.080	1.990	1.970	1.970	1.950	1.930	1.910	1.890
1983 PREDICTED FLOOD LEVEL	2.510	2.460	2.400	2.310	2.300	2.350	2.330	2.300	2.240	2.220	2.200
1974 PREDICTED FLOOD LEVEL	13.960	13.800	13.610	13.520	13.390	13.150	13.080	12.890	12.650	12.490	12.400
BED LEVEL (m AHD)	-9.080	-15.290	-13.980	-18.260	-13.480	-14.140	-17.800	-13.580	-13.980	-12.980	-15.600
CROSS SECTION NUMBER	BN 1300	BN 1290	BN 1280	BN 1270	BN 1260	BN 1250	BN 1240	BN 1230	BN 1220	BN 1210	BN 1200
MIKE 11 CHAINAGE (km)	1030.870	1031.260	1031.708	1031.995	1032.230	1032.585	1033.080	1033.370	1033.900	1034.370	1034.899
AMTD CHAINAGE (km)	47.990	47.480	46.960	46.665	46.430	46.075	45.580	45.290	44.760	44.290	43.770

BRISBANE RIVER - BN 1420 TO BN 1200

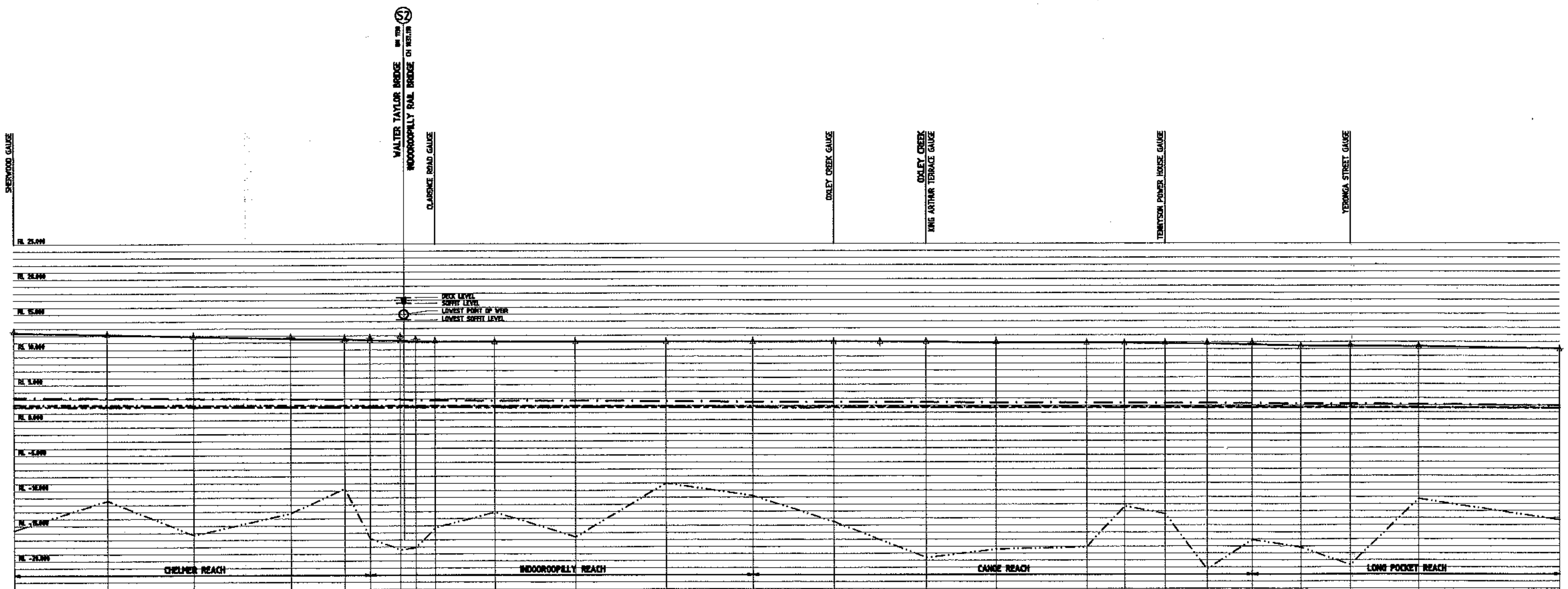
LEGEND

- (S3) LOCATION AND IDENTIFICATION OF STRUCTURE
- 1974 RECORDED FLOOD LEVEL
- 1983 RECORDED FLOOD LEVEL
- 1989 RECORDED FLOOD LEVEL
- 1996 RECORDED FLOOD LEVEL
- BRISBANE RIVER FLOOD LEVEL - 1974
- COMPUTED WATER LEVEL - JUNE 1983
- COMPUTED WATER LEVEL - LATE APRIL 1989 (1989b)
- COMPUTED WATER LEVEL - MAY 1996
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

FILE NAME: 415-530 PLOT SCALE: 1=30 DISK N: C:\DWG JOB N: T00415 DATE: 23/



CROSS SECTION NUMBER	1996 PREDICTED FLOOD LEVEL	1989b PREDICTED FLOOD LEVEL	1983 PREDICTED FLOOD LEVEL	1974 PREDICTED FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 1200	3.236	1.994	2.280	12.440	-15.400	1034.890	43.770
BN 1190	3.158	1.878	2.150	12.140	-14.400	1035.414	43.264
BN 1180	3.040	1.849	2.100	11.840	-16.300	1035.990	42.760
BN 1170	2.980	1.828	2.070	11.550	-13.200	1036.460	42.299
BN 1160	2.950	1.818	2.050	11.470	-9.784	1036.779	41.890
BN 1150	2.920	1.818	2.040	11.310	-16.804	1036.945	41.745
BN 1140	2.830	1.810	2.060	11.240	-18.400	1037.09	41.578
BN 1124	2.794	1.808	2.030	11.140	-18.180	1037.175	41.445
BN 1110	2.770	1.794	2.010	11.110	-15.300	1037.285	41.315
BN 1100	2.730	1.780	1.999	11.100	-13.900	1037.625	41.035
BN 1090	2.720	1.780	1.990	11.120	-16.600	1038.085	40.575
BN 1080	2.630	1.750	1.940	11.180	-7.080	1038.6	40.06
BN 1070	2.540	1.730	1.900	11.100	-10.804	1039.100	39.560
BN 1060	2.490	1.710	1.870	11.110	-14.580	1039.565	39.050
BN 1050	2.460	1.710	1.860	10.930	-19.400	1040.090	38.570
BN 1040	2.440	1.690	1.830	10.980	-18.410	1040.490	38.170
BN 1030	2.380	1.690	1.820	10.920	-18.100	1041.01	37.560
BN 1020	2.340	1.680	1.800	10.880	-12.300	1041.23	37.430
BN 1010	2.320	1.680	1.780	10.790	-13.400	1041.44	37.200
BN 1000	2.320	1.680	1.780	10.750	-21.300	1041.7	36.940
BN 990	2.270	1.660	1.760	10.680	-17.100	1041.96	36.700
BN 980	2.250	1.650	1.740	10.630	-18.200	1042.235	36.435
BN 974	2.200	1.650	1.730	10.620	-20.700	1042.505	36.165
BN 964	2.120	1.630	1.690	10.350	-11.300	1042.91	35.750
BN 950	1.964	1.598	1.620	10.030	-14.300	1043.725	34.935

BRISBANE RIVER - BN 1200 TO BN 950

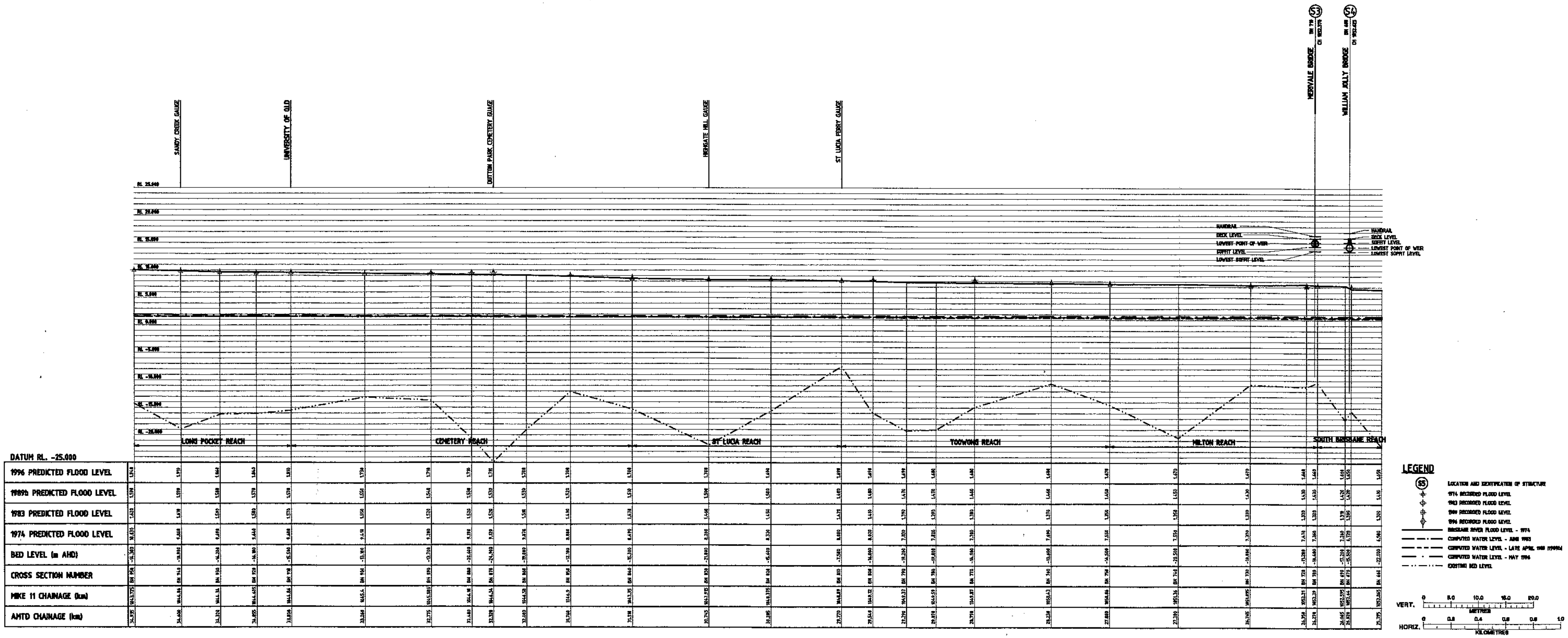
LEGEND

- S5 — LOCATION AND IDENTIFICATION OF STRUCTURE
- 1974 RECORDED FLOOD LEVEL
- 1983 RECORDED FLOOD LEVEL
- 1989 RECORDED FLOOD LEVEL
- 1996 RECORDED FLOOD LEVEL
- BRISBANE RIVER FLOOD LEVEL - 1974
- COMPUTED WATER LEVEL - JUNE 1983
- COMPUTED WATER LEVEL - LATE APRIL 1989 (1989b)
- COMPUTED WATER LEVEL - MAY 1996
- EXISTING BED LEVEL

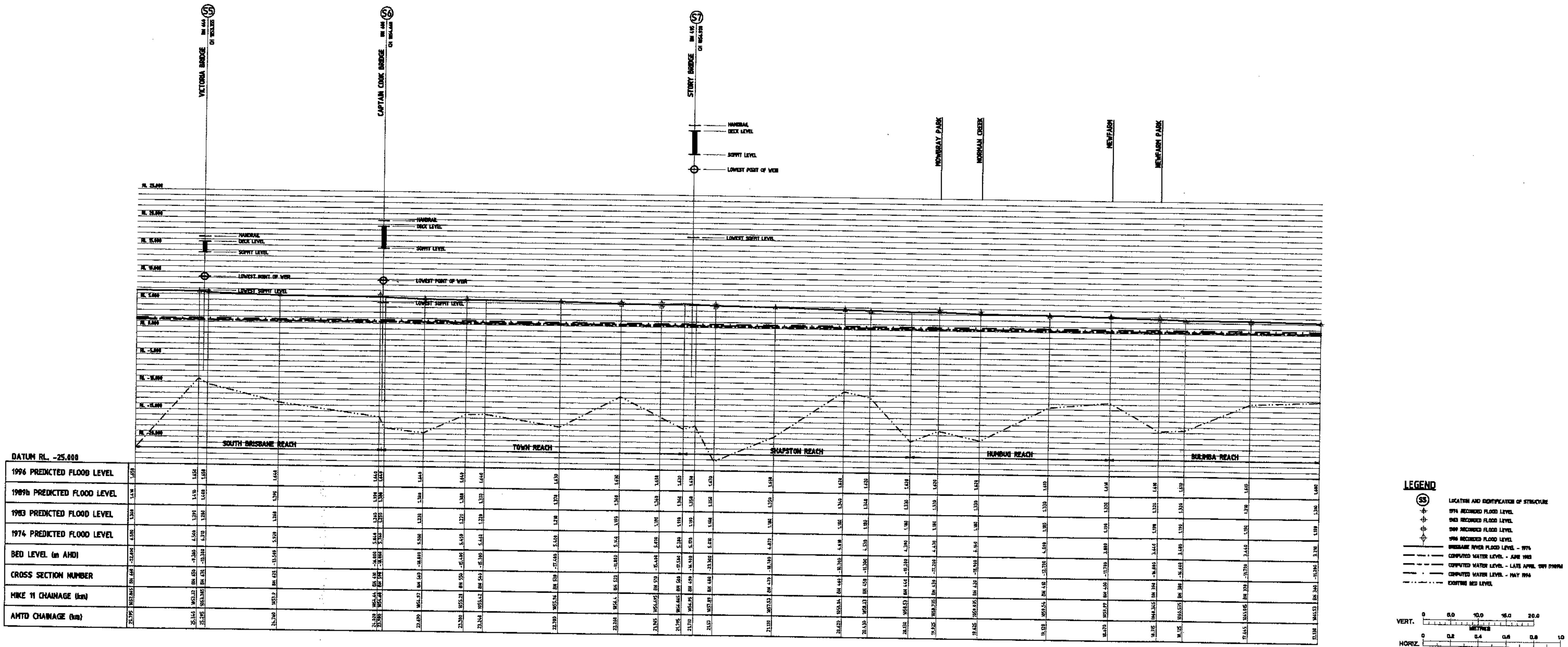
VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

FILE NAME: 4157-331
PLOT SCALE: 1=30
DISK N°: C:\DWG
JOB N°: T00457
DATE: 23/3/97

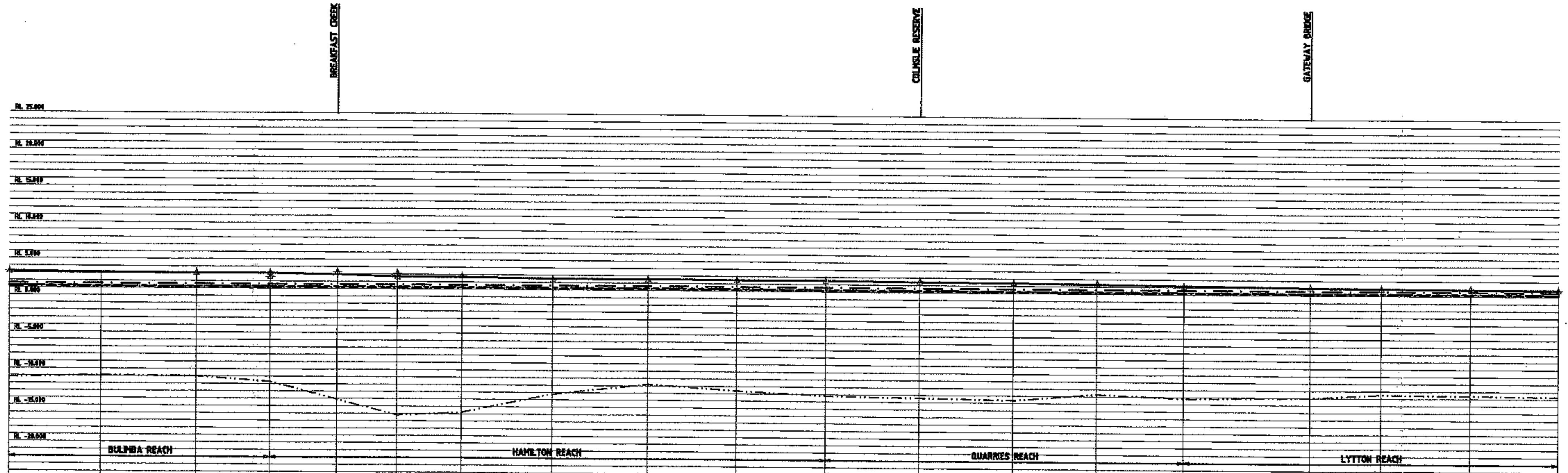


BRISBANE RIVER - BN 950 TO BN 660



BRISBANE RIVER - BN 660 TO BN 360

PLOT SCALE: 1=30



DATUM RL. -25.000

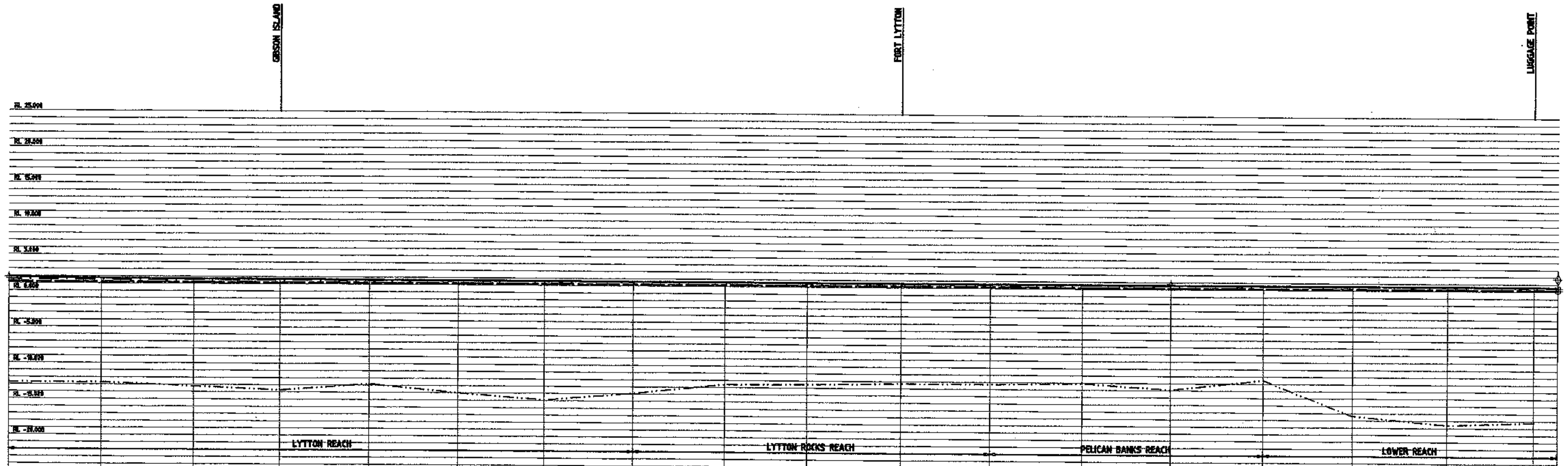
CROSS SECTION NUMBER	1996 PREDICTED FLOOD LEVEL	1989b PREDICTED FLOOD LEVEL	1983 PREDICTED FLOOD LEVEL	1974 PREDICTED FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 360	1.600	1.310	1.190	3.210	-11.200	1061.53	17.130
BN 350	1.600	1.300	1.190	3.130	-10.900	1062.02	16.644
BN 340	1.600	1.300	1.190	3.080	-11.000	1062.535	16.175
BN 330	1.590	1.300	1.190	3.080	-11.700	1062.94	15.720
BN 320	1.590	1.290	1.190	2.960	-14.100	1063.31	15.350
BN 310	1.590	1.290	1.190	2.690	-16.200	1063.645	15.015
BN 300	1.590	1.290	1.180	2.650	-15.800	1064	14.460
BN 290	1.580	1.280	1.180	2.530	-13.200	1064.49	14.170
BN 280	1.580	1.280	1.180	2.550	-11.800	1065.03	13.650
BN 270	1.580	1.280	1.170	2.540	-12.400	1065.503	13.157
BN 260	1.580	1.270	1.170	2.520	-13.200	1065.99	12.670
BN 250	1.570	1.270	1.170	2.450	-13.400	1066.505	12.155
BN 240	1.570	1.270	1.160	2.410	-13.600	1067.02	11.640
BN 230	1.570	1.260	1.160	2.310	-12.700	1067.485	11.175
BN 220	1.570	1.260	1.160	2.190	-13.200	1067.965	10.695
BN 210	1.560	1.250	1.160	2.030	-13.000	1068.66	10.000
BN 200	1.560	1.250	1.160	1.960	-12.500	1069.045	9.615
BN 190	1.560	1.250	1.150	1.900	-12.400	1069.535	9.125
BN 180	1.550	1.240	1.150	1.840	-12.700	1070.025	8.635

BRISBANE RIVER - BN 360 TO BN 180

FILE NAME: 4157-108 PLOT SCALE: 1=30 DISK Nº: C:\DWG JOB Nº: T00415? DATE: 23/3/97

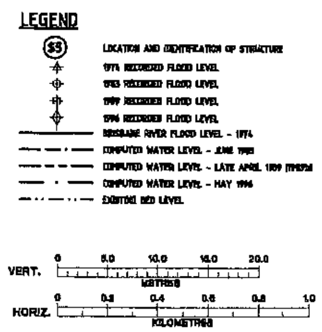
FIGURE C-1I

BRISBANE RIVER FLOOD STUDY
MIKE 11 CALIBRATION PROFILE

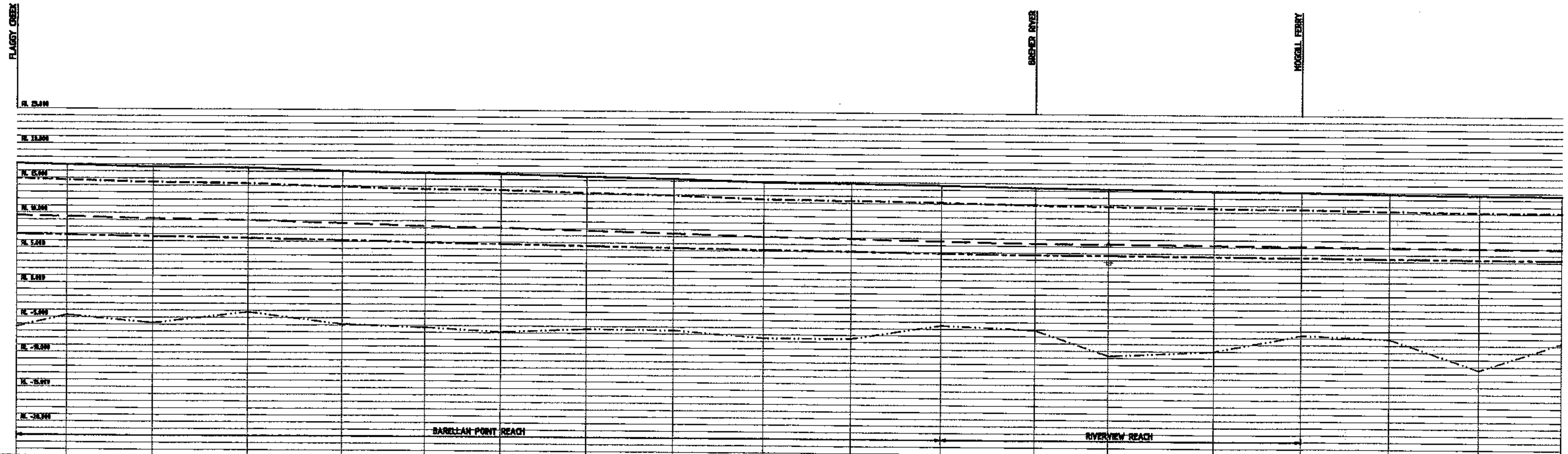


1996 PREDICTED FLOOD LEVEL	1.550	1.550	1.550	1.540	1.540	1.540	1.530	1.530	1.530	1.520	1.520	1.510	1.510	1.510	1.510	1.510	1.510	1.510	1.510
1989b PREDICTED FLOOD LEVEL	1.240	1.240	1.230	1.230	1.230	1.220	1.220	1.220	1.210	1.210	1.210	1.210	1.200	1.200	1.200	1.200	1.200	1.200	1.200
1983 PREDICTED FLOOD LEVEL	1.150	1.150	1.140	1.140	1.130	1.150	1.180	1.190	1.130	1.130	1.120	1.120	1.130	1.130	1.140	1.140	1.140	1.140	1.140
1974 PREDICTED FLOOD LEVEL	1.840	1.750	1.670	1.700	1.610	1.600	1.600	1.590	1.590	1.580	1.580	1.580	1.570	1.570	1.560	1.560	1.560	1.560	1.550
BED LEVEL (m AHD)	-12.700	-12.700	-13.200	-13.700	-12.800	-14.000	-14.900	-13.900	-12.400	-12.500	-12.300	-12.300	-12.100	-12.900	-11.500	-16.400	-17.600	-17.200	
CROSS SECTION NUMBER	BN 180	BN 170	BN 160	BN 150	BN 140	BN 130	BN 120	BN 110	BN 100	BN 90	BN 80	BN 70	BN 60	BN 50	BN 40	BN 30	BN 20	BN 10	
MIKE 11 CHAINAGE (km)	1070.025	1070.53	1071.04	1071.52	1072.015	1072.515	1072.995	1073.485	1074.000	1074.460	1074.985	1075.48	1076.000	1076.495	1077.01	1077.51	1078.04	1078.525	1078.66
AMTD CHAINAGE (km)	8.635	8.130	7.620	7.140	6.645	6.145	5.665	5.175	4.66	4.2	3.675	3.160	2.660	2.165	1.650	1.150	0.620	0.135	0

BRISBANE RIVER - BN 180 TO BN 10



PLOT SCALE: 1=30

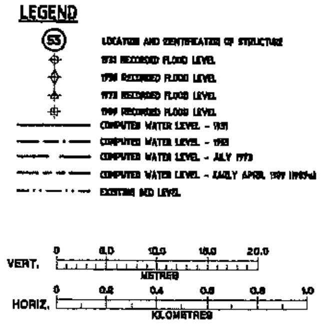


DATUM RL. -25.000

1989a PREDICTED FLOOD LEVEL	6.918	6.820	6.640	6.450	6.180	5.900	5.740	5.540	5.360	5.150	5.030	4.860	4.710	4.700	4.620	4.550	4.430	4.390	4.350
1973 PREDICTED FLOOD LEVEL	9.580	9.460	9.220	9.010	8.440	8.250	8.070	7.730	7.430	7.044	6.840	6.590	6.350	6.340	6.240	6.170	6.020	5.970	5.920
1955 PREDICTED FLOOD LEVEL	14.970	14.730	14.460	14.310	13.860	13.570	13.510	13.180	12.910	12.640	12.340	12.160	11.860	11.750	11.560	11.500	11.280	11.180	11.130
1931 PREDICTED FLOOD LEVEL	17.000	16.910	16.670	16.550	16.110	15.880	15.840	15.530	15.290	14.970	14.630	14.630	14.330	14.230	14.020	13.970	13.740	13.620	13.570
BED LEVEL (m AHD)	-6.440	-4.780	-5.800	-4.200	-5.900	-6.300	-6.900	-6.460	-6.500	-7.500	-7.500	-5.590	-6.300	-9.700	-9.000	-6.600	-7.190	-11.590	-7.600
CROSS SECTION NUMBER	BN 2020	BN 2010	BN 2000	BN 1990	BN 1980	BN 1970	BN 1960	BN 1950	BN 1940	BN 1930	BN 1920	BN 1910	BN 1900	BN 1890	BN 1880	BN 1870	BN 1860	BN 1850	BN 1840
MIKE 11 CHAINAGE (km)	1000.080	1000.285	1000.775	1001.315	1001.845	1002.356	1002.785	1003.275	1003.775	1004.300	1004.810	1005.325	1005.870	1006.300	1006.910	1007.410	1007.920	1008.445	1008.925
AMTD CHAINAGE (km)	78.440	78.375	77.885	77.345	76.795	76.310	75.875	75.365	74.885	74.360	73.850	73.335	72.790	72.360	71.750	71.350	70.760	70.215	69.735

BRISBANE RIVER - BN 2020 TO BN 1840

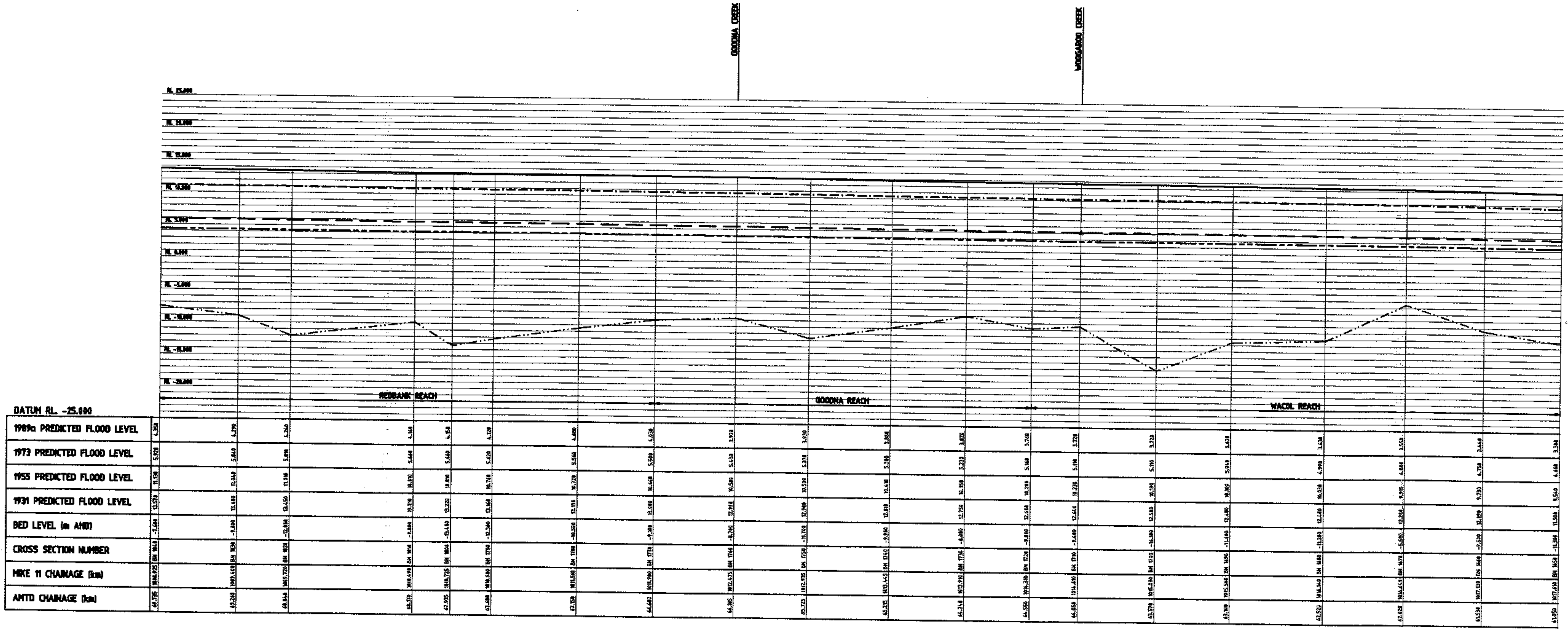
LEGEND



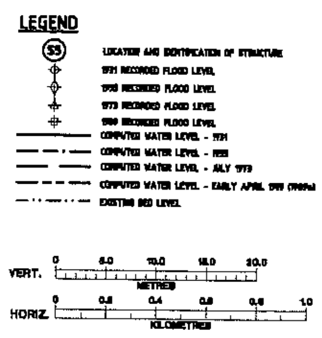
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE C-2b
BRISBANE RIVER FLOOD STUDY
MIKE 11 VERIFICATION PROFILE

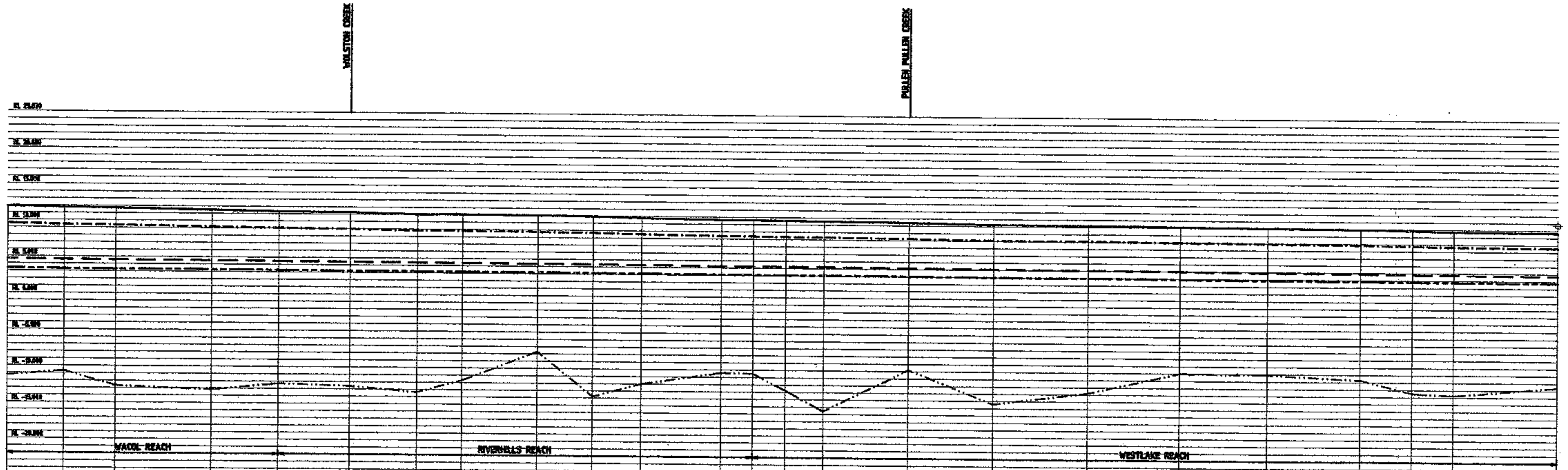


BRISBANE RIVER - BN 1840 TO BN 1650



PLOT SCALE: 1=30

FIGURE C-2c
BRISBANE RIVER FLOOD STUDY
MIKE 11 VERIFICATION PROFILE



DATUM RL. -25.000

	BN 1650	BN 1640	BN 1630	BN 1620	BN 1610	BN 1600	BN 1590	BN 1580	BN 1570	BN 1560	BN 1550	BN 1540	BN 1530	BN 1520	BN 1510	BN 1500	BN 1490	BN 1480	BN 1470	BN 1460	BN 1450	BN 1440	BN 1430	BN 1420
1989a PREDICTED FLOOD LEVEL	3.330	3.330	3.330	3.300	3.268	3.260	3.238	3.208	3.194	3.160	3.130	3.080	3.082	3.088	3.080	3.040	2.990	2.970	2.930	2.870	2.844	2.804	2.770	2.750
1973 PREDICTED FLOOD LEVEL	4.660	4.590	4.590	4.540	4.494	4.440	4.438	4.400	4.380	4.348	4.300	4.250	4.244	4.230	4.238	4.170	4.100	4.060	4.000	3.920	3.870	3.810	3.760	3.730
1955 PREDICTED FLOOD LEVEL	9.540	9.400	9.340	9.180	9.050	8.960	8.880	8.840	8.760	8.670	8.550	8.440	8.390	8.350	8.310	8.210	8.070	8.050	7.980	7.960	7.820	7.730	7.630	7.570
1931 PREDICTED FLOOD LEVEL	11.980	11.750	11.710	11.480	11.330	11.240	11.046	11.070	11.030	10.920	10.770	10.620	10.630	10.570	10.528	10.510	10.210	10.180	10.130	10.050	9.970	9.880	9.740	9.670
BED LEVEL (m AHD)	-11.380	-10.780	-12.780	-13.280	-13.300	-12.460	-13.480	-11.780	-7.780	-13.600	-12.100	-15.410	-10.504	-12.880	-15.440	-9.880	-16.440	-12.880	-10.080	-10.100	-10.700	-12.500	-17.800	-11.400
CROSS SECTION NUMBER	BN 1650	BN 1640	BN 1630	BN 1620	BN 1610	BN 1600	BN 1590	BN 1580	BN 1570	BN 1560	BN 1550	BN 1540	BN 1530	BN 1520	BN 1510	BN 1500	BN 1490	BN 1480	BN 1470	BN 1460	BN 1450	BN 1440	BN 1430	BN 1420
MIKE 11 CHAINAGE (km)	1017.480	1017.920	1018.290	1018.725	1019.095	1019.448	1019.865	1020.115	1020.535	1020.830	1021.095	1021.539	1021.715	1021.895	1022.105	1022.575	1023.040	1023.570	1024.080	1024.563	1025.070	1025.360	1025.590	1026.170
AMTD CHAINAGE (km)	61.050	60.760	60.440	59.935	59.565	59.170	58.735	58.565	58.135	57.890	57.565	57.125	56.945	56.765	56.555	56.085	55.620	55.090	54.580	54.097	53.590	53.300	53.070	52.490

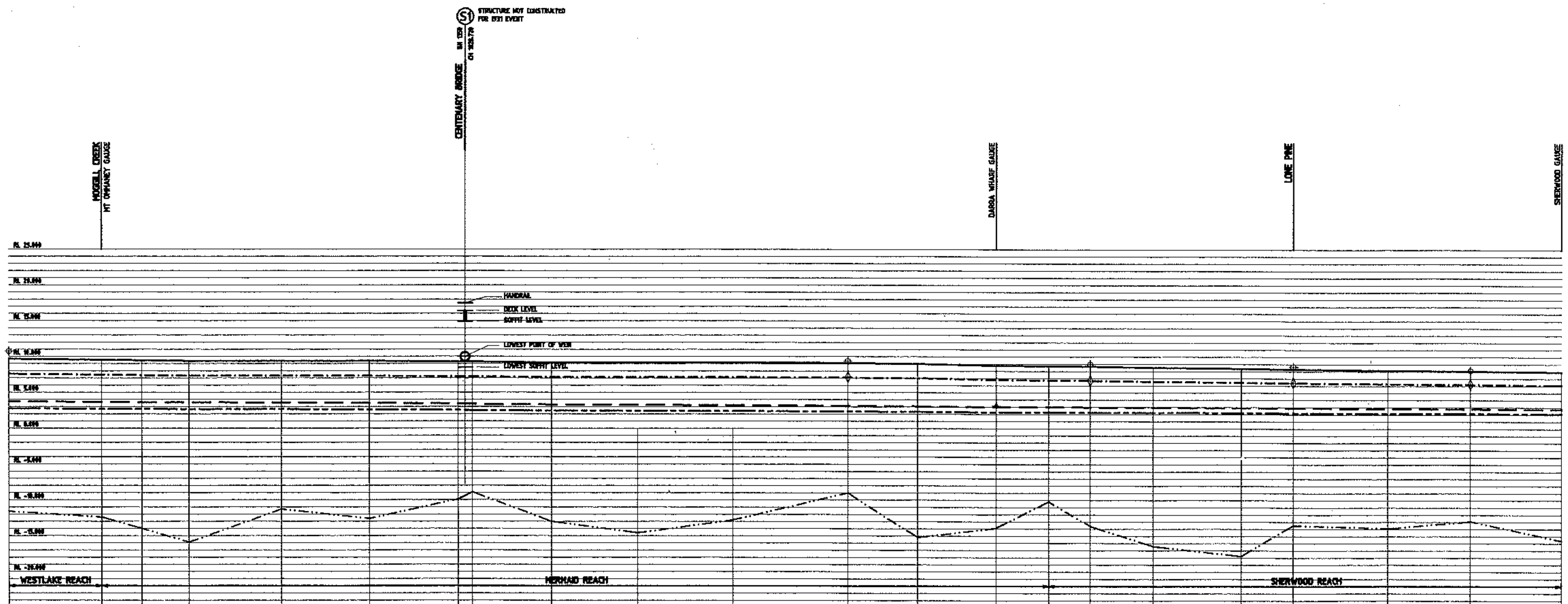
BRISBANE RIVER - BN 1650 TO BN 1420

FIL... E: 41... PLOT SCALE: 1=30

FIGURE C-2d

BRISBANE RIVER FLOOD STUDY

MIKE 11 VERIFICATION PROFILE



DATUM RL. -25.000

CROSS SECTION NUMBER	1989a PREDICTED FLOOD LEVEL	1973 PREDICTED FLOOD LEVEL	1955 PREDICTED FLOOD LEVEL	1931 PREDICTED FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 1420	2.754	3.738	7.570	9.470	-11.400	1026.170	52.610
BN 1410	2.700	3.460	7.444	9.550	-12.400	1026.480	51.900
BN 1400	2.680	3.420	7.398	9.444	-14.080	1026.908	51.760
BN 1390	2.660	3.400	7.330	9.380	-15.900	1027.160	51.500
BN 1380	2.640	3.540	7.380	9.380	-11.380	1027.480	50.980
BN 1370	2.610	3.520	7.300	9.340	-12.600	1028.180	50.640
BN 1360	2.558	3.441	7.220	9.270	-9.980	1028.480	49.980
BN 1348	2.550	3.370	7.220	9.270	-8.980	1028.740	49.900
BN 1330	2.480	3.308	7.138	9.170	-13.600	1029.260	49.440
BN 1320	2.440	3.270	7.130	9.170	-14.400	1029.600	48.900
BN 1310	2.410	3.228	7.138	9.180	-12.880	1030.220	48.440
BN 1300	2.344	3.150	7.080	9.120	-9.880	1030.870	47.790
BN 1290	2.320	3.080	7.000	9.020	-15.240	1031.240	47.480
BN 1280	2.270	3.000	6.800	8.780	-13.980	1031.760	46.960
BN 1270	2.260	3.000	6.760	8.750	-10.380	1031.995	46.665
BN 1260	2.250	2.900	6.700	8.600	-13.600	1032.230	46.430
BN 1250	2.230	2.940	6.570	8.520	-16.400	1032.585	46.075
BN 1240	2.210	2.920	6.440	8.380	-17.800	1033.080	45.580
BN 1230	2.190	2.880	6.400	8.310	-13.500	1033.370	45.290
BN 1220	2.150	2.820	6.270	8.160	-13.900	1033.900	44.760
BN 1210	2.130	2.780	6.190	8.050	-12.900	1034.370	44.290
BN 1200	2.100	2.730	6.100	7.950	-15.600	1034.890	43.770

BRISBANE RIVER - BN 1420 TO BN 1200

LEGEND

- S1 LOCATION AND IDENTIFICATION OF STRUCTURE
- 1931 RECORDED FLOOD LEVEL
- 1955 RECORDED FLOOD LEVEL
- 1973 RECORDED FLOOD LEVEL
- 1989 RECORDED FLOOD LEVEL
- COMPUTED WATER LEVEL - 1931
- COMPUTED WATER LEVEL - 1955
- COMPUTED WATER LEVEL - JULY 1973
- COMPUTED WATER LEVEL - EARLY APRIL 1989 (1989a)
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

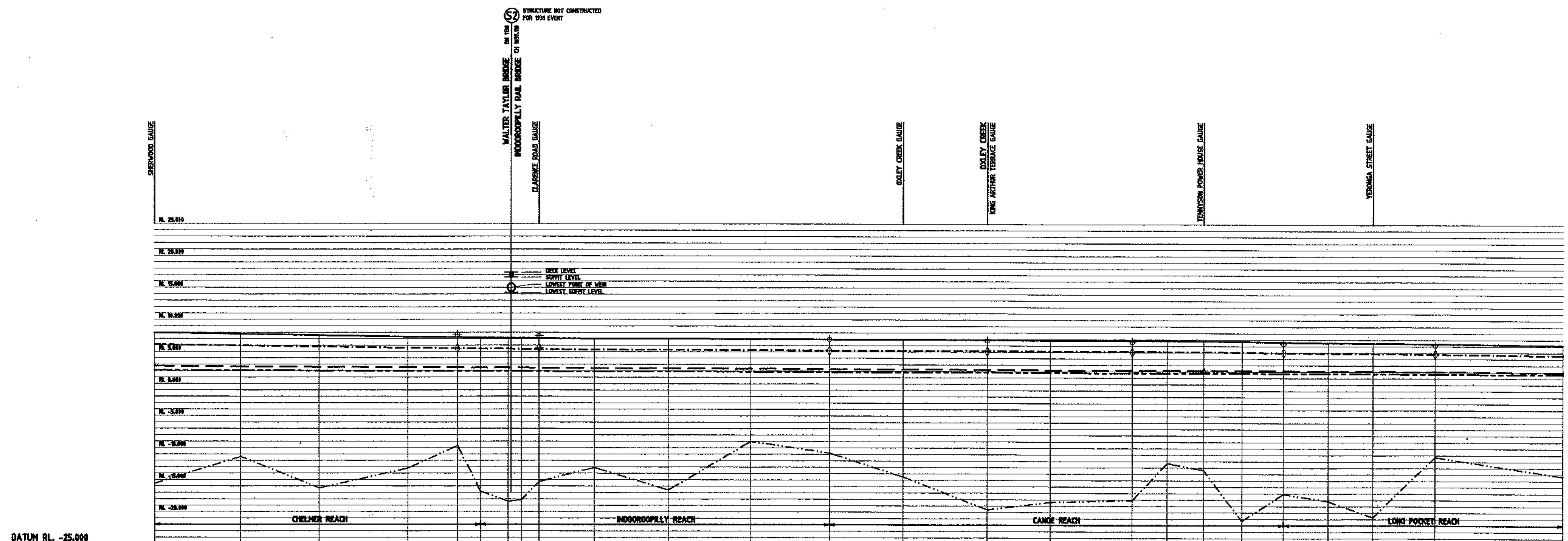
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

FILE NAME: 4157-339 PLOT SCALE: 1:30 DISK N°: C:\DWG JOB N°: T00415? DATE: 23/3/97

FIGURE C-2e

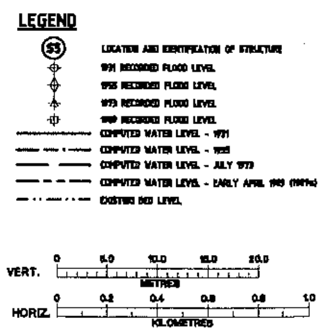
BRISBANE RIVER FLOOD STUDY

MIKE 11 VERIFICATION PROFILE



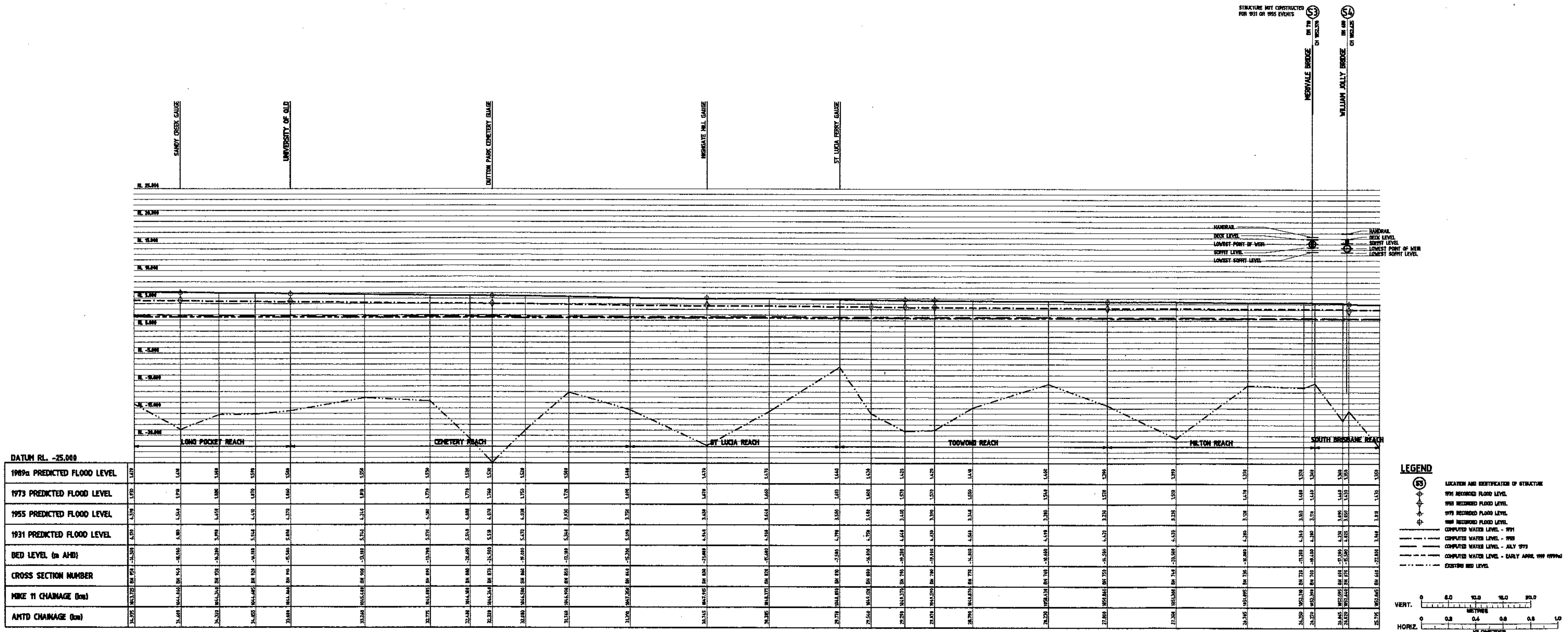
1989a PREDICTED FLOOD LEVEL	2.900	2.860	2.820	1.990	1.970	1.960	1.960	1.950	1.940	1.920	1.920	1.880	1.840	1.820	1.810	1.790	1.780	1.770	1.750	1.740	1.740	1.720	1.710	1.680	1.670
1973 PREDICTED FLOOD LEVEL	2.730	2.670	2.600	2.554	2.534	2.510	2.510	2.490	2.470	2.440	2.430	2.370	2.310	2.270	2.250	2.240	2.200	2.190	2.170	2.170	2.130	2.100	2.090	2.040	1.930
1955 PREDICTED FLOOD LEVEL	6.180	5.950	5.774	5.590	5.524	5.450	5.440	5.440	5.340	5.320	5.300	5.250	5.220	5.210	5.200	5.130	5.160	5.180	5.050	5.040	4.960	4.890	4.570	4.780	4.570
1931 PREDICTED FLOOD LEVEL	7.950	7.780	7.550	7.330	7.260	7.160	7.140	7.130	7.090	7.050	7.020	6.990	6.950	6.940	6.920	6.830	6.840	6.800	6.750	6.730	6.620	6.520	6.500	6.410	6.170
BED LEVEL (m AHD)	-15.400	-11.400	-16.380	-13.260	-9.700	-16.800	-18.100	-18.100	-15.300	-13.100	-16.400	-9.600	-10.880	-14.500	-19.610	-18.440	-18.100	-17.300	-13.490	-23.300	-17.100	-18.780	-20.700	-11.300	-14.300
CROSS SECTION NUMBER	BN 1200	BN 1190	BN 1180	BN 1170	BN 1160	BN 1150	BN 1140	BN 1120	BN 1110	BN 1100	BN 1090	BN 1080	BN 1070	BN 1060	BN 1050	BN 1040	BN 1030	BN 1020	BN 1010	BN 1000	BN 990	BN 980	BN 970	BN 960	BN 950
MIKE 11 CHAINAGE (km)	1034.890	1035.146	1035.904	1036.460	1036.774	1036.915	1037.090	1037.175	1037.285	1037.425	1038.085	1038.600	1039.180	1039.565	1040.090	1040.490	1041.010	1041.230	1041.440	1041.740	1041.960	1042.235	1042.515	1042.910	1043.725
AMTD CHAINAGE (km)	43.770	43.344	42.760	42.208	41.890	41.745	41.570	41.485	41.375	41.035	40.575	40.060	39.540	39.050	38.570	38.170	37.644	37.430	37.280	36.940	36.700	36.425	36.145	35.750	34.935

BRISBANE RIVER - BN 1200 TO BN 950



FILE NAME: 4157-340 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T00457 DATE: 23/3/97

FIGURE C-2f
BRISBANE RIVER FLOOD STUDY
MIKE 11 VERIFICATION PROFILE

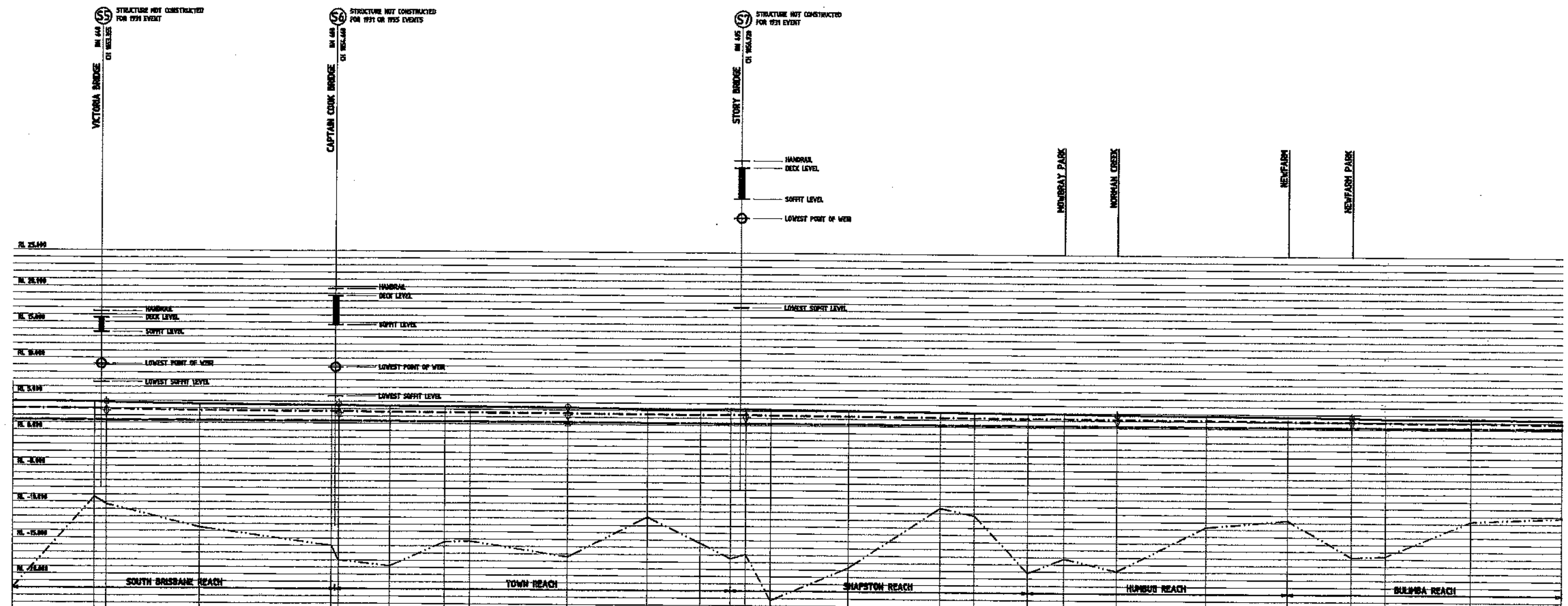


BRISBANE RIVER - BN 950 TO BN 660

FILE NAME: 4157-341 PLOT SCALE: 1=30

FIGURE C-2g

BRISBANE RIVER FLOOD STUDY
MIKE 11 VERIFICATION PROFILE

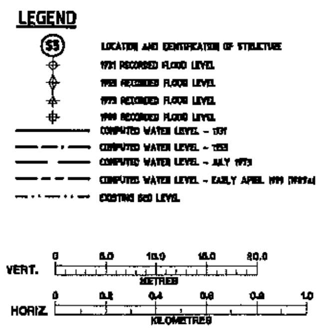


	BN 660	BN 650	BN 630	BN 620	BN 610	BN 590	BN 560	BN 550	BN 540
1989a PREDICTED FLOOD LEVEL	1.350	1.350	1.334	1.320	1.320	1.310	1.340	1.300	1.300
1973 PREDICTED FLOOD LEVEL	1.434	1.428	1.390	1.370	1.370	1.340	1.330	1.320	1.320
1955 PREDICTED FLOOD LEVEL	3.010	2.970	2.910	2.720	2.440	2.640	2.590	2.570	2.570
1931 PREDICTED FLOOD LEVEL	3.960	3.410	3.840	3.500	3.520	3.520	3.400	3.370	3.320
BED LEVEL (m AHD)	-22.000	-9.360	-10.300	-13.510	-16.000	-18.000	-18.880	-15.400	-15.300
CROSS SECTION NUMBER	BN 660	BN 650	BN 630	BN 620	BN 610	BN 590	BN 560	BN 550	BN 540
MIKE 11 CHAINAGE (km)	1052.865	1053.320	1053.385	1053.900	1054.640	1054.480	1054.970	1055.280	1055.420
AMTD CHAINAGE (km)	25.795	25.340	25.295	24.760	24.020	23.980	23.690	23.300	23.240

	BN 530	BN 520	BN 510	BN 500	BN 490	BN 480	BN 470	BN 460	BN 450
1989a PREDICTED FLOOD LEVEL	1.290	1.280	1.280	1.280	1.280	1.270	1.260	1.250	1.250
1973 PREDICTED FLOOD LEVEL	1.310	1.280	1.270	1.280	1.270	1.260	1.250	1.220	1.210
1955 PREDICTED FLOOD LEVEL	2.540	2.460	2.430	2.490	2.460	2.410	2.370	2.280	2.450
1931 PREDICTED FLOOD LEVEL	3.330	3.200	3.160	3.260	3.260	3.190	3.150	2.990	2.950
BED LEVEL (m AHD)	-17.400	-11.800	-15.400	-17.500	-16.900	-23.300	-18.700	-10.300	-11.380
CROSS SECTION NUMBER	BN 530	BN 520	BN 510	BN 500	BN 490	BN 480	BN 470	BN 460	BN 450
MIKE 11 CHAINAGE (km)	1055.960	1056.400	1056.695	1056.865	1056.950	1057.090	1057.530	1058.040	1058.230
AMTD CHAINAGE (km)	22.790	22.260	21.965	21.795	21.710	21.570	21.130	20.620	20.430

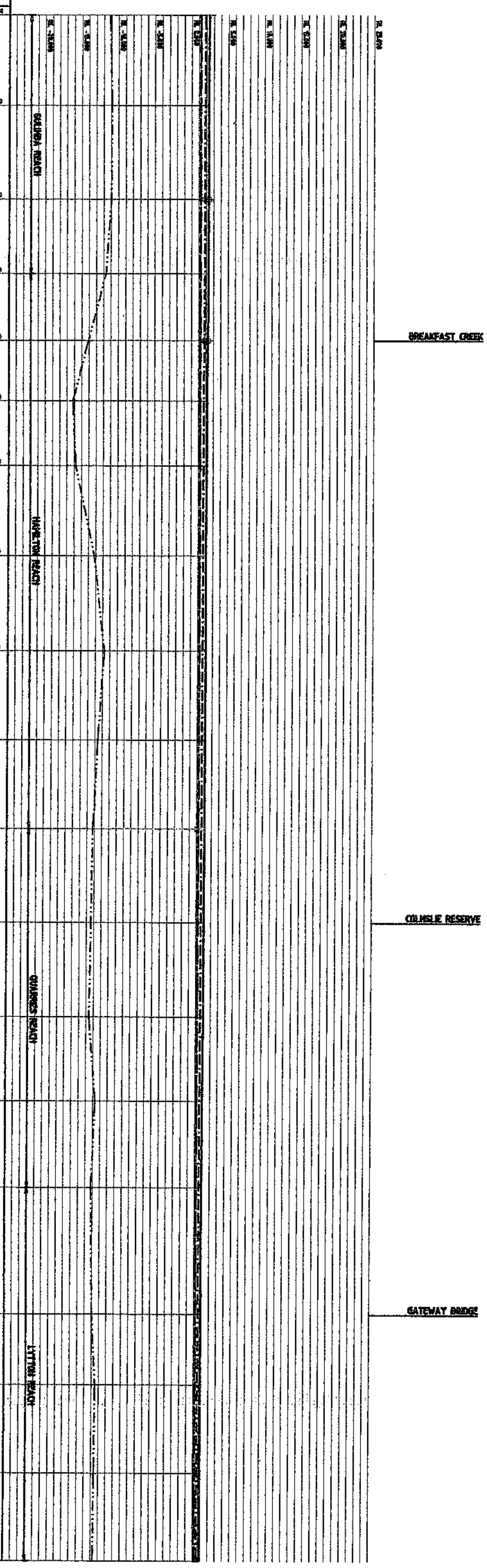
	BN 440	BN 430	BN 420	BN 410	BN 400	BN 390	BN 380	BN 370	BN 360
1989a PREDICTED FLOOD LEVEL	1.240	1.240	1.230	1.220	1.220	1.210	1.210	1.200	1.200
1973 PREDICTED FLOOD LEVEL	1.210	1.210	1.210	1.210	1.210	1.200	1.210	1.210	1.210
1955 PREDICTED FLOOD LEVEL	2.210	2.220	2.140	2.110	2.060	1.980	1.960	1.920	1.860
1931 PREDICTED FLOOD LEVEL	2.890	2.980	2.780	2.750	2.650	2.550	2.480	2.450	2.340
BED LEVEL (m AHD)	-19.200	-17.200	-18.900	-12.700	-11.700	-16.800	-16.600	-11.700	-11.200
CROSS SECTION NUMBER	BN 440	BN 430	BN 420	BN 410	BN 400	BN 390	BN 380	BN 370	BN 360
MIKE 11 CHAINAGE (km)	1058.530	1058.735	1059.035	1059.540	1059.990	1060.345	1060.535	1061.015	1061.530
AMTD CHAINAGE (km)	20.130	19.925	19.625	19.120	18.670	18.315	18.125	17.645	17.130

BRISBANE RIVER - BN 660 TO BN 360



PLOT SCALE: 1=30

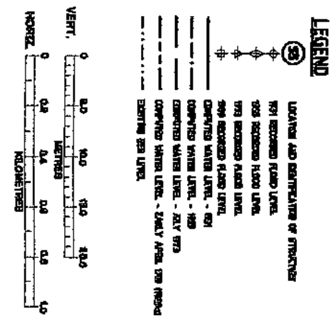
FIGURE C-2h
BRISBANE RIVER FLOOD STUDY
MIKE 11 VERIFICATION PROFILE



DATUM RL. -25.000

CROSS SECTION NUMBER	AMTD CHAINAGE (km)	MIKE 11 CHAINAGE (km)	BED LEVEL (m AHD)	1931 PREDICTED FLOOD LEVEL	1955 PREDICTED FLOOD LEVEL	1973 PREDICTED FLOOD LEVEL	1989a PREDICTED FLOOD LEVEL
BN 360	17.130	1061.530	-11.200	2.360	1.860	1.210	1.200
BN 350	16.640	1062.020	-10.900	2.330	1.830	1.210	1.190
BN 340	16.125	1062.535	-11.000	2.340	1.810	1.210	1.190
BN 330	15.720	1062.940	-11.700	2.300	1.810	1.220	1.184
BN 320	15.350	1063.310	-14.100	2.250	1.780	1.220	1.180
BN 310	15.015	1063.645	-16.200	2.130	1.700	1.210	1.170
BN 306	14.660	1064.000	-15.400	2.120	1.690	1.210	1.170
BN 290	14.170	1064.490	-13.200	2.060	1.660	1.210	1.160
BN 280	13.650	1065.010	-11.800	2.070	1.660	1.210	1.160
BN 270	13.157	1065.503	-12.000	2.060	1.650	1.210	1.160
BN 260	12.670	1065.990	-13.200	2.060	1.650	1.210	1.160
BN 250	12.155	1066.505	-13.600	2.030	1.640	1.210	1.150
BN 244	11.640	1067.020	-13.600	2.020	1.630	1.200	1.150
BN 230	11.075	1067.445	-12.700	1.970	1.600	1.200	1.150
BN 220	10.695	1067.965	-13.200	1.920	1.570	1.200	1.160
BN 210	10.600	1068.460	-13.000	1.860	1.520	1.200	1.150
BN 200	9.615	1069.045	-12.500	1.830	1.510	1.200	1.140
BN 190	9.125	1069.535	-12.600	1.810	1.490	1.200	1.130
BN 180	8.635	1070.025	-12.700	1.750	1.480	1.200	1.130

BRISBANE RIVER - BN 360 TO BN 180

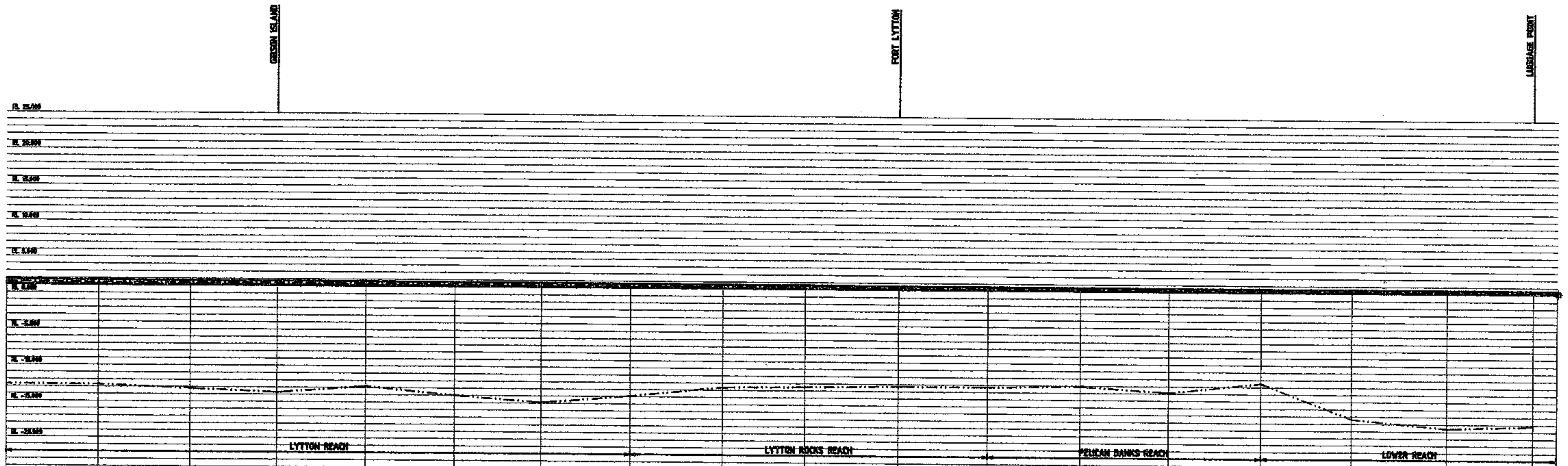


FILE NAME: 4157-117 DISK N°: C:\DWG JOB N°: T00415? DATE: 23/3/97
PLOT SCALE: 1=30

FIGURE C-2i

BRISBANE RIVER FLOOD STUDY

MIKE 11 VERIFICATION PROFILE

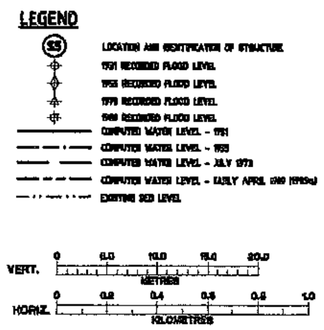


DATUM RL. -25.000

1989a PREDICTED FLOOD LEVEL	1.130	1.130	1.120	1.120	1.120	1.120	1.120	1.110	1.110	1.100
1973 PREDICTED FLOOD LEVEL	1.300	1.280	1.280	1.280	1.174	1.180	1.174	1.194	1.190	1.160
1955 PREDICTED FLOOD LEVEL	1.480	1.440	1.440	1.450	1.428	1.410	1.460	1.380	1.370	1.350
1931 PREDICTED FLOOD LEVEL	1.790	1.750	1.720	1.714	1.700	1.680	1.660	1.630	1.610	1.590
BED LEVEL (m AHD)	-12.700	-12.700	-13.280	-13.700	-12.880	-16.010	-14.980	-15.900	-12.600	-12.580
CROSS SECTION NUMBER	BN 180	BN 170	BN 160	BN 150	BN 140	BN 130	BN 120	BN 110	BN 100	BN 90
MIKE 11 CHAINAGE (km)	1070.085	1070.530	1071.044	1071.520	1072.035	1072.538	1072.915	1073.485	1074.000	1074.460
AMTD CHAINAGE (km)	8.835	8.130	7.620	7.140	6.645	6.145	5.645	5.175	4.660	4.200

1989a PREDICTED FLOOD LEVEL	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
1973 PREDICTED FLOOD LEVEL	1.180	1.180	1.180	1.184	1.190	1.190	1.184	1.184	1.190
1955 PREDICTED FLOOD LEVEL	1.330	1.330	1.330	1.310	1.310	1.310	1.310	1.300	1.300
1931 PREDICTED FLOOD LEVEL	1.540	1.540	1.544	1.518	1.510	1.520	1.510	1.500	1.500
BED LEVEL (m AHD)	-12.300	-12.300	-12.100	-12.900	-14.500	-16.400	-17.600	-17.200	
CROSS SECTION NUMBER	BN 80	BN 70	BN 60	BN 50	BN 40	BN 30	BN 20	BN 10	-
MIKE 11 CHAINAGE (km)	1074.965	1075.480	1076.000	1076.475	1077.010	1077.510	1078.040	1078.525	1078.660
AMTD CHAINAGE (km)	3.675	3.180	2.660	2.165	1.650	1.150	0.620	0.135	0

BRISBANE RIVER - BN 180 TO BN 10

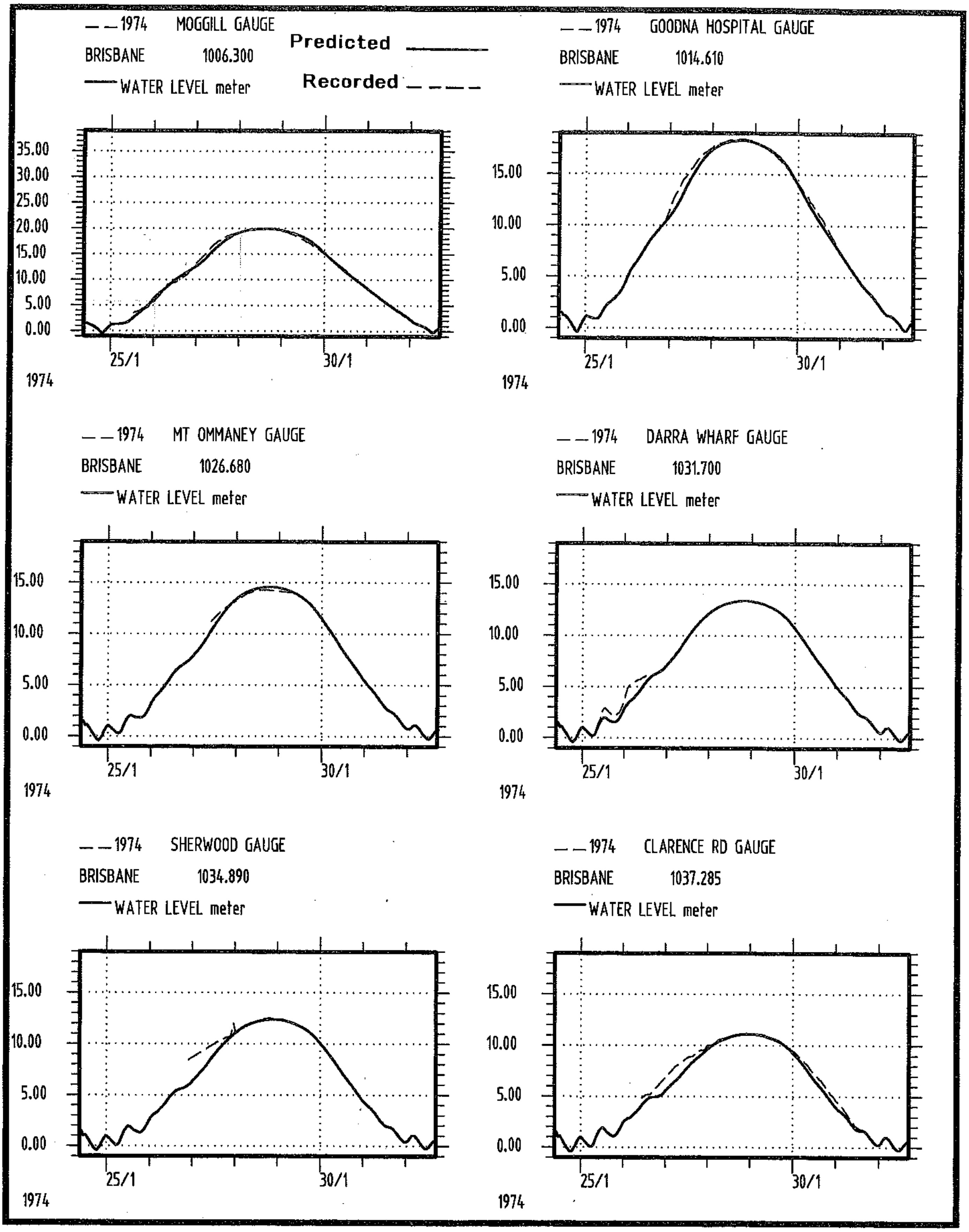


PLOT SCALE: 1=30

FIGURE C-3a

SINCLAIR KNIGHT MERZ

BRISBANE RIVER FLOOD STUDY
PREDICTED AND RECORDED HYDROGRAPH
COMPARISON - JANUARY 1974



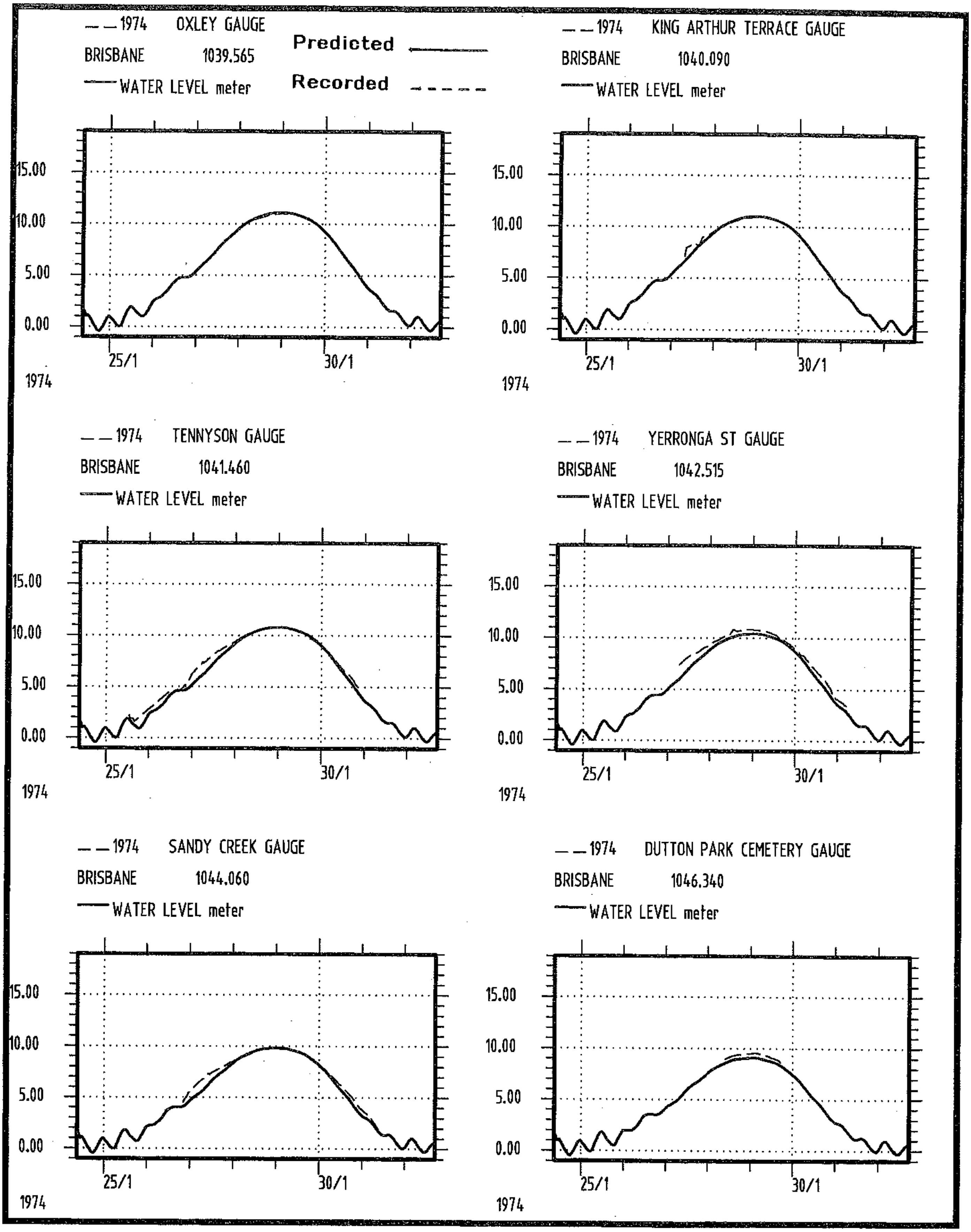
FILE NAME: 4157-240 DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

PLC...LE: 1...

SINCLAIR KNIGHT MERZ

FIGURE C-3b

BRISBANE RIVER FLOOD STUDY PREDICTED AND RECORDED HYDROGRAPH COMPARISON - JANUARY 1974

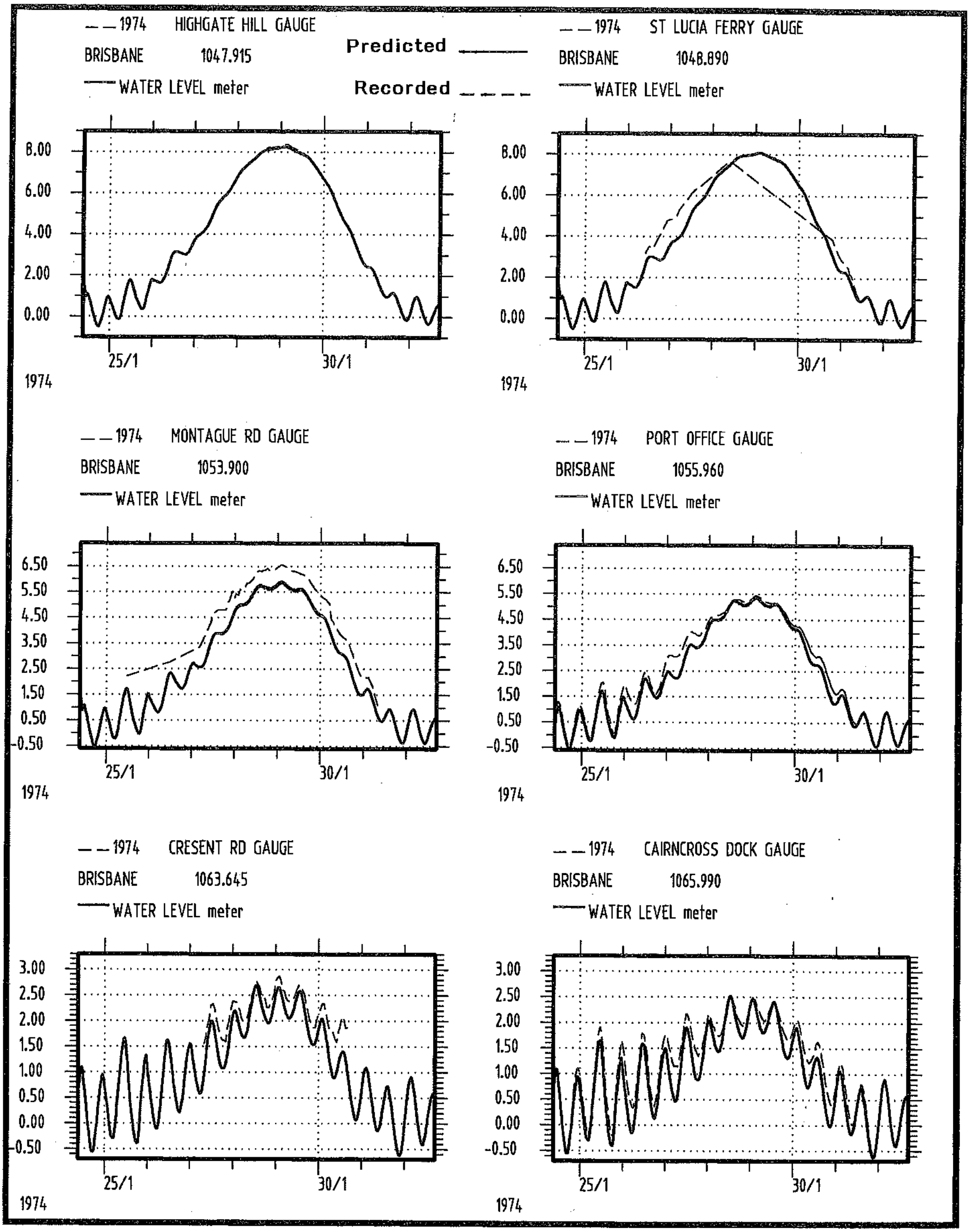


FILE NAME: 4157-241 DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

FIGURE C-3c

BRISBANE RIVER FLOOD STUDY
PREDICTED AND RECORDED HYDROGRAPH
COMPARISON - JANUARY 1974

SINCLAIR KNIGHT MERZ

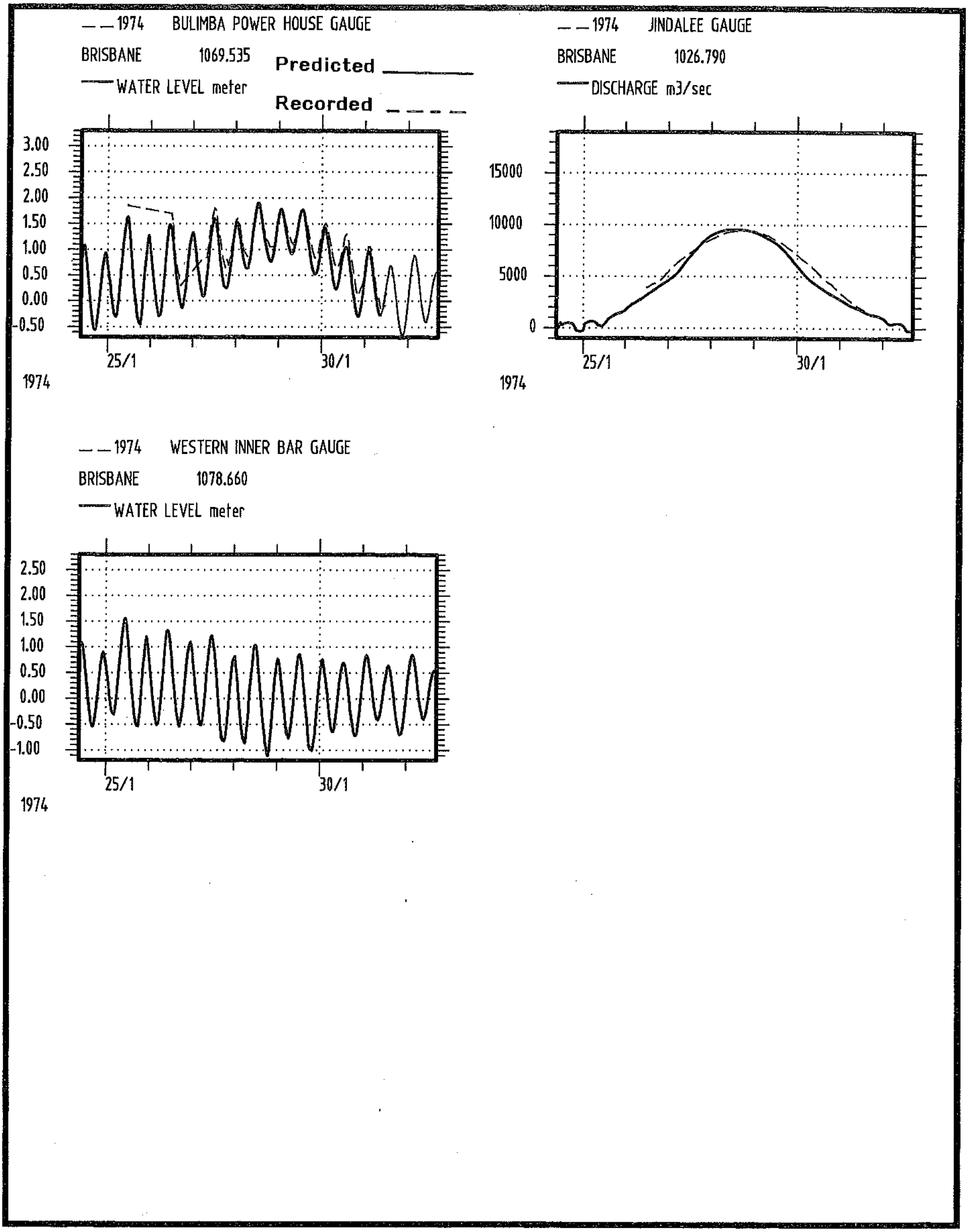


FILE NAME: 4157-242 DISK N°: G:\ JOB N°: T00457 DATE: 17-2-98
PLOT SCALE: 1:1

FIGURE C-3d

BRISBANE RIVER FLOOD STUDY
PREDICTED AND RECORDED HYDROGRAPH
COMPARISON - JANUARY 1974

SINCLAIR KNIGHT MERZ

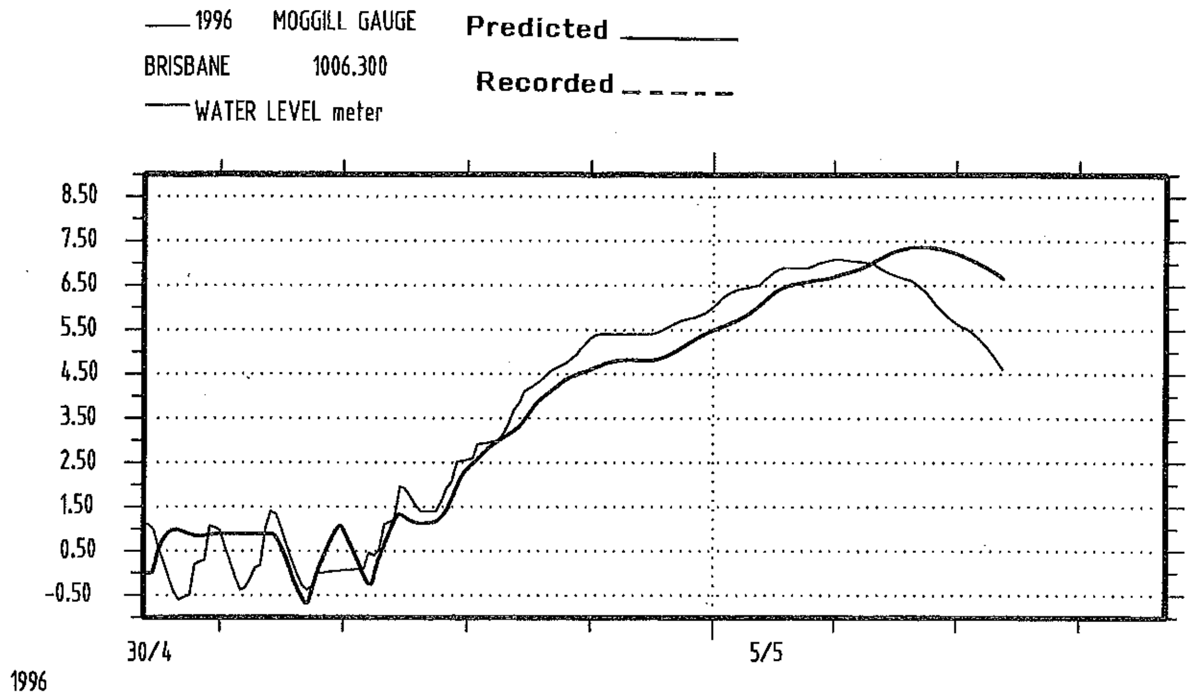


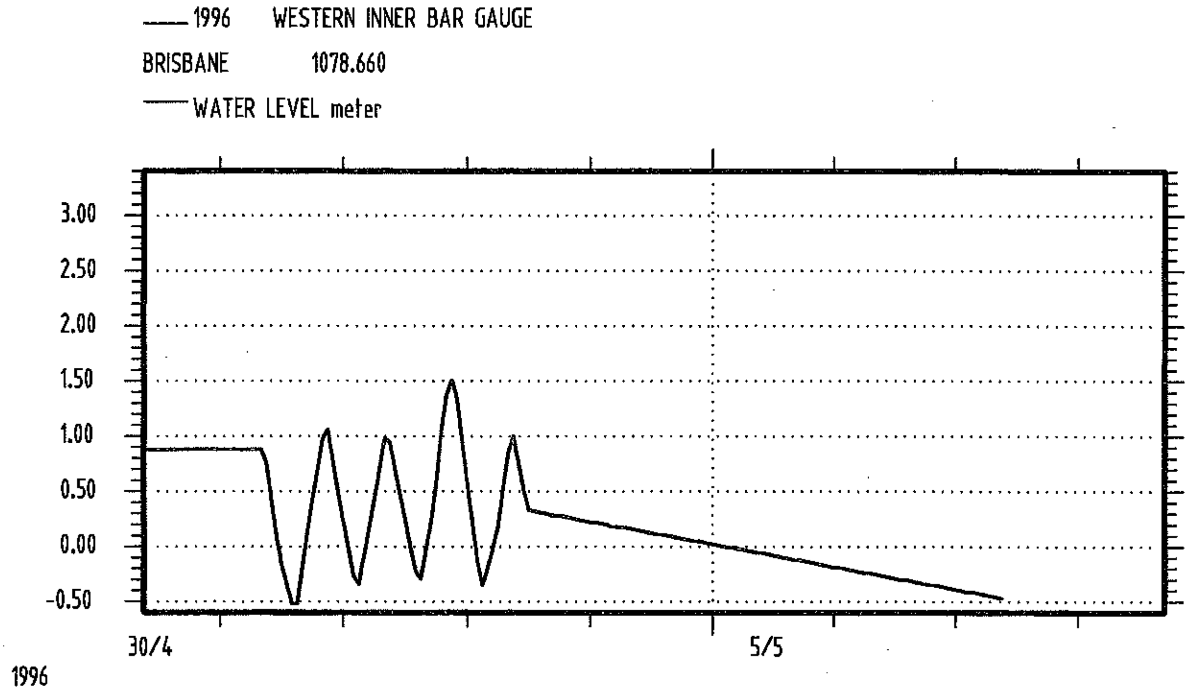
FILE NAME: 4157-243 DISK N°: G:\ JOB N°: T00/157 DATE: 17-2-98
PLOT SCALE: 1-1

SINCLAIR KNIGHT MERZ

FIGURE C-4

BRISBANE RIVER FLOOD STUDY
PREDICTED AND RECORDED HYDROGRAPH
COMPARISON - MAY 1996





PLOT SCALE: 1=1

FIGURE C-5

BRISBANE RIVER FLOOD STUDY
PREDICTED AND RECORDED HYDROGRAPH
COMPARISON - LATE APRIL 1989

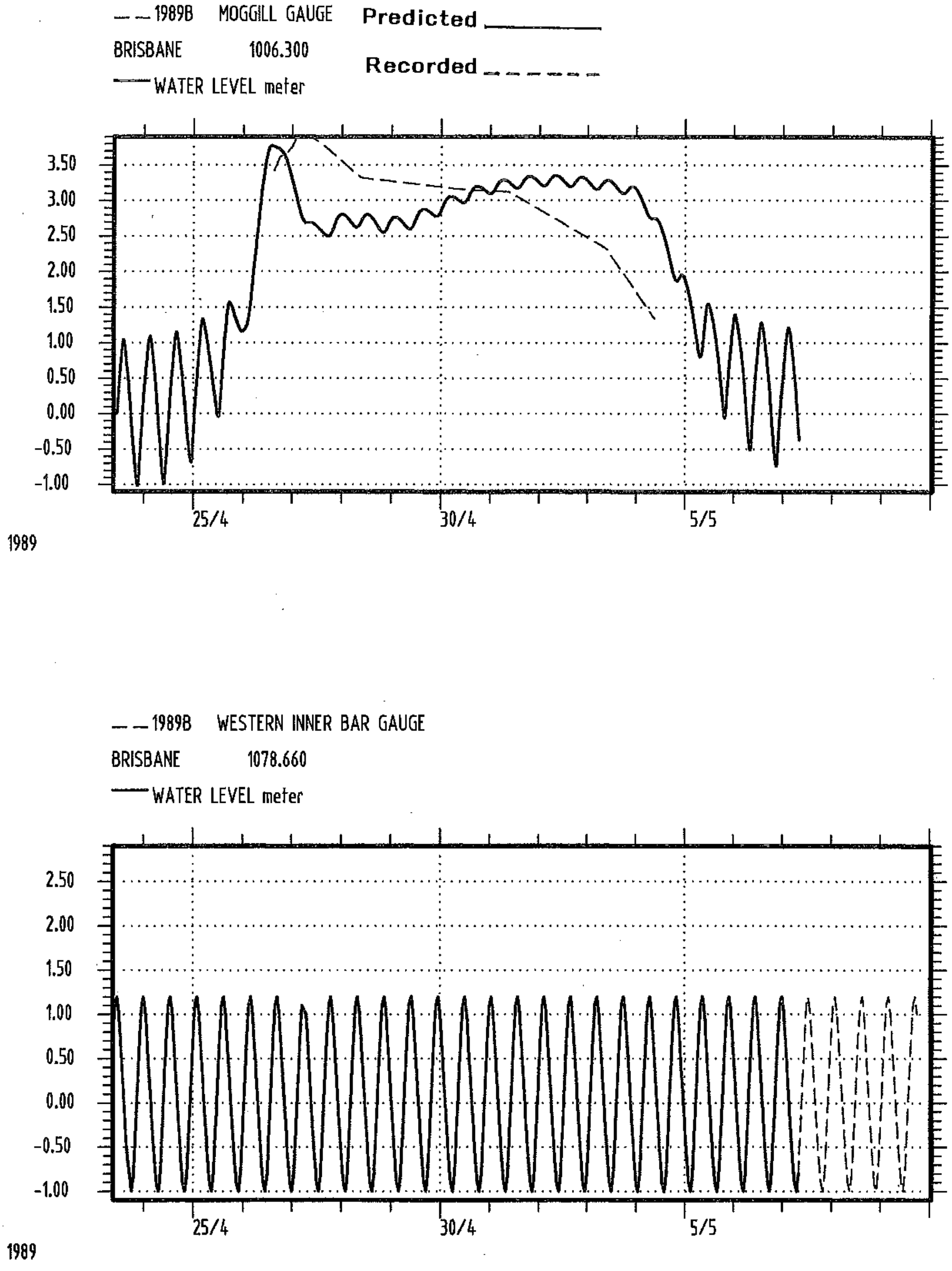
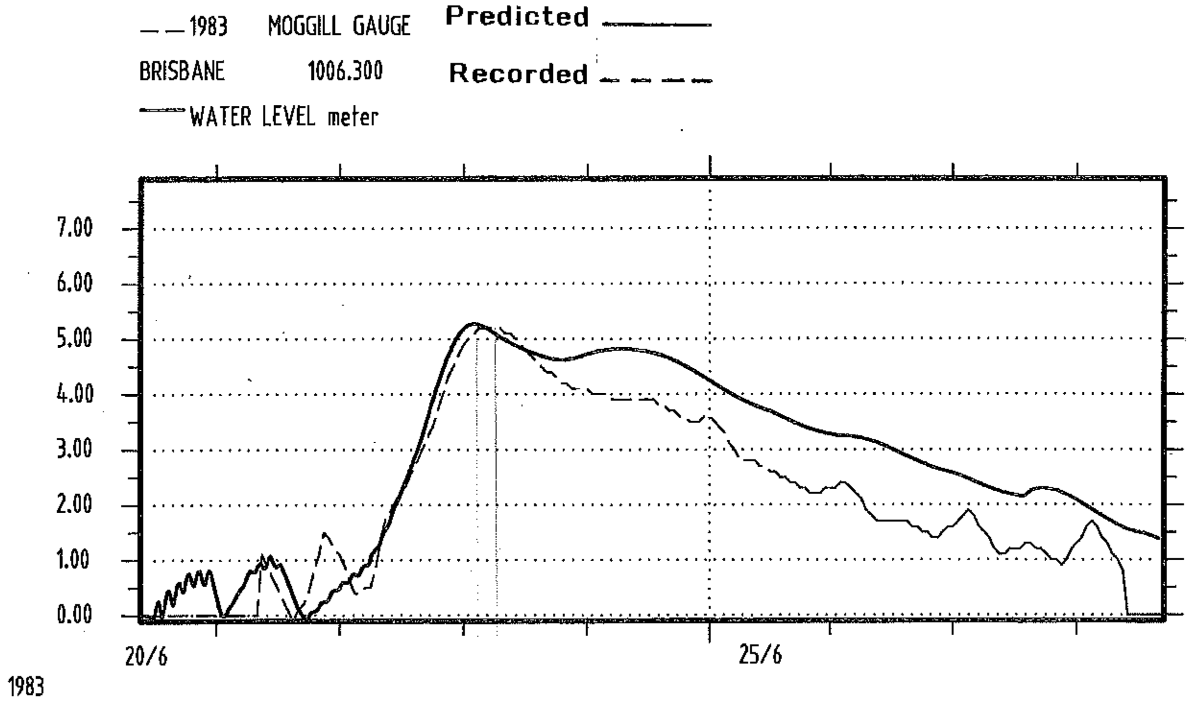


FIGURE C-6

BRISBANE RIVER FLOOD STUDY
PREDICTED AND RECORDED HYDROGRAPH
COMPARISON - JUNE 1983



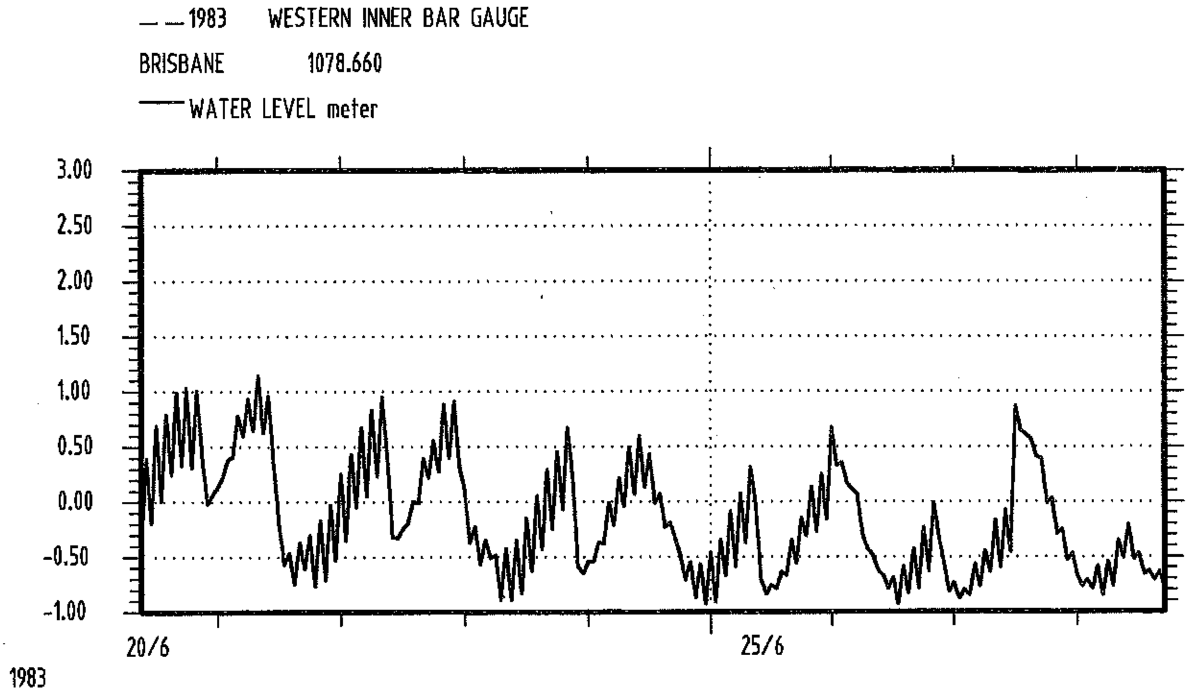


FIGURE C-7

BRISBANE RIVER FLOOD STUDY
PREDICTED AND RECORDED HYDROGRAPH
COMPARISON - MARCH 1955

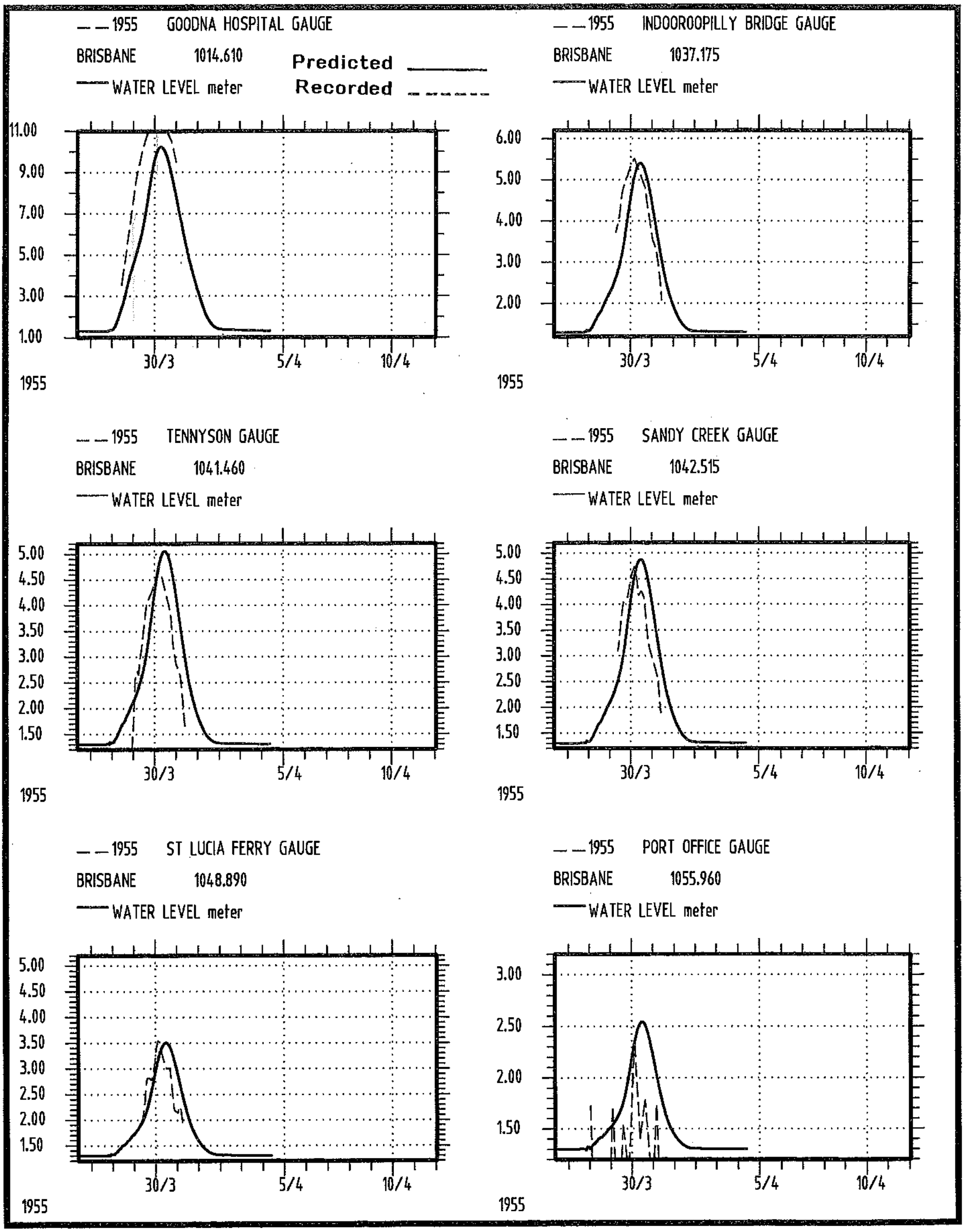
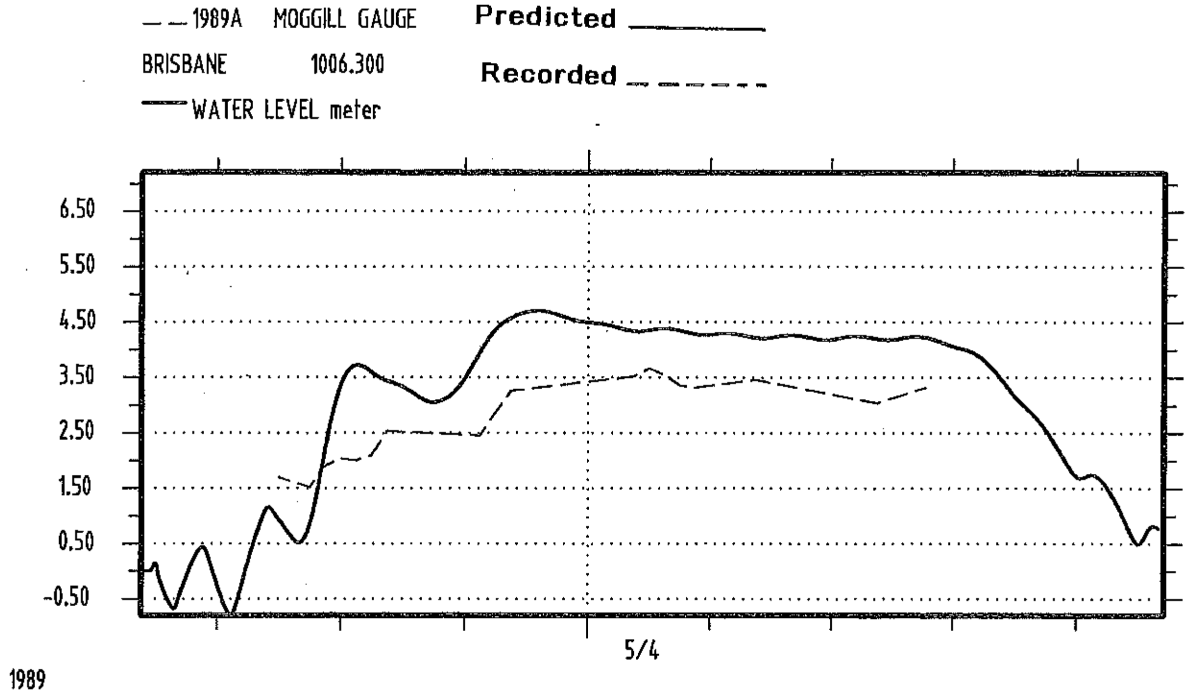
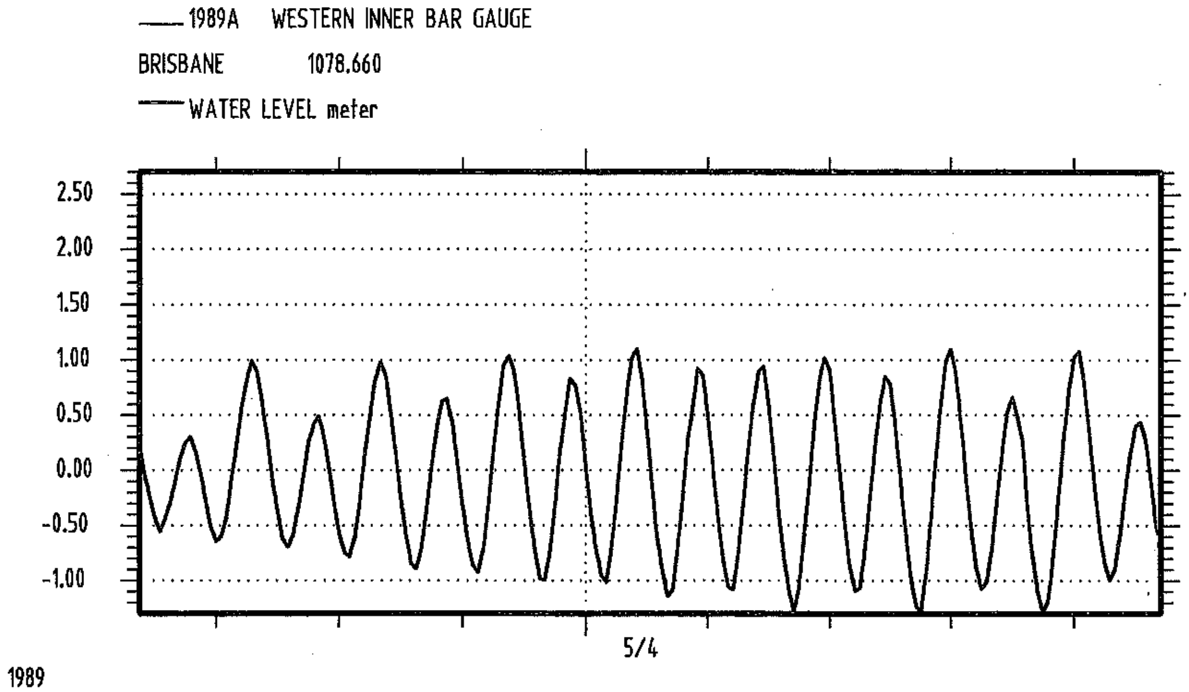


FIGURE C-8
BRISBANE RIVER FLOOD STUDY PREDICTED AND RECORDED HYDROGRAPH COMPARISON - EARLY APRIL 1989

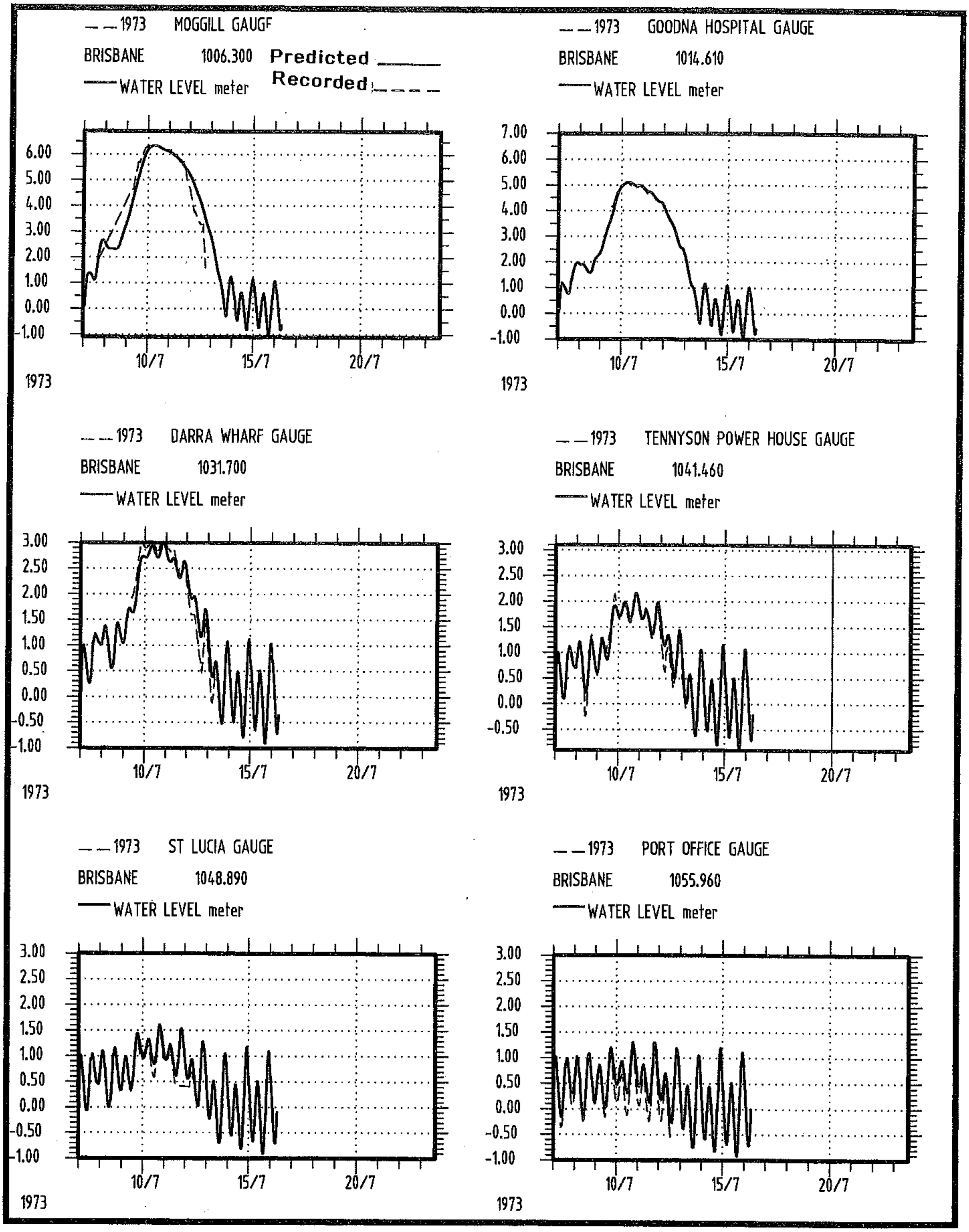




SINCLAIR KNIGHT MERZ

FIGURE C-9a

BRISBANE RIVER FLOOD STUDY PREDICTED AND RECORDED HYDROGRAPH COMPARISON - JULY 1973

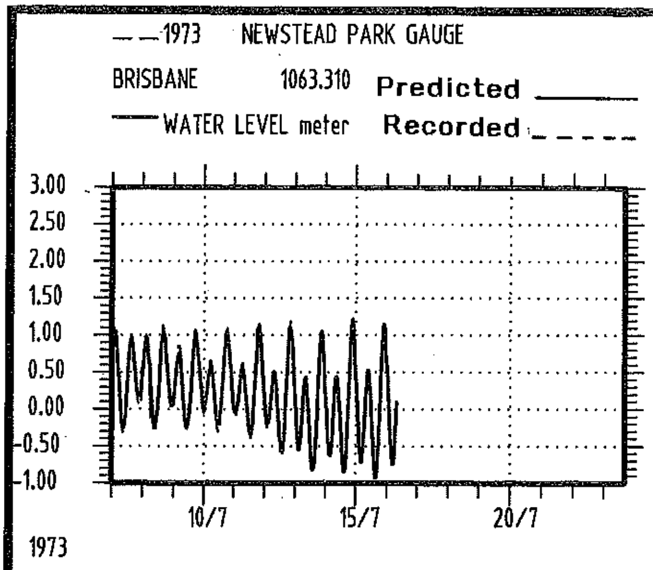


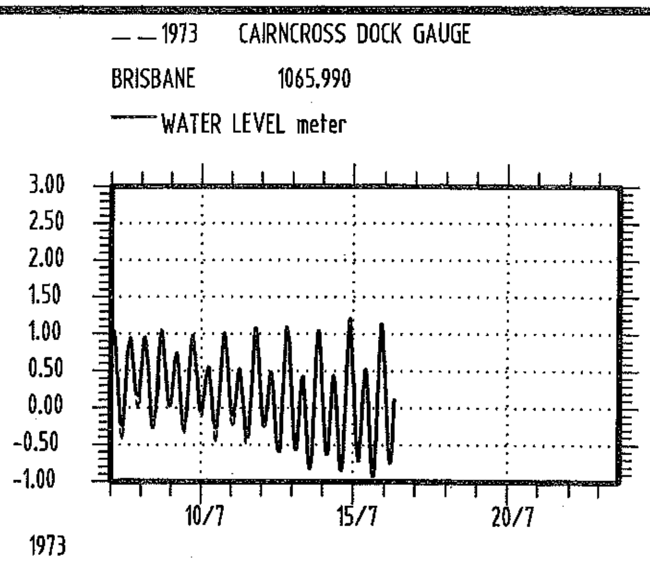
FILE NAME: 4157-249 DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

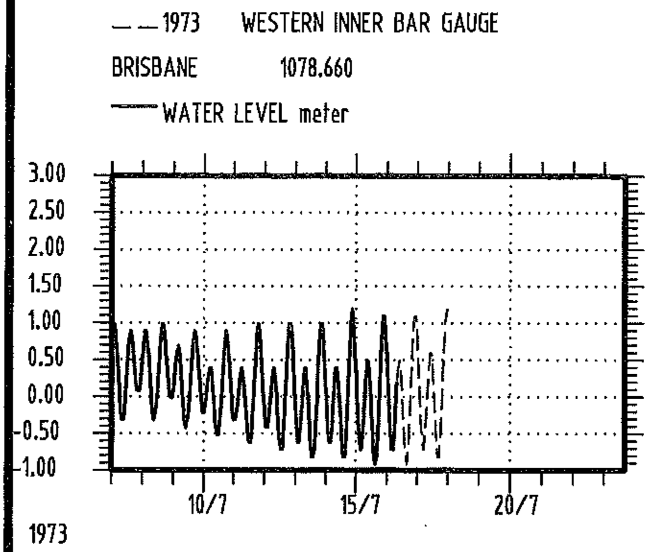
FIGURE C-9b

BRISBANE RIVER FLOOD STUDY
PREDICTED AND RECORDED HYDROGRAPH
COMPARISON - JULY 1973

SINCLAIR KNIGHT MERZ







FILE NAME: 4157-250 DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98
PL... ...LE: 1

Appendix D - Generalised Tropical Storm Method

INSTRUCTIONS FOR THE USE OF THE GTSM PMP SPATIAL DISTRIBUTION DIAGRAMS

1. Select the appropriate distribution diagram according to whether the area of the catchment is above or below 2000 km^2.

2. Expand or contract the scale of the isohyetal pattern until the outermost isohyet just touches the catchment. Adjust the positioning of the pattern to get an (estimated) highest PMP depth over the catchment. This depends on the shape of the catchment as well as the position of the pattern.

3. Calculate the area of the catchment within the central isohyet, and then between each adjacent pair of isohyets until all these areas have been calculated. A planimeter or other means are suitable methods of doing this.

4. Multiply the percentage assigned to the label on each isohyet by the mean PMP depth for that duration. This gives isohyet labels in millimeters.

5. Multiply these areas by an estimate of the mean rainfall value over that part of the catchment contained in the annulus between each successive pair of isohyets. This will generally not be the arithmetic mean because of the usually irregular shape of the catchment boundary. For the central isohyet a mean value has to be estimated. This will not be critical.

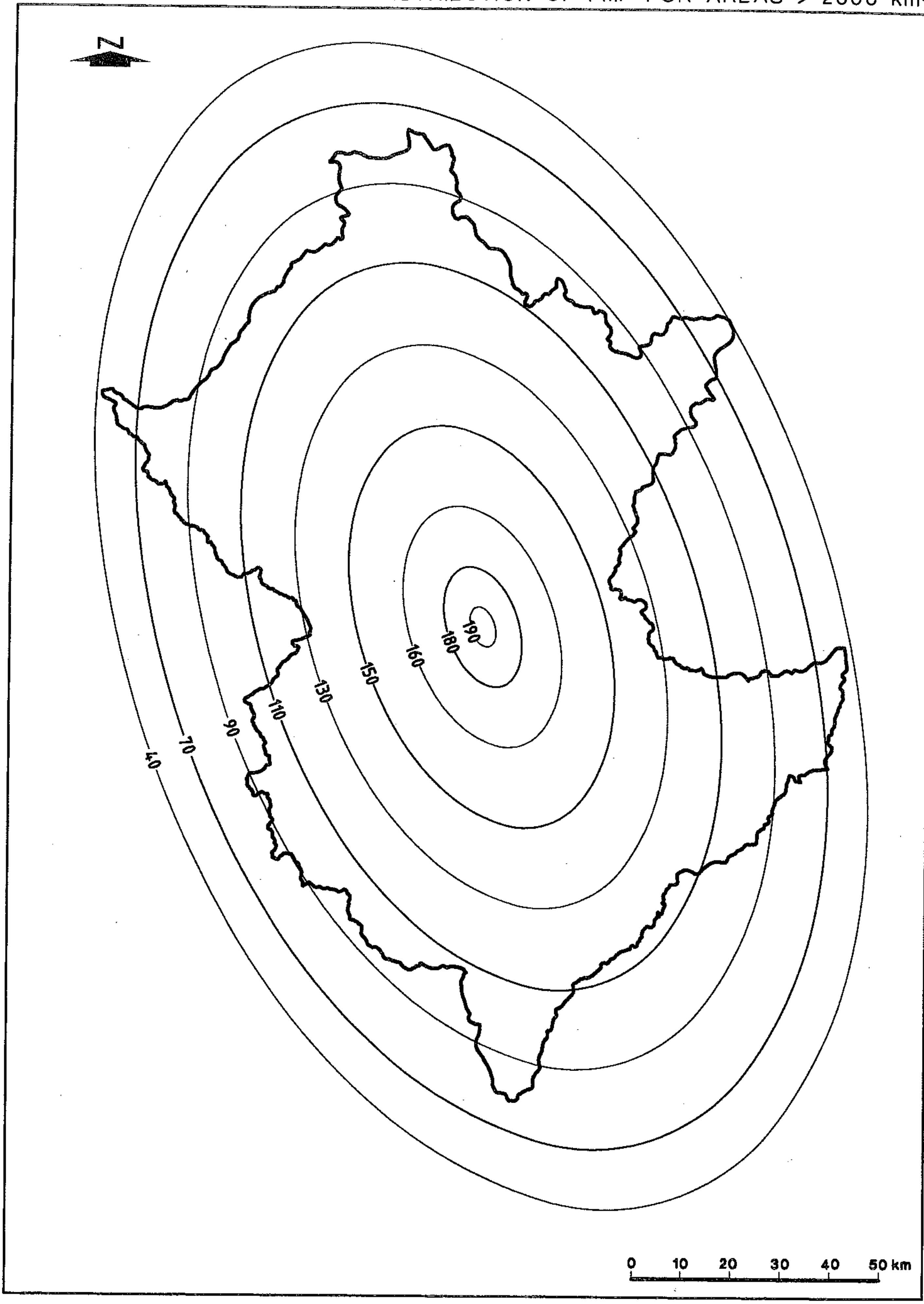
6. The sum of all the above products is divided by the total catchment area to obtain the calculated mean catchment PMP depth. This will usually not be equal to the true PMP depth. The ratio of the actual PMP to the calculated PMP values is then calculated.

7. The values of the isohyetal labels are all multiplied by this ratio (ie a constant scaling factor) to ensure that the isohyetal pattern gives the correct mean PMP depth.

SINCLAIR KNIGHT MERZ

FIGURE D-1

BRISBANE RIVER FLOOD STUDY
GENERALISED TROPICAL STORM METHOD (GTSM)
DESIGN ISOHYETAL PATTERN FOR THE
DISTRIBUTION OF PMP FOR AREAS > 2000 km²



Appendix E - Adjustment of Historical Streamflows to Account for the Effects of Somerset Dam

Figure E-1 - Relationship Between Discharges at Woodford and Silverton

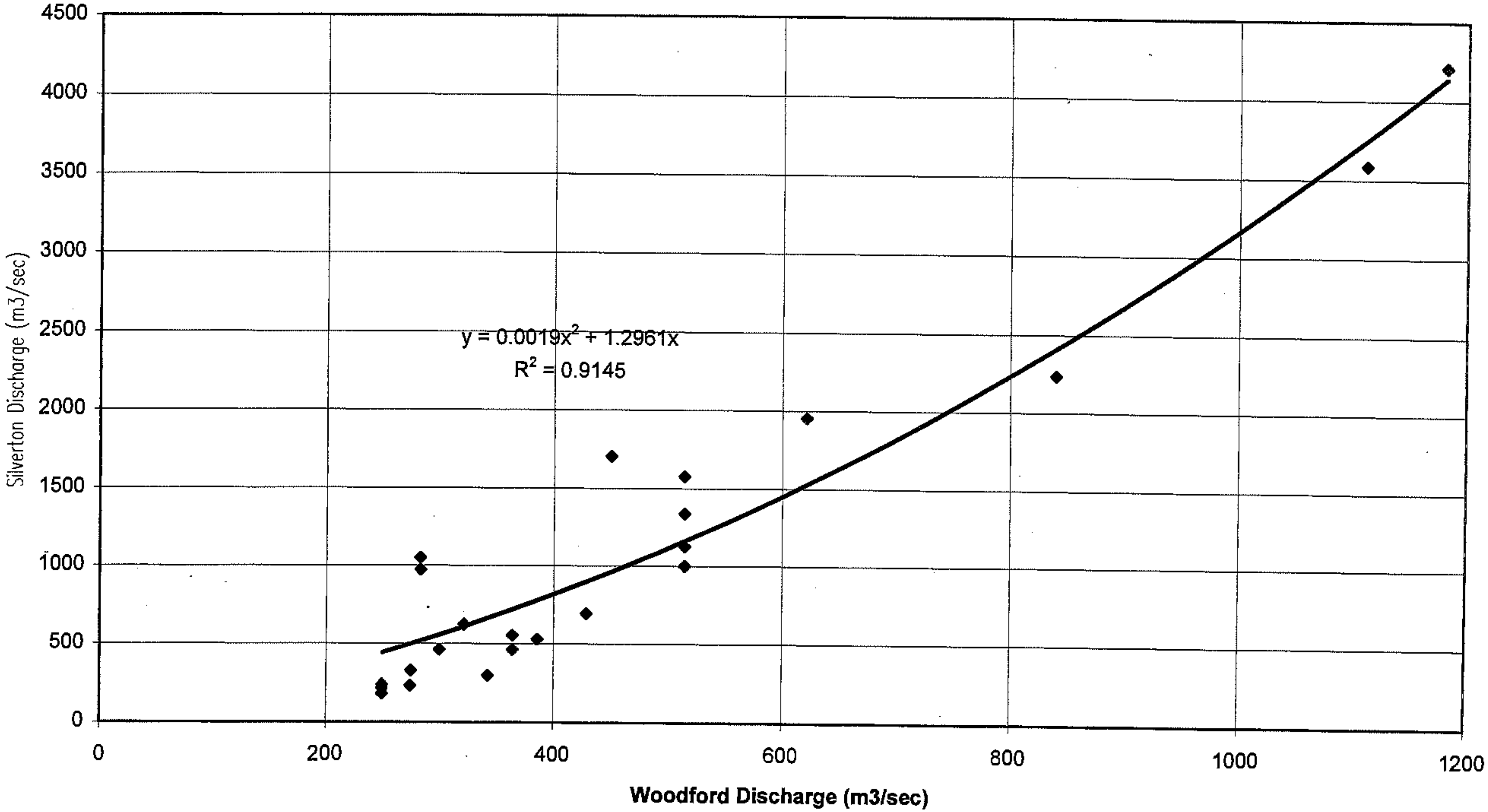


Table E-1 - Calculation of Adjustment Factor for Post Somerset Dam Flows

Date	Recorded Discharge at Woodford (Cumecs)	Calculated Discharge at Somerset Dam (Cumecs)	Recorded Discharge at Somerset Dam (Peak Monthly) (Cumecs)	Adjustment Factor (Calculated - Actual Discharge) (Cumecs)
31/01/44	300	560	241	319
25/03/46	664	1699	1374	325
13/02/47	471	1033	317	716
1/03/47	514	1169	671	498
11/12/47				
1/05/48	429	904	716	188
19/01/50	166	267	115	152
15/02/50	233	405		
18/02/50	233	405		
28/02/50	643	1618	1139	479
1/03/50				
24/06/50				
29/07/50	250	442	352	90
31/01/51	750	2041	1347	694
1/02/51				
21/02/53	879	2605	1506	1099
24/03/53				
13/02/54				
14/07/54	557	1312	46	1266
28/03/55	1041	3407	3078	329
10/02/56				
13/01/56				
15/01/67				
11/02/56				
12/02/56				
11/03/56	536	1240	1397	0
13/03/56				
10/06/58	199	334	84	250
20/12/61	250	442		
2/01/63	258	461		
10/01/63	300	443	215	228
17/03/63	793	2885	1300	1585
8/05/63				
28/03/64	429	904		
23/04/64	124	189		
21/07/65		1243	0	1243
30/01/67	283			
18/03/67	283	1082	1050	32
8/05/67	191	316		
10/06/67	514	1443	1088	355
24/06/67	224	387		
27/06/67	321	613		
12/01/68	450	1894	1491	403
8/12/70	557	1271	0	1271
27/01/71	275	380	285	95
5/02/71				
20/02/71	283	1594	1763	0
24/02/71				
29/12/71	191	316		
12/02/72	1463	444	291	153

Table E-1 - Calculation of Adjustment Factor for Post Somerset Dam Flows

Date	Recorded Discharge at Woodford (Cumecs)	Calculated Discharge at Somerset Dam (Cumecs)	Recorded Discharge at Somerset Dam (Peak Monthly) (Cumecs)	Adjustment Factor (Calculated - Actual Discharge) (Cumecs)
9/03/72	149	3621	1781	1840
3/04/72	664	2270	1175	1095
30/10/72				
8/07/73	879	2605	2070	535
14/01/74	191	4109		
25/01/74	1111	3495	1081	2414
17/02/74	250	442		
12/03/74	579	132	194	0
9/01/75	132	204	0	204
24/12/75	149	235	3	0
20/01/76	514	1200	1098	102
23/02/76	258	461	8	0
3/03/76	224	387	176	0
14/03/76	266	480		
26/03/78	72	103	0	103
2/04/78	60	85	0	85
25/01/79	111	167		
10/02/79	54	76	0	76
8/05/80	195	325	4	0
9/05/80	233	405		
9/02/81			0	0
16/02/81	360	713	0	713
17/02/81	250	442	0	442
8/04/81	54	76	0	76
23/05/81	60	85	6	0
21/01/82	707	1867	0	1867
21/01/82	660	1683	0	1683
4/03/82	90	132	0	132
16/03/82	54	76	0	76
3/05/83	72	103	0	103
24/05/83	224	387	0	387
24/05/83	216	369	0	369
29/05/83				
19/06/83	237	414	0	414
20/06/83	300	560	7	0
22/06/83	729	1953		1953
22/06/83	840	2236	1475	761
7/07/83	36	49	0	49
22/11/83	72	103		103
30/11/83	216	369		369
2/12/83	42	58	0	58
9/04/84	72	103		103
28/07/84	195	325		325
8/11/84	42	58		58
11/03/85	300	560		560
9/07/85	300	560		560

Note: - Calculated discharge at Somerset is based on the flows at Woodford, as illustrated in Figure E-1 - Relationship Between Discharges at Woodford and Silverton

Table E-2 - Historical Data at Woodford and Silverton (1920-1985)

Date	Time	Level (m)	Discharge at Woodford (m^3/s)	Corresponding Discharge at Silverton (DNR) (m^3/s)
8/01/20	1700	4.88	249.60	236.60
7/04/21	600	5.79	364.29	553.70
30/12/21	1600	5.49	300.00	459.70
20/06/25	800	5.94	385.71	528.70
17/12/26	900	5.72	342.86	294.10
24/01/27	1600	6.48	514.29	1127.00
18/02/28	800	6.50	514.29	1000.00
19/04/28	1200	7.01	621.43	1955.00
21/01/29	1000	5.26	283.20	974.70
10/05/30	1930	5.79	364.29	459.70
5/02/31	1500	8.94	1322.22	2022.00
5/04/33	800	5.18	274.80	231.70
16/03/37	2000	5.18	274.80	324.70
20/01/38	730	5.64	321.43	623.20
26/05/38	900	6.10	428.57	694.30
16/03/39	900	4.88	249.60	216.20
19/03/40	900	4.88	249.60	214.90
1/06/41	800	4.88	249.60	181.20
9/02/42	1515	5.79	364.29	
31/01/44	1500	5.46	300.00	
25/03/46	1200	7.16	664.29	
13/02/47	1130	6.25	471.43	
1/03/47	1900	6.48	514.29	
1/05/48		6.10	428.57	
19/01/50		3.91	165.60	
15/02/50	1600	4.72	232.80	
18/02/50		4.72	232.80	
28/02/50	900	7.09	642.86	
29/07/50	900	4.88	249.60	
31/01/51	1230	7.62	750.00	
21/02/53	800	8.23	878.57	
14/07/54	700	6.71	557.14	
28/03/55	330	8.53	1040.74	
11/03/56	1800	6.55	535.71	
10/06/58	900	4.27	199.20	
20/12/61	900	4.88	249.60	
2/01/63	800	5.03	258.00	
10/01/63	1800	5.49	300.00	
17/03/63	900	7.77	792.86	
28/03/64	630	6.10	428.57	
23/04/64	1500	3.35	123.60	
30/01/67	2100	5.33	283.20	
18/03/67	1500	5.33	283.20	1051.00
8/05/67	500	4.22	190.80	
10/06/67	1800	6.50	514.29	1578.00
24/06/67	0	4.57	224.40	
27/06/67	800	5.64	321.43	
12/01/68	1900	6.20	450.00	1708.00
8/12/70	300	6.71	557.14	

Table E-2 - Historical Data at Woodford and Silverton (1920-1985)

Date	Time	Level (m)	Discharge at Woodford (m^3/s)	Corresponding Discharge at Silverton (DNR) (m^3/s)
8/01/20	1700	4.88	249.60	236.60
27/01/71	1500	5.18	274.80	
20/02/71	900	5.33	283.20	
29/12/71	900	4.17	190.80	3587.00
12/02/72	900	9.14	1462.96	
9/03/72	1200	3.68	148.80	
3/04/72	300	7.16	664.29	
8/07/73	300	8.23	878.57	
14/01/74	900	4.20	190.80	
25/01/74	1200	8.60	1111.11	
17/02/74	1500	4.90	249.60	
12/03/74	2100	6.80	578.57	
9/01/75	900	3.50	132.00	
24/12/75	1500	3.70	148.80	
20/01/76	1500	6.50	514.29	
23/02/76	1500	5.00	258.00	
3/03/76	1500	4.60	224.40	
14/03/76	1500	5.10	266.40	
26/03/78	2225	4.68	72.00	
2/04/78	1205	4.50	60.00	
25/01/79	820	5.06	111.00	
10/02/79	1340	4.44	54.00	
8/05/80	2300	5.52	195.00	
9/05/80	900	4.65	232.80	
16/02/81	2115	6.09	360.00	
17/02/81	900	4.90	249.60	
8/04/81	1610	4.36	54.00	
23/05/81	430	4.54	60.00	
21/01/82	1600	7.35	707.14	
21/01/82	1445	6.58	660.00	
4/03/82	955	4.98	90.00	
16/03/82	335	4.40	54.00	
3/05/83	1615	4.73	72.00	
24/05/83	800	4.60	224.40	
24/05/83	0	5.56	216.00	
19/06/83	2100	5.73	237.00	2236.00
20/06/83	1100	5.50	300.00	
22/06/83		7.50	728.57	
22/06/83	1700	6.89	840.00	
7/07/83	300	4.07	36.00	
22/11/83	1245	4.68	72.00	
30/11/83	1355	5.61	216.00	
2/12/83	2005	4.21	42.00	
9/04/84	1415	4.70	72.00	
28/07/84	1055	5.45	195.00	
8/11/84	2245	4.23	42.00	
11/03/85	530	6.03	300.00	
9/07/85	1515	5.97	300.00	

Table E-3 - Historical and Adjusted Data at Moggill (1965-1983)

Date	Time	Level m AHD	Discharge Cumecs	Adjusted Discharge Cumecs
21/07/65	600	5.76	2175.33	3418.33
20/03/67		4.66	1787.00	
12/06/67	1800	7.98	3054.62	3409.60
14/01/68	1100	10.72	4356.11	4759.00
11/12/70	1000	3.82	1485.57	2756.60
4/02/71	1600	6.39	2389.43	
11/02/71	900	3.29	1317.00	
20/02/71	1500	7.50	2846.00	2846.00
24/02/71	1400	3.34	1317.00	
14/02/72	2100	5.14	1919.00	
5/04/72	900	4.84	1820.00	2915.00
10/07/73	730	6.32	2355.57	2891.00
28/01/74	1430	19.93	9745.00	12159.00
9/02/81	1545	2.05	905.52	905.52
22/01/82	1115	3.43	1350.71	3034.00
29/05/83	120	2.24	948.64	
23/06/83	500	5.26	1985.00	2746.00
5/04/89	100	3.73	1451.86	
27/04/89	1200	4.02	1553.00	
18/05/89	0	2.70	1137.75	
13/12/91	300	5.22	1952.00	
17/03/92	1230	2.44	1034.88	
6/05/96	300	7.10	2681.40	

Table E-4 - Historical and Adjusted Data at Port Office (1841-1974)

Date	Level (m)	Discharge AHD-0.15m Cumecs	Adjusted AHD -0.15m Cumecs	Discharge HAT+0.15m Cumecs	Adjusted HAT+0.15m Cumecs
14/01/1841	8.43	14655.2	14655.2	14583.3	14583.3
09/06/1843	2.76	4800.0	5428.6	3500.0	3500.0
10/01/1844	7.03	12241.4	12241.4	11666.7	11666.7
16/04/1852	2.91	4800.0	5571.4	3750.0	3750.0
19/05/1857	3.27	6166.7	6166.7	4750.0	4750.0
16/02/1863	3.32	6166.7	6166.7	4750.0	4750.0
20/03/1864	3.78	7000.0	7000.0	5800.0	5800.0
02/04/1867	2.46	4800.0	5000.0	2666.7	2666.7
10/03/1870	2.89	4800.0	5571.4	3750.0	3750.0
18/06/1873	2.69	4800.0	5285.7	3250.0	3250.0
01/03/1875	2.61	4800.0	5142.9	3000.0	3000.0
16/08/1879	2.46	4800.0	5000.0	2666.7	2666.7
23/01/1887	3.78	7000.0	7000.0	5800.0	5800.0
20/05/1889	3.75	7000.0	7000.0	5800.0	5800.0
13/03/1890	5.33	9200.0	9200.0	8500.0	8500.0
05/02/1893	8.35	14655.2	14655.2	14583.3	14583.3
12/02/1893	2.15	4400.0	4400.0	1000.0	1000.0
19/02/1893	8.09	14137.9	14137.9	13958.3	13958.3
12/06/1893	3.63	6666.7	6666.7	5400.0	5400.0
15/02/1896	2	4000.0	4000.0	0.0	0.0
22/02/1896	0.86	2166.7	2166.7	0.0	0.0
29/02/1896	1.85	3833.3	3833.3	0.0	0.0
13/01/1898	5.02	8714.3	8714.3	6833.3	8000.0
09/03/1898	3.27	6166.7	6166.7	4750.0	4750.0
15/03/08	3.35	6333.3	6333.3	5000.0	5000.0
28/01/27	1.7	3500.0	3500.0	0.0	0.0
22/02/28	1.67	3500.0	3500.0	0.0	0.0
21/04/28	2.15	4400.0	4400.0	1000.0	1000.0
24/01/29	1.85	3833.3	3833.3	0.0	0.0
7/02/31	3.32	6166.7	6166.7	4750.0	4750.0
30/03/55	2.36	4800.0	5129.0	2333.3	2662.3
13/01/56	1.75	3666.7	3666.7	0.0	0.0
15/01/56	1.75	3666.7	3666.7	0.0	0.0
11/02/56	1.39	3000.0	3000.0	0.0	0.0
12/02/56	1.31	2833.3	2833.3	0.0	0.0
12/03/56	1.42	3000.0	3000.0	0.0	0.0
13/03/56	1.34	2833.3	2833.3	0.0	0.0
14/03/56	1.29	2833.3	2833.3	0.0	0.0
12/06/67	1.87	3833.3	4188.3	0.0	355.0
15/01/68	1.97	4000.0	4403.0	0.0	403.0
6/02/71	1.47	3166.7	3166.7	0.0	0.0
29/01/74	5.45	8750.0	11164.0	8833.3	11247.3

Table E-5 - Historical and Adjusted Discharge at Lowood

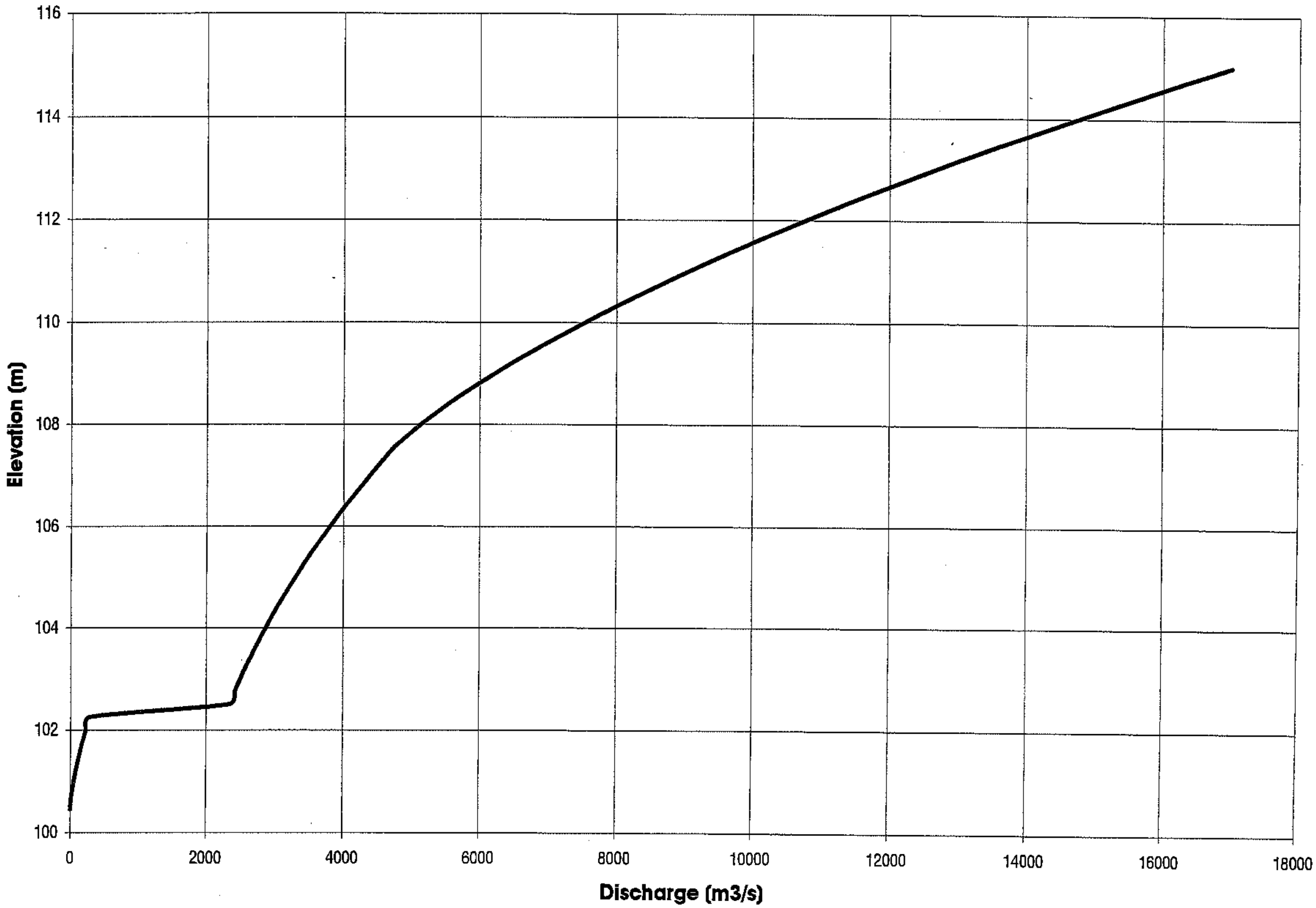
Date	Lowood Discharge Cumecs	Adjusted Lowood Discharge Cumecs
Jan-10	706.3	
Jan-11	1316	
Mar-12	460.7	
Jun-13	416.4	
Feb-14	234.4	
Feb-15	1035	
Dec-16	375.2	
Dec-17	522.2	
Feb-18	379.4	
Dec-21	1280	
Jan-22	1154	
Feb-24	173.2	
Mar-25	673.9	
Jun-25	778.4	
Dec-26	259.5	
Jan-27	2715	
Apr-28	4225	
Jan-29	2064	
Jun-30	749.2	
Feb-31	5574	
Dec-33	446.4	
Feb-34	614.2	
Feb-35	119.9	
Mar-36	138.6	
Mar-37	1102	
May-38	1052	
Mar-39	459.8	
Mar-40	697.3	
Jan-41	425.2	
Feb-42	1360	
Dec-43	1207	
31/01/44	1043	1362
25/03/46	1052	1377
13/02/47	421	1137
1/03/47	803	1302
11/12/47	613	613
1/05/48	544	732
19/01/50	295	448
28/02/50	2451	2930
1/03/50	2298	2298
24/06/50	1043	1043
29/07/50	784	874
31/01/51	2534	3228
1/02/51	2704	2704
21/02/53	764	1863
24/03/53	743	743
13/02/54	2111	2111
14/07/54	1922	3188
28/03/55	5363	5692
10/02/56	1365	1365
11/03/56	2141	2141

Table E-5 - Historical and Adjusted Discharge at Lowood

Date	Lowood Discharge Cumecs	Adjusted Lowood Discharge Cumecs
10/06/58	1520	1770
20/12/61	152	152
10/01/63	230	458
17/03/63	115	1700
8/05/63	502	502
28/03/64	258	258
23/04/64	12	12
21/07/65	1238	2481
30/01/67	254	254
18/03/67	1272	1304
8/05/67	215	215
10/06/67	2351	2706
12/01/68	3363	3766
8/12/70	582	1853
27/01/71	482	577
5/02/71	1071	1071
20/02/71	2779	2779
29/12/71	578	578
12/02/72	1842	1995
9/03/72	266	2106
3/04/72	1665	2760
30/10/72	531	531
8/07/73	2709	3244
25/01/74	7393	9807
17/02/74	835	835
12/03/74	874	874
9/01/75	203	407
24/12/75	520	520
20/01/76	1610	1712
23/02/76	1047	1047
14/03/76	1059	1059
26/03/78	59	162
2/04/78	351	436
25/01/79	298	298
10/02/79	35	110
9/05/80	44	44
16/02/81	765	1478
8/04/81	49	124
23/05/81	10	10
21/01/82	1006	2873
4/03/82	422	554
24/05/83	525	911
22/06/83	1659	2420
7/07/83	409	458
30/11/83	13	381
2/12/83		58
9/04/84	134	237
28/07/84		325
8/11/84	108	166
11/03/85	22	582
9/07/85	63	623

Appendix F - Dam Operations

Figure F-1 - Somerset Dam - Height vs Discharge Curve



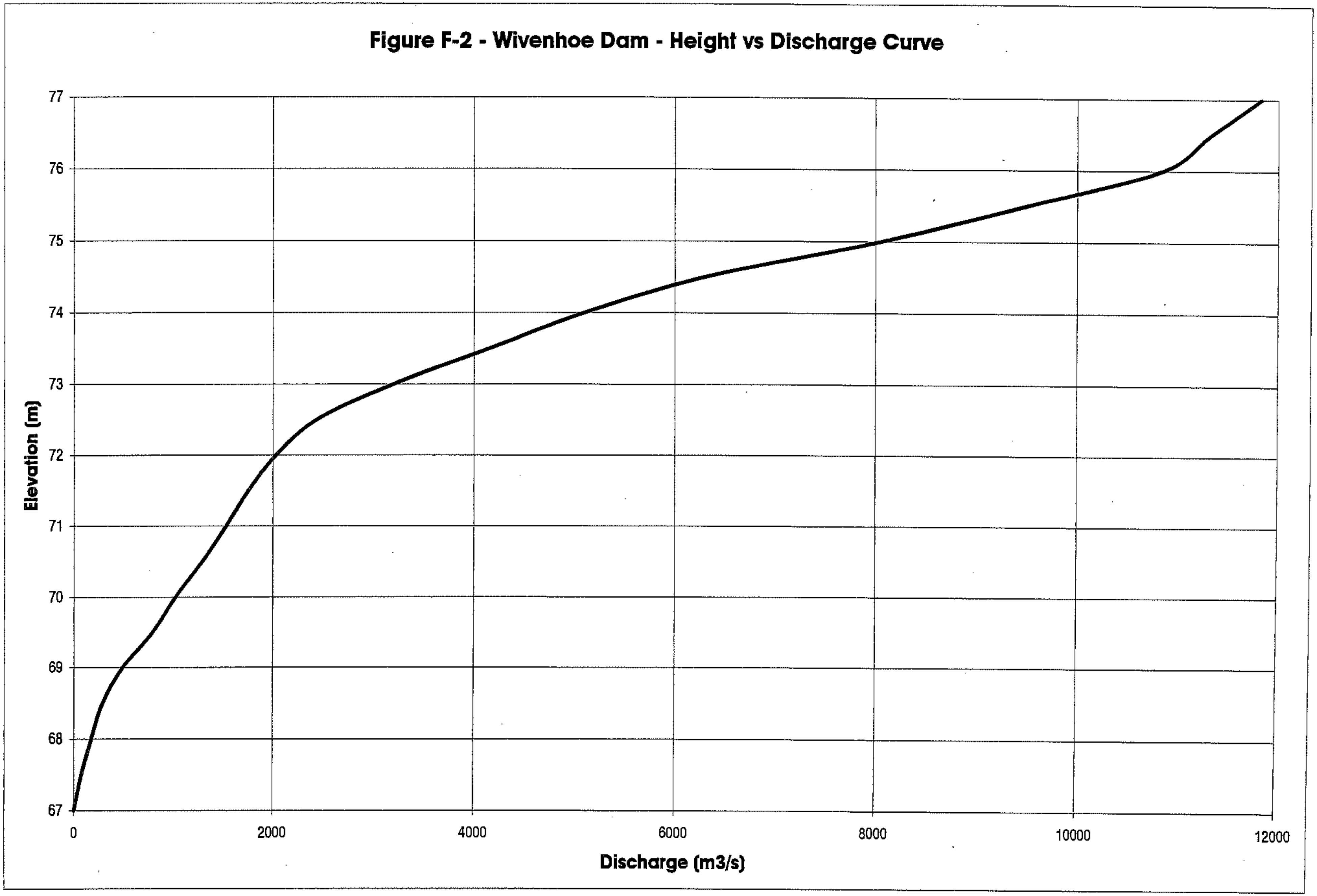
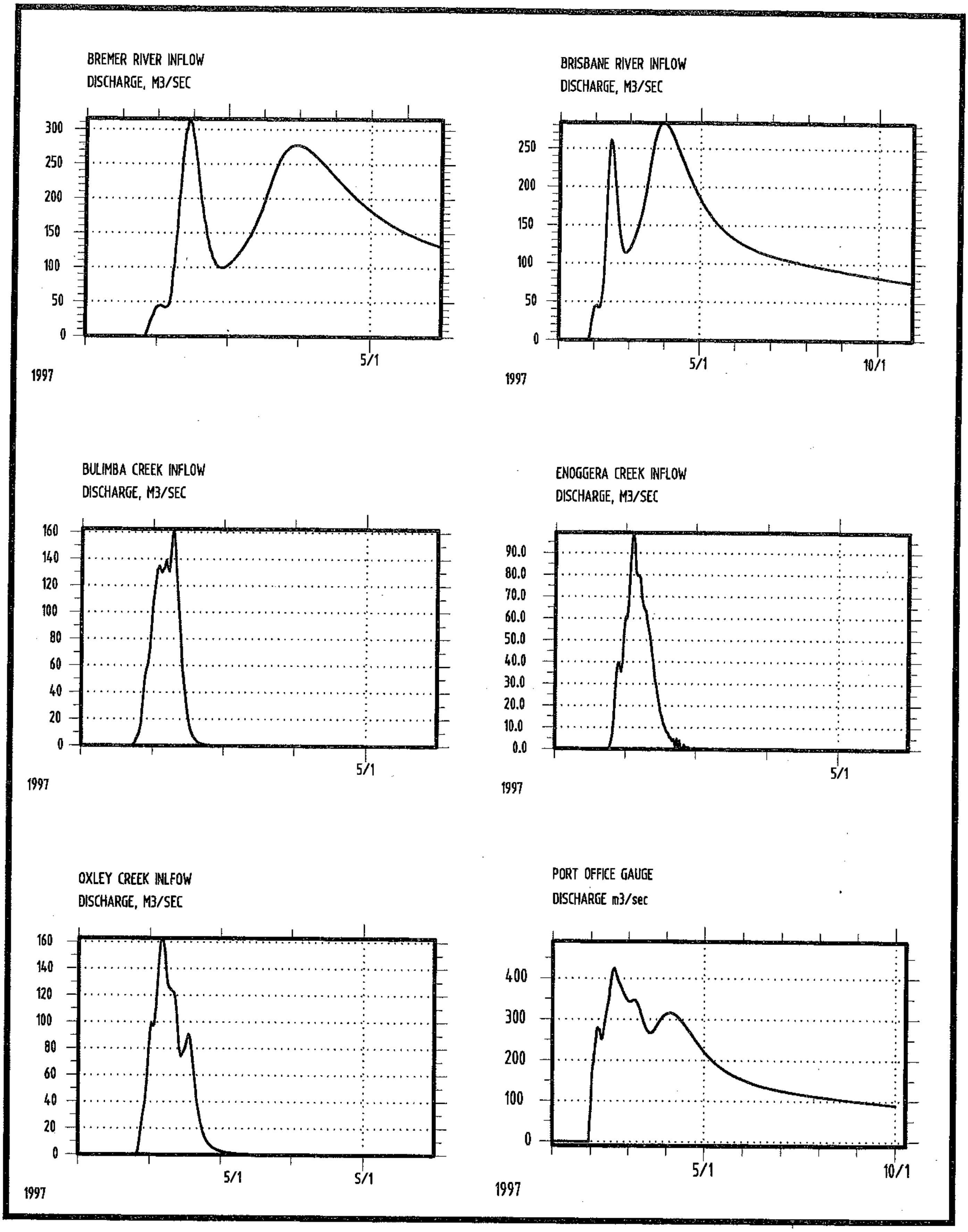


Figure F-2 - Wivenhoe Dam - Height vs Discharge Curve
77
76
75
74
73
72
71
70
69
68
67
Elevation (m)
0
2000
4000
6000
8000
10000
12000
Discharge (m3/s)

Appendix G - Design Discharge Hydrographs

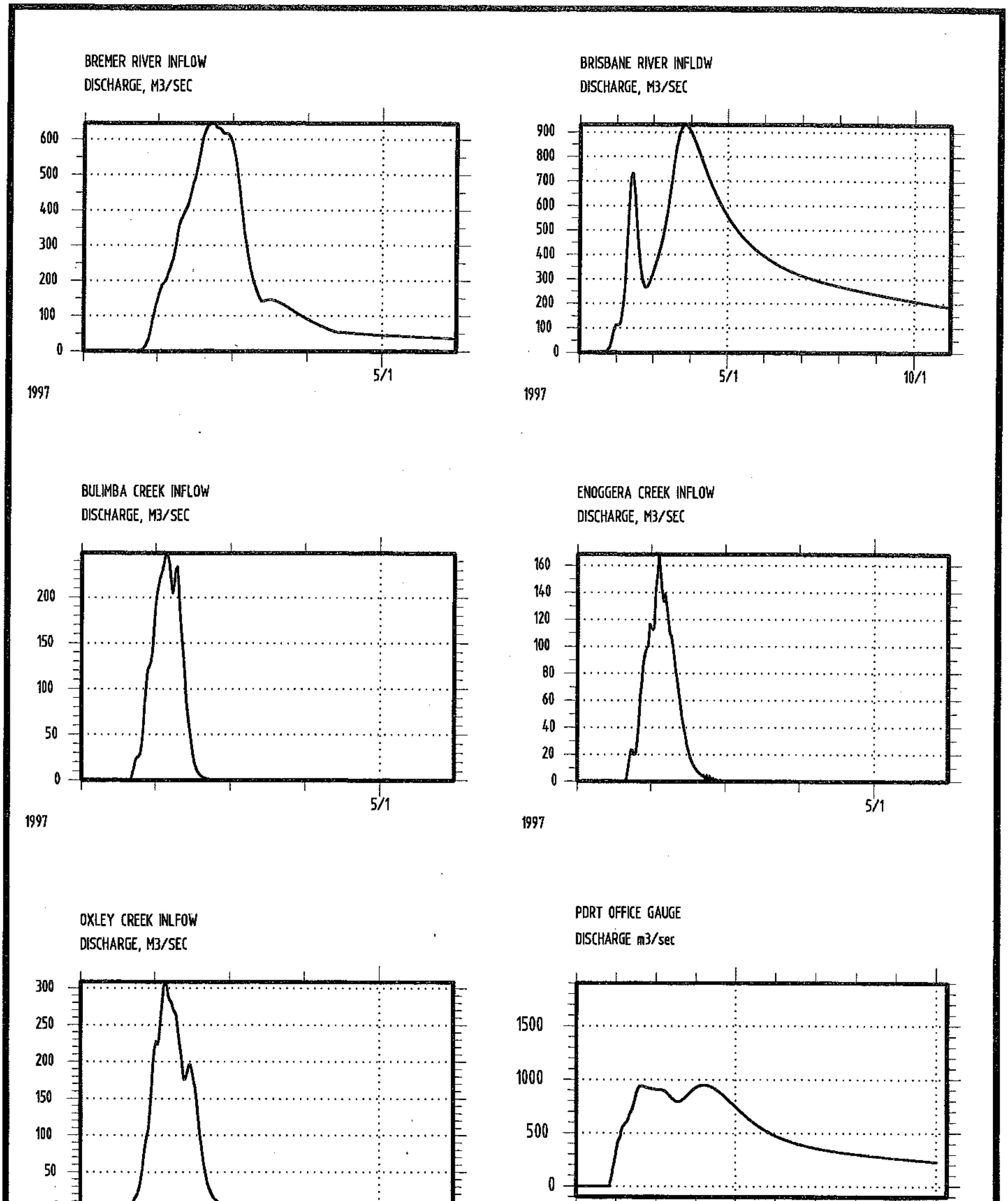
FIGURE G-1
BRISBANE RIVER FLOOD STUDY HYDROGRAPHS FOR THE 2 YEAR ARI FLOOD EVENT



FILE NAME: 4157-251 DISK N°: G:\ JOB N°: TO0457 DATE: 17-2-
PLOT SCALE: 1=1

FIGURE G-2

BRISBANE RIVER FLOOD STUDY
HYDROGRAPHS FOR THE 5 YEAR ARI FLOOD EVENT



FILE NAME: 4157-252 PLOT SCALE: 1=1 DISK N°: G:\ JOB N°: T00457 DATE: 17-2-98

SINCLAIR KNIGHT MERZ

FIGURE G-3

BRISBANE RIVER FLOOD STUDY HYDROGRAPHS FOR THE 10 YEAR ARI FLOOD EVENT

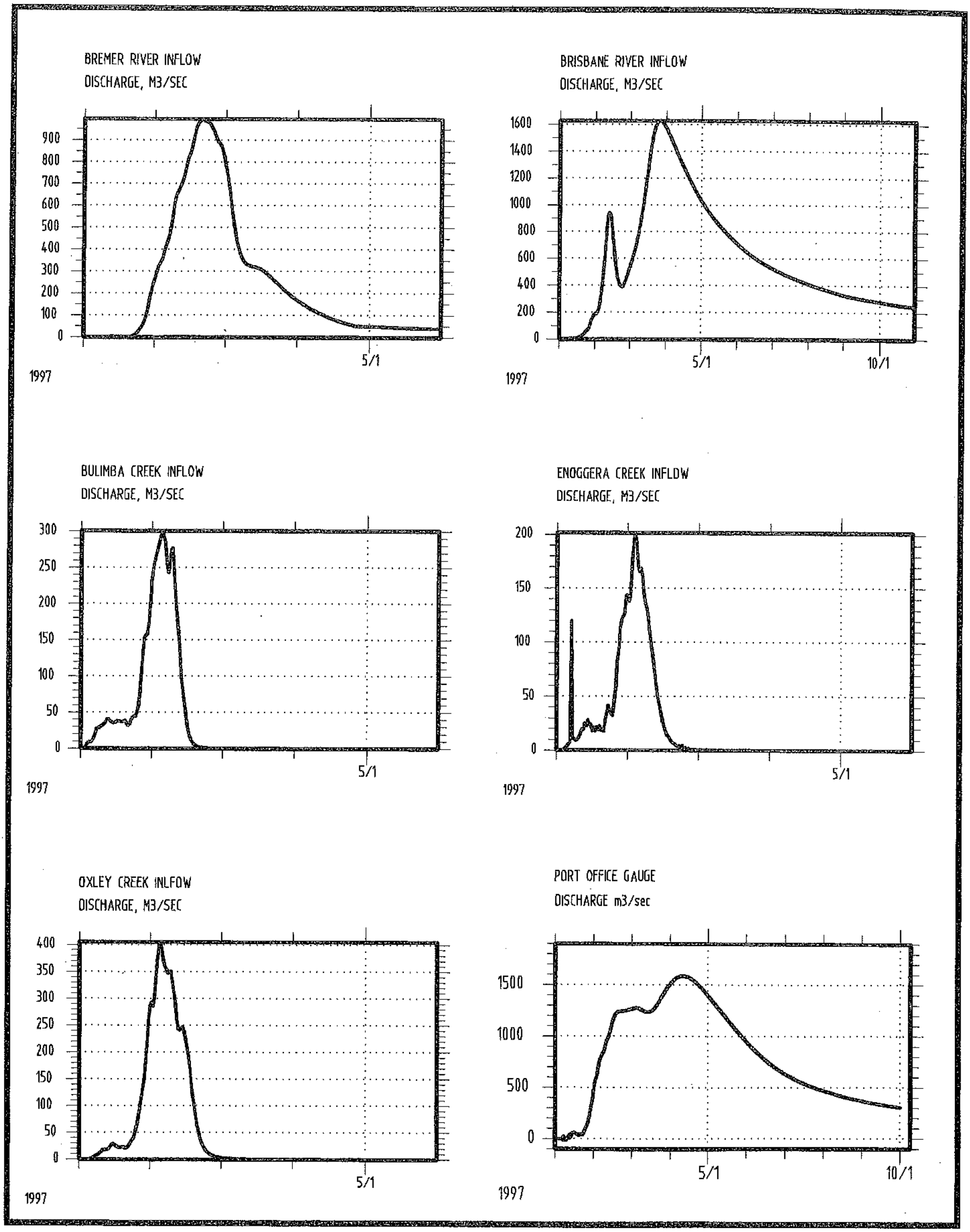
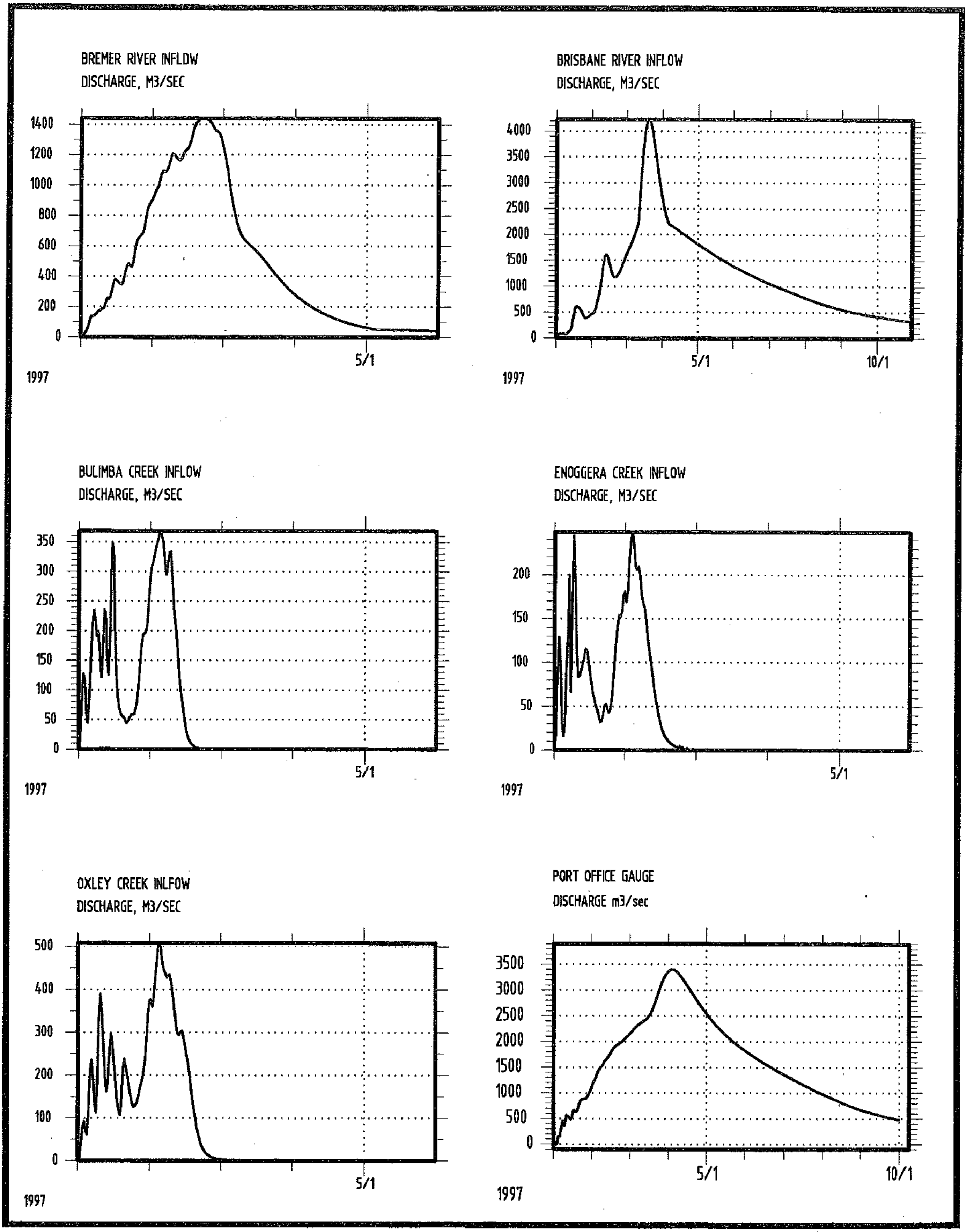


FIGURE G-4
BRISBANE RIVER FLOOD STUDY HYDROGRAPHS FOR THE 20 YEAR ARI FLOOD EVENT



SINCLAIR KNIGHT MERZ

FIGURE G-5
BRISBANE RIVER FLOOD STUDY
HYDROGRAPHS FOR THE 50 YEAR ARI FLOOD EVENT

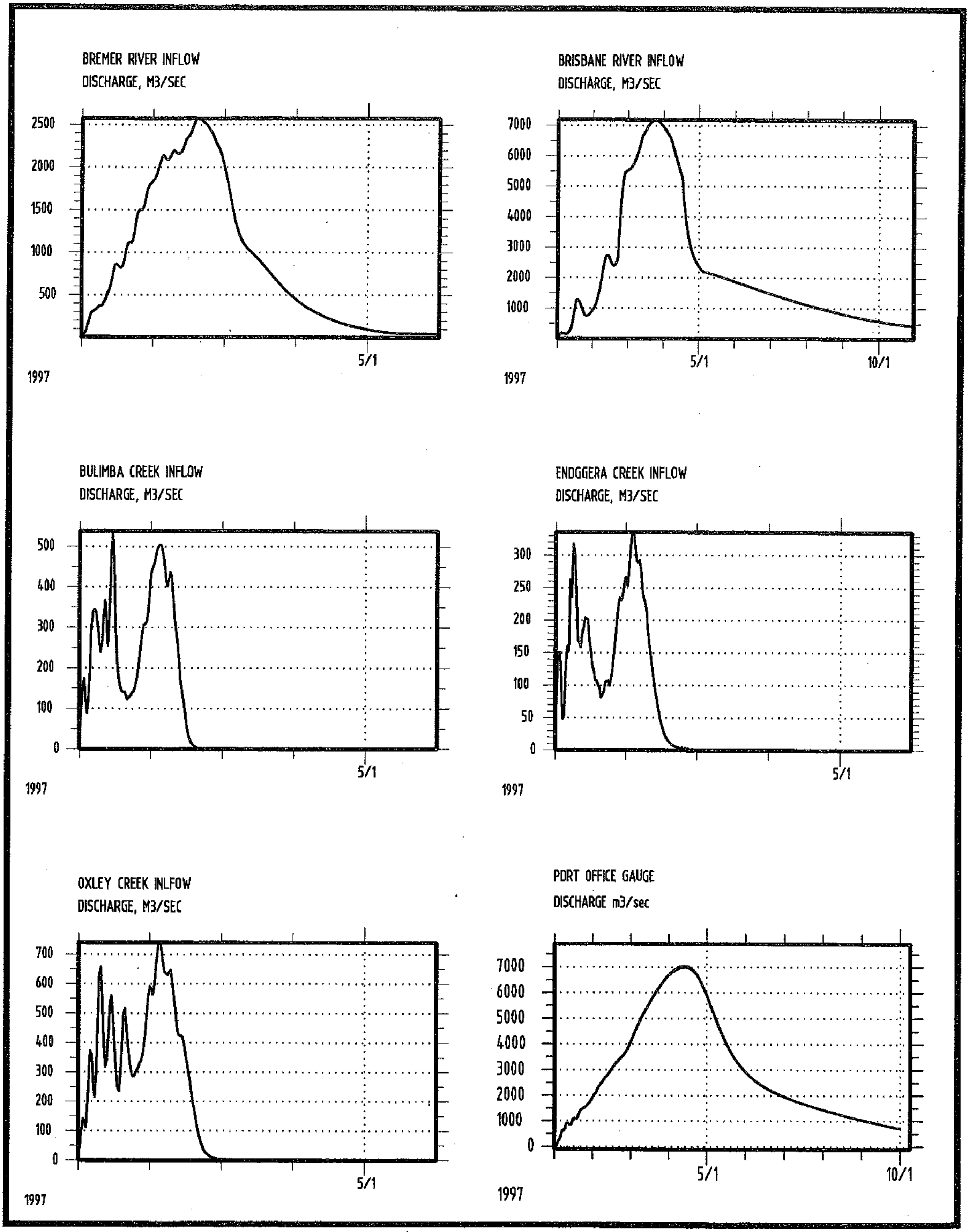
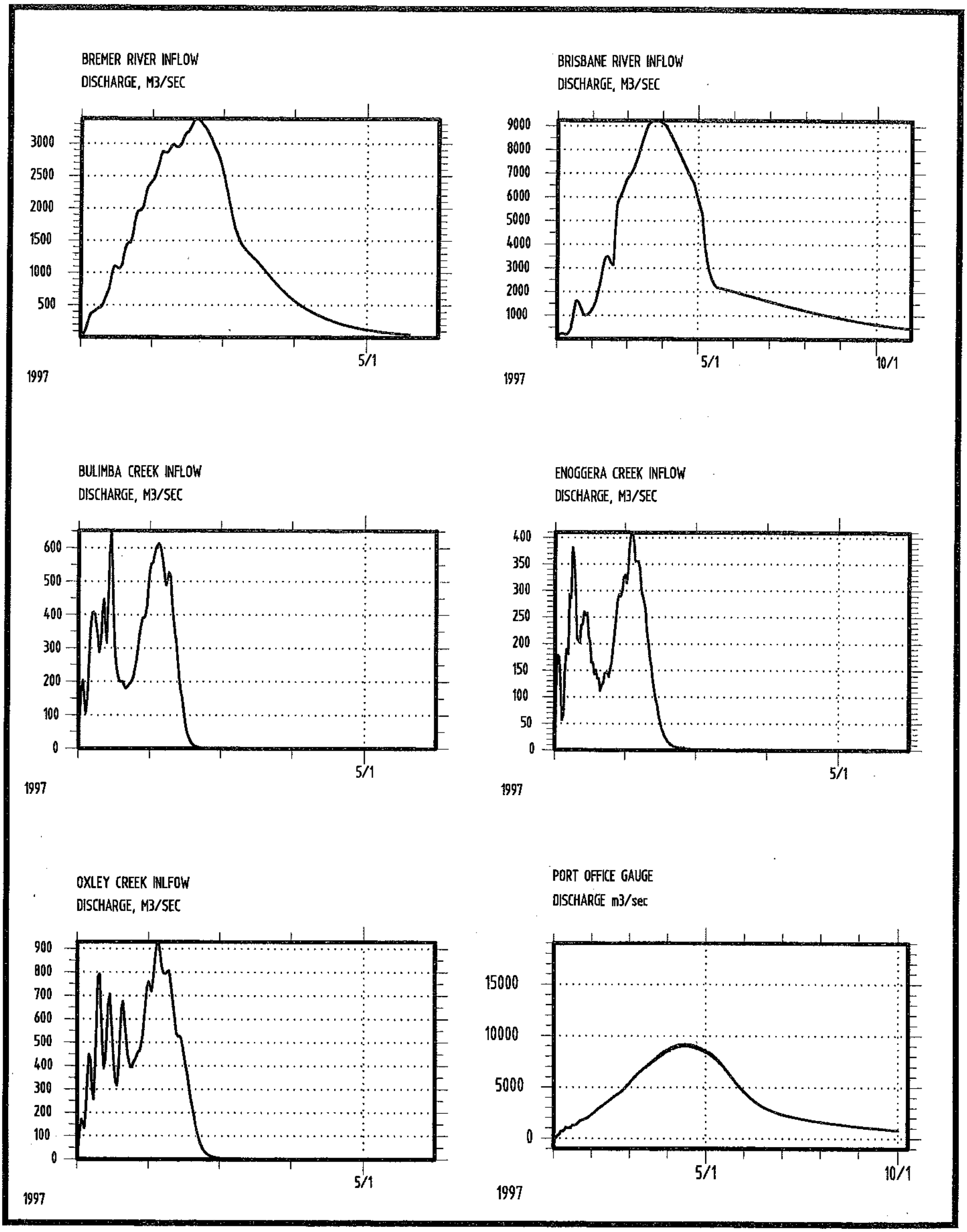


FIGURE G-6
BRISBANE RIVER FLOOD STUDY HYDROGRAPHS FOR THE 100 YEAR ARI FLOOD EVENT



FILE NAME: 4157-256 PL... LE: 1: DISK N°: G:\ JOB N°: T004157 DATE: 17-2-98

FIGURE G-7

SINCLAIR KNIGHT MERZ

BRISBANE RIVER FLOOD STUDY
HYDROGRAPHS FOR THE 200 YEAR ARI
FLOOD EVENT

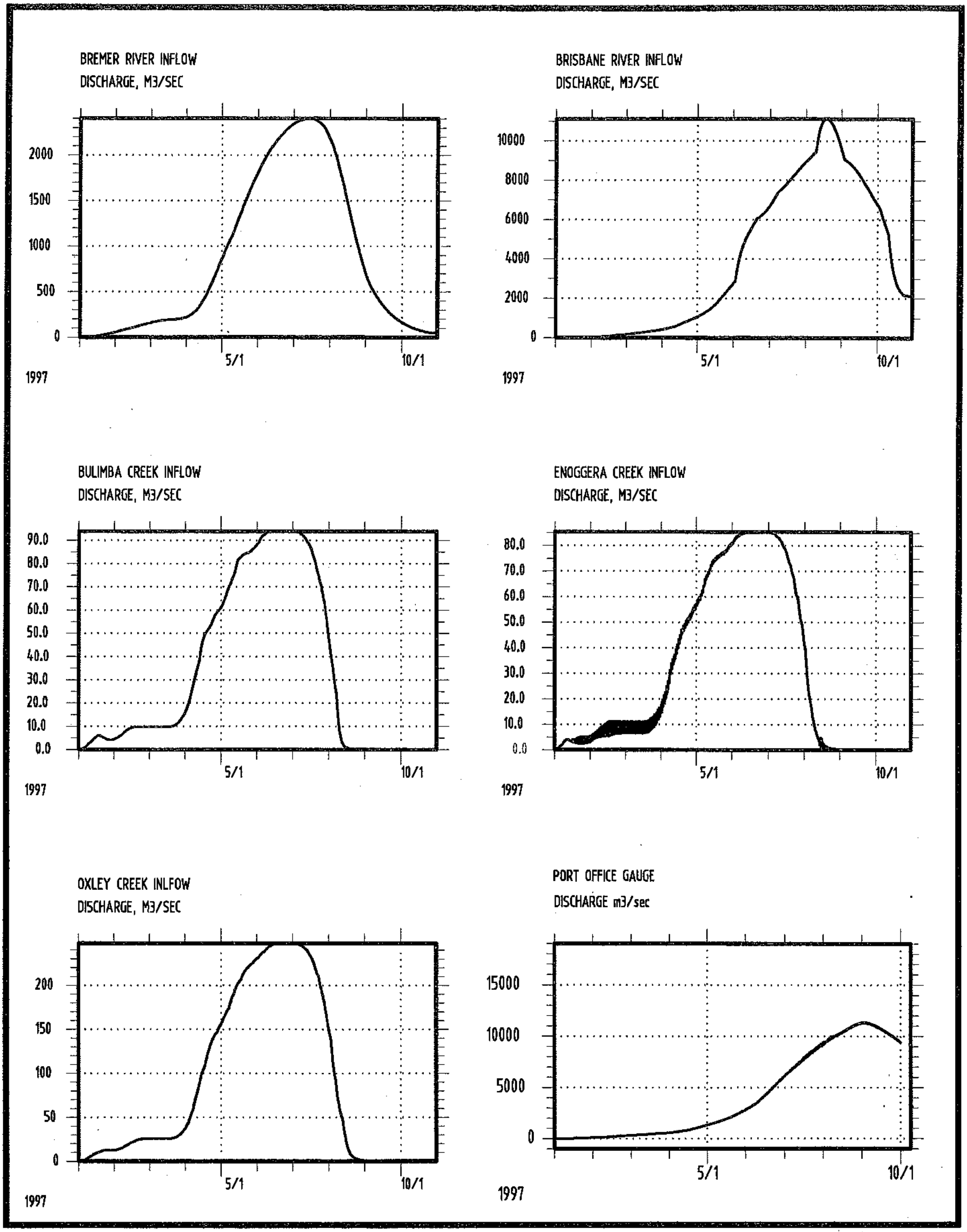
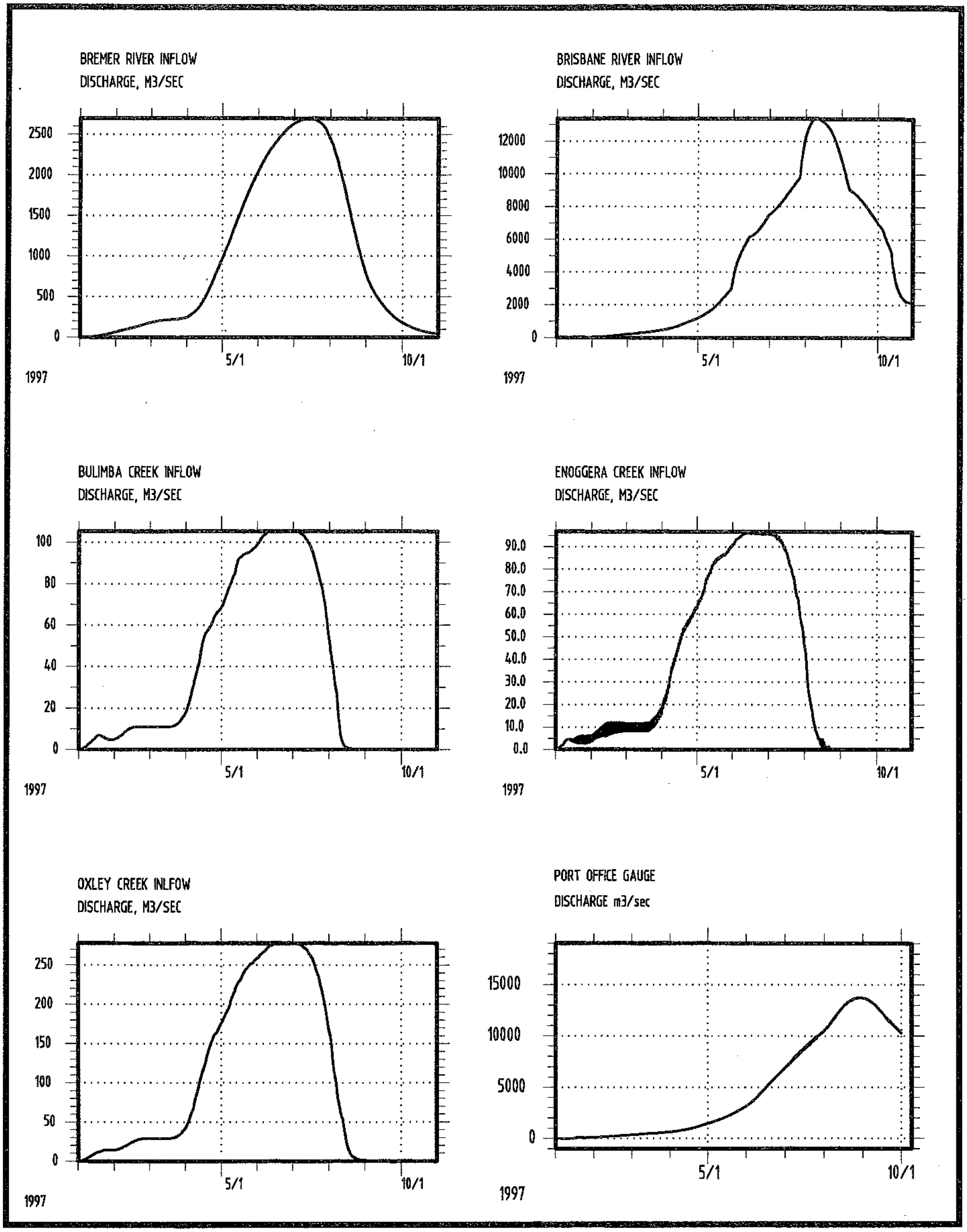


FIGURE G-8

BRISBANE RIVER FLOOD STUDY
HYDROGRAPHS FOR THE 500 YEAR ARI
FLOOD EVENT

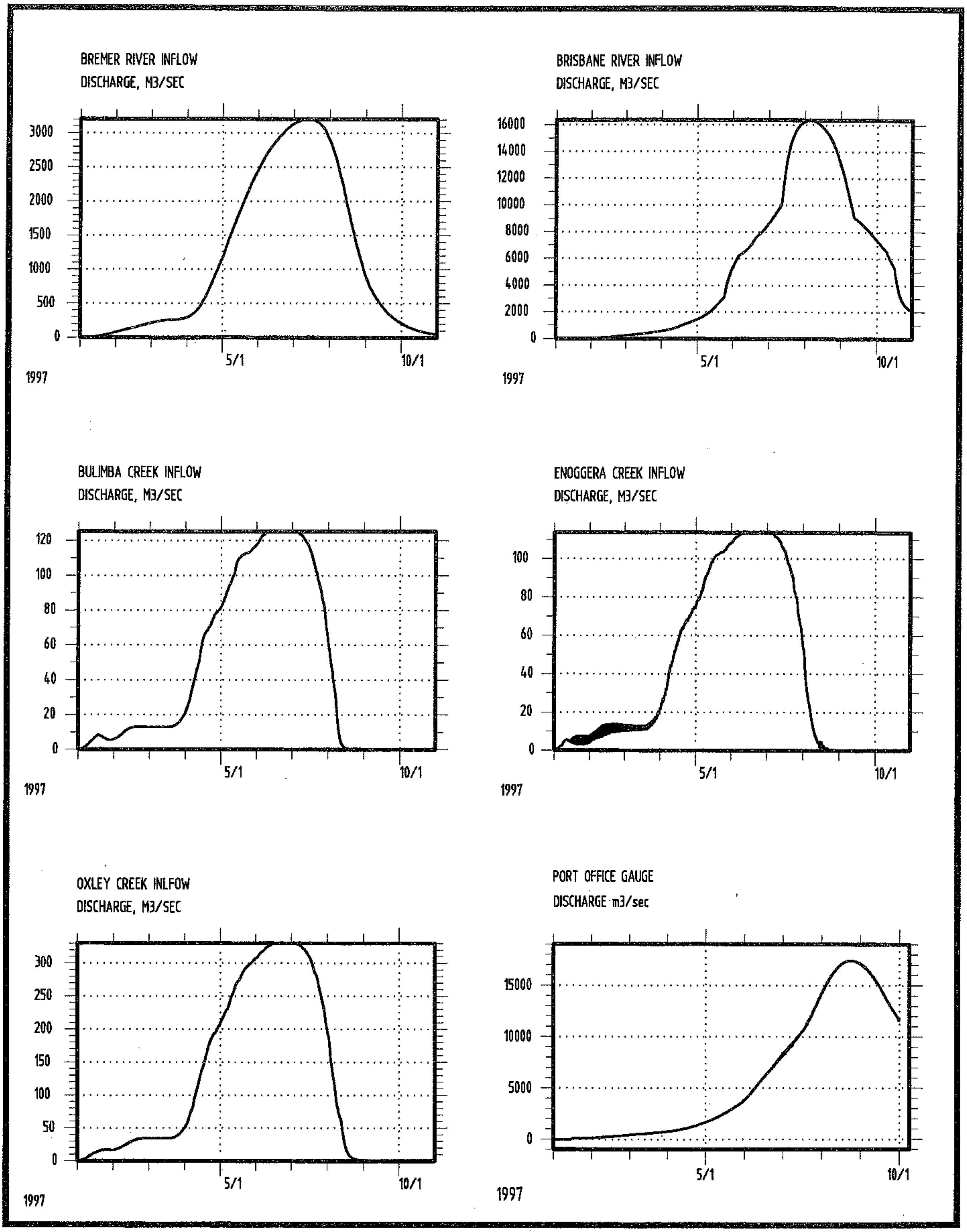
SINCLAIR KNIGHT MERZ



FILE NAME: 4157-258 PLOT SCALE: 1=1 DISK No: G:\ JOB No: T00/ DATE: 17-2-98

SINCLAIR KNIGHT MERZ

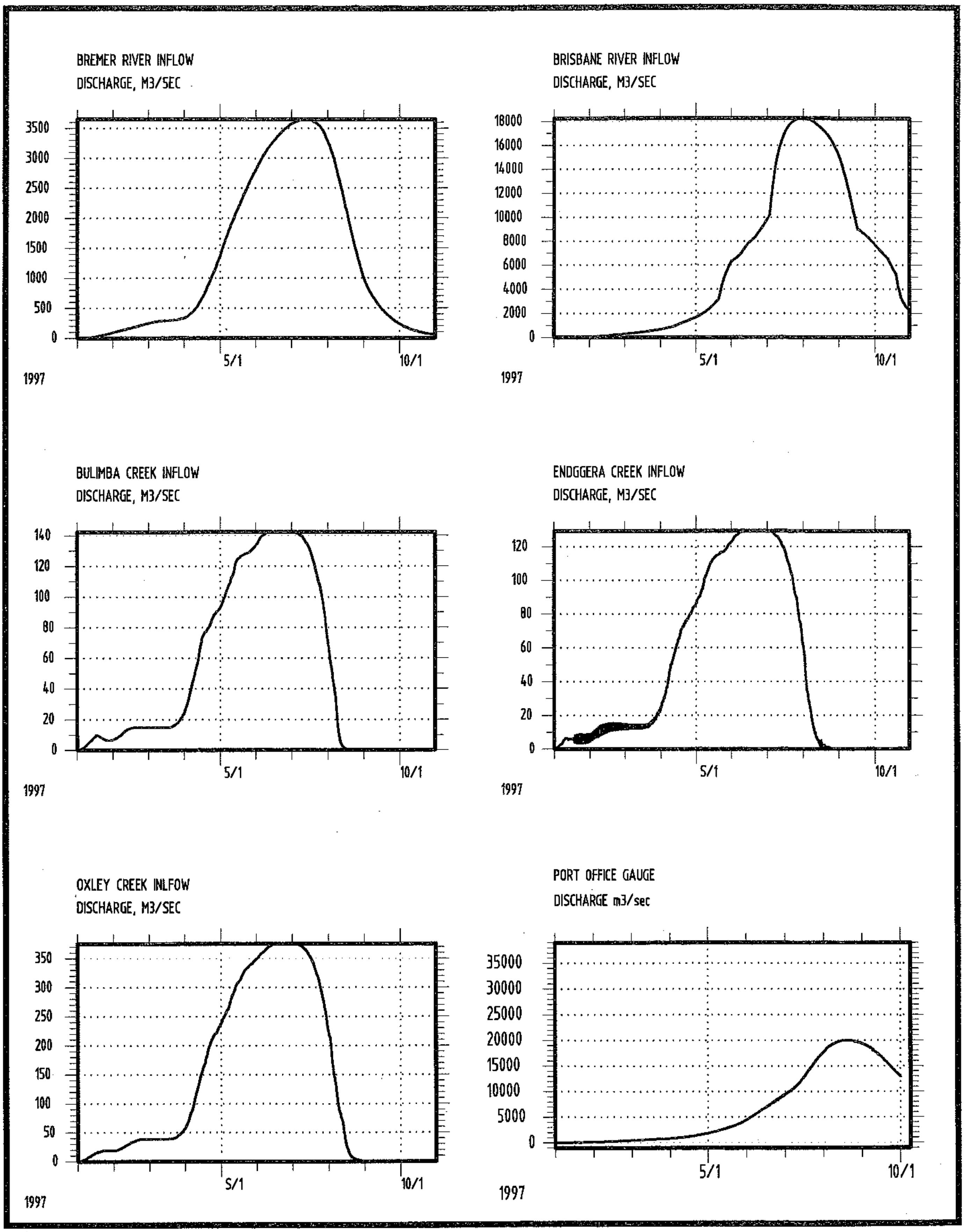
FIGURE G-9
BRISBANE RIVER FLOOD STUDY
HYDROGRAPHS FOR THE 1000 YEAR ARI FLOOD EVENT



PLOT SCALE: 1=1

FIGURE G-10

BRISBANE RIVER FLOOD STUDY HYDROGRAPHS FOR THE 2000 YEAR ARI FLOOD EVENT

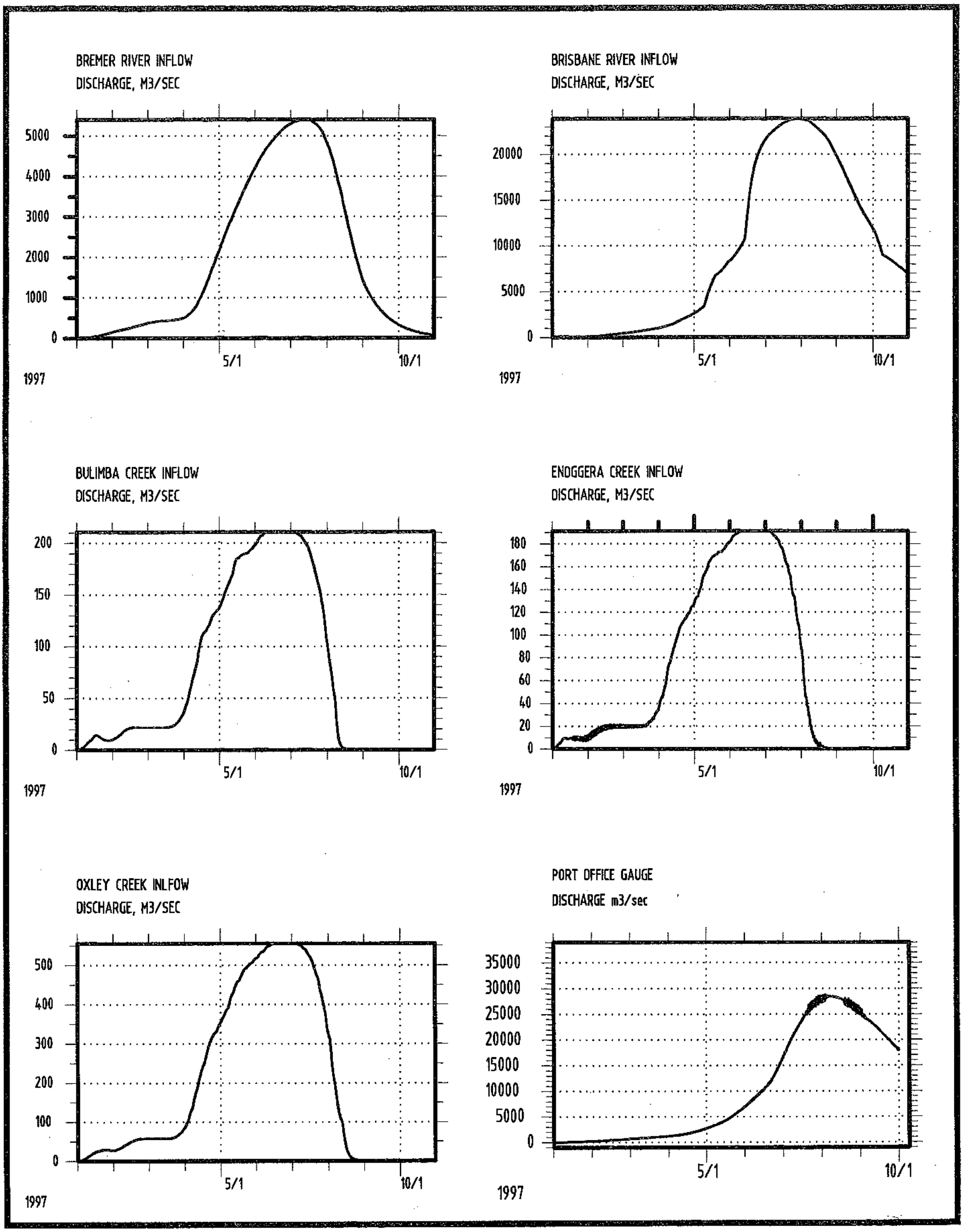


FILE NAME: 4157-240 DISK No: G:\ JOB No: T004157 DATE: 17-2-98
PLOT SCALE: 1=1

SINCLAIR KNIGHT MERZ

FIGURE G-11

BRISBANE RIVER FLOOD STUDY
HYDROGRAPHS FOR THE 10 000 YEAR ARI
FLOOD EVENT

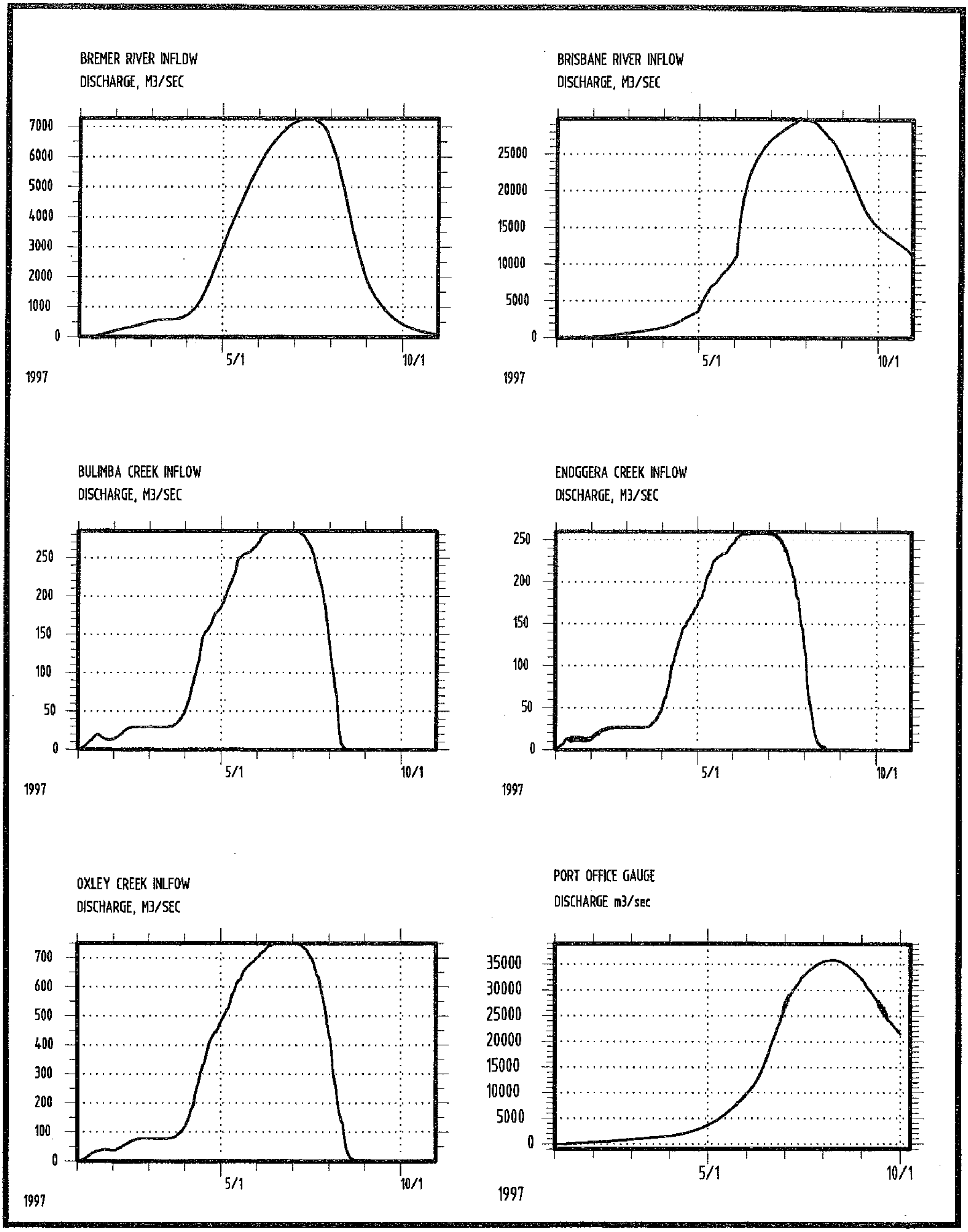


FILE : 415 PLOT SCALE: 1=1

SINCLAIR KNIGHT MERZ

FIGURE G-12

BRISBANE RIVER FLOOD STUDY
HYDROGRAPHS FOR THE PMF
(100 000 YEAR ARI) FLOOD EVENT



Appendix H - Design Hydraulic Modelling Results - Existing Conditions

TABLE H-1 - Combined Tailwater and River Flooding Conditions - Moreton Bay Storm Surge

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	Design Events - Existing Case		
					100 Year ARI Flood 100 Year Moreton Bay Storm Surge (m AHD)	100 Year ARI Flood 20 Year Moreton Bay Storm Surge (m AHD)	20 Year ARI Flood 100 Year Moreton Bay Storm Surge (m AHD)
BRISBANE	1000	78.66	BN 2020		22.80	22.79	13.39
BRISBANE	1000.285	78.375	BN 2010		22.61	22.59	13.23
BRISBANE	1000.775	77.885	BN 2000		22.33	22.32	12.98
BRISBANE	1001.315	77.345	BN 1990		22.24	22.23	12.82
BRISBANE	1001.865	76.795	BN 1980		21.72	21.71	12.42
BRISBANE	1002.35	76.310	BN 1970		21.53	21.51	12.12
BRISBANE	1002.785	75.875	BN 1960		21.51	21.49	12.07
BRISBANE	1003.275	75.385	BN 1950		21.18	21.17	11.76
BRISBANE	1003.775	74.885	BN 1940		20.91	20.90	11.50
BRISBANE	1004.3	74.360	BN 1930		20.46	20.44	11.09
BRISBANE	1004.81	73.850	BN 1920		20.43	20.41	10.98
BRISBANE	1005.325	73.335	BN 1910		20.25	20.24	10.81
BRISBANE	1005.87	72.790	BN 1900		19.95	19.93	10.56
BRISBANE	1006.3	72.360	BN 1890	Moggill Gauge	19.77	19.76	10.48
BRISBANE	1006.91	71.750	BN 1880		19.57	19.56	10.30
BRISBANE	1007.41	71.250	BN 1870		19.54	19.53	10.24
BRISBANE	1007.92	70.740	BN 1860		19.26	19.24	10.05
BRISBANE	1008.445	70.215	BN 1850		19.08	19.06	9.96
BRISBANE	1008.925	69.735	BN 1840		19.02	19.00	9.92
BRISBANE	1009.4	69.260	BN 1830		18.93	18.91	9.84
BRISBANE	1009.72	68.940	BN 1820		18.92	18.90	9.81
BRISBANE	1010.49	68.170	BN 1810		18.56	18.54	9.64
BRISBANE	1010.725	67.935	BN 1800		18.58	18.56	9.65
BRISBANE	1010.98	67.680	BN 1790		18.51	18.49	9.60
BRISBANE	1011.51	67.150	BN 1780		18.50	18.48	9.56
BRISBANE	1011.98	66.680	BN 1770		18.50	18.48	9.51
BRISBANE	1012.475	66.185	BN 1760		18.40	18.38	9.43
BRISBANE	1012.935	65.725	BN 1750		18.29	18.27	9.36
BRISBANE	1013.445	65.215	BN 1740		18.21	18.19	9.29
BRISBANE	1013.91	64.750	BN 1730		18.15	18.13	9.23
BRISBANE	1014.31	64.350	BN 1720		18.12	18.10	9.17
BRISBANE	1014.61	64.050	BN 1710	Goodna Hospital Gauge	18.16	18.14	9.12
BRISBANE	1015.09	63.570	BN 1700		18.02	18.00	9.09
BRISBANE	1015.56	63.100	BN 1690		17.89	17.87	9.01
BRISBANE	1016.14	62.520	BN 1680		17.79	17.77	8.95
BRISBANE	1016.64	62.020	BN 1670		17.70	17.68	8.85
BRISBANE	1017.13	61.530	BN 1660		17.47	17.45	8.69
BRISBANE	1017.61	61.050	BN 1650		17.35	17.32	8.52
BRISBANE	1017.92	60.740	BN 1640		17.19	17.16	8.40
BRISBANE	1018.2	60.460	BN 1630		17.11	17.09	8.37
BRISBANE	1018.725	59.935	BN 1620		16.79	16.76	8.23
BRISBANE	1019.095	59.565	BN 1610		16.65	16.62	8.12
BRISBANE	1019.49	59.170	BN 1600		16.54	16.52	8.04
BRISBANE	1019.865	58.795	BN 1590		16.25	16.22	7.92
BRISBANE	1020.115	58.545	BN 1580		16.35	16.32	7.91
BRISBANE	1020.525	58.135	BN 1570		16.32	16.29	7.87
BRISBANE	1020.83	57.830	BN 1560		16.17	16.14	7.80
BRISBANE	1021.095	57.565	BN 1550		15.96	15.93	7.70
BRISBANE	1021.539	57.121	BN 1540		15.80	15.76	7.58
BRISBANE	1021.715	56.945	BN 1530		15.82	15.79	7.57
BRISBANE	1021.895	56.765	BN 1520		15.76	15.73	7.54
BRISBANE	1022.105	56.555	BN 1510		15.63	15.60	7.51
BRISBANE	1022.575	56.085	BN 1500		15.56	15.53	7.44
BRISBANE	1023.04	55.620	BN 1490		15.32	15.29	7.33
BRISBANE	1023.57	55.090	BN 1480		15.23	15.19	7.31
BRISBANE	1024.08	54.580	BN 1470		15.18	15.14	7.25
BRISBANE	1024.563	54.097	BN 1460		15.12	15.08	7.18
BRISBANE	1025.07	53.590	BN 1450		15.03	14.99	7.12
BRISBANE	1025.36	53.300	BN 1440		14.88	14.85	7.05
BRISBANE	1025.59	53.070	BN 1430		14.72	14.69	6.97
BRISBANE	1026.17	52.490	BN 1420		14.60	14.57	6.93
BRISBANE	1026.68	51.980	BN 1410	Mt Ommaney Gauge	14.50	14.46	6.84
BRISBANE	1026.9	51.760	BN 1400		14.37	14.34	6.78
BRISBANE	1027.16	51.500	BN 1390		14.23	14.20	6.74
BRISBANE	1027.68	50.980	BN 1380		14.29	14.26	6.72
BRISBANE	1028.18	50.480	BN 1370		14.32	14.28	6.72
BRISBANE	1028.68	49.980	BN 1360		14.19	14.15	6.65
BRISBANE	1028.72	49.940	BN1350	Centenary Bridge			
BRISBANE	1028.76	49.900	BN 1340		14.04	14.00	6.59
BRISBANE	1029.2	49.460	BN 1330		13.93	13.89	6.52
BRISBANE	1029.68	48.980	BN 1320		13.95	13.91	6.52
BRISBANE	1030.22	48.440	BN 1310		13.95	13.91	6.51
BRISBANE	1030.87	47.790	BN 1300		13.88	13.84	6.47
BRISBANE	1031.26	47.400	BN 1290		13.72	13.68	6.41
BRISBANE	1031.7	46.960	BN 1280	Darra Wharf Gauge	13.34	13.30	6.27
BRISBANE	1031.995	46.665	BN 1270		13.45	13.41	6.23
BRISBANE	1032.23	46.430	BN 1260		13.32	13.28	6.18
BRISBANE	1032.585	46.075	BN 1250		13.09	13.04	6.09
BRISBANE	1033.08	45.580	BN 1240		12.94	12.89	6.01
BRISBANE	1033.37	45.290	BN 1230		12.83	12.78	5.96
BRISBANE	1033.9	44.760	BN 1220		12.60	12.56	5.86

TABLE H-1 - Combined Tailwater and River Flooding Conditions - Moreton Bay Storm Surge

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	Design Events - Existing Case		
					100 Year ARI Flood 100 Year Moreton Bay Storm Surge (m AHD)	100 Year ARI Flood 20 Year Moreton Bay Storm Surge (m AHD)	20 Year ARI Flood 100 Year Moreton Bay Storm Surge (m AHD)
BRISBANE	1034.37	44.290	BN 1210		12.45	12.40	5.81
BRISBANE	1034.89	43.770	BN 1200	Sherwood Gauge	12.35	12.30	5.74
BRISBANE	1035.414	43.246	BN 1190		12.11	12.06	5.63
BRISBANE	1035.9	42.760	BN 1180		11.83	11.78	5.50
BRISBANE	1036.46	42.200	BN 1170		11.53	11.48	5.37
BRISBANE	1036.77	41.890	BN 1160		11.46	11.40	5.32
BRISBANE	1036.915	41.745	BN 1150		11.30	11.25	5.27
BRISBANE	1037.09	41.570	BN 1140		11.26	11.20	5.26
BRISBANE	1037.11	41.550	BN 1130	Indooroopilly Bridge			
BRISBANE	1037.175	41.485	BN 1120		11.17	11.11	5.12
BRISBANE	1037.285	41.375	BN 1110	Clarence Road Gauge	11.12	11.06	5.09
BRISBANE	1037.625	41.035	BN 1100		11.10	11.05	5.06
BRISBANE	1038.085	40.575	BN 1090		11.13	11.07	5.05
BRISBANE	1038.6	40.060	BN 1080		11.11	11.05	5.01
BRISBANE	1039.1	39.560	BN 1070		11.10	11.04	4.99
BRISBANE	1039.565	39.095	BN 1060	Oxley Creek Gauge	11.12	11.06	4.98
BRISBANE	1040.09	38.570	BN 1050	King Authur Terrace Gauge	11.04	10.98	4.98
BRISBANE	1040.49	38.170	BN 1040		10.91	10.85	4.93
BRISBANE	1041.01	37.650	BN 1030		10.95	10.89	4.93
BRISBANE	1041.23	37.430	BN 1020		10.92	10.85	4.90
BRISBANE	1041.46	37.200	BN 1010	Tennyson Power House Gauge	10.83	10.77	4.87
BRISBANE	1041.7	36.960	BN 1000		10.80	10.74	4.87
BRISBANE	1041.96	36.700	BN 990	Yeronga Street Gauge	10.67	10.60	4.81
BRISBANE	1042.235	36.425	BN 980		10.52	10.45	4.76
BRISBANE	1042.515	36.145	BN 970		10.52	10.45	4.74
BRISBANE	1042.91	35.750	BN 960		10.46	10.39	4.68
BRISBANE	1043.725	34.935	BN 950		10.15	10.08	4.55
BRISBANE	1044.06	34.600	BN 940	Sandy Creek Gauge	10.00	9.92	4.51
BRISBANE	1044.34	34.320	BN 930		9.84	9.76	4.46
BRISBANE	1044.605	34.055	BN 920		9.79	9.71	4.42
BRISBANE	1044.86	33.800	BN 910		9.75	9.67	4.40
BRISBANE	1045.4	33.260	BN 900		9.58	9.49	4.31
BRISBANE	1045.885	32.775	BN 890		9.46	9.37	4.22
BRISBANE	1046.18	32.480	BN 880		9.38	9.29	4.21
BRISBANE	1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	9.31	9.22	4.19
BRISBANE	1046.58	32.080	BN 860		9.26	9.17	4.17
BRISBANE	1046.9	31.760	BN 850		9.08	8.99	4.10
BRISBANE	1047.35	31.310	BN 840		8.72	8.62	3.98
BRISBANE	1047.915	30.745	BN 830	Highgate Hill Gauge	8.50	8.40	3.91
BRISBANE	1048.375	30.285	BN 820		8.56	8.46	3.91
BRISBANE	1048.89	29.770	BN 810	St Lucia Ferry Gauge	8.34	8.23	3.83
BRISBANE	1049.12	29.540	BN 800		8.29	8.18	3.81
BRISBANE	1049.37	29.290	BN 790		8.12	8.00	3.76
BRISBANE	1049.59	29.070	BN 780		8.12	8.00	3.76
BRISBANE	1049.87	28.790	BN 770		7.99	7.88	3.72
BRISBANE	1050.43	28.230	BN 760		7.99	7.87	3.69
BRISBANE	1050.86	27.800	BN 750		7.85	7.72	3.66
BRISBANE	1051.36	27.300	BN 740		7.85	7.72	3.66
BRISBANE	1051.895	26.765	BN 730		7.69	7.56	3.59
BRISBANE	1052.31	26.350	BN 720		7.79	7.67	3.62
BRISBANE	1052.37	26.290	BN 710	Merivale Bridge			
BRISBANE	1052.39	26.270	BN 700		7.64	7.50	3.58
BRISBANE	1052.595	26.065	BN 690		7.54	7.41	3.56
BRISBANE	1052.607	26.053	BN 680	William Jolly Bridge			
BRISBANE	1052.64	26.020	BN 670		7.05	6.93	3.49
BRISBANE	1052.865	25.795	BN 660	Montague Road Gauge	6.93	6.80	3.47
BRISBANE	1053.32	25.340	BN 650		6.86	6.73	3.44
BRISBANE	1053.356	25.304	BN 640	Victoria Bridge			
BRISBANE	1053.385	25.275	BN630		6.70	6.57	3.39
BRISBANE	1053.9	24.760	BN 620		6.35	6.21	3.28
BRISBANE	1054.64	24.020	BN 610		6.29	6.14	3.26
BRISBANE	1054.66	24.000	BN 600	Captain Cook Bridge			
BRISBANE	1054.68	23.980	BN 590		6.22	6.07	3.24
BRISBANE	1054.97	23.690	BN 560		5.99	5.84	3.19
BRISBANE	1055.28	23.380	BN 550		5.94	5.79	3.18
BRISBANE	1055.42	23.240	BN 540		5.95	5.79	3.18
BRISBANE	1055.96	22.700	BN 530	Port Office Gauge	5.90	5.74	3.16
BRISBANE	1056.4	22.260	BN 520		5.67	5.51	3.11
BRISBANE	1056.695	21.965	BN 510		5.62	5.45	3.09
BRISBANE	1056.865	21.795	BN 500		5.80	5.64	3.13
BRISBANE	1056.92	21.740	BN 495	Story Bridge			
BRISBANE	1056.95	21.710	BN 490		5.71	5.54	3.11
BRISBANE	1057.09	21.570	BN 480		5.57	5.40	3.08
BRISBANE	1057.53	21.130	BN 470		5.45	5.27	3.06
BRISBANE	1058.04	20.620	BN 460		5.23	5.04	3.00
BRISBANE	1058.23	20.430	BN 450		5.16	4.97	2.99
BRISBANE	1058.53	20.130	BN 440		5.04	4.85	2.97
BRISBANE	1058.735	19.925	BN 430		5.08	4.89	2.97
BRISBANE	1059.035	19.625	BN 420		4.82	4.63	2.92
BRISBANE	1059.54	19.120	BN 410		4.80	4.60	2.91
BRISBANE	1059.99	18.670	BN 400		4.64	4.43	2.87

TABLE H-1 - Combined Tailwater and River Flooding Conditions - Moreton Bay Storm Surge

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	Design Events - Existing Case		
					100 Year ARI Flood 100 Year Moreton Bay Storm Surge (m AHD)	100 Year ARI Flood 20 Year Moreton Bay Storm Surge (m AHD)	20 Year ARI Flood 100 Year Moreton Bay Storm Surge (m AHD)
BRISBANE	1060.345	18.315	BN 390		4.42	4.20	2.84
BRISBANE	1060.535	18.125	BN 380		4.29	4.06	2.81
BRISBANE	1061.015	17.645	BN 370		4.27	4.04	2.80
BRISBANE	1061.53	17.130	BN 360		4.09	3.85	2.77
BRISBANE	1062.02	16.640	BN 350		4.04	3.80	2.76
BRISBANE	1062.535	16.125	BN 340		4.02	3.77	2.75
BRISBANE	1062.94	15.720	BN 330		4.02	3.77	2.75
BRISBANE	1063.31	15.350	BN 320	Newstead Park Gauge	3.92	3.67	2.73
BRISBANE	1063.645	15.015	BN 310	Cresent Road Gauge	3.70	3.43	2.69
BRISBANE	1064	14.660	BN 300		3.67	3.40	2.69
BRISBANE	1064.49	14.170	BN 290		3.57	3.29	2.67
BRISBANE	1065.01	13.650	BN 280		3.61	3.33	2.68
BRISBANE	1065.503	13.157	BN 270		3.57	3.29	2.67
BRISBANE	1065.99	12.670	BN 260	Cairncross Dock Gauge	3.58	3.30	2.67
BRISBANE	1066.505	12.155	BN 250		3.53	3.24	2.66
BRISBANE	1067.02	11.640	BN 240		3.50	3.21	2.66
BRISBANE	1067.485	11.175	BN 230		3.43	3.13	2.65
BRISBANE	1067.965	10.695	BN 220		3.33	3.03	2.65
BRISBANE	1068.66	10.000	BN 210		3.20	2.88	2.64
BRISBANE	1069.045	9.615	BN 200		3.15	2.83	2.64
BRISBANE	1069.535	9.125	BN 190	Bulimba Power House Gauge	3.11	2.79	2.63
BRISBANE	1070.025	8.635	BN 180		3.06	2.73	2.62
BRISBANE	1070.53	8.130	BN 170		3.00	2.66	2.62
BRISBANE	1071.04	7.620	BN 160		2.95	2.60	2.62
BRISBANE	1071.52	7.140	BN 150		2.97	2.63	2.62
BRISBANE	1072.015	6.645	BN 140		2.89	2.54	2.61
BRISBANE	1072.515	6.145	BN 130		2.85	2.49	2.61
BRISBANE	1072.995	5.665	BN 120		2.82	2.46	2.61
BRISBANE	1073.485	5.175	BN 110		2.75	2.39	2.61
BRISBANE	1074	4.660	BN 100		2.70	2.34	2.62
BRISBANE	1074.46	4.200	BN 90		2.67	2.29	2.62
BRISBANE	1074.985	3.675	BN 80		2.60	2.20	2.59
BRISBANE	1075.48	3.180	BN 70		2.60	2.19	2.60
BRISBANE	1076	2.660	BN 60		2.63	2.20	2.63
BRISBANE	1076.495	2.165	BN 50		2.64	2.19	2.64
BRISBANE	1077.01	1.650	BN 40		2.69	2.21	2.69
BRISBANE	1077.51	1.150	BN 30		2.67	2.20	2.67
BRISBANE	1078.04	0.620	BN 20		2.61	2.16	2.61
BRISBANE	1078.525	0.135	BN 10		2.50	2.10	2.50
BRISBANE	1078.66	0.000	-	Western Inner Bar Gauge	2.50	2.10	2.50
BREMER	599.4	-	-		19.82	19.80	10.50
BREMER	600	-	-		19.82	19.80	10.50
OXLEY	599.4	-	-		11.08	11.02	4.98
OXLEY	600	-	-		11.08	11.02	4.98
BREAKFAST	599.4	-	-		4.00	3.75	2.75
BREAKFAST	600	-	-		4.00	3.74	2.75
BULIMBA	599.4	-	-		2.89	2.54	2.61
BULIMBA	600	-	-		2.89	2.54	2.61
CENTWEIR	0	-	-		14.19	14.15	6.65
CENTWEIR	0.08	-	-		14.04	14.00	6.59
INDOORWEIR	0	-	-		11.26	11.20	5.26
INDOORWEIR	0.085	-	-		11.17	11.11	5.12
WILLIAMWEIR	0	-	-		7.54	7.41	3.56
WILLIAMWEIR	0.045	-	-		7.05	6.93	3.49
VICTORIAWEI	0	-	-		6.86	6.73	3.44
VICTORIAWEI	0.065	-	-		6.70	6.57	3.39
CAPTAINWEIR	0	-	-		6.29	6.14	3.26
CAPTAINWEIR	0.04	-	-		6.22	6.07	3.24
STORYWEIR	0	-	-		5.80	5.64	3.13
STORYWEIR	0.085	-	-		5.71	5.54	3.11
MERIVALEWE	0	-	-		7.79	7.67	3.62
MERIVALEWE	0.08	-	-		7.64	7.50	3.58
GOODNALINK1	0	-	-		18.25	18.23	9.32
GOODNALINK1	1	-	-		17.61	17.58	8.77
GOODNALINK2	0	-	-		18.18	18.16	9.26
GOODNALINK2	1.07	-	-		17.85	17.82	8.98
STLUCIALINK1	0	-	-		11.11	11.05	4.99
STLUCIALINK1	1.05	-	-		10.39	10.31	4.64
STLUCIALINK2	0	-	-		11.10	11.04	4.98
STLUCIALINK2	1.05	-	-		10.42	10.35	4.66
STLUCIALINK3	0	-	-		10.99	10.93	4.96
STLUCIALINK3	0.85	-	-		10.52	10.45	4.74

TABLE H -2 - Predicted Flood Levels for Design Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	DESIGN EVENTS											
					PMF WL (m AHD)	10000 YEAR ARI WL (m AHD)	2000 YEAR ARI WL (m AHD)	1000 YEAR ARI WL (m AHD)	500 YEAR ARI WL (m AHD)	200 YEAR ARI WL (m AHD)	100 YEAR ARI WL (m AHD)	50 YEAR ARI WL (m AHD)	20 YEAR ARI WL (m AHD)	10 YEAR ARI WL (m AHD)	5 YEAR ARI WL (m AHD)	2 YEAR ARI WL (m AHD)
BRISBANE	1000	78.66	BN 2020		40.26	36.04	31.82	30.29	27.56	25.25	22.76	19.70	13.24	7.25	4.72	1.77
BRISBANE	1000.285	78.375	BN 2010		40.31	36.03	31.73	30.17	27.36	25.04	22.57	19.53	13.07	7.16	4.66	1.75
BRISBANE	1000.775	77.885	BN 2000		39.47	35.32	31.19	29.68	26.99	24.73	22.29	19.28	12.81	7.00	4.54	1.71
BRISBANE	1001.315	77.345	BN 1990		39.73	35.49	31.26	29.72	26.98	24.68	22.20	19.17	12.65	6.86	4.40	1.65
BRISBANE	1001.865	76.795	BN 1980		39.00	34.79	30.62	29.10	26.40	24.14	21.68	18.70	12.23	6.64	4.24	1.59
BRISBANE	1002.35	76.310	BN 1970		38.81	34.60	30.44	28.92	26.23	23.95	21.48	18.48	11.92	6.42	4.09	1.56
BRISBANE	1002.785	75.875	BN 1960		39.08	34.76	30.53	28.98	26.24	23.93	21.46	18.46	11.86	6.34	4.01	1.53
BRISBANE	1003.275	75.385	BN 1950		38.72	34.42	30.17	28.61	25.89	23.60	21.13	18.15	11.54	6.16	3.88	1.50
BRISBANE	1003.775	74.885	BN 1940		38.28	34.03	29.85	28.31	25.62	23.34	20.86	17.91	11.26	5.97	3.73	1.48
BRISBANE	1004.3	74.360	BN 1930		38.19	33.79	29.42	27.79	25.13	22.86	20.41	17.49	10.83	5.75	3.59	1.46
BRISBANE	1004.81	73.850	BN 1920		38.06	33.71	29.41	27.82	25.14	22.85	20.37	17.44	10.70	5.63	3.49	1.45
BRISBANE	1005.325	73.335	BN 1910		37.97	33.58	29.23	27.62	24.93	22.67	20.20	17.28	10.53	5.47	3.36	1.44
BRISBANE	1005.87	72.790	BN 1900		37.61	33.21	28.85	27.21	24.59	22.35	19.89	16.98	10.26	5.25	3.18	1.42
BRISBANE	1006.3	72.360	BN 1890	Moggill Gauge	37.63	33.17	28.74	27.07	24.41	22.18	19.72	16.85	10.18	5.18	3.14	1.42
BRISBANE	1006.91	71.750	BN 1880		37.43	32.94	28.49	26.79	24.17	21.96	19.51	16.64	9.99	5.06	3.06	1.40
BRISBANE	1007.41	71.250	BN 1870		37.41	32.84	28.43	26.76	24.14	21.94	19.48	16.60	9.92	4.97	3.00	1.38
BRISBANE	1007.92	70.740	BN 1860		37.23	32.69	28.24	26.54	23.88	21.62	19.19	16.34	9.73	4.85	2.92	1.36
BRISBANE	1008.445	70.215	BN 1850		37.01	32.42	27.92	26.17	23.60	21.41	19.02	16.20	9.63	4.78	2.87	1.34
BRISBANE	1008.925	69.735	BN 1840		37.16	32.54	27.95	26.14	23.48	21.33	18.96	16.15	9.59	4.74	2.84	1.34
BRISBANE	1009.4	69.260	BN 1830		36.87	32.31	27.84	26.11	23.48	21.27	18.86	16.05	9.50	4.70	2.81	1.33
BRISBANE	1009.72	68.940	BN 1820		37.04	32.44	27.91	26.15	23.48	21.25	18.85	16.03	9.47	4.67	2.80	1.33
BRISBANE	1010.49	68.170	BN 1810		36.41	31.84	27.40	25.65	23.03	20.82	18.50	15.74	9.30	4.59	2.75	1.31
BRISBANE	1010.725	67.935	BN 1800		36.08	31.62	27.28	25.58	23.02	20.86	18.52	15.75	9.30	4.58	2.75	1.31
BRISBANE	1010.98	67.680	BN 1790		35.65	31.27	27.04	25.37	22.88	20.75	18.44	15.69	9.26	4.56	2.73	1.31
BRISBANE	1011.51	67.150	BN 1780		36.34	31.78	27.36	25.62	23.02	20.81	18.43	15.67	9.21	4.52	2.71	1.30
BRISBANE	1011.98	66.680	BN 1770		36.43	31.85	27.40	25.66	23.04	20.83	18.43	15.62	9.15	4.48	2.68	1.30
BRISBANE	1012.475	66.185	BN 1760		36.47	31.85	27.34	25.57	22.90	20.71	18.33	15.53	9.07	4.42	2.65	1.29
BRISBANE	1012.935	65.725	BN 1750		36.46	31.84	27.33	25.57	22.90	20.65	18.22	15.44	8.99	4.38	2.62	1.28
BRISBANE	1013.445	65.215	BN 1740		36.39	31.73	27.16	25.40	22.75	20.54	18.14	15.34	8.92	4.33	2.59	1.28
BRISBANE	1013.91	64.750	BN 1730		36.42	31.78	27.24	25.45	22.76	20.53	18.08	15.29	8.85	4.27	2.55	1.26
BRISBANE	1014.31	64.350	BN 1720		36.41	31.77	27.23	25.44	22.75	20.52	18.05	15.22	8.79	4.22	2.51	1.25
BRISBANE	1014.61	64.050	BN 1710	Goodna Hospital Gauge	36.42	31.77	27.23	25.45	22.76	20.53	18.08	15.25	8.73	4.18	2.49	1.25
BRISBANE	1015.09	63.570	BN 1700		36.34	31.69	27.13	25.34	22.64	20.41	17.94	15.13	8.71	4.17	2.48	1.25
BRISBANE	1015.56	63.100	BN 1690		36.09	31.50	27.01	25.22	22.53	20.29	17.81	15.02	8.62	4.13	2.46	1.24
BRISBANE	1016.14	62.520	BN 1680		36.30	31.66	27.10	25.28	22.54	20.25	17.71	14.93	8.56	4.09	2.44	1.24
BRISBANE	1016.64	62.020	BN 1670		36.38	31.71	27.10	25.27	22.50	20.17	17.62	14.82	8.45	4.01	2.38	1.22
BRISBANE	1017.13	61.530	BN 1660		36.37	31.66	27.01	25.14	22.27	19.94	17.39	14.61	8.27	3.87	2.29	1.20
BRISBANE	1017.61	61.050	BN 1650		36.23	31.40	26.82	24.97	22.17	19.84	17.26	14.44	8.09	3.77	2.23	1.19
BRISBANE	1017.92	60.740	BN 1640		36.11	31.25	26.58	24.75	21.98	19.67	17.10	14.28	7.96	3.69	2.19	1.18
BRISBANE	1018.2	60.460	BN 1630		36.16	31.35	26.68	24.81	21.95	19.59	17.02	14.22	7.93	3.67	2.18	1.18
BRISBANE	1018.725	59.935	BN 1620		35.93	31.09	26.37	24.44	21.53	19.21	16.69	13.94	7.78	3.60	2.14	1.17
BRISBANE	1019.095	59.565	BN 1610		35.87	31.03	26.31	24.37	21.42	19.07	16.56	13.80	7.66	3.54	2.11	1.16
BRISBANE	1019.49	59.170	BN 1600		35.69	30.85	26.16	24.24	21.31	18.95	16.45	13.70	7.58	3.48	2.08	1.16
BRISBANE	1019.865	58.795	BN 1590		35.32	30.47	25.79	23.84	20.88	18.60	16.15	13.46	7.45	3.43	2.05	1.15
BRISBANE	1020.115	58.545	BN 1580		35.65	30.77	26.04	24.09	21.12	18.75	16.25	13.51	7.43	3.40	2.03	1.15
BRISBANE	1020.525	58.135	BN 1570		35.63	30.75	26.00	24.04	21.08	18.73	16.22	13.48	7.39	3.36	2.01	1.14
BRISBANE	1020.83	57.830	BN 1560		35.32	30.45	25.75	23.79	20.86	18.54	16.07	13.36	7.32	3.32	1.99	1.14
BRISBANE	1021.095	57.565	BN 1550		34.89	30.05	25.42	23.47	20.58	18.30	15.86	13.19	7.21	3.27	1.96	1.13
BRISBANE	1021.539	57.121	BN 1540		34.79	29.93	25.28	23.32	20.40	18.12	15.69	13.03	7.08	3.19	1.92	1.13
BRISBANE	1021.715	56.945	BN 1530		34.98	30.08	25.38	23.40	20.46	18.16	15.72	13.03	7.06	3.17	1.91	1.12
BRISBANE	1021.895	56.765	BN 1520		34.82	29.88	25.23	23.27	20.36	18.08	15.65	12.98	7.03	3.15	1.90	1.12
BRISBANE	1022.105	56.555	BN 1510		34.39	29.53	24.96	23.03	20.17	17.92	15.53	12.90	7.00	3.15	1.89	1.12
BRISBANE	1022.575	56.085	BN 1500		34.65	29.69	24.97	23.02	20.14	17.87	15.45	12.80	6.92	3.10	1.87	1.12
BRISBANE	1023.04	55.620	BN 1490		34.60	29.62	24.86	22.82	19.84	17.59	15.21	12.59	6.81	3.07	1.86	1.12
BRISBANE	1023.57	55.090	BN 1480		33.87	29.00	24.46	22.51	19.68	17.48	15.12	12.52	6.78	3.05	1.85	1.11
BRISBANE	1024.08	54.580	BN 1470		34.19	29.08	24.48	22.51	19.65	17.43	15.07	12.46	6.72	3.02	1.83	1.11
BRISBANE	1024.563	54.097	BN 1460		34.15	29.12	24.43	22.42	19.58	17.37	15.01	12.40	6.64	2.97	1.80	1.11
BRISBANE	1025.07	53.590	BN 1450		34.39	29.32	24.54	22.49	19.53	17.29	14.91	12.30	6.58	2.93	1.78	1.10
BRISBANE	1025.36	53.300	BN 1440		33.96	28.85	24.19	22.18	19.31	17.12	14.77	12.19	6.49	2.89	1.76	1.10
BRISBANE	1025.59	53.070	BN 1430		33.59	28.61	24.00	21.99	19.14	16.95	14.61	12.04	6.41	2.85	1.75	1.10
BRISBANE	1026.17	52.490	BN 1420		33.61	28.41	23.77	21.75	18.92	16.78	14.48	11.96	6.36	2.83	1.73	1.09

TABLE H - 2 - Predicted Flood Levels for Design Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	DESIGN EVENTS PMF WL (m AHD)	10000 YEAR ARI WL (m AHD)	2000 YEAR ARI WL (m AHD)	1000 YEAR ARI WL (m AHD)	500 YEAR ARI WL (m AHD)	200 YEAR ARI WL (m AHD)	100 YEAR ARI WL (m AHD)	50 YEAR ARI WL (m AHD)	20 YEAR ARI WL (m AHD)	10 YEAR ARI WL (m AHD)	5 YEAR ARI WL (m AHD)	2 YEAR ARI WL (m AHD)
BRISBANE	1026.68	51.980	BN 1410	Mt Ommaney Gauge	33.69	28.56	23.87	21.82	18.92	16.70	14.38	11.84	6.26	2.78	1.71	1.09
BRISBANE	1026.9	51.760	BN 1400		33.62	28.47	23.77	21.70	18.78	16.54	14.25	11.73	6.20	2.75	1.70	1.09
BRISBANE	1027.16	51.500	BN 1390		33.40	28.23	23.53	21.45	18.53	16.38	14.11	11.62	6.15	2.73	1.69	1.09
BRISBANE	1027.68	50.980	BN 1380		33.33	28.22	23.58	21.54	18.66	16.47	14.17	11.64	6.13	2.71	1.68	1.08
BRISBANE	1028.18	50.480	BN 1370		33.51	28.37	23.68	21.62	18.71	16.51	14.19	11.65	6.12	2.70	1.67	1.08
BRISBANE	1028.68	49.980	BN 1360		33.23	28.11	23.48	21.43	18.55	16.36	14.06	11.54	6.05	2.67	1.66	1.08
BRISBANE	1028.72	49.940	BN1350	Centenary Bridge												
BRISBANE	1028.76	49.900	BN 1340		32.66	27.50	22.92	21.18	18.32	16.14	13.91	11.45	5.97	2.63	1.64	1.07
BRISBANE	1029.2	49.460	BN 1330		32.32	27.22	22.76	21.04	18.18	16.00	13.80	11.35	5.90	2.60	1.62	1.07
BRISBANE	1029.68	48.980	BN 1320		32.60	27.44	22.90	21.16	18.26	16.05	13.82	11.34	5.90	2.60	1.62	1.07
BRISBANE	1030.22	48.440	BN 1310		32.70	27.38	22.84	21.11	18.23	16.04	13.82	11.36	5.89	2.58	1.62	1.07
BRISBANE	1030.87	47.790	BN 1300		32.37	27.19	22.72	21.01	18.14	15.96	13.75	11.29	5.84	2.56	1.60	1.07
BRISBANE	1031.26	47.400	BN 1290		31.83	26.75	22.41	20.72	17.92	15.77	13.59	11.17	5.78	2.54	1.59	1.07
BRISBANE	1031.7	46.960	BN 1280	Darra Wharf Gauge	30.69	25.72	21.65	20.04	17.36	15.30	13.21	10.87	5.62	2.47	1.56	1.06
BRISBANE	1031.995	46.665	BN 1270		31.74	26.57	22.20	20.50	17.67	15.51	13.31	10.87	5.57	2.44	1.55	1.06
BRISBANE	1032.23	46.430	BN 1260		31.26	26.12	21.89	20.23	17.46	15.34	13.18	10.79	5.51	2.41	1.53	1.06
BRISBANE	1032.585	46.075	BN 1250		30.52	25.48	21.43	19.81	17.11	15.05	12.94	10.59	5.41	2.37	1.52	1.05
BRISBANE	1033.08	45.580	BN 1240		30.88	25.32	21.27	19.65	16.95	14.89	12.79	10.45	5.32	2.34	1.50	1.05
BRISBANE	1033.37	45.290	BN 1230		30.91	25.52	21.26	19.54	16.81	14.76	12.68	10.36	5.27	2.31	1.49	1.05
BRISBANE	1033.9	44.760	BN 1220		30.67	25.23	20.97	19.22	16.48	14.47	12.45	10.17	5.16	2.28	1.48	1.05
BRISBANE	1034.37	44.290	BN 1210		30.78	25.21	20.66	18.95	16.27	14.29	12.29	10.03	5.10	2.25	1.46	1.05
BRISBANE	1034.89	43.770	BN 1200	Sherwood Gauge	30.85	25.32	20.87	19.06	16.19	14.20	12.19	9.93	5.02	2.22	1.45	1.04
BRISBANE	1035.414	43.246	BN 1190		30.01	24.53	20.30	18.58	15.85	13.90	11.94	9.72	4.90	2.16	1.43	1.04
BRISBANE	1035.9	42.760	BN 1180		29.50	23.98	19.90	18.20	15.50	13.58	11.65	9.47	4.74	2.10	1.40	1.04
BRISBANE	1036.46	42.200	BN 1170		29.54	23.82	19.61	17.84	15.11	13.22	11.35	9.21	4.60	2.05	1.38	1.03
BRISBANE	1036.77	41.890	BN 1160		29.29	23.60	19.50	17.77	15.06	13.16	11.28	9.13	4.54	2.02	1.36	1.03
BRISBANE	1036.915	41.745	BN 1150		28.74	23.04	19.15	17.46	14.81	12.97	11.12	9.01	4.48	2.00	1.36	1.03
BRISBANE	1037.09	41.570	BN 1140		28.88	23.12	19.10	17.35	14.73	12.92	11.07	8.98	4.47	2.00	1.35	1.03
BRISBANE	1037.11	41.550	BN 1130	Indooroopilly Bridge												
BRISBANE	1037.175	41.485	BN 1120		26.33	22.93	18.72	17.10	14.54	12.77	10.98	8.90	4.32	1.94	1.33	1.02
BRISBANE	1037.285	41.375	BN 1110	Clarence Road Gauge	25.67	22.51	18.58	17.01	14.47	12.71	10.93	8.86	4.29	1.93	1.32	1.02
BRISBANE	1037.625	41.035	BN 1100		25.99	22.72	18.66	17.06	14.48	12.71	10.91	8.83	4.25	1.91	1.31	1.02
BRISBANE	1038.085	40.575	BN 1090		26.56	23.13	18.86	17.22	14.60	12.78	10.93	8.81	4.23	1.90	1.31	1.02
BRISBANE	1038.6	40.060	BN 1080		26.51	23.09	18.83	17.19	14.57	12.75	10.91	8.79	4.18	1.88	1.30	1.02
BRISBANE	1039.1	39.560	BN 1070		26.73	23.26	18.94	17.29	14.64	12.79	10.90	8.76	4.15	1.86	1.29	1.02
BRISBANE	1039.565	39.095	BN 1060	Oxley Creek Gauge	26.72	23.25	18.93	17.28	14.63	12.79	10.92	8.75	4.14	1.85	1.29	1.02
BRISBANE	1040.09	38.570	BN 1050	King Authur Terrace Gauge	26.67	23.20	18.88	17.22	14.56	12.72	10.84	8.72	4.14	1.86	1.29	1.02
BRISBANE	1040.49	38.170	BN 1040		26.63	23.16	18.81	17.13	14.43	12.57	10.71	8.60	4.08	1.84	1.29	1.02
BRISBANE	1041.01	37.650	BN 1030		26.66	23.19	18.86	17.19	14.50	12.62	10.74	8.62	4.09	1.84	1.29	1.02
BRISBANE	1041.23	37.430	BN 1020		26.66	23.19	18.86	17.19	14.50	12.62	10.71	8.58	4.05	1.83	1.28	1.01
BRISBANE	1041.46	37.200	BN 1010	Tennyson Power House Gauge	26.63	23.16	18.82	17.15	14.44	12.53	10.62	8.51	4.01	1.81	1.27	1.01
BRISBANE	1041.7	36.960	BN 1000		26.62	23.15	18.81	17.13	14.41	12.50	10.59	8.48	4.01	1.81	1.27	1.01
BRISBANE	1041.96	36.700	BN 990	Yeronga Street Gauge	26.58	23.09	18.74	17.05	14.30	12.37	10.45	8.36	3.94	1.79	1.27	1.01
BRISBANE	1042.235	36.425	BN 980		26.52	23.04	18.68	16.98	14.21	12.24	10.30	8.23	3.89	1.77	1.26	1.01
BRISBANE	1042.515	36.145	BN 970		26.59	23.11	18.72	16.99	14.20	12.24	10.29	8.21	3.87	1.77	1.26	1.01
BRISBANE	1042.91	35.750	BN 960		26.58	23.10	18.74	17.03	14.21	12.21	10.22	8.13	3.79	1.74	1.24	1.01
BRISBANE	1043.725	34.935	BN 950		26.14	22.71	18.41	16.69	13.85	11.86	9.91	7.85	3.63	1.67	1.22	1.00
BRISBANE	1044.06	34.600	BN 940	Sandy Creek Gauge	25.47	22.18	18.04	16.37	13.59	11.64	9.75	7.75	3.59	1.66	1.21	1.00
BRISBANE	1044.34	34.320	BN 930		25.08	21.85	17.77	16.12	13.37	11.45	9.58	7.61	3.52	1.64	1.21	1.00
BRISBANE	1044.605	34.055	BN 920		25.43	22.01	17.77	16.11	13.34	11.41	9.53	7.55	3.49	1.63	1.20	1.00
BRISBANE	1044.86	33.800	BN 910		25.52	22.00	17.78	16.10	13.31	11.38	9.49	7.51	3.45	1.61	1.20	1.00
BRISBANE	1045.4	33.260	BN 900		25.51	22.01	17.72	16.01	13.12	11.18	9.31	7.34	3.34	1.58	1.18	0.99
BRISBANE	1045.885	32.775	BN 890		25.50	22.00	17.70	15.98	13.09	11.10	9.17	7.15	3.23	1.54	1.17	0.99
BRISBANE	1046.18	32.480	BN 880		25.42	21.93	17.64	15.91	13.01	11.02	9.09	7.10	3.22	1.54	1.16	0.99
BRISBANE	1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	24.93	21.55	17.36	15.68	12.84	10.90	9.02	7.06	3.20	1.53	1.16	0.99
BRISBANE	1046.58	32.080	BN 860		24.88	21.50	17.33	15.64	12.80	10.85	8.97	7.02	3.18	1.53	1.16	0.99
BRISBANE	1046.9	31.760	BN 850		24.58	21.22	17.07	15.40	12.57	10.64	8.78	6.85	3.09	1.50	1.15	0.99
BRISBANE	1047.35	31.310	BN 840		23.77	20.50	16.48	14.85	12.07	10.20	8.41	6.54	2.95	1.46	1.13	0.98
BRISBANE	1047.915	30.745	BN 830	Highgate Hill Gauge	23.48	20.28	16.26	14.61	11.81	9.94	8.17	6.35	2.87	1.43	1.13	0.98
BRISBANE	1048.375	30.285	BN 820		23.77	20.50	16.41	14.75	11.92	10.03	8.23	6.38	2.87	1.43	1.12	0.98
BRISBANE	1048.89	29.770	BN 810	St Lucia Ferry Gauge	23.43	20.19	16.12	14.46	11.64	9.77	8.00	6.18	2.76	1.40	1.11	0.98

TABLE H - 2 - Predicted Flood Levels for Design Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	DESIGN EVENTS PMF WL (m AHD)	10000 YEAR ARI WL (m AHD)	2000 YEAR ARI WL (m AHD)	1000 YEAR ARI WL (m AHD)	500 YEAR ARI WL (m AHD)	200 YEAR ARI WL (m AHD)	100 YEAR ARI WL (m AHD)	50 YEAR ARI WL (m AHD)	20 YEAR ARI WL (m AHD)	10 YEAR ARI WL (m AHD)	5 YEAR ARI WL (m AHD)	2 YEAR ARI WL (m AHD)
BRISBANE	1049.12	29.540	BN 800		23.39	20.07	15.98	14.35	11.55	9.70	7.94	6.14	2.74	1.39	1.11	0.98
BRISBANE	1049.37	29.290	BN 790		23.23	20.01	15.94	14.28	11.44	9.54	7.75	5.99	2.68	1.37	1.10	0.98
BRISBANE	1049.59	29.070	BN 780		23.39	20.13	16.02	14.35	11.48	9.56	7.74	5.97	2.67	1.37	1.10	0.98
BRISBANE	1049.87	28.790	BN 770		23.03	19.79	15.65	14.00	11.21	9.37	7.63	5.88	2.63	1.36	1.10	0.98
BRISBANE	1050.43	28.230	BN 760		23.29	20.02	15.89	14.22	11.34	9.42	7.61	5.82	2.59	1.35	1.09	0.97
BRISBANE	1050.86	27.800	BN 750		22.68	19.55	15.55	13.91	11.09	9.22	7.46	5.73	2.54	1.34	1.09	0.97
BRISBANE	1051.36	27.300	BN 740		22.80	19.53	15.53	13.89	11.08	9.21	7.46	5.72	2.55	1.34	1.09	0.97
BRISBANE	1051.895	26.765	BN 730		22.88	19.53	15.30	13.68	10.87	9.02	7.30	5.57	2.46	1.31	1.08	0.97
BRISBANE	1052.31	26.350	BN 720		22.98	19.72	15.59	13.92	11.06	9.16	7.40	5.65	2.49	1.32	1.08	0.97
BRISBANE	1052.37	26.290	BN 710	Merivale Bridge												
BRISBANE	1052.39	26.270	BN 700		21.93	19.09	15.18	13.60	10.82	8.96	7.23	5.51	2.44	1.30	1.07	0.97
BRISBANE	1052.595	26.065	BN 690		21.33	18.63	14.81	13.29	10.59	8.79	7.14	5.45	2.42	1.30	1.07	0.97
BRISBANE	1052.607	26.053	BN 680	William Jolly Bridge												
BRISBANE	1052.64	26.020	BN 670		20.14	16.83	12.85	11.69	9.61	8.14	6.63	5.08	2.34	1.28	1.06	0.96
BRISBANE	1052.865	25.795	BN 660	Montague Road Gauge	20.03	16.44	12.55	11.44	9.41	7.96	6.49	4.98	2.32	1.28	1.06	0.96
BRISBANE	1053.32	25.340	BN 650		20.07	16.61	12.55	11.42	9.36	7.88	6.42	4.92	2.28	1.26	1.06	0.96
BRISBANE	1053.356	25.304	BN 640	Victoria Bridge												
BRISBANE	1053.385	25.275	BN630		18.15	15.50	12.25	11.04	9.09	7.67	6.24	4.77	2.20	1.24	1.05	0.95
BRISBANE	1053.9	24.760	BN 620		18.08	15.31	11.76	10.55	8.63	7.22	5.85	4.43	2.05	1.20	1.03	0.95
BRISBANE	1054.64	24.020	BN 610		17.86	15.15	11.69	10.48	8.54	7.14	5.78	4.36	2.01	1.19	1.03	0.95
BRISBANE	1054.66	24.000	BN 600	Captain Cook Bridge												
BRISBANE	1054.68	23.980	BN 590		17.36	14.89	11.54	10.35	8.44	7.05	5.70	4.30	1.98	1.18	1.02	0.95
BRISBANE	1054.97	23.690	BN 560		16.41	14.14	11.01	9.89	8.07	6.74	5.45	4.11	1.92	1.16	1.01	0.95
BRISBANE	1055.28	23.380	BN 550		16.23	14.00	10.91	9.80	8.00	6.68	5.40	4.08	1.90	1.16	1.01	0.95
BRISBANE	1055.42	23.240	BN 540		16.35	14.08	10.95	9.83	8.02	6.69	5.40	4.08	1.90	1.16	1.01	0.95
BRISBANE	1055.96	22.700	BN 530	Port Office Gauge	16.51	14.16	10.96	9.82	7.98	6.64	5.34	4.02	1.88	1.15	1.01	0.95
BRISBANE	1056.4	22.260	BN 520		16.23	13.86	10.64	9.49	7.64	6.35	5.09	3.84	1.81	1.13	1.00	0.95
BRISBANE	1056.695	21.965	BN 510		15.70	13.49	10.43	9.33	7.56	6.27	5.03	3.79	1.79	1.13	1.00	0.95
BRISBANE	1056.865	21.795	BN 500		16.59	14.19	10.90	9.74	7.88	6.53	5.22	3.93	1.84	1.14	1.00	0.95
BRISBANE	1056.92	21.740	BN 495	Story Bridge												
BRISBANE	1056.95	21.710	BN 490		16.32	13.95	10.72	9.57	7.73	6.41	5.12	3.85	1.81	1.13	1.00	0.94
BRISBANE	1057.09	21.570	BN 480		15.55	13.35	10.32	9.23	7.47	6.21	4.97	3.75	1.78	1.12	1.00	0.94
BRISBANE	1057.53	21.130	BN 470		15.13	13.00	10.05	8.99	7.28	6.04	4.83	3.65	1.75	1.12	0.99	0.94
BRISBANE	1058.04	20.620	BN 460		14.53	12.49	9.64	8.61	6.94	5.74	4.58	3.45	1.68	1.10	0.99	0.94
BRISBANE	1058.23	20.430	BN 450		14.49	12.40	9.53	8.51	6.85	5.65	4.50	3.39	1.66	1.09	0.98	0.94
BRISBANE	1058.53	20.130	BN 440		13.73	11.77	9.15	8.19	6.61	5.47	4.37	3.30	1.63	1.09	0.98	0.94
BRISBANE	1058.735	19.925	BN 430		14.03	12.01	9.28	8.30	6.69	5.53	4.41	3.32	1.63	1.09	0.98	0.94
BRISBANE	1059.035	19.625	BN 420		12.87	11.00	8.60	7.71	6.23	5.16	4.13	3.12	1.57	1.07	0.98	0.94
BRISBANE	1059.54	19.120	BN 410		13.50	11.43	8.68	7.76	6.23	5.13	4.09	3.08	1.55	1.07	0.97	0.94
BRISBANE	1059.99	18.670	BN 400		12.91	10.97	8.38	7.47	5.97	4.90	3.88	2.92	1.49	1.05	0.97	0.94
BRISBANE	1060.345	18.315	BN 390		11.54	9.91	7.68	6.88	5.53	4.57	3.65	2.76	1.45	1.04	0.97	0.94
BRISBANE	1060.535	18.125	BN 380		10.97	9.46	7.36	6.60	5.30	4.37	3.50	2.66	1.42	1.03	0.96	0.94
BRISBANE	1061.015	17.645	BN 370		11.40	9.72	7.43	6.61	5.29	4.34	3.45	2.62	1.40	1.03	0.96	0.94
BRISBANE	1061.53	17.130	BN 360		10.43	8.95	6.91	6.18	4.94	4.06	3.24	2.47	1.35	1.02	0.96	0.94
BRISBANE	1062.02	16.640	BN 350		10.51	8.97	6.87	6.12	4.87	3.99	3.16	2.41	1.33	1.01	0.96	0.94
BRISBANE	1062.535	16.125	BN 340		10.68	9.06	6.90	6.13	4.85	3.95	3.12	2.37	1.31	1.01	0.95	0.94
BRISBANE	1062.94	15.720	BN 330		10.86	9.12	6.92	6.14	4.85	3.95	3.11	2.36	1.31	1.01	0.95	0.94
BRISBANE	1063.31	15.350	BN 320	Newstead Park Gauge	10.24	8.70	6.63	5.89	4.65	3.79	2.99	2.28	1.28	1.00	0.95	0.94
BRISBANE	1063.645	15.015	BN 310	Cresent Road Gauge	9.08	7.77	5.98	5.32	4.21	3.43	2.72	2.09	1.23	0.99	0.95	0.94
BRISBANE	1064	14.660	BN 300		9.17	7.79	5.95	5.29	4.16	3.38	2.68	2.06	1.22	0.99	0.95	0.94
BRISBANE	1064.49	14.170	BN 290		8.59	7.33	5.63	5.01	3.94	3.21	2.55	1.97	1.19	0.98	0.94	0.94
BRISBANE	1065.01	13.650	BN 280		9.01	7.65	5.81	5.15	4.03	3.26	2.57	1.98	1.20	0.98	0.94	0.94
BRISBANE	1065.503	13.157	BN 270		9.22	7.73	5.76	5.05	3.94	3.19	2.53	1.95	1.19	0.98	0.94	0.94
BRISBANE	1065.99	12.670	BN 260	Cairncross Dock Gauge	8.90	7.54	5.72	5.05	3.95	3.21	2.54	1.96	1.19	0.98	0.94	0.94
BRISBANE	1066.505	12.155	BN 250		9.13	7.64	5.64	4.94	3.85	3.11	2.46	1.91	1.18	0.98	0.94	0.94
BRISBANE	1067.02	11.640	BN 240		8.78	7.39	5.53	4.86	3.79	3.07	2.43	1.88	1.17	0.98	0.94	0.94
BRISBANE	1067.485	11.175	BN 230		8.49	7.14	5.33	4.68	3.63	2.93	2.32	1.81	1.15	0.97	0.94	0.94
BRISBANE	1067.965	10.695	BN 220		7.95	6.69	5.01	4.40	3.41	2.76	2.20	1.73	1.12	0.97	0.94	0.94
BRISBANE	1068.66	10.000	BN 210		7.06	6.00	4.54	4.00	3.10	2.52	2.02	1.61	1.09	0.96	0.93	0.94
BRISBANE	1069.045	9.615	BN 200		7.48	6.21	4.50	3.86	2.97	2.42	1.95	1.56	1.08	0.96	0.93	0.93
BRISBANE	1069.535	9.125	BN 190	Bulimba Power House Gauge	7.21	5.93	4.28	3.72	2.88	2.34	1.89	1.52	1.07	0.95	0.93	0.93

TABLE H - 2 - Predicted Flood Levels for Design Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	DESIGN EVENTS											
					PMF WL (m AHD)	10000 YEAR ARI WL (m AHD)	2000 YEAR ARI WL (m AHD)	1000 YEAR ARI WL (m AHD)	500 YEAR ARI WL (m AHD)	200 YEAR ARI WL (m AHD)	100 YEAR ARI WL (m AHD)	50 YEAR ARI WL (m AHD)	20 YEAR ARI WL (m AHD)	10 YEAR ARI WL (m AHD)	5 YEAR ARI WL (m AHD)	2 YEAR ARI WL (m AHD)
BRISBANE	1070.025	8.635	BN 180		7.02	5.76	4.07	3.54	2.75	2.25	1.82	1.48	1.06	0.95	0.93	0.93
BRISBANE	1070.53	8.130	BN 170		7.06	5.76	3.99	3.38	2.57	2.11	1.72	1.41	1.04	0.95	0.93	0.93
BRISBANE	1071.04	7.620	BN 160		6.92	5.55	3.72	3.17	2.43	1.99	1.64	1.36	1.03	0.94	0.93	0.93
BRISBANE	1071.52	7.140	BN 150		6.67	5.41	3.74	3.21	2.48	2.04	1.67	1.38	1.03	0.94	0.93	0.93
BRISBANE	1072.015	6.645	BN 140		6.36	5.11	3.44	2.94	2.27	1.88	1.56	1.31	1.01	0.94	0.93	0.93
BRISBANE	1072.515	6.145	BN 130		6.07	4.80	3.24	2.77	2.15	1.79	1.50	1.28	1.01	0.94	0.93	0.93
BRISBANE	1072.995	5.665	BN 120		5.66	4.55	3.09	2.66	2.07	1.73	1.46	1.25	1.00	0.94	0.93	0.93
BRISBANE	1073.485	5.175	BN 110		5.06	4.07	2.77	2.38	1.88	1.59	1.36	1.19	0.98	0.93	0.93	0.93
BRISBANE	1074	4.660	BN 100		4.54	3.68	2.51	2.17	1.73	1.48	1.29	1.14	0.97	0.93	0.93	0.93
BRISBANE	1074.46	4.200	BN 90		4.30	3.33	2.26	1.97	1.59	1.38	1.22	1.10	0.96	0.93	0.93	0.93
BRISBANE	1074.985	3.675	BN 80		3.25	2.50	1.73	1.54	1.31	1.18	1.09	1.02	0.94	0.93	0.92	0.93
BRISBANE	1075.48	3.180	BN 70		2.94	2.29	1.62	1.45	1.25	1.14	1.06	1.00	0.94	0.92	0.92	0.92
BRISBANE	1076	2.660	BN 60		2.84	2.24	1.62	1.46	1.26	1.15	1.07	1.01	0.94	0.92	0.92	0.92
BRISBANE	1076.495	2.165	BN 50		1.89	1.48	1.15	1.08	1.01	0.98	0.96	0.94	0.92	0.92	0.92	0.92
BRISBANE	1077.01	1.650	BN 40		1.65	1.38	1.14	1.08	1.02	0.99	0.96	0.95	0.93	0.92	0.92	0.92
BRISBANE	1077.51	1.150	BN 30		1.57	1.36	1.15	1.10	1.03	1.00	0.97	0.95	0.93	0.92	0.92	0.92
BRISBANE	1078.04	0.620	BN 20		1.31	1.20	1.07	1.04	0.99	0.97	0.95	0.94	0.92	0.92	0.92	0.92
BRISBANE	1078.525	0.135	BN 10		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
BRISBANE	1078.66	0.000	-	Western Inner Bar Gauge	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
BREMER	599.4	-	-		37.65	33.20	28.77	27.11	24.46	22.23	19.76	16.88	10.20	5.20	3.14	1.42
BREMER	600	-	-		37.63	33.18	28.77	27.11	24.46	22.23	19.76	16.87	10.20	5.20	3.14	1.42
OXLEY	599.4	-	-		26.70	23.23	18.91	17.25	14.59	12.76	10.87	8.73	4.14	1.86	1.29	1.01
OXLEY	600	-	-		26.70	23.23	18.91	17.25	14.60	12.76	10.87	8.73	4.14	1.86	1.29	1.02
BREAKFAST	599.4	-	-		10.72	9.05	6.84	6.06	4.79	3.90	3.09	2.34	1.30	1.01	0.95	0.94
BREAKFAST	600	-	-		10.72	9.05	6.84	6.06	4.79	3.90	3.08	2.34	1.30	1.01	0.95	0.94
BULIMBA	599.4	-	-		6.36	5.11	3.43	2.93	2.27	1.88	1.56	1.31	1.01	0.94	0.93	0.93
BULIMBA	600	-	-		6.36	5.11	3.43	2.93	2.27	1.88	1.56	1.31	1.01	0.94	0.93	0.93
CENTWEIR	0	-	-		33.23	28.11	23.48	21.43	18.55	16.36	14.06	11.54	6.05	2.67	1.66	1.08
CENTWEIR	0.08	-	-		32.66	27.50	22.92	21.18	18.32	16.14	13.91	11.45	5.97	2.63	1.64	1.07
INDOORWEIR	0	-	-		28.88	23.12	19.10	17.35	14.73	12.92	11.07	8.98	4.47	2.00	1.35	1.03
INDOORWEIR	0.085	-	-		26.33	22.93	18.72	17.10	14.54	12.77	10.98	8.90	4.32	1.94	1.33	1.02
WILLIAMWEIR	0	-	-		21.33	18.63	14.81	13.29	10.59	8.79	7.14	5.45	2.42	1.30	1.07	0.97
WILLIAMWEIR	0.045	-	-		20.14	16.83	12.85	11.69	9.61	8.14	6.63	5.08	2.34	1.28	1.06	0.96
VICTORIAWEIR	0	-	-		20.07	16.61	12.55	11.42	9.36	7.88	6.42	4.92	2.28	1.26	1.06	0.96
VICTORIAWEIR	0.065	-	-		18.15	15.50	12.25	11.04	9.09	7.67	6.24	4.77	2.20	1.24	1.05	0.95
CAPTAINWEIR	0	-	-		17.86	15.15	11.69	10.48	8.54	7.14	5.78	4.36	2.01	1.19	1.03	0.95
CAPTAINWEIR	0.04	-	-		17.36	14.89	11.54	10.35	8.44	7.05	5.70	4.30	1.98	1.18	1.02	0.95
STORYWEIR	0	-	-		16.59	14.19	10.90	9.74	7.88	6.53	5.22	3.93	1.84	1.14	1.00	0.95
STORYWEIR	0.085	-	-		16.32	13.95	10.72	9.57	7.73	6.41	5.12	3.85	1.81	1.13	1.00	0.94
MERIVALEWEIR	0	-	-		22.98	19.72	15.59	13.92	11.06	9.16	7.40	5.65	2.49	1.32	1.08	0.97
MERIVALEWEIR	0.08	-	-		21.93	19.09	15.18	13.60	10.82	8.96	7.23	5.51	2.44	1.30	1.07	0.97
GOODNALINK1	0	-	-		36.43	31.79	27.26	25.47	22.78	20.57	18.18	15.40	8.95	4.35	2.61	1.28
GOODNALINK1	1	-	-		36.38	31.70	27.08	25.23	22.43	20.07	17.53	14.72	8.36	3.94	2.34	1.21
GOODNALINK2	0	-	-		36.42	31.77	27.22	25.43	22.72	20.52	18.11	15.32	8.88	4.30	2.57	1.27
GOODNALINK2	1.07	-	-		36.18	31.51	26.98	25.19	22.50	20.25	17.77	14.98	8.59	4.11	2.45	1.24
STLUCIALINK1	0	-	-		26.73	23.26	18.94	17.28	14.63	12.79	10.91	8.76	4.15	1.86	1.29	1.02
STLUCIALINK1	1.05	-	-		26.56	23.08	18.71	16.99	14.16	12.14	10.15	8.05	3.74	1.72	1.24	1.00
STLUCIALINK2	0	-	-		26.71	23.24	18.92	17.26	14.62	12.78	10.90	8.73	4.14	1.86	1.29	1.02
STLUCIALINK2	1.05	-	-		26.57	23.09	18.73	17.02	14.19	12.18	10.18	8.09	3.76	1.73	1.24	1.01
STLUCIALINK3	0	-	-		26.65	23.18	18.85	17.18	14.51	12.65	10.79	8.67	4.12	1.85	1.29	1.02
STLUCIALINK3	0.85	-	-		26.58	23.10	18.70	16.98	14.20	12.24	10.29	8.22	3.87	1.77	1.26	1.01

TABLE H-3 - Predicted Discharges for Design Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	DESIGN EVENTS PMF Q (m³/s)	10000 YEAR ARI Q (m³/s)	2000 YEAR ARI Q (m³/s)	1000 YEAR ARI Q (m³/s)	500 YEAR ARI Q (m³/s)	200 YEAR ARI Q (m³/s)	100 YEAR ARI Q (m³/s)	50 YEAR ARI Q (m³/s)	20 YEAR ARI Q (m³/s)	10 YEAR ARI Q (m³/s)	5 YEAR ARI Q (m³/s)	2 YEAR ARI Q (m³/s)
BRISBANE	1000.14	78.52	29818	23872	18246	16373	13372	11115	9235	7185	4225	1627	930	284
BRISBANE	1000.53	78.13	29816	23870	18242	16371	13367	11113	9233	7183	4222	1627	930	284
BRISBANE	1001.05	77.62	29814	23869	18240	16369	13364	11111	9231	7181	4219	1626	929	283
BRISBANE	1001.59	77.07	29812	23867	18237	16367	13360	11108	9229	7179	4214	1624	928	283
BRISBANE	1002.11	76.55	29809	23865	18232	16364	13355	11105	9226	7177	4211	1623	928	283
BRISBANE	1002.57	76.09	29807	23863	18229	16362	13351	11102	9224	7174	4207	1623	927	283
BRISBANE	1003.03	75.63	29801	23859	18223	16358	13345	11099	9222	7172	4202	1622	927	283
BRISBANE	1003.53	75.14	29798	23857	18219	16355	13339	11095	9219	7169	4198	1621	926	283
BRISBANE	1004.04	74.62	29796	23856	18216	16353	13335	11092	9217	7167	4193	1620	926	283
BRISBANE	1004.56	74.11	29793	23853	18210	16350	13329	11089	9214	7164	4189	1619	925	283
BRISBANE	1005.07	73.59	29791	23851	18206	16347	13324	11085	9211	7161	4181	1617	925	283
BRISBANE	1005.60	73.06	29787	23848	18200	16343	13316	11081	9206	7156	4172	1615	923	283
BRISBANE	1006.04	72.63	29785	23846	18196	16341	13311	11077	9203	7153	4165	1614	923	283
BRISBANE	1006.25	72.41	36224	28595	20940	18475	14589	11882	9542	7339	3646	1602	955	367
BRISBANE	1006.61	72.06	36221	28594	20938	18473	14587	11880	9541	7338	3644	1602	955	367
BRISBANE	1007.16	71.50	36217	28590	20933	18469	14584	11877	9538	7335	3640	1601	955	367
BRISBANE	1007.67	71.00	36210	28586	20928	18465	14579	11873	9535	7332	3634	1601	955	367
BRISBANE	1008.18	70.48	36206	28583	20924	18461	14575	11870	9532	7330	3630	1600	954	367
BRISBANE	1008.69	69.98	36202	28579	20920	18456	14571	11866	9531	7329	3628	1600	954	367
BRISBANE	1009.16	69.50	36196	28575	20914	18450	14567	11864	9529	7327	3625	1600	954	368
BRISBANE	1009.56	69.10	36194	28573	20912	18448	14564	11862	9528	7325	3623	1599	954	368
BRISBANE	1010.11	68.56	36189	28569	20906	18443	14559	11858	9525	7322	3618	1599	953	368
BRISBANE	1010.61	68.05	36187	28567	20904	18440	14557	11856	9523	7321	3616	1598	953	368
BRISBANE	1010.85	67.81	36185	28566	20902	18438	14555	11855	9522	7320	3615	1598	953	368
BRISBANE	1011.25	67.42	36183	28564	20900	18437	14554	11853	9521	7319	3613	1598	953	368
BRISBANE	1011.75	66.92	36179	28562	20896	18434	14551	11850	9519	7317	3609	1598	953	368
BRISBANE	1012.23	66.43	36176	28559	20893	18430	14547	11847	9516	7314	3604	1597	953	368
BRISBANE	1012.71	65.96	36170	28555	20887	18424	14542	11843	9513	7311	3599	1597	952	368
BRISBANE	1013.06	65.60	36166	28552	20885	18420	14537	11839	9510	7309	3596	1597	952	368
BRISBANE	1013.32	65.34	31487	24031	17094	15169	12405	10744	9325	7307	3594	1596	952	368
BRISBANE	1013.56	65.10	31484	24028	17090	15165	12401	10740	9322	7305	3593	1596	952	368
BRISBANE	1013.80	64.87	20721	16276	12695	11899	10741	10051	9254	7304	3590	1596	952	368
BRISBANE	1014.11	64.55	20717	16273	12676	11889	10730	10042	9250	7301	3586	1595	952	368
BRISBANE	1014.46	64.20	20712	16269	12658	11880	10718	10033	9245	7298	3582	1595	952	368
BRISBANE	1014.85	63.81	20708	16265	12648	11869	10705	10023	9240	7295	3577	1595	951	368
BRISBANE	1015.33	63.34	20704	16261	12639	11861	10699	10018	9237	7293	3575	1594	951	368
BRISBANE	1015.71	62.96	20702	16260	12636	11858	10696	10015	9236	7292	3573	1594	951	369
BRISBANE	1016.00	62.67	31463	24011	17072	15138	12373	10713	9302	7292	3572	1594	951	369
BRISBANE	1016.39	62.27	31461	24009	17071	15136	12370	10711	9300	7291	3570	1594	951	369
BRISBANE	1016.77	61.90	31458	24007	17069	15132	12366	10706	9297	7289	3568	1593	951	369
BRISBANE	1017.01	61.65	36125	28522	20863	18382	14502	11810	9486	7288	3566	1593	951	369
BRISBANE	1017.37	61.29	36121	28519	20861	18378	14498	11807	9484	7286	3563	1593	951	369
BRISBANE	1017.77	60.90	36114	28515	20857	18372	14493	11803	9480	7284	3561	1593	951	369
BRISBANE	1018.06	60.60	36111	28512	20854	18368	14490	11800	9478	7282	3559	1593	951	369
BRISBANE	1018.46	60.20	36107	28509	20851	18363	14485	11797	9476	7280	3557	1593	951	369
BRISBANE	1018.91	59.75	36103	28506	20848	18359	14481	11795	9474	7279	3556	1592	950	369
BRISBANE	1019.29	59.37	36099	28504	20845	18356	14478	11793	9472	7277	3554	1592	950	369
BRISBANE	1019.68	58.98	36097	28502	20843	18353	14475	11791	9471	7276	3552	1592	950	369
BRISBANE	1019.99	58.67	36095	28501	20843	18352	14473	11790	9470	7275	3551	1592	950	369
BRISBANE	1020.32	58.34	36092	28498	20841	18348	14469	11787	9468	7274	3548	1592	950	369
BRISBANE	1020.68	57.98	36088	28495	20838	18343	14465	11784	9465	7272	3545	1591	950	369
BRISBANE	1020.96	57.70	36086	28494	20837	18342	14463	11783	9464	7271	3544	1591	950	369
BRISBANE	1021.32	57.34	36085	28493	20837	18340	14462	11782	9463	7271	3543	1591	950	369
BRISBANE	1021.63	57.03	36084	28492	20836	18339	14460	11781	9462	7270	3541	1591	950	370
BRISBANE	1021.81	56.86	36082	28491	20835	18338	14459	11781	9461	7269	3540	1591	950	370
BRISBANE	1022.00	56.66	36079	28490	20835	18336	14458	11780	9461	7269	3539	1591	950	370
BRISBANE	1022.34	56.32	36076	28488	20834	18334	14456	11779	9460	7268	3538	1591	950	370
BRISBANE	1022.81	55.85	36073	28486	20832	18331	14453	11777	9458	7267	3536	1590	950	370
BRISBANE	1023.31	55.36	36069	28483	20829	18326	14449	11775	9456	7265	3535	1590	950	370
BRISBANE	1023.83	54.84	36066	28482	20828	18324	14446	11773	9455	7266	3533	1590	950	370

TABLE H-3 - Predicted Discharges for Design Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	DESIGN EVENTS PMF Q (m³/s)	10000 YEAR ARI Q (m³/s)	2000 YEAR ARI Q (m³/s)	1000 YEAR ARI Q (m³/s)	500 YEAR ARI Q (m³/s)	200 YEAR ARI Q (m³/s)	100 YEAR ARI Q (m³/s)	50 YEAR ARI Q (m³/s)	20 YEAR ARI Q (m³/s)	10 YEAR ARI Q (m³/s)	5 YEAR ARI Q (m³/s)	2 YEAR ARI Q (m³/s)
BRISBANE	1024.32	54.34	36062	28479	20825	18320	14443	11771	9453	7267	3532	1590	950	370
BRISBANE	1024.82	53.84	36059	28477	20823	18318	14441	11770	9451	7268	3530	1590	950	370
BRISBANE	1025.22	53.45	36054	28474	20822	18316	14436	11767	9449	7269	3528	1590	950	370
BRISBANE	1025.48	53.19	36053	28473	20822	18315	14434	11766	9448	7270	3527	1590	950	370
BRISBANE	1025.88	52.78	36050	28471	20822	18313	14432	11764	9447	7272	3526	1590	950	370
BRISBANE	1026.43	52.24	36045	28468	20822	18310	14429	11763	9446	7274	3525	1590	949	370
BRISBANE	1026.79	51.87	36043	28466	20822	18308	14426	11761	9444	7276	3523	1589	949	370
BRISBANE	1027.03	51.63	36042	28465	20822	18307	14424	11760	9443	7278	3522	1589	949	370
BRISBANE	1027.42	51.24	36040	28463	20822	18304	14422	11758	9442	7280	3521	1589	949	370
BRISBANE	1027.93	50.73	36036	28461	20821	18301	14418	11756	9440	7285	3519	1589	949	370
BRISBANE	1028.43	50.23	36031	28457	20821	18299	14414	11753	9437	7293	3517	1589	949	371
BRISBANE	1028.72	49.94	14317	14090	13424	12881	11483	10400	9085	7294	3516	1589	949	371
BRISBANE	1028.98	49.68	36027	28454	20820	18294	14409	11750	9434	7293	3515	1589	949	371
BRISBANE	1029.44	49.22	36023	28451	20818	18287	14405	11747	9431	7287	3513	1589	949	371
BRISBANE	1029.95	48.71	36014	28445	20814	18278	14395	11741	9426	7279	3511	1589	949	371
BRISBANE	1030.55	48.11	36003	28438	20807	18263	14386	11736	9421	7266	3507	1588	949	371
BRISBANE	1031.07	47.59	35999	28435	20801	18257	14386	11732	9417	7257	3505	1588	949	371
BRISBANE	1031.48	47.18	35996	28433	20801	18253	14386	11731	9416	7254	3504	1588	949	371
BRISBANE	1031.85	46.81	35995	28432	20802	18251	14386	11730	9415	7252	3503	1588	949	371
BRISBANE	1032.11	46.55	35993	28431	20802	18259	14385	11728	9413	7250	3502	1588	949	371
BRISBANE	1032.41	46.25	35991	28430	20803	18267	14384	11727	9412	7248	3501	1588	949	371
BRISBANE	1032.83	45.83	35989	28428	20805	18272	14383	11725	9410	7246	3500	1588	949	371
BRISBANE	1033.23	45.44	35985	28425	20807	18289	14388	11723	9408	7242	3498	1588	949	371
BRISBANE	1033.64	45.03	35982	28422	20809	18303	14392	11721	9406	7240	3497	1588	949	371
BRISBANE	1034.14	44.53	35979	28420	20814	18314	14397	11720	9405	7237	3496	1588	949	371
BRISBANE	1034.63	44.03	35973	28415	20824	18333	14402	11718	9403	7235	3494	1588	949	371
BRISBANE	1035.15	43.51	35967	28410	20826	18379	14414	11715	9400	7233	3493	1588	949	371
BRISBANE	1035.66	43.00	35964	28407	20831	18387	14423	11713	9398	7232	3491	1588	949	372
BRISBANE	1036.18	42.48	35960	28404	20835	18395	14435	11710	9396	7230	3490	1588	949	372
BRISBANE	1036.62	42.05	35957	28402	20840	18390	14448	11708	9394	7229	3488	1587	949	372
BRISBANE	1036.84	41.82	35955	28401	20847	18401	14455	11707	9393	7228	3487	1587	949	372
BRISBANE	1037.00	41.66	35954	28400	20849	18396	14459	11706	9392	7227	3487	1587	949	372
BRISBANE	1037.11	41.55	29071	26236	20782	18392	14461	11706	9392	7227	3487	1587	949	372
BRISBANE	1037.23	41.43	35953	28400	20856	18375	14464	11705	9391	7226	3486	1587	949	372
BRISBANE	1037.46	41.21	35952	28399	20868	18379	14467	11705	9390	7226	3486	1587	949	372
BRISBANE	1037.86	40.81	35950	28398	20885	18414	14469	11703	9389	7224	3484	1587	949	372
BRISBANE	1038.34	40.32	35940	28391	20843	18427	14446	11694	9379	7218	3482	1587	949	372
BRISBANE	1038.85	39.81	35930	28384	20846	18435	14431	11686	9372	7211	3479	1587	949	372
BRISBANE	1039.15	39.51	35925	28380	20835	18416	14423	11681	9366	7206	3476	1587	949	372
BRISBANE	1039.38	39.28	21512	18356	15682	14411	12305	10725	9205	7153	3474	1587	949	372
BRISBANE	1039.62	39.04	21506	18333	15673	14409	12296	10721	9201	7149	3473	1587	949	372
BRISBANE	1039.75	38.91	17895	16464	14175	13113	11444	10161	9013	7122	3472	1587	949	372
BRISBANE	1039.96	38.70	17424	15016	12345	11489	10377	9658	8673	6928	3402	1586	949	419
BRISBANE	1040.17	38.49	17422	15015	12342	11486	10376	9657	8673	6927	3401	1586	949	419
BRISBANE	1040.37	38.29	11296	10011	9620	9555	9433	9211	8549	6927	3401	1586	949	419
BRISBANE	1040.75	37.91	11293	10011	9605	9543	9425	9208	8549	6926	3401	1586	949	419
BRISBANE	1041.12	37.54	11288	10010	9571	9515	9408	9202	8547	6925	3401	1586	949	420
BRISBANE	1041.35	37.32	11285	10009	9553	9499	9399	9199	8546	6925	3400	1586	949	420
BRISBANE	1041.58	37.08	11284	10008	9542	9490	9393	9197	8546	6924	3400	1586	949	420
BRISBANE	1041.83	36.83	11282	10008	9531	9480	9387	9195	8545	6924	3400	1586	949	420
BRISBANE	1042.10	36.56	11280	10008	9519	9470	9381	9193	8545	6923	3400	1586	949	420
BRISBANE	1042.37	36.29	11278	10007	9508	9462	9375	9191	8544	6923	3400	1586	949	420
BRISBANE	1042.51	36.15	17407	15007	12340	11448	10334	9645	8667	6923	3400	1586	949	420
BRISBANE	1042.71	35.95	17407	15006	12343	11446	10336	9644	8667	6922	3400	1586	949	420
BRISBANE	1042.96	35.70	17407	15005	12345	11445	10340	9643	8667	6922	3400	1586	949	420
BRISBANE	1043.05	35.61	21327	18031	14262	13031	11341	10258	8905	6951	3400	1586	949	420
BRISBANE	1043.10	35.57	21327	18030	14263	13031	11341	10258	8905	6951	3399	1586	949	420
BRISBANE	1043.42	35.24	35879	28548	20038	17464	13776	11332	9099	7009	3399	1586	949	420
BRISBANE	1043.89	34.77	35878	28546	20035	17461	13772	11332	9099	7010	3399	1586	949	421
BRISBANE	1044.20	34.46	35878	28543	20034	17461	13771	11331	9099	7010	3399	1586	949	421

TABLE H-3 - Predicted Discharges for Design Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	DESIGN EVENTS PMF Q (m³/s)	10000 YEAR ARI Q (m³/s)	2000 YEAR ARI Q (m³/s)	1000 YEAR ARI Q (m³/s)	500 YEAR ARI Q (m³/s)	200 YEAR ARI Q (m³/s)	100 YEAR ARI Q (m³/s)	50 YEAR ARI Q (m³/s)	20 YEAR ARI Q (m³/s)	10 YEAR ARI Q (m³/s)	5 YEAR ARI Q (m³/s)	2 YEAR ARI Q (m³/s)
BRISBANE	1044.47	34.19	35877	28540	20034	17460	13770	11331	9098	7010	3399	1586	949	421
BRISBANE	1044.73	33.93	35877	28536	20032	17459	13768	11330	9099	7010	3399	1586	949	421
BRISBANE	1045.13	33.53	35876	28524	20026	17455	13766	11332	9100	7011	3399	1586	949	421
BRISBANE	1045.64	33.02	35874	28509	20024	17449	13761	11333	9103	7012	3398	1586	949	421
BRISBANE	1046.03	32.63	35873	28495	20021	17443	13758	11337	9106	7012	3398	1586	949	421
BRISBANE	1046.26	32.40	35873	28491	20020	17440	13756	11339	9107	7013	3398	1586	949	421
BRISBANE	1046.46	32.20	35872	28494	20019	17439	13756	11339	9108	7013	3398	1586	949	421
BRISBANE	1046.74	31.92	35872	28497	20018	17437	13756	11342	9109	7013	3398	1586	949	421
BRISBANE	1047.13	31.54	35871	28503	20016	17435	13755	11343	9112	7013	3398	1586	949	422
BRISBANE	1047.63	31.03	35870	28513	20014	17433	13754	11340	9115	7013	3398	1586	949	422
BRISBANE	1048.15	30.52	35868	28509	20011	17432	13753	11334	9122	7013	3398	1586	949	422
BRISBANE	1048.63	30.03	35867	28559	20005	17430	13757	11358	9129	7016	3398	1586	949	422
BRISBANE	1049.01	29.65	35866	28619	20004	17429	13756	11357	9131	7019	3398	1586	949	422
BRISBANE	1049.25	29.42	35865	28640	20004	17429	13755	11359	9132	7020	3398	1586	949	422
BRISBANE	1049.48	29.18	35865	28652	20004	17428	13754	11355	9132	7021	3398	1586	949	422
BRISBANE	1049.73	28.93	35865	28667	20004	17428	13755	11359	9132	7022	3398	1586	949	422
BRISBANE	1050.15	28.51	35865	28687	20004	17427	13750	11351	9131	7023	3397	1586	949	422
BRISBANE	1050.65	28.02	35864	28711	20003	17425	13753	11374	9125	7022	3397	1586	949	423
BRISBANE	1051.11	27.55	35864	28720	20002	17423	13745	11369	9121	7032	3397	1586	949	423
BRISBANE	1051.63	27.03	35863	28748	20000	17420	13755	11387	9136	7051	3397	1586	949	423
BRISBANE	1052.10	26.56	35863	28849	19998	17417	13763	11361	9217	7069	3397	1586	949	423
BRISBANE	1052.35	26.31	32954	27406	19989	17416	13779	11386	9250	7079	3397	1586	949	423
BRISBANE	1052.49	26.17	35863	28889	19996	17416	13786	11394	9263	7083	3397	1586	949	423
BRISBANE	1052.63	26.04	32073	28231	19996	17416	13791	11395	9274	7087	3397	1586	949	423
BRISBANE	1052.75	25.91	35863	28908	19996	17416	13773	11368	9269	7081	3397	1586	949	423
BRISBANE	1053.09	25.57	35862	28880	19996	17415	13785	11343	9248	7074	3397	1586	949	423
BRISBANE	1053.36	25.31	32348	27920	19900	17389	13786	11363	9223	7066	3397	1586	949	423
BRISBANE	1053.64	25.02	35862	28820	19995	17415	13789	11389	9240	7058	3397	1586	949	423
BRISBANE	1054.27	24.39	35862	28702	19993	17414	13761	11388	9253	7039	3397	1586	949	424
BRISBANE	1054.66	24.00	33049	27618	19869	17399	13739	11360	9229	7033	3397	1586	949	424
BRISBANE	1054.83	23.84	35862	28704	19992	17414	13740	11350	9221	7031	3397	1586	949	424
BRISBANE	1055.13	23.54	35862	28702	19992	17414	13740	11347	9213	7029	3397	1586	949	424
BRISBANE	1055.35	23.31	35862	28699	19992	17414	13741	11345	9207	7029	3397	1586	949	424
BRISBANE	1055.69	22.97	35862	28695	19992	17413	13742	11342	9198	7031	3397	1586	949	424
BRISBANE	1056.18	22.48	35862	28681	19992	17413	13741	11335	9167	7032	3397	1586	949	424
BRISBANE	1056.55	22.11	35862	28671	19992	17413	13739	11335	9157	7031	3397	1586	949	424
BRISBANE	1056.78	21.88	35862	28665	19991	17413	13738	11333	9151	7030	3397	1586	950	424
BRISBANE	1056.92	21.74	35862	28658	19991	17413	13737	11330	9143	7028	3397	1586	950	424
BRISBANE	1057.02	21.64	35862	28653	19991	17413	13736	11327	9137	7027	3397	1586	950	424
BRISBANE	1057.31	21.35	35862	28644	19991	17412	13734	11325	9128	7025	3397	1586	950	425
BRISBANE	1057.79	20.87	35861	28627	19991	17412	13733	11324	9123	7024	3397	1586	950	425
BRISBANE	1058.14	20.53	35861	28615	19990	17412	13732	11323	9126	7023	3397	1586	950	425
BRISBANE	1058.38	20.28	35861	28603	19990	17412	13732	11321	9128	7023	3397	1586	950	425
BRISBANE	1058.63	20.03	35861	28597	19990	17412	13732	11320	9128	7022	3397	1586	950	425
BRISBANE	1058.89	19.78	35861	28588	19990	17411	13732	11319	9128	7022	3397	1586	950	425
BRISBANE	1059.29	19.37	35861	28580	19989	17411	13732	11319	9128	7021	3397	1586	950	425
BRISBANE	1059.77	18.89	35861	28554	19989	17411	13731	11317	9124	7019	3397	1586	950	425
BRISBANE	1060.17	18.49	35861	28555	19988	17410	13731	11315	9119	7017	3397	1586	950	425
BRISBANE	1060.44	18.22	35861	28559	19988	17410	13731	11314	9117	7018	3397	1586	950	425
BRISBANE	1060.78	17.88	35861	28564	19988	17410	13731	11314	9115	7018	3397	1586	950	425
BRISBANE	1061.27	17.39	35861	28571	19987	17410	13731	11313	9110	7019	3397	1586	950	425
BRISBANE	1061.78	16.88	35861	28575	19987	17410	13731	11312	9107	7020	3397	1586	950	426
BRISBANE	1062.28	16.38	35861	28574	19987	17410	13731	11312	9103	7021	3397	1586	950	426
BRISBANE	1062.74	15.92	35861	28569	19987	17410	13730	11311	9106	7021	3398	1586	950	426
BRISBANE	1063.03	15.63	35861	28570	19986	17409	13730	11311	9107	7020	3398	1586	950	426
BRISBANE	1063.22	15.44	35892	28465	19980	17404	13725	11309	9097	7011	3398	1586	951	434
BRISBANE	1063.48	15.18	35892	28465	19980	17404	13725	11309	9096	7010	3398	1586	951	434
BRISBANE	1063.82	14.84	35892	28464	19980	17403	13725	11309	9095	7010	3398	1586	951	434
BRISBANE	1064.25	14.42	35891	28464	19980	17403	13725	11309	9095	7010	3398	1586	951	434
BRISBANE	1064.75	13.91	35891	28463	19979	17403	13725	11309	9095	7009	3398	1586	951	434

TABLE H-3 - Predicted Discharges for Design Events

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	DESIGN EVENTS PMF Q (m³/s)	10000 YEAR ARI Q (m³/s)	2000 YEAR ARI Q (m³/s)	1000 YEAR ARI Q (m³/s)	500 YEAR ARI Q (m³/s)	200 YEAR ARI Q (m³/s)	100 YEAR ARI Q (m³/s)	50 YEAR ARI Q (m³/s)	20 YEAR ARI Q (m³/s)	10 YEAR ARI Q (m³/s)	5 YEAR ARI Q (m³/s)	2 YEAR ARI Q (m³/s)
BRISBANE	1065.26	13.40	35891	28462	19979	17403	13724	11308	9095	7009	3398	1586	951	434
BRISBANE	1065.75	12.91	35891	28462	19978	17402	13724	11308	9094	7009	3398	1586	952	434
BRISBANE	1066.25	12.41	35891	28461	19978	17402	13724	11308	9094	7009	3398	1586	952	434
BRISBANE	1066.76	11.90	35891	28460	19977	17401	13723	11308	9093	7009	3398	1586	952	434
BRISBANE	1067.25	11.41	35891	28460	19977	17401	13723	11308	9093	7009	3398	1587	952	435
BRISBANE	1067.73	10.94	35891	28459	19977	17401	13723	11308	9093	7009	3398	1587	952	435
BRISBANE	1068.31	10.35	35891	28459	19976	17400	13723	11308	9093	7009	3398	1587	952	435
BRISBANE	1068.85	9.81	35890	28459	19976	17400	13723	11308	9094	7008	3398	1587	952	435
BRISBANE	1069.29	9.37	35890	28459	19976	17400	13722	11308	9094	7008	3398	1587	952	435
BRISBANE	1069.78	8.88	35890	28458	19976	17400	13722	11308	9094	7008	3398	1587	952	435
BRISBANE	1070.28	8.38	35891	28458	19975	17399	13722	11308	9094	7008	3398	1587	952	435
BRISBANE	1070.79	7.87	35891	28457	19975	17399	13722	11308	9095	7008	3398	1587	953	435
BRISBANE	1071.28	7.38	35891	28456	19974	17398	13722	11307	9095	7008	3398	1587	953	435
BRISBANE	1071.77	6.89	35891	28455	19974	17398	13722	11307	9095	7008	3398	1587	953	436
BRISBANE	1072.02	6.64	35891	28455	19974	17398	13722	11307	9095	7008	3398	1587	953	436
BRISBANE	1072.27	6.39	35933	28467	19967	17393	13720	11307	9088	7003	3398	1587	959	503
BRISBANE	1072.76	5.90	35933	28467	19967	17393	13720	11307	9088	7004	3398	1587	959	503
BRISBANE	1073.24	5.42	35933	28467	19967	17393	13720	11307	9088	7004	3398	1587	959	503
BRISBANE	1073.74	4.92	35933	28467	19967	17393	13720	11307	9088	7004	3398	1587	960	504
BRISBANE	1074.23	4.43	35933	28467	19967	17393	13720	11307	9088	7004	3399	1587	960	504
BRISBANE	1074.72	3.94	35933	28467	19967	17393	13720	11307	9088	7004	3399	1587	960	504
BRISBANE	1075.23	3.43	35933	28467	19967	17393	13720	11307	9088	7004	3399	1587	960	504
BRISBANE	1075.74	2.92	35933	28467	19967	17393	13720	11307	9088	7004	3399	1587	960	504
BRISBANE	1076.25	2.41	35933	28467	19967	17393	13720	11307	9088	7005	3399	1587	960	504
BRISBANE	1076.75	1.91	35933	28467	19967	17393	13720	11307	9088	7005	3399	1587	961	505
BRISBANE	1077.26	1.40	35933	28467	19967	17393	13720	11307	9088	7005	3399	1587	961	505
BRISBANE	1077.78	0.88	35933	28467	19967	17393	13720	11307	9088	7005	3399	1587	961	505
BRISBANE	1078.28	0.38	35933	28467	19967	17393	13720	11307	9088	7005	3399	1587	961	505
BRISBANE	1078.59	0.07	35933	28467	19967	17393	13720	11307	9088	7005	3399	1587	961	505
BREMER	599.70	-	6461	4753	2982	2632	2104	1622	2191	1869	960	874	636	230
OXLEY	599.70	-	2263	2440	2476	2080	1279	729	1167	828	474	400	307	164
BREAKFAST	599.70	-	656	570	167	137	103	92	408	335	249	201	168	100
BULIMBA	599.70	-	603	426	222	158	99	90	651	538	368	301	248	162
CENTWEIR	0.04	-	26640	18626	10963	5690	3054	1380	377	9	0	0	0	0
INDOORWEIR	0.04	-	7478	2211	725	10	0	0	0	0	0	0	0	0
WILLIAMWEIR	0.02	-	3790	1057	0	0	0	0	0	0	0	0	0	0
VICTORIAWEIR	0.03	-	3523	961	95	60	0	0	0	0	0	0	0	0
CAPTAINWEIR	0.02	-	2921	1085	124	15	0	0	0	0	0	0	0	0
STORYWEIR	0.04	-	0	0	0	0	0	0	0	0	0	0	0	0
MERIVALEWEIR	0.04	-	2909	1555	8	0	0	0	0	0	0	0	0	0
GOODNALINK1	0.50	-	4922	4522	3795	3255	2151	1122	204	0	0	0	0	0
GOODNALINK2	0.54	-	10763	7755	4493	3333	1732	750	77	0	0	0	0	0
STLUCIALINK1	0.53	-	14552	10519	5869	4462	2459	1077	195	59	0	0	0	0
STLUCIALINK2	0.53	-	3921	3026	1923	1588	1017	618	241	29	0	0	0	0
STLUCIALINK3	0.43	-	6139	5039	3401	2584	1175	474	123	0	0	0	0	0

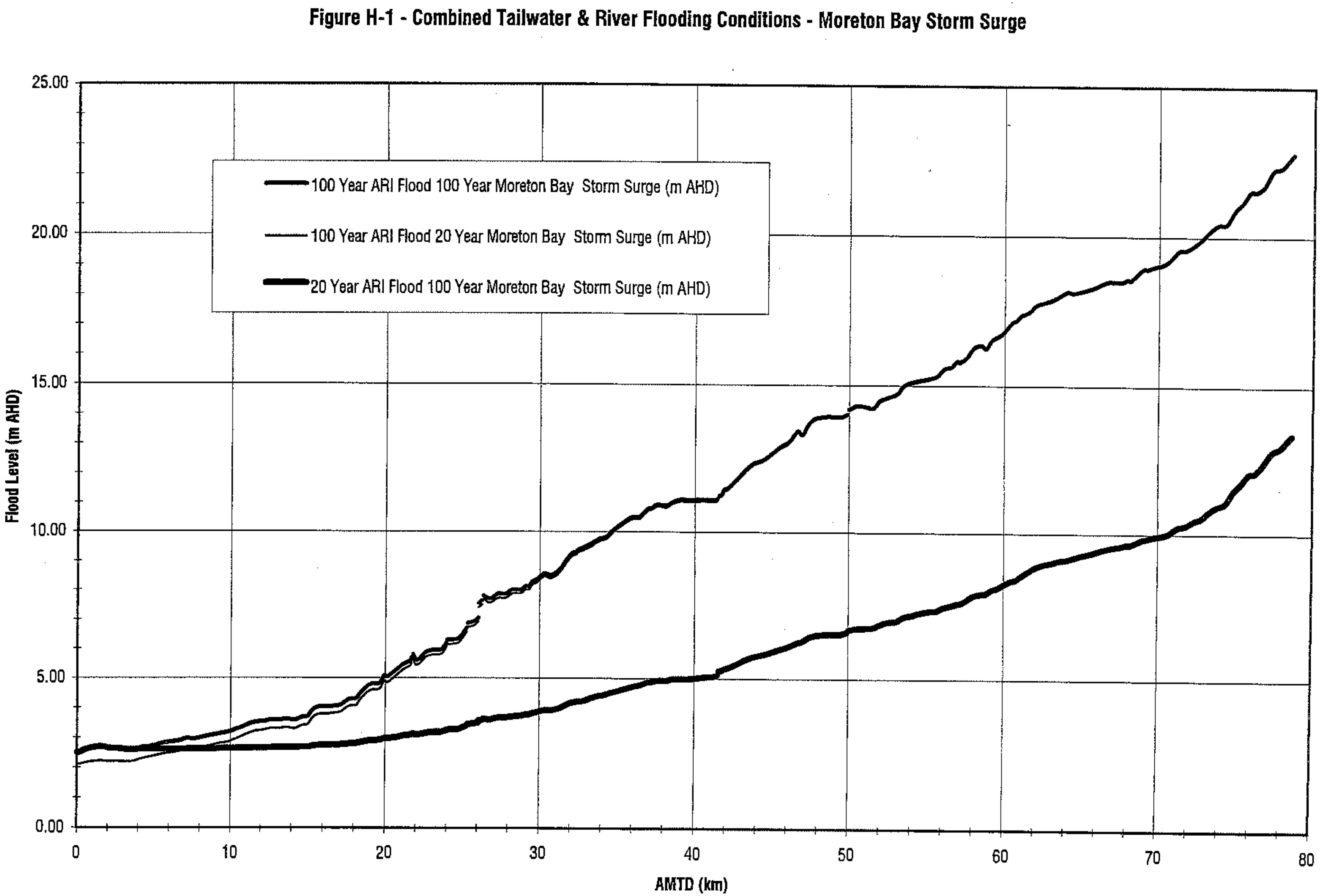


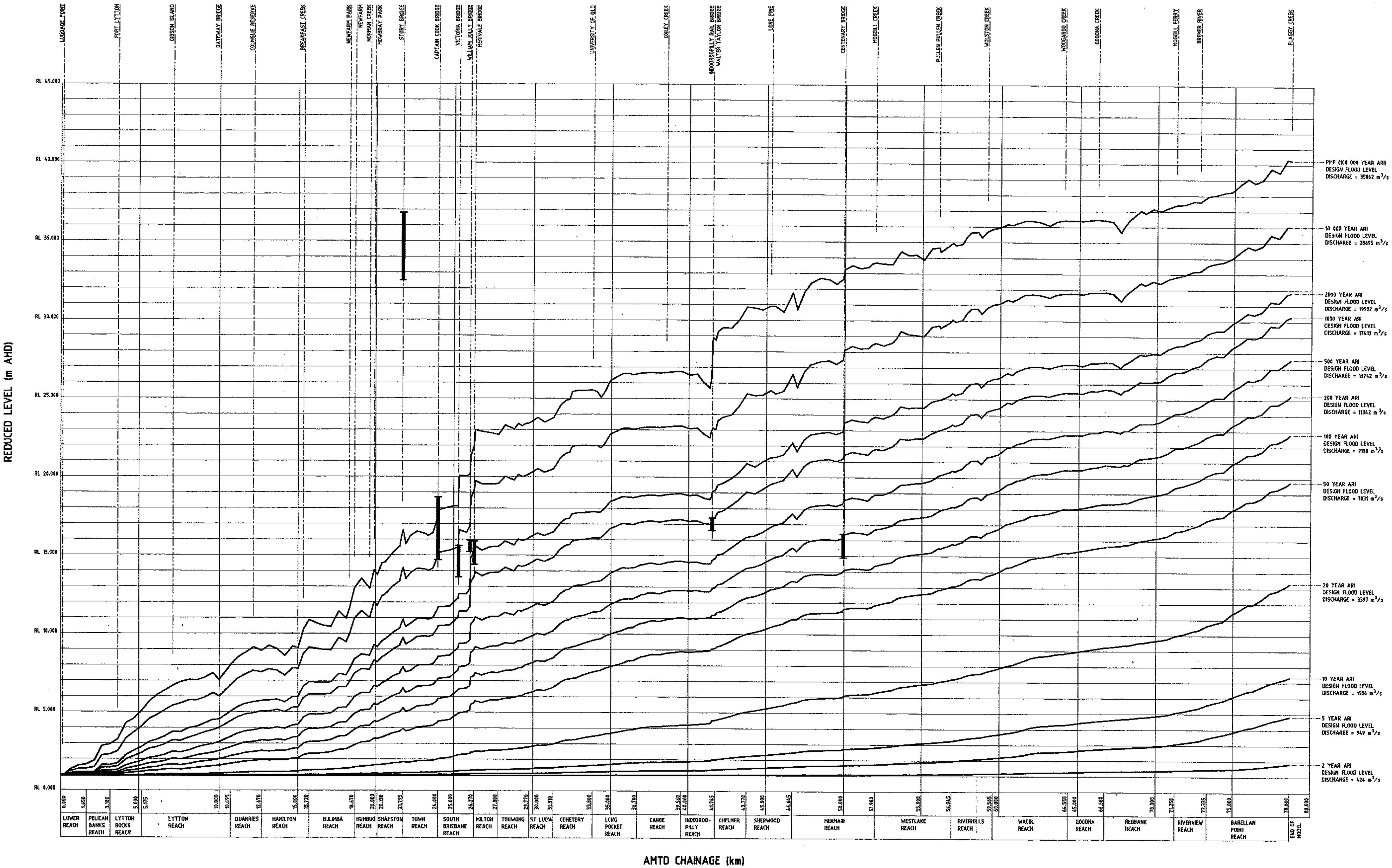
Figure H-1 - Combined Tailwater & River Flooding Conditions - Moreton Bay Storm Surge
100 Year ARI Flood 100 Year Moreton Bay Storm Surge (m AHD)
100 Year ARI Flood 20 Year Moreton Bay Storm Surge (m AHD)
20 Year ARI Flood 100 Year Moreton Bay Storm Surge (m AHD)
Flood Level (m AHD)
25.00
20.00
15.00
10.00
5.00
0.00
0
10
20
30
40
50
60
70
80
AMTD (km)

SINCLAIR KNIGHT MERZ

FIGURE H-2

BRISBANE RIVER FLOOD STUDY

DESIGN PROFILES FOR THE BRISBANE RIVER - COMBINED



NOTE:
DISCHARGES GIVEN
AT PORT OFFICE

VERTICAL 0 2.0 4.0 6.0 8.0 10.0 METRES

HORIZONTAL 0 2.0 4.0 6.0 8.0 10.0 KILOMETRES

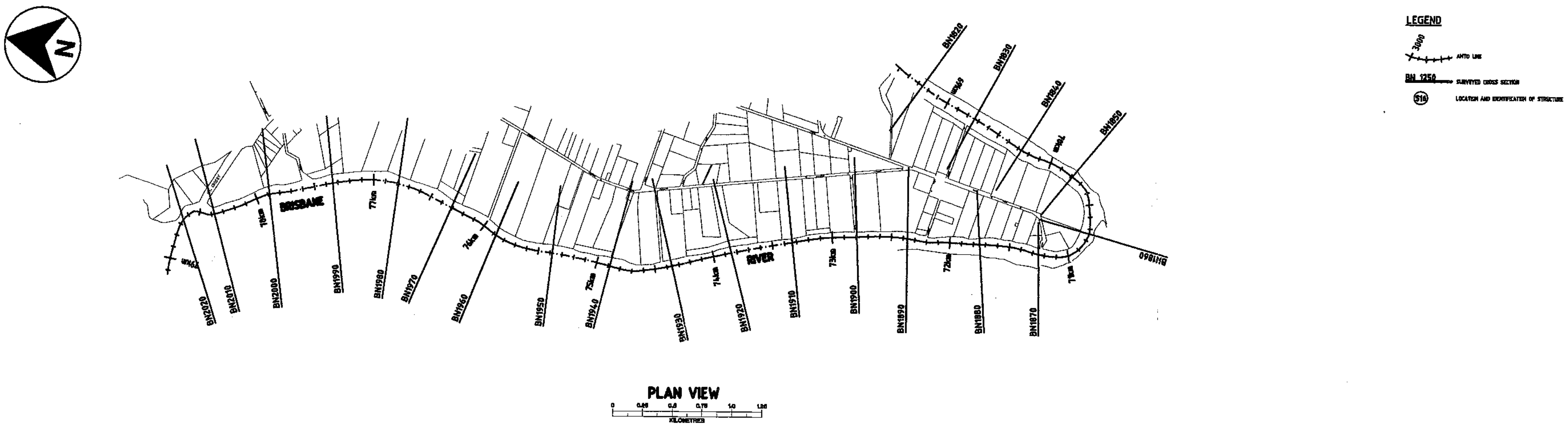
FILE NAME: 4157-263
PLOT SCALE: 1=250
DISK N°: G:\
JOB N°: T004157
DATE: 14-2-98

SINCLAIR KNIGHT MERZ

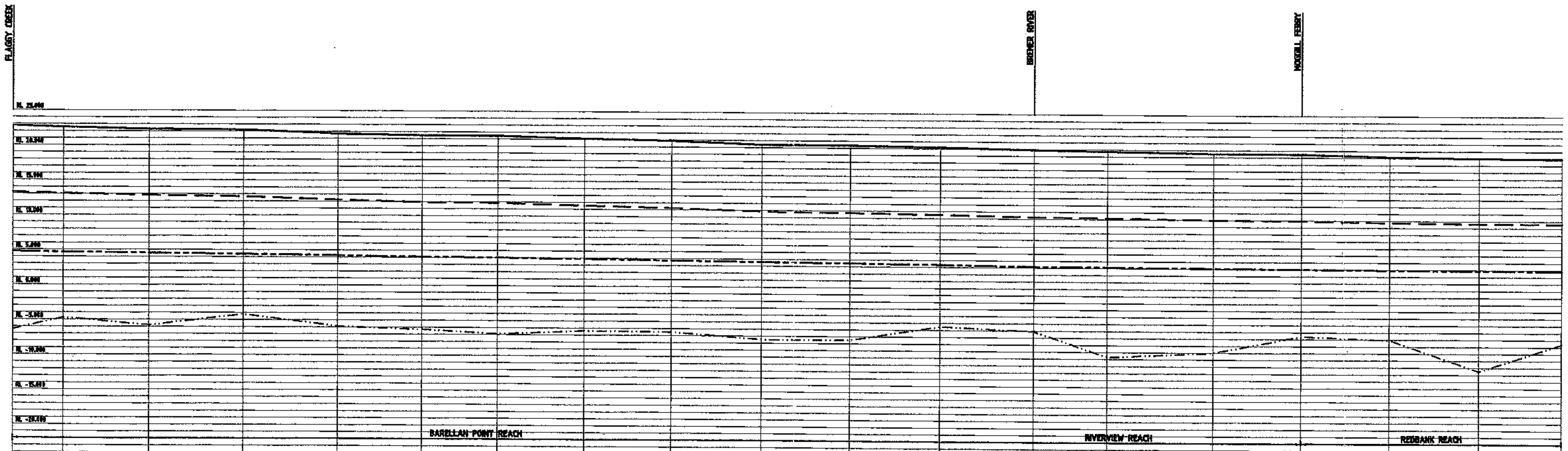
FIGURE H-3a

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	4.720	4.640	4.540	4.404	4.240	4.090	4.010	3.880	3.730	3.598
20 YEAR ARI DESIGN FLOOD LEVEL	13.240	13.070	12.870	12.650	12.330	11.920	11.840	11.540	11.260	10.830
100 YEAR ARI DESIGN FLOOD LEVEL	22.760	22.570	22.290	22.200	21.880	21.680	21.440	21.130	20.860	20.410
BED LEVEL (m AHD)	-4.400	-4.700	-5.440	-4.200	-5.900	-4.300	-6.900	-6.600	-6.500	-7.500
CROSS SECTION NUMBER	BN 2020	BN 2010	BN 2000	BN 1990	BN 1980	BN 1970	BN 1960	BN 1950	BN 1940	BN 1930
MIKE 11 CHAINAGE (km)	1000.000	1000.385	1000.775	1001.315	1001.865	1002.350	1002.785	1003.275	1003.775	1004.300
AMTD CHAINAGE (km)	78.660	78.375	77.885	77.345	76.795	76.310	75.875	75.385	74.885	74.360

5 YEAR ARI DESIGN FLOOD LEVEL	3.470	3.360	3.310	3.160	3.060	3.000	2.920	2.870	2.840
20 YEAR ARI DESIGN FLOOD LEVEL	10.700	10.530	10.240	10.180	9.990	9.920	9.730	9.430	9.590
100 YEAR ARI DESIGN FLOOD LEVEL	20.370	20.280	19.890	19.720	19.520	19.490	19.190	19.030	18.960
BED LEVEL (m AHD)	-7.500	-5.500	-6.190	-9.700	-9.000	-4.600	-7.500	-11.500	-7.600
CROSS SECTION NUMBER	BN 1920	BN 1910	BN 1900	BN 1890	BN 1880	BN 1870	BN 1860	BN 1850	BN 1840
MIKE 11 CHAINAGE (km)	1004.810	1005.325	1005.870	1006.300	1006.910	1007.410	1007.920	1008.445	1008.925
AMTD CHAINAGE (km)	73.850	73.335	72.790	72.360	71.750	71.250	70.740	70.215	69.735

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 5 YEAR ARI DESIGN FLOOD
- 20 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

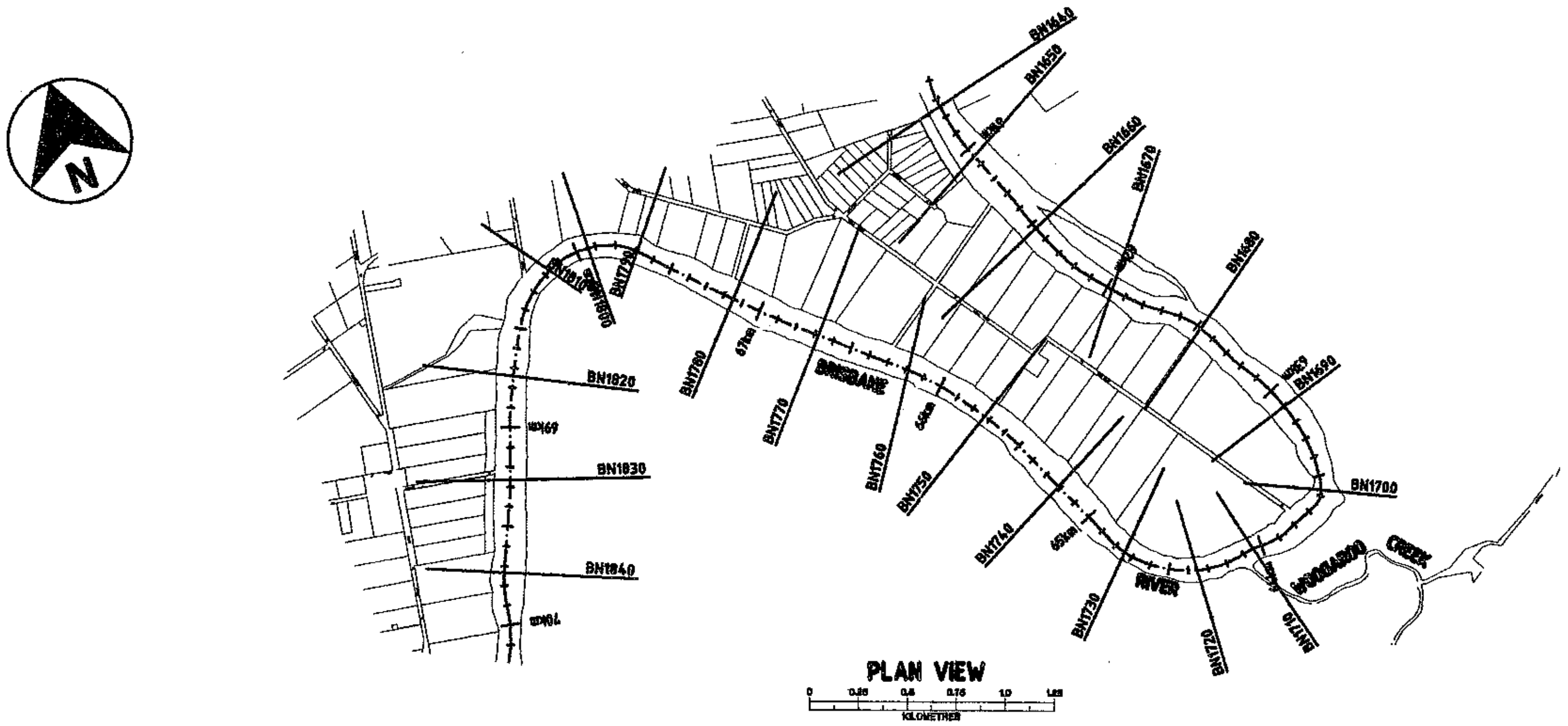
BRISBANE RIVER - BN 2020 TO BN 1840

FILE NAME: 415/-119 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T00415? DATE: 23/3/97

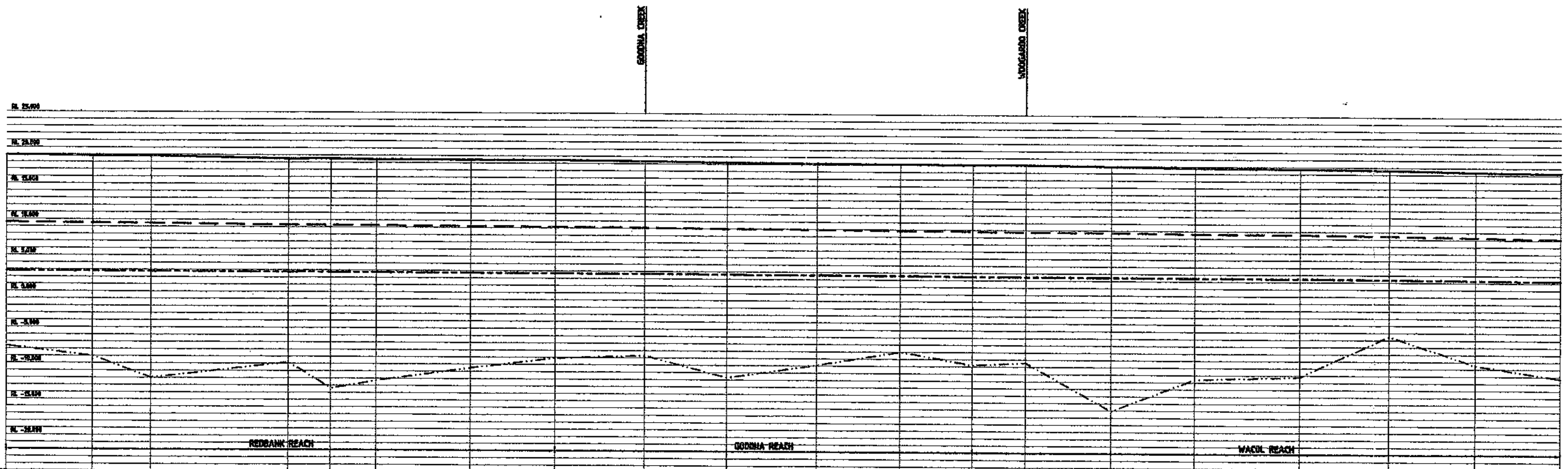
SINCLAIR KNIGHT MERZ

FIGURE H-3b

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



LEGEND



DATUM RL. -25.000

CROSS SECTION NUMBER	5 YEAR ARI DESIGN FLOOD LEVEL	20 YEAR ARI DESIGN FLOOD LEVEL	100 YEAR ARI DESIGN FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 1840	2.840	9.590	18.910	-7.600	1008.925	69.735
BN 1830	2.819	9.540	18.860	-9.000	1009.440	69.360
BN 1820	2.808	9.470	18.850	-12.000	1009.720	68.840
BN 1810	2.758	9.300	18.500	-9.600	1010.498	68.170
BN 1800	2.750	9.300	18.520	-13.600	1010.735	67.935
BN 1790	2.738	9.260	18.440	-12.300	1010.980	67.680
BN 1780	2.716	9.210	18.430	-10.500	1011.504	67.158
BN 1770	2.688	9.150	18.430	-9.300	1011.980	66.688
BN 1760	2.650	9.070	18.330	-8.700	1012.475	66.185
BN 1750	2.620	8.994	18.220	-11.700	1012.935	65.725
BN 1740	2.590	8.920	18.140	-9.900	1013.445	65.215
BN 1730	2.550	8.858	18.080	-8.800	1013.810	64.740
BN 1720	2.518	8.798	18.059	-9.800	1014.310	64.550
BN 1710	2.478	8.720	18.060	-9.400	1014.610	64.050
BN 1700	2.480	8.710	17.950	-16.100	1015.080	63.578
BN 1690	2.460	8.620	17.810	-11.600	1015.560	63.100
BN 1680	2.440	8.560	17.770	-11.200	1016.140	62.520
BN 1670	2.380	8.450	17.620	-5.500	1016.640	62.020
BN 1660	2.290	8.270	17.390	-5.500	1017.130	61.530
BN 1650	2.238	8.090	17.240	-11.300	1017.610	61.050

LEGEND

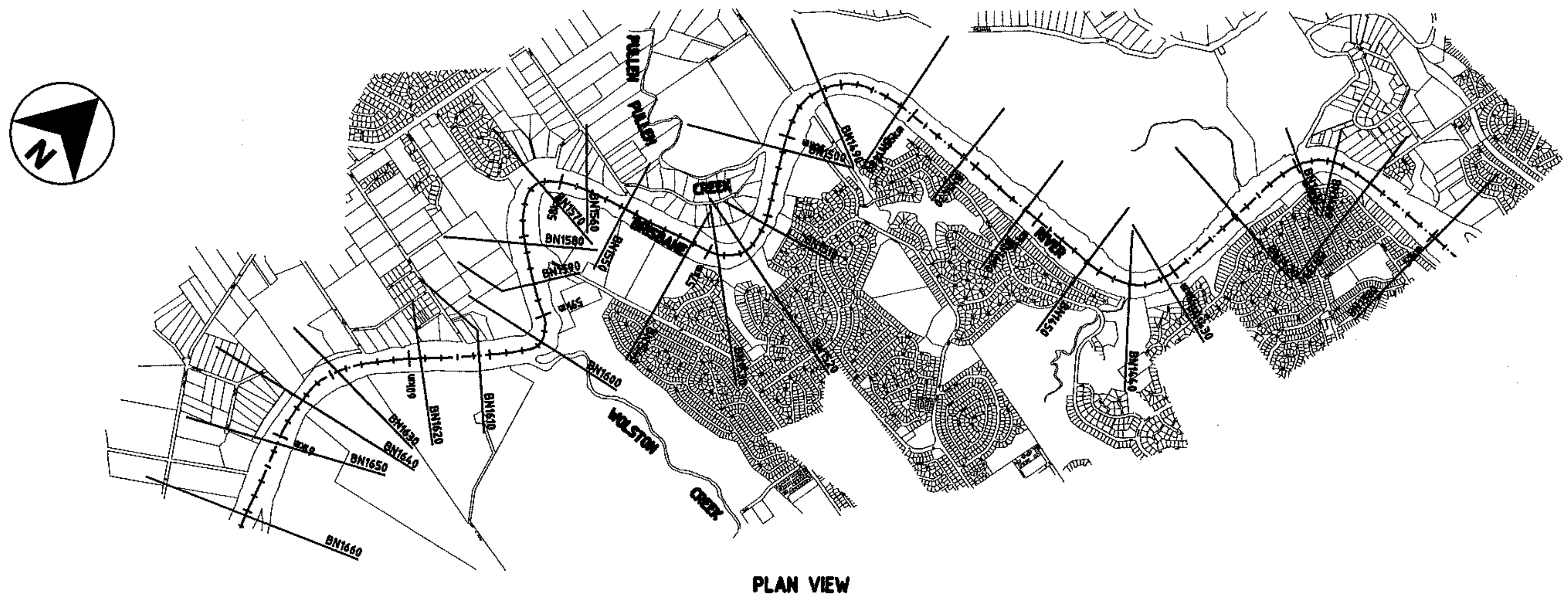
VERT. 0 5.0 10.0 15.0 20.0 METRES
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1840 TO BN 1650

FILE NAME: 4157-120 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T004157 DATE: 23/3/97

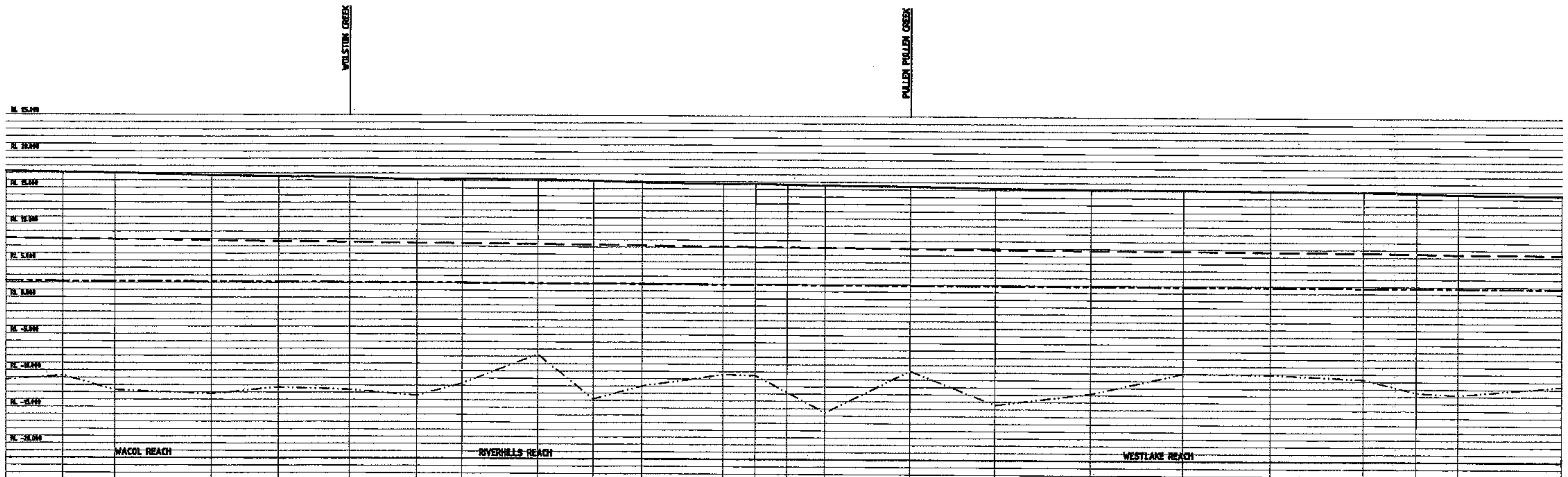
FIGURE H-3c

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	2.230	2.190	2.180	2.140	2.110	2.080	2.050	2.030	2.010	1.990	1.960	1.920	1.910	1.900	1.890	1.870	1.860	1.850	1.830	1.800	1.780	1.760	1.750	1.730
20 YEAR ARI DESIGN FLOOD LEVEL	8.090	7.960	7.930	7.780	7.440	7.580	7.450	7.430	7.390	7.320	7.210	7.080	7.060	7.030	7.000	6.920	6.810	6.780	6.720	6.660	6.580	6.490	6.410	6.360
100 YEAR ARI DESIGN FLOOD LEVEL	17.260	17.104	17.024	16.830	16.560	16.450	16.150	16.250	16.220	16.070	15.860	15.690	15.720	15.650	15.530	15.450	15.210	15.120	15.070	15.010	14.910	14.770	14.610	14.480
BED LEVEL (m AHD)	-11.300	-10.700	-12.700	-13.200	-12.300	-12.600	-15.400	-11.700	-7.700	-13.900	-12.000	-10.440	-10.500	-12.800	-15.690	-9.800	-14.480	-12.800	-10.080	-10.100	-10.700	-12.500	-12.800	-11.600
CROSS SECTION NUMBER	BN 1650	BN 1640	BN 1630	BN 1620	BN 1610	BN 1600	BN 1590	BN 1580	BN 1570	BN 1560	BN 1550	BN 1540	BN 1530	BN 1520	BN 1510	BN 1500	BN 1490	BN 1480	BN 1470	BN 1460	BN 1450	BN 1440	BN 1430	BN 1420
MIKE 11 CHAINAGE (km)	1017.610	1017.920	1018.260	1018.725	1019.095	1019.490	1019.865	1020.115	1020.525	1020.830	1021.095	1021.539	1021.715	1021.895	1022.105	1022.575	1023.040	1023.570	1024.080	1024.563	1025.070	1025.360	1025.590	1026.170
AMTD CHAINAGE (km)	61.050	60.744	60.440	59.935	59.565	59.170	58.795	58.545	58.135	57.830	57.565	57.121	56.945	56.765	56.555	56.085	55.620	55.090	54.580	54.097	53.590	53.300	53.070	52.490

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 5 YEAR ARI DESIGN FLOOD
- 20 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1650 TO BN 1420

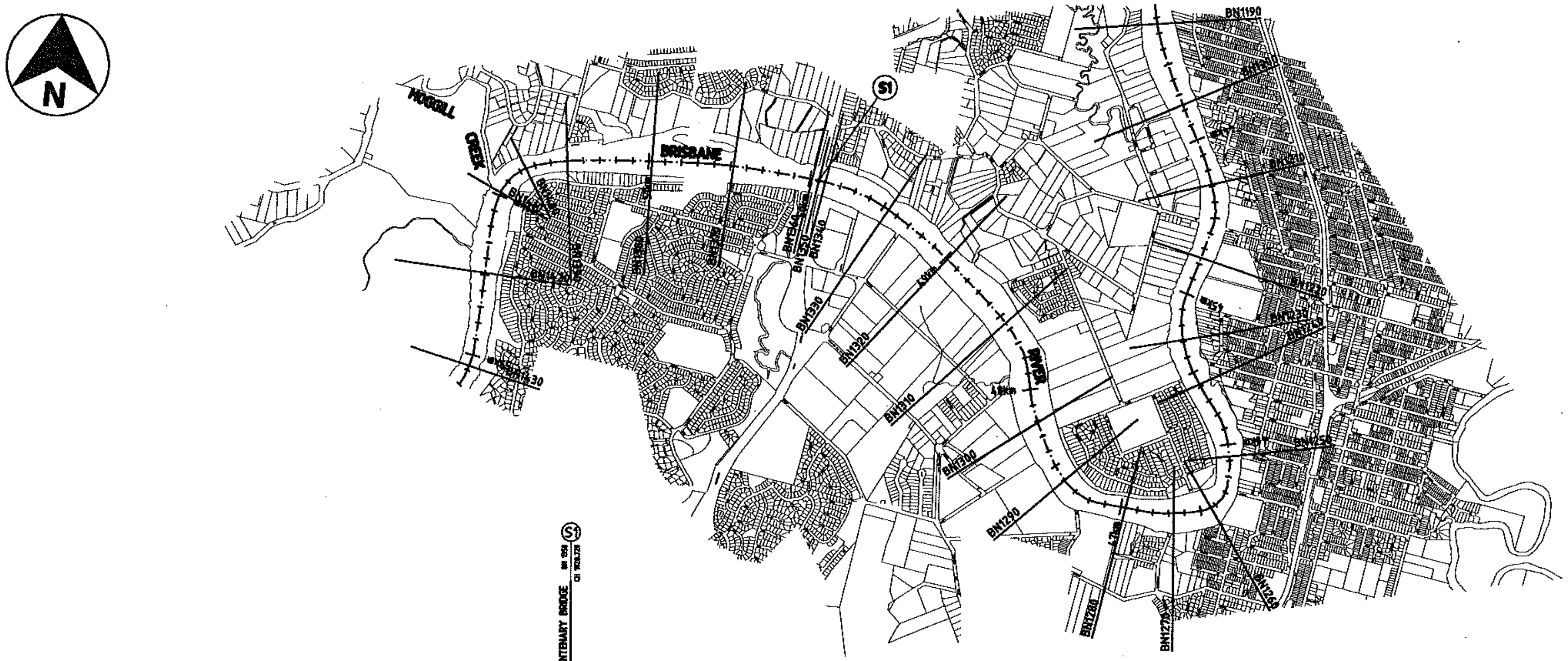
FILE NAME: 4157-121 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T004157 DATE: 23/3/97

SINCLAIR KNIGHT MERZ

FIGURE H-3d

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

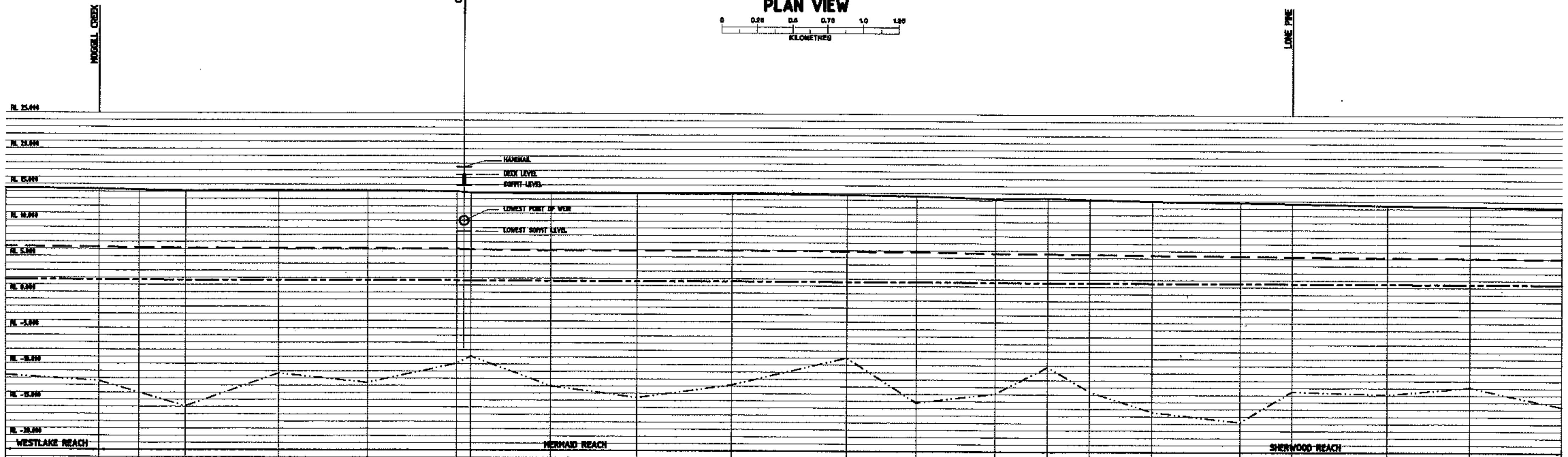


LEGEND

- ARTD LINE
- BN 1250 SURVEYED CROSS SECTION
- S1 LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	1.730	1.710	1.700	1.690	1.680	1.670	1.660	1.640	1.620	1.620	1.620
20 YEAR ARI DESIGN FLOOD LEVEL	6.340	6.260	6.200	6.150	6.130	6.120	6.050	5.770	5.980	5.900	5.890
100 YEAR ARI DESIGN FLOOD LEVEL	14.440	14.380	14.254	14.110	14.170	14.190	14.060	13.910	13.800	13.620	13.620
BED LEVEL (m AHD)	-11.400	-12.460	-14.800	-15.900	-11.300	-12.600	-9.500	-4.900	-13.400	-14.600	-12.800
CROSS SECTION NUMBER	BN 1420	BN 1410	BN 1400	BN 1394	BN 1380	BN 1370	BN 1360	BN 1340	BN 1330	BN 1320	BN 1310
MIKE 11 CHAINAGE (km)	1024.170	1026.680	1026.900	1027.160	1027.480	1028.180	1028.680	1028.760	1029.204	1029.440	1030.220
AMTD CHAINAGE (km)	52.434	51.980	51.768	51.508	50.980	50.430	49.980	49.900	49.444	48.980	48.440

5 YEAR ARI DESIGN FLOOD LEVEL	1.600	1.590	1.540	1.550	1.530	1.520	1.500	1.490	1.480	1.460	1.450
20 YEAR ARI DESIGN FLOOD LEVEL	5.844	5.780	5.620	5.578	5.510	5.440	5.320	5.270	5.560	5.180	5.020
100 YEAR ARI DESIGN FLOOD LEVEL	13.754	13.590	13.210	13.370	13.180	12.940	12.790	12.680	12.450	12.290	12.190
BED LEVEL (m AHD)	-9.800	-15.260	-13.910	-10.200	-13.680	-14.440	-17.880	-13.500	-13.900	-12.900	-15.600
CROSS SECTION NUMBER	BN 1300	BN 1290	BN 1280	BN 1270	BN 1261	BN 1254	BN 1240	BN 1230	BN 1220	BN 1210	BN 1200
MIKE 11 CHAINAGE (km)	1030.870	1031.240	1031.780	1031.995	1032.230	1032.565	1033.080	1033.370	1033.900	1034.370	1034.890
AMTD CHAINAGE (km)	47.794	47.408	46.940	46.645	46.430	46.015	45.580	45.290	44.760	44.270	43.770

LEGEND

- S1 LOCATION AND IDENTIFICATION OF STRUCTURE
- 5 YEAR ARI DESIGN FLOOD
- 20 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1420 TO BN 1200

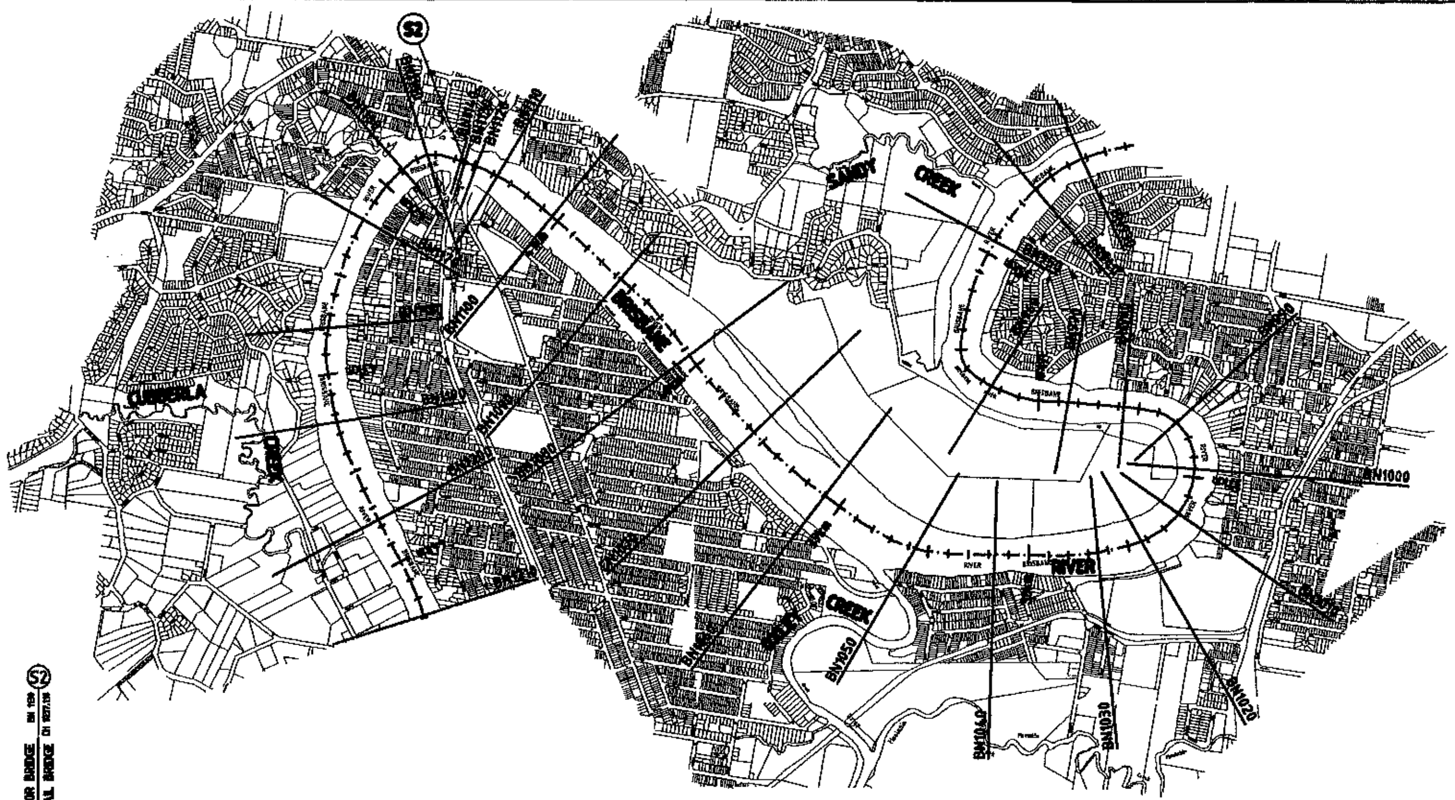
BCC.121.0256

SINCLAIR KNIGHT MERZ

FIGURE H-3e

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

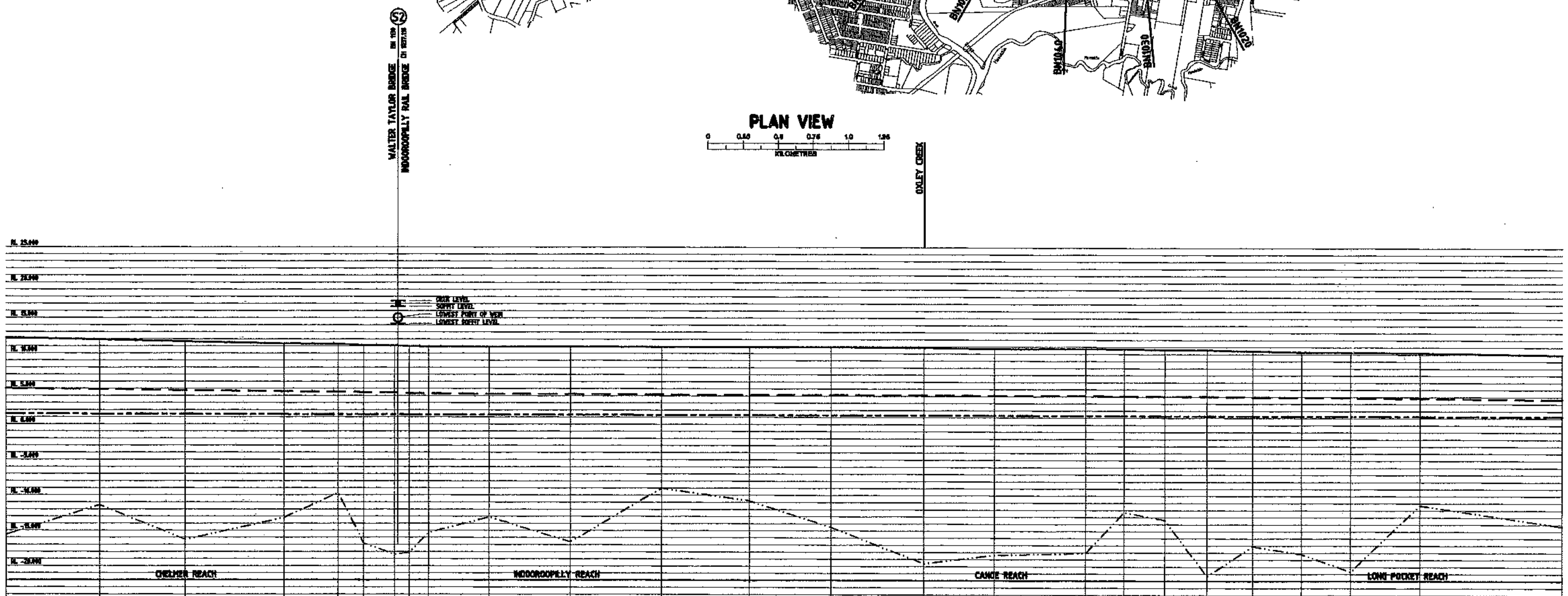


PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES

LEGEND

- AMTD LINE
- BN 1250 SURVEYED CROSS SECTION
- (S16) LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

CROSS SECTION NUMBER	5 YEAR ARI DESIGN FLOOD LEVEL	20 YEAR ARI DESIGN FLOOD LEVEL	100 YEAR ARI DESIGN FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 1200	1.450	5.020	12.090	-15.600	1036.090	43.770
BN 1190	1.430	4.930	11.940	-11.400	1036.414	43.266
BN 1180	1.400	4.740	11.650	-16.300	1035.900	42.768
BN 1170	1.380	4.600	11.350	-13.200	1036.460	42.208
BN 1160	1.360	4.540	11.200	-9.700	1036.770	41.890
BN 1150	1.340	4.480	11.120	-16.800	1036.915	41.745
BN 1140	1.350	4.470	11.070	-18.400	1037.090	41.570
BN 1120	1.330	4.320	10.980	-18.900	1037.115	41.485
BN 1110	1.320	4.290	10.930	-15.300	1037.285	41.315
BN 1100	1.310	4.250	10.910	-13.100	1037.425	41.035
BN 1090	1.310	4.230	10.930	-16.600	1038.085	40.575
BN 1080	1.300	4.180	10.910	-9.000	1038.660	40.060
BN 1070	1.290	4.150	10.900	-10.800	1039.100	39.560
BN 1060	1.290	4.140	10.920	-14.500	1039.565	39.050
BN 1050	1.290	4.140	10.840	-19.480	1040.090	38.570
BN 1040	1.290	4.080	10.790	-18.400	1040.490	38.170
BN 1030	1.280	4.090	10.740	-18.100	1041.010	37.560
BN 1020	1.280	4.050	10.710	-12.300	1041.230	37.430
BN 1010	1.270	4.010	10.620	-13.400	1041.460	37.200
BN 1000	1.270	4.010	10.550	-21.300	1041.700	36.940
BN 990	1.270	3.940	10.450	-17.100	1041.940	36.700
BN 980	1.260	3.890	10.300	-18.200	1042.235	36.425
BN 970	1.260	3.870	10.290	-20.700	1042.515	36.145
BN 960	1.240	3.790	10.220	-11.300	1042.910	35.750
BN 950	1.220	3.630	9.910	-14.300	1043.725	34.935

LEGEND

- (S16) LOCATION AND IDENTIFICATION OF STRUCTURE
- 5 YEAR ARI DESIGN FLOOD
- 20 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1200 TO BN 950

FILE NAME: 4157-123 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T00415? DATE: 23/5/97

SINCLAIR KNIGHT MERZ

FIGURE H-3f

BRISBANE RIVER FLOOD STUDY

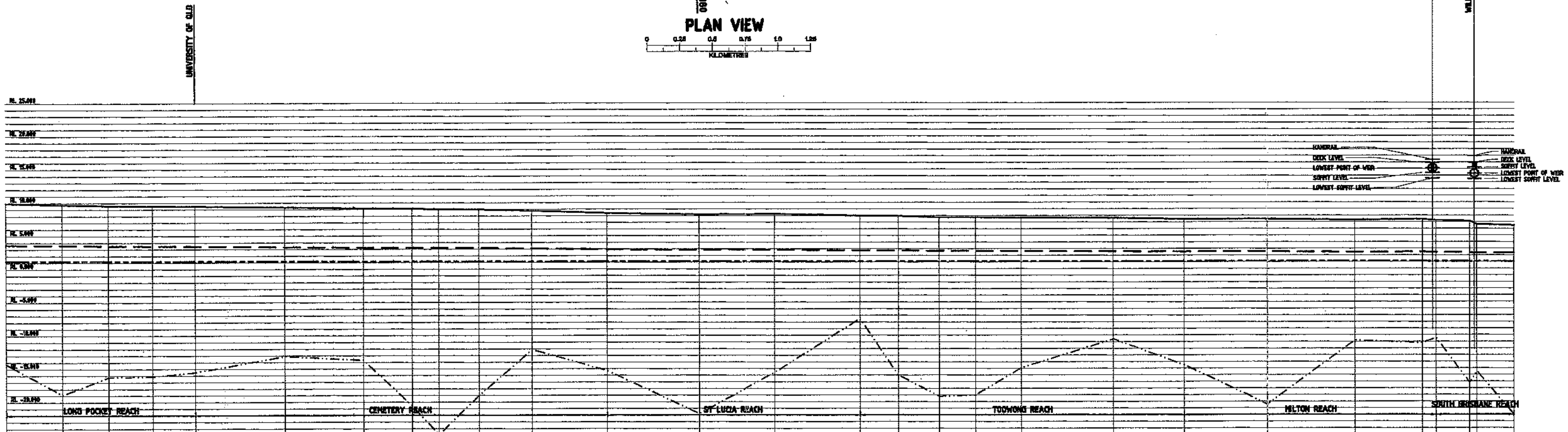
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

LEGEND

- AMTD LINE
- BN 1250 — SURVEYED CROSS SECTION
- (S16) — LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	1.220	1.210	1.210	1.200	1.200	1.180	1.170	1.160	1.160	1.160	1.150	1.130	1.130	1.120
20 YEAR ARI DESIGN FLOOD LEVEL	3.630	3.590	3.520	3.490	3.450	3.340	3.230	3.220	3.200	3.180	3.090	2.950	2.870	2.870
100 YEAR ARI DESIGN FLOOD LEVEL	9.910	9.750	9.580	9.530	9.690	9.310	9.170	9.090	9.020	8.970	8.780	8.610	8.170	8.230
BED LEVEL (m AHD)	-14.300	-18.980	-16.200	-16.800	-15.500	-13.100	-13.700	-20.600	-24.900	-19.080	-12.100	-15.300	-21.800	-15.600
CROSS SECTION NUMBER	BN 950	BN 940	BN 930	BN 920	BN 910	BN 900	BN 890	BN 880	BN 870	BN 860	BN 850	BN 840	BN 830	BN 820
MIKE 11 CHAINAGE (km)	1043.725	1044.060	1044.340	1044.605	1044.860	1045.400	1045.885	1046.180	1046.340	1046.580	1046.900	1047.350	1047.915	1048.375
AMTD CHAINAGE (km)	34.935	34.600	34.320	34.055	33.800	33.260	32.775	32.480	32.320	32.080	31.760	31.310	30.745	30.285

5 YEAR ARI DESIGN FLOOD LEVEL	1.110	1.110	1.100	1.100	1.100	1.090	1.090	1.080	1.080	1.080	1.070	1.070	1.040	1.040
20 YEAR ARI DESIGN FLOOD LEVEL	2.760	2.740	2.680	2.670	2.650	2.590	2.540	2.550	2.460	2.450	2.440	2.420	2.340	2.320
100 YEAR ARI DESIGN FLOOD LEVEL	8.090	7.940	7.750	7.740	7.630	7.610	7.460	7.440	7.300	7.400	7.230	7.140	6.630	6.490
BED LEVEL (m AHD)	-7.500	-16.000	-19.200	-19.000	-16.900	-10.600	-14.500	-20.500	-10.880	-11.100	-10.600	-17.200	-15.900	-22.000
CROSS SECTION NUMBER	BN 810	BN 800	BN 790	BN 780	BN 770	BN 760	BN 750	BN 740	BN 730	BN 720	BN 700	BN 690	BN 670	BN 660
MIKE 11 CHAINAGE (km)	1048.890	1049.120	1049.370	1049.590	1049.870	1050.430	1050.860	1051.360	1051.895	1052.310	1052.390	1052.595	1052.640	1052.865
AMTD CHAINAGE (km)	29.770	29.540	29.290	29.070	28.790	28.230	27.800	27.300	26.765	26.350	26.270	26.065	26.020	25.795

LEGEND

- (S16) LOCATION AND IDENTIFICATION OF STRUCTURE
- 5 YEAR ARI DESIGN FLOOD
- 20 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

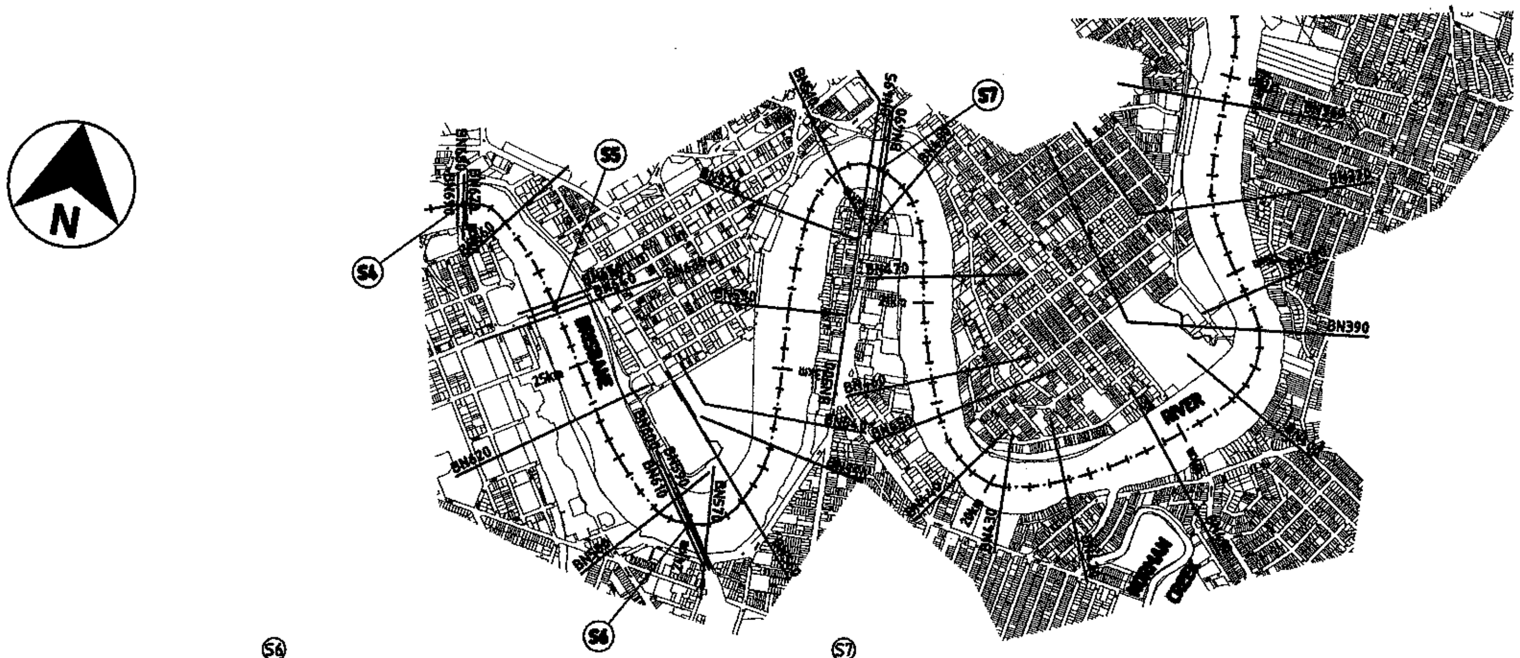
BRISBANE RIVER - BN 950 TO BN 660

FILE NAME: 457-124 PLOT SCALE: 1=30

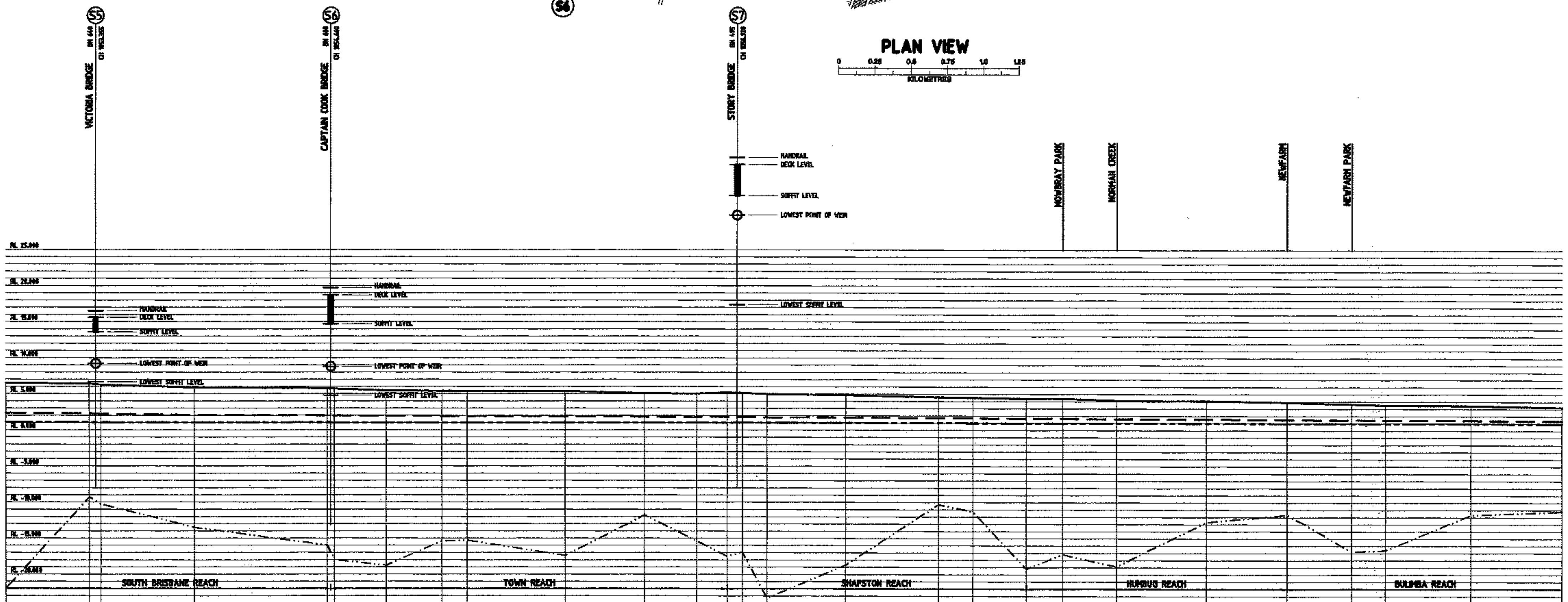
FIGURE H-3g

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	1.040	1.060	1.050	1.030	1.030	1.020	1.010	1.010	1.010
20 YEAR ARI DESIGN FLOOD LEVEL	2.320	2.280	2.280	2.050	2.010	1.980	1.920	1.900	1.900
100 YEAR ARI DESIGN FLOOD LEVEL	6.690	6.420	6.240	5.850	5.760	5.700	5.450	5.440	5.400
BED LEVEL (m AHD)	-22.080	-9.300	-10.380	-13.500	-16.010	-18.080	-18.800	-15.440	-15.390
CROSS SECTION NUMBER	BN 660	BN 650	BN 630	BN 620	BN 610	BN 590	BN 560	BN 550	BN 540
MIKE 11 CHAINAGE (km)	1052.845	1053.320	1053.385	1053.900	1054.440	1054.580	1054.978	1055.280	1055.420
AMTD CHAINAGE (km)	25.795	25.340	25.295	24.744	24.320	23.880	23.690	23.380	23.240

5 YEAR ARI DESIGN FLOOD LEVEL	1.010	1.000	1.000	1.000	1.000	1.000	0.990	0.990	0.980
20 YEAR ARI DESIGN FLOOD LEVEL	1.880	1.810	1.790	1.840	1.810	1.780	1.750	1.680	1.660
100 YEAR ARI DESIGN FLOOD LEVEL	5.344	5.490	5.030	5.220	5.120	4.970	4.850	4.580	4.500
BED LEVEL (m AHD)	-17.400	-11.600	-15.400	-17.300	-16.900	-23.380	-18.700	-10.300	-11.300
CROSS SECTION NUMBER	BN 530	BN 520	BN 510	BN 500	BN 490	BN 480	BN 470	BN 460	BN 450
MIKE 11 CHAINAGE (km)	1055.960	1056.400	1056.695	1056.865	1056.950	1057.090	1057.550	1058.040	1058.230
AMTD CHAINAGE (km)	22.700	22.240	21.965	21.795	21.710	21.570	21.100	20.620	20.430

5 YEAR ARI DESIGN FLOOD LEVEL	0.980	0.980	0.980	0.970	0.970	0.970	0.960	0.960	0.960
20 YEAR ARI DESIGN FLOOD LEVEL	1.630	1.650	1.570	1.550	1.490	1.450	1.420	1.400	1.350
100 YEAR ARI DESIGN FLOOD LEVEL	4.370	4.410	4.130	4.090	3.880	3.650	3.580	3.450	3.240
BED LEVEL (m AHD)	-19.200	-17.200	-18.900	-12.700	-11.700	-16.880	-16.650	-11.700	-11.200
CROSS SECTION NUMBER	BN 440	BN 430	BN 420	BN 410	BN 400	BN 390	BN 380	BN 370	BN 360
MIKE 11 CHAINAGE (km)	1058.530	1058.735	1059.035	1059.540	1059.990	1060.365	1060.535	1061.015	1061.530
AMTD CHAINAGE (km)	20.130	19.925	19.625	19.120	18.670	18.295	18.125	17.645	17.130

BRISBANE RIVER - BN 660 TO BN 360

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 5 YEAR ARI DESIGN FLOOD
- 20 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

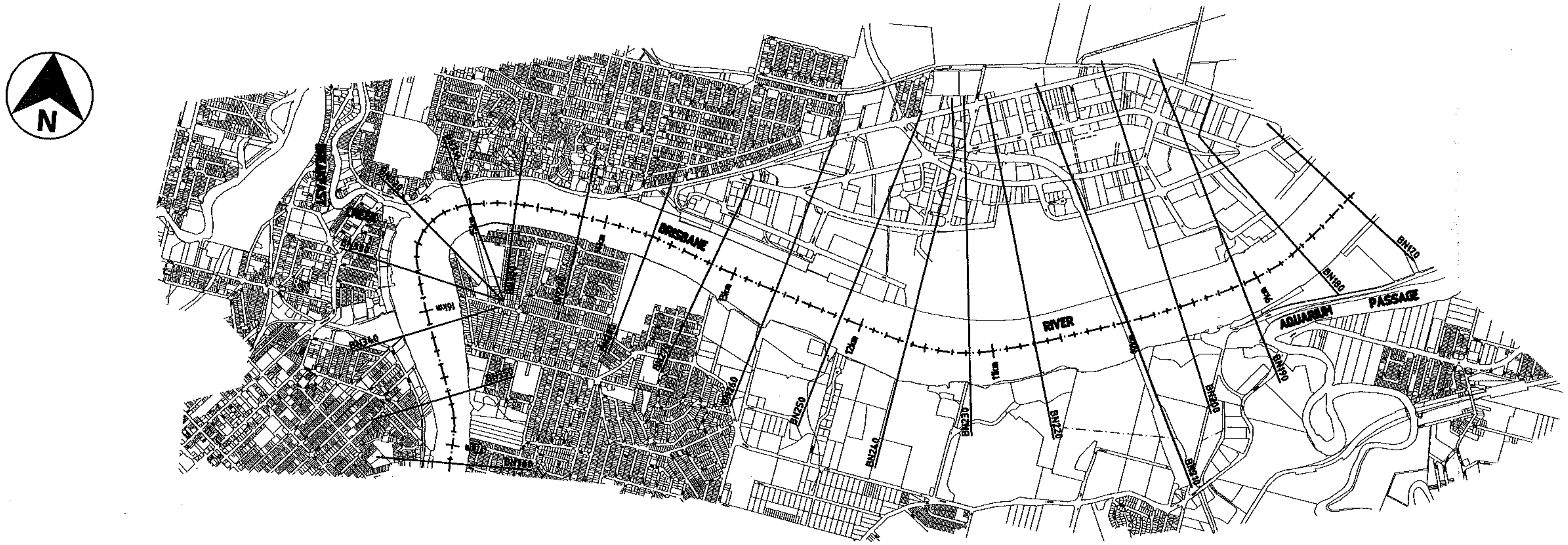
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

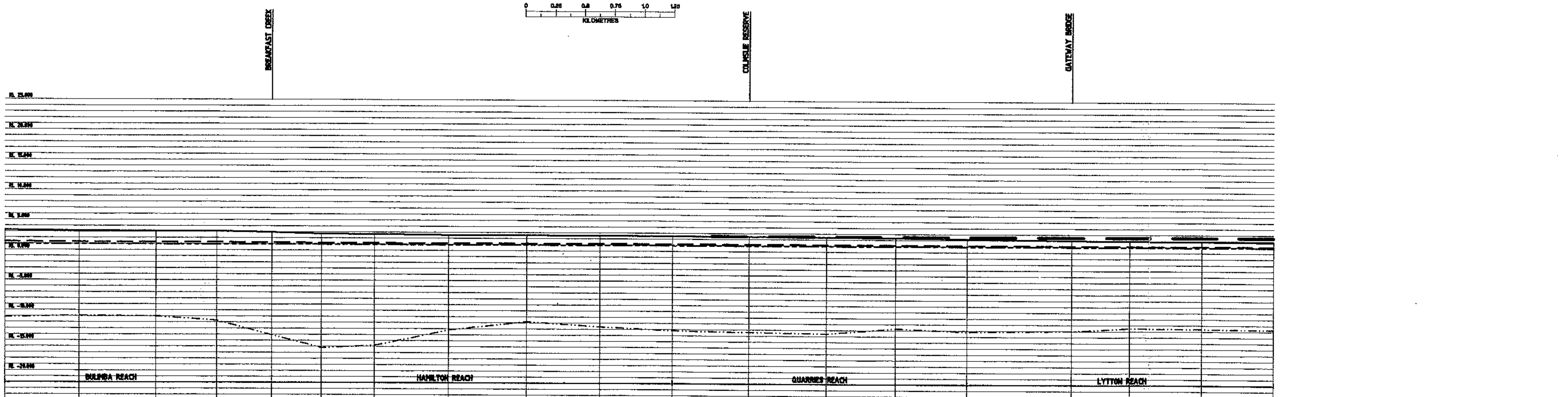
FIGURE H-3h

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISITNG DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW



DATUM RL. -25.000

CROSS SECTION NUMBER	5 YEAR ARI DESIGN FLOOD LEVEL	20 YEAR ARI DESIGN FLOOD LEVEL	100 YEAR ARI DESIGN FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 360	0.960	1.350	3.244	-11.200	1041.530	17.090
BN 350	0.960	1.330	3.160	-10.980	1042.020	16.640
BN 340	0.950	1.310	3.120	-11.080	1042.535	16.125
BN 330	0.950	1.310	3.110	-11.700	1042.940	15.724
BN 320	0.950	1.280	2.990	-14.140	1043.310	15.350
BN 310	0.950	1.230	2.720	-14.280	1043.445	15.015
BN 300	0.950	1.270	2.680	-15.000	1044.080	14.680
BN 290	0.940	1.190	2.550	-13.200	1044.490	14.170
BN 280	0.940	1.200	2.570	-11.000	1045.010	13.650
BN 270	0.940	1.190	2.530	-12.600	1045.503	13.157
BN 260	0.940	1.190	2.540	-13.200	1045.994	12.670
BN 250	0.940	1.180	2.440	-13.400	1046.505	12.155
BN 240	0.940	1.170	2.530	-13.600	1047.020	11.640
BN 230	0.940	1.150	2.320	-12.700	1047.485	11.175
BN 220	0.940	1.120	2.200	-13.200	1047.965	10.695
BN 210	0.930	1.090	2.024	-13.000	1048.464	10.000
BN 200	0.930	1.080	1.950	-12.500	1049.045	9.615
BN 190	0.930	1.070	1.890	-12.400	1049.535	9.125
BN 180	0.930	1.060	1.820	-12.100	1070.025	8.635

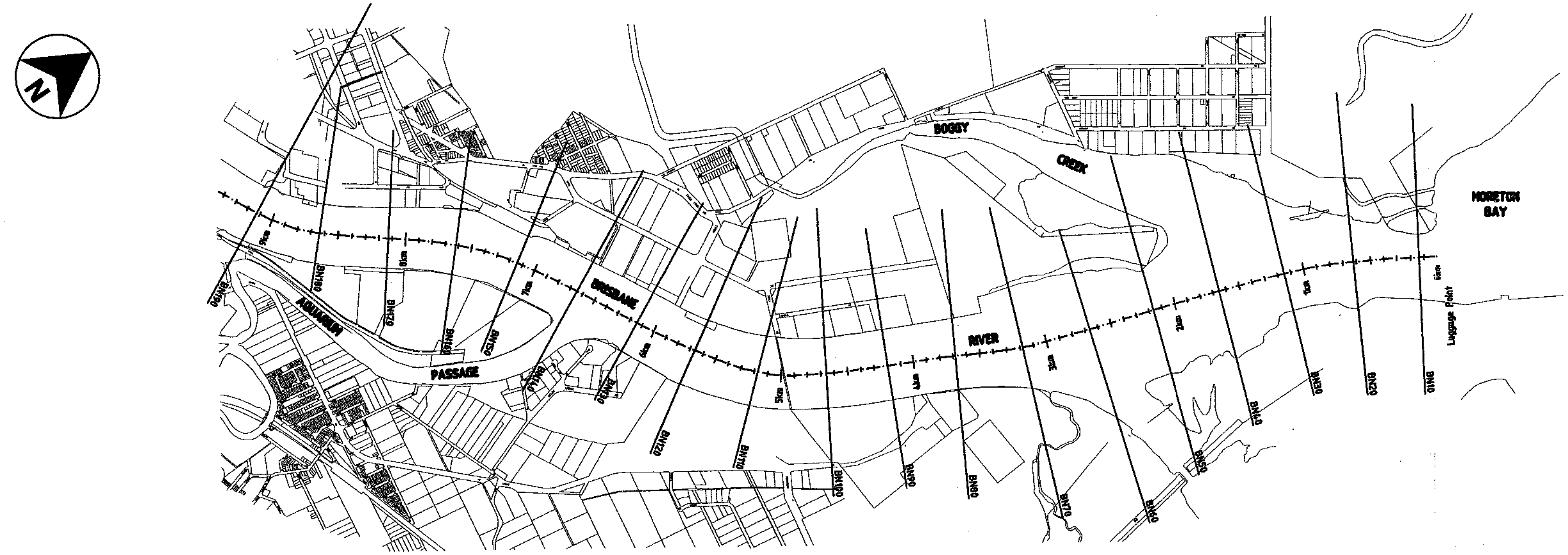
BRISBANE RIVER - BN 360 TO BN 180

BCC.121.0260

SINCLAIR KNIGHT MERZ

FIGURE H-3i

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



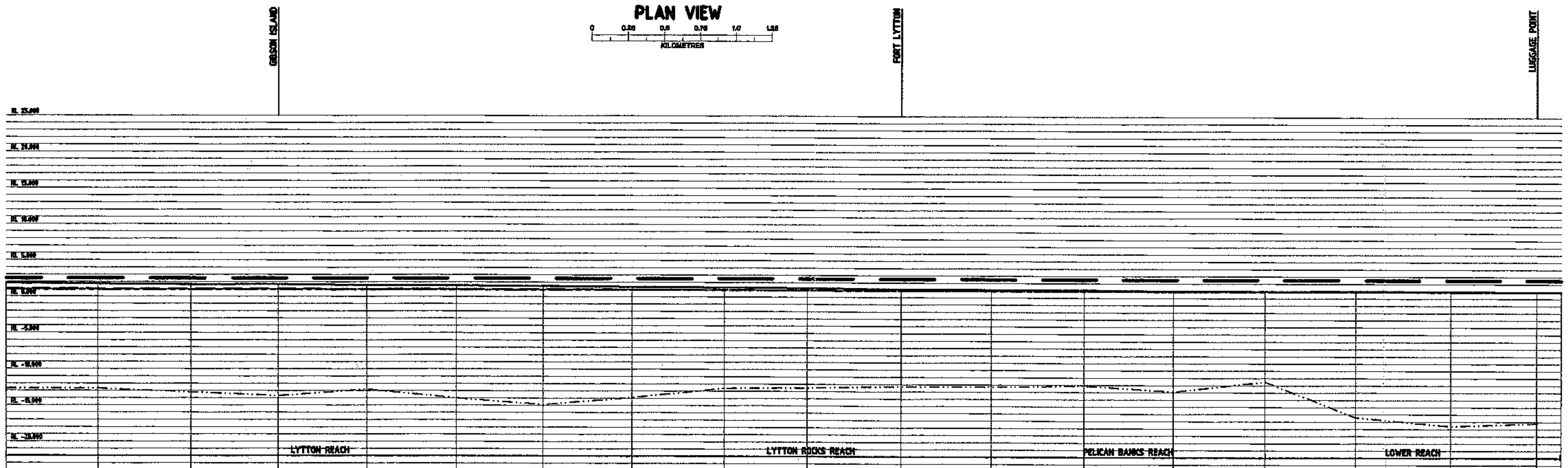
LEGEND

AMTD LINE

BN 1250 SURVEYED CROSS SECTION

LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
20 YEAR ARI DESIGN FLOOD LEVEL	1.060	1.040	1.030	1.030	1.030	1.100	1.080	0.980	0.970	0.960	0.940	0.940	0.940	0.920	0.930	0.930	0.920	0.920	0.920
100 YEAR ARI DESIGN FLOOD LEVEL	1.820	1.720	1.640	1.670	1.560	1.500	1.460	1.340	1.290	1.220	1.090	1.060	1.070	0.960	0.960	0.970	0.950	0.920	0.920
BED LEVEL (m AHD)	-12.700	-12.700	-13.200	-13.700	-13.800	-14.800	-14.300	-13.900	-12.600	-12.500	-12.300	-12.300	-12.100	-12.900	-11.500	-16.400	-17.600	-17.200	
CROSS SECTION NUMBER	BN 180	BN 170	BN 160	BN 150	BN 140	BN 130	BN 120	BN 110	BN 100	BN 90	BN 80	BN 70	BN 60	BN 50	BN 40	BN 30	BN 20	BN 10	
MIKE 11 CHAINAGE (km)	1070.025	1070.530	1071.040	1071.520	1072.005	1072.515	1072.995	1073.485	1074.000	1074.440	1074.945	1075.480	1076.000	1076.495	1077.010	1077.510	1078.040	1078.525	1078.660
AMTD CHAINAGE (km)	8.635	8.130	7.620	7.140	6.645	6.145	5.665	5.175	4.660	4.200	3.675	3.184	2.660	2.165	1.650	1.150	0.620	0.135	0

BRISBANE RIVER - BN 180 TO BN 10

LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE

5 YEAR ARI DESIGN FLOOD

20 YEAR ARI DESIGN FLOOD

100 YEAR ARI DESIGN FLOOD

100 YEAR ARI MORETON BAY STORM SURGE LEVEL (RL 2.5m AHD, INCLUDING 300mm ALLOWANCE FOR GREENHOUSE EFFECT)

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

FILE NAME: 415/-12/ PLOT SCALE: 1=30 DISK N: C:\DWG JOB N: T004157 DATE: 23/…

SINCLAIR KNIGHT MERZ

FIGURE H-4a

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

LEGEND

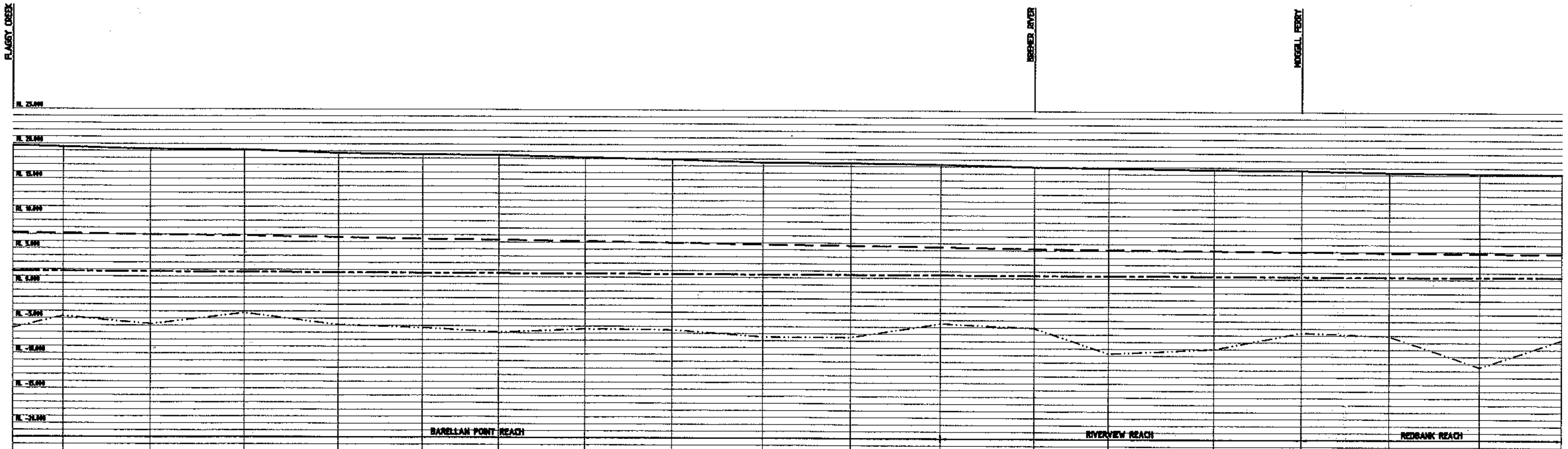
3000 — AMTD LINE

BN 1250 — SURVEYED CROSS SECTION

(S16) LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

2 YEAR ARI DESIGN FLOOD LEVEL	1.770	1.750	1.710	1.650	1.590	1.560	1.530	1.500	1.480	1.460	1.450	1.440	1.420	1.420	1.400	1.380	1.360	1.344	1.340
10 YEAR ARI DESIGN FLOOD LEVEL	7.250	7.160	7.000	6.860	6.640	6.420	6.340	6.160	5.970	5.750	5.630	5.470	5.250	5.180	5.060	4.970	4.850	4.780	4.740
50 YEAR ARI DESIGN FLOOD LEVEL	19.700	19.530	19.280	19.170	18.780	18.480	18.460	18.150	17.910	17.490	17.440	17.280	16.980	16.850	16.640	16.480	16.340	16.200	16.150
BED LEVEL (m AHD)	-6.400	-4.700	-5.800	-4.200	-5.940	-6.380	-4.980	-6.400	-6.500	-7.500	-7.500	-5.500	-6.180	-9.780	-9.880	-6.660	-7.100	-11.500	-7.600
CROSS SECTION NUMBER	BN 2020	BN 2010	BN 2000	BN 1990	BN 1980	BN 1970	BN 1960	BN 1950	BN 1940	BN 1930	BN 1920	BN 1910	BN 1900	BN 1890	BN 1880	BN 1870	BN 1860	BN 1850	BN 1840
MIKE 11 CHAINAGE (km)	1000.000	1000.285	1000.775	1001.315	1001.865	1002.350	1002.785	1003.275	1003.775	1004.500	1004.810	1005.325	1005.870	1006.300	1006.910	1007.410	1007.920	1008.445	1008.925
AMTD CHAINAGE (km)	78.440	78.375	77.885	77.345	76.795	76.310	75.875	75.385	74.885	74.160	73.850	73.335	72.790	72.360	71.750	71.250	70.740	70.215	69.735

LEGEND

(S16) LOCATION AND IDENTIFICATION OF STRUCTURE

— - - — 2 YEAR ARI DESIGN FLOOD

— — — 10 YEAR ARI DESIGN FLOOD

——— 50 YEAR ARI DESIGN FLOOD

— · · — EXISTING BED LEVEL

VERT. 0 4.0 12.0 16.0 20.0 METRES

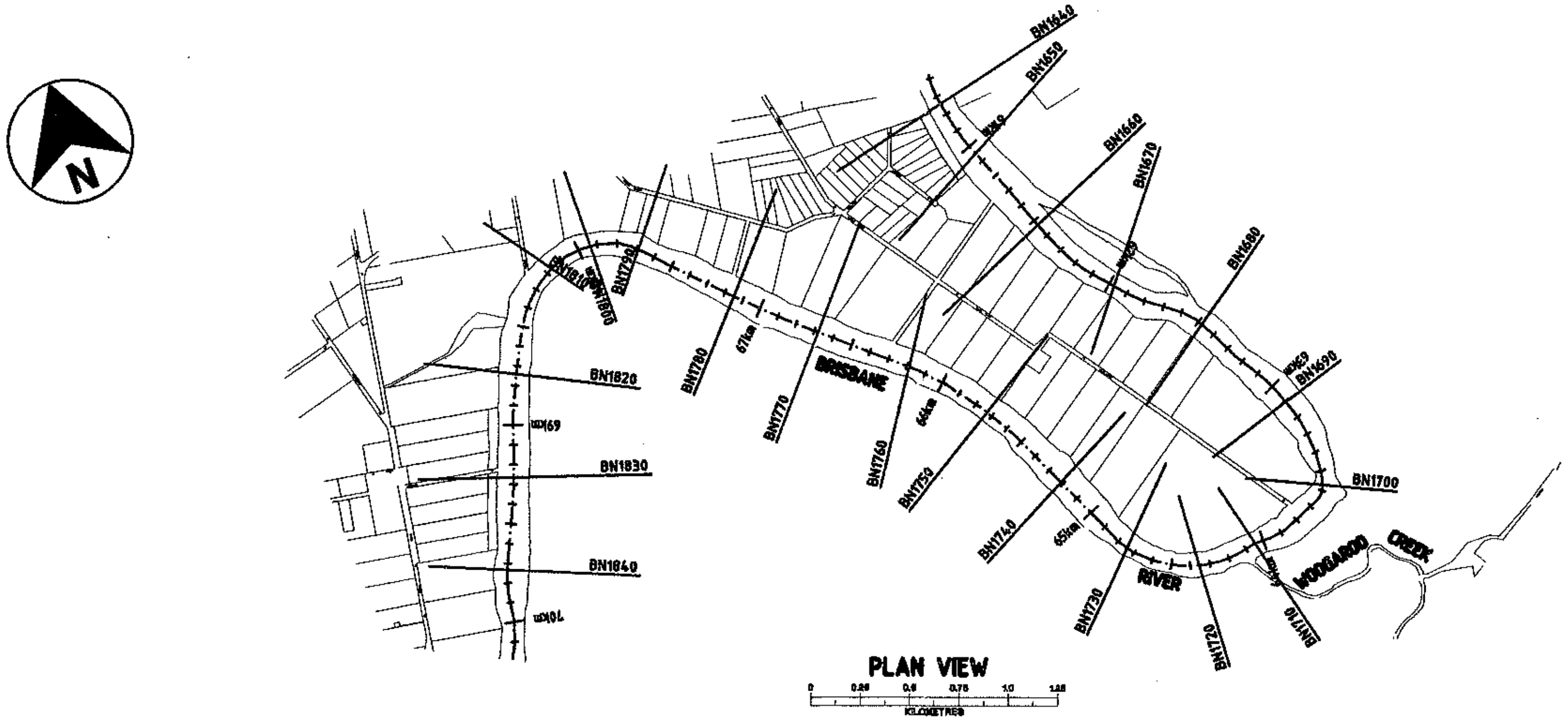
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 2020 TO BN 1840

FILE ...: 415... DWG ...: C:\D... JOB ...: T004... DATE: 23/3/...
PLOT SCALE: 1=30

FIGURE H-4b

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

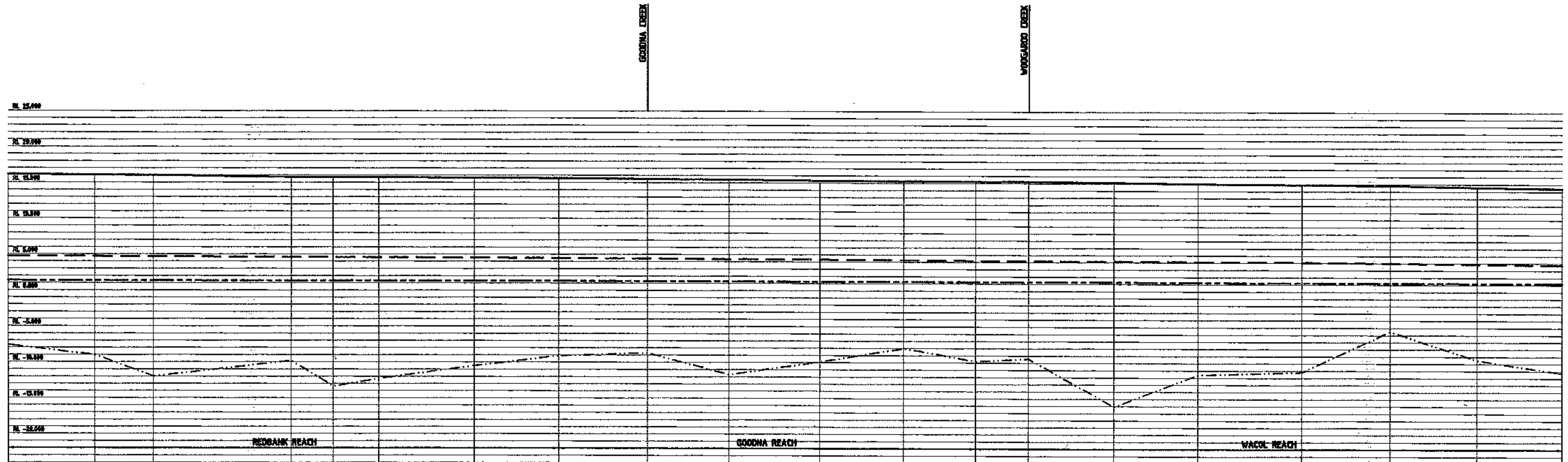


LEGEND

AMTD LINE

BN 1250 SURVEYED CROSS SECTION

LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

2 YEAR ARI DESIGN FLOOD LEVEL	1.340	1.330	1.330	1.310	1.310	1.310	1.300	1.300	1.290	1.280	1.280	1.260	1.250	1.250	1.250	1.240	1.240	1.220	1.200	1.190
10 YEAR ARI DESIGN FLOOD LEVEL	4.740	4.700	4.670	4.590	4.580	4.560	4.520	4.480	4.420	4.380	4.330	4.270	4.220	4.180	4.170	4.130	4.090	4.010	3.870	3.770
50 YEAR ARI DESIGN FLOOD LEVEL	16.150	16.050	16.030	15.740	15.750	15.690	15.670	15.620	15.530	15.440	15.340	15.290	15.220	15.250	15.130	15.020	14.930	14.810	14.610	14.440
BED LEVEL (m AHD)	-7.600	-9.000	-12.000	-9.400	-13.400	-12.300	-10.500	-9.100	-8.700	-11.700	-9.900	-8.000	-9.800	-9.400	-16.100	-11.600	-11.200	-5.500	-9.500	-11.300
CROSS SECTION NUMBER	BN 1840	BN 1830	BN 1820	BN 1810	BN 1800	BN 1790	BN 1780	BN 1770	BN 1760	BN 1750	BN 1740	BN 1730	BN 1720	BN 1710	BN 1700	BN 1690	BN 1680	BN 1670	BN 1660	BN 1650
MIKE 11 CHAINAGE (km)	1008.925	1009.400	1009.720	1010.490	1010.725	1010.980	1011.510	1011.980	1012.475	1012.935	1013.445	1013.910	1014.310	1014.610	1015.090	1015.560	1016.140	1016.640	1017.130	1017.610
AMTD CHAINAGE (km)	69.735	69.260	68.840	68.170	67.935	67.480	67.150	66.680	66.185	65.725	65.215	64.740	64.550	64.050	63.570	63.100	62.520	62.020	61.530	61.050

LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE

2 YEAR ARI DESIGN FLOOD

10 YEAR ARI DESIGN FLOOD

50 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1840 TO BN 1650

FILE NAME: 4157-129 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T00457 DATE: 23/3/97

SINCLAIR KNIGHT MERZ

FIGURE H-4c

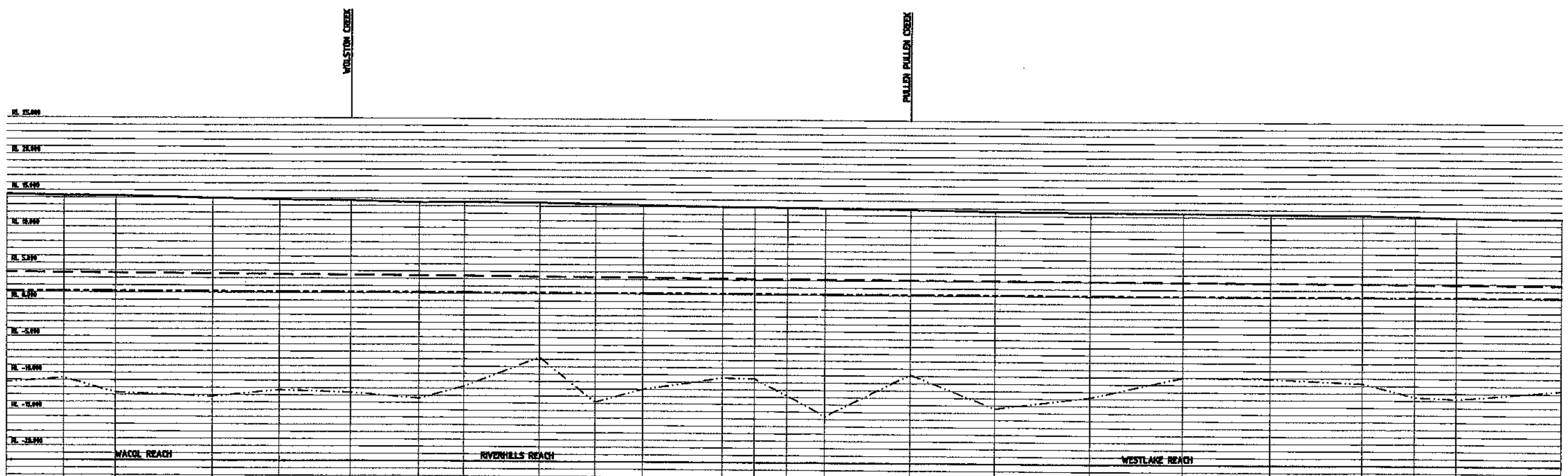
BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

PLAN VIEW

LEGEND

- AMTD LINE
- BN 1250 SURVEYED CROSS SECTION
- LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

DESIGN FLOOD LEVEL	1.190	1.180	1.180	1.170	1.160	1.160	1.150	1.150	1.140	1.140	1.130	1.130	1.120	1.120	1.120	1.120	1.120	1.110	1.110	1.110	1.100	1.100	1.100	1.090
DESIGN FLOOD LEVEL	3.770	3.690	3.670	3.600	3.540	3.480	3.430	3.400	3.360	3.328	3.270	3.190	3.170	3.160	3.150	3.100	3.070	3.050	3.020	2.970	2.950	2.890	2.850	2.830
DESIGN FLOOD LEVEL	14.440	14.280	14.220	13.940	13.800	13.700	13.460	13.510	13.444	13.364	13.190	13.030	13.030	12.980	12.980	12.800	12.590	12.520	12.460	12.400	12.380	12.190	12.040	11.960
BED LEVEL (m AHD)	-11.300	-10.700	-12.700	-13.200	-12.380	-12.400	-13.400	-11.700	-7.700	-13.800	-12.000	-10.400	-10.500	-12.800	-15.680	-9.800	-14.400	-12.800	-10.080	-10.100	-10.700	-12.500	-12.800	-11.600
CROSS SECTION NUMBER	BN 1650	BN 1640	BN 1630	BN 1620	BN 1610	BN 1600	BN 1590	BN 1580	BN 1570	BN 1560	BN 1550	BN 1540	BN 1530	BN 1520	BN 1510	BN 1500	BN 1490	BN 1480	BN 1470	BN 1460	BN 1450	BN 1440	BN 1430	BN 1420
MIKE 11 CHAINAGE (km)	1017.610	1017.920	1018.200	1018.725	1019.095	1019.490	1019.865	1020.115	1020.525	1020.830	1021.095	1021.539	1021.715	1021.895	1022.105	1022.575	1023.040	1023.570	1024.080	1024.563	1025.070	1025.360	1025.590	1026.170
AMTD CHAINAGE (km)	61.050	60.740	60.460	59.935	59.565	59.170	58.795	58.545	58.135	57.830	57.565	57.121	56.945	56.765	56.555	56.085	55.620	55.090	54.580	54.097	53.590	53.300	53.070	52.490

BRISBANE RIVER - BN 1650 TO BN 1420

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 2 YEAR ARI DESIGN FLOOD
- 10 YEAR ARI DESIGN FLOOD
- 50 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

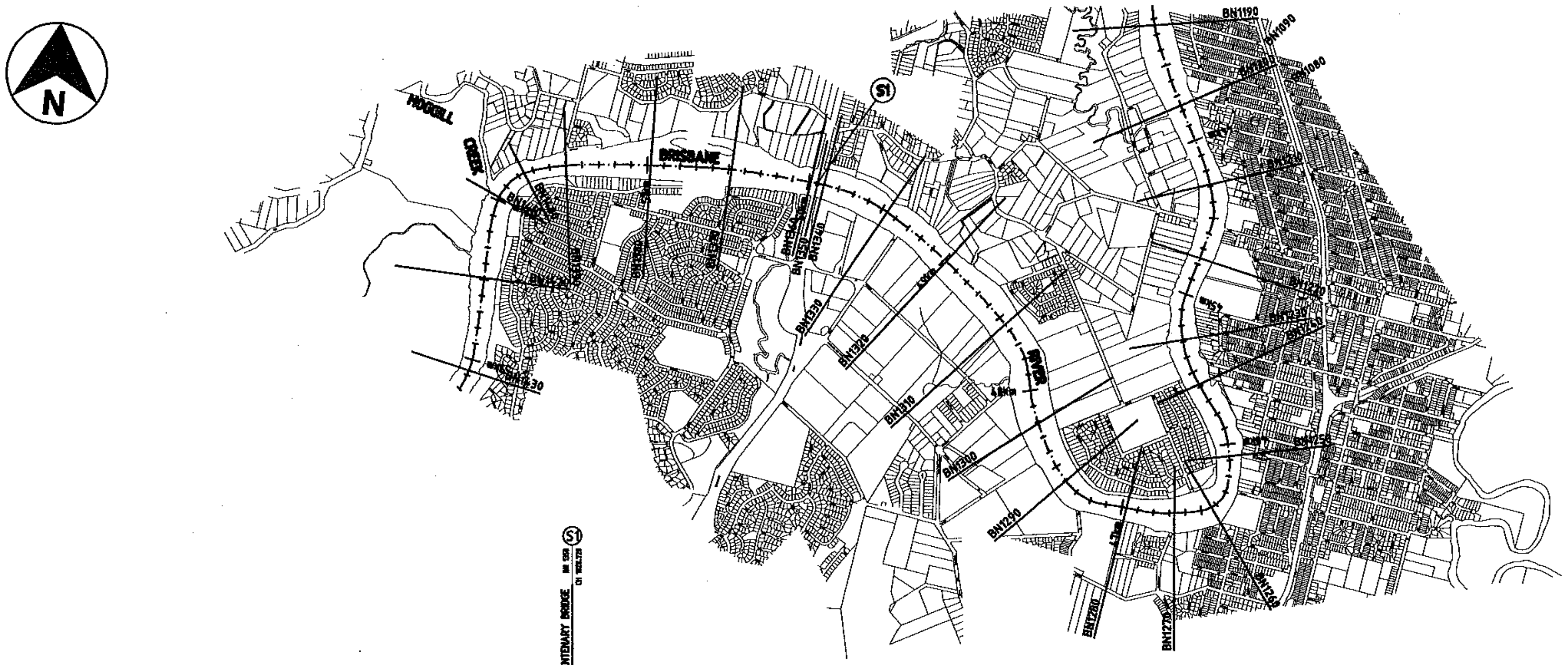
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

FILE NAME: 4157-130 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T00415? DATE: 23/3/97

FIGURE H-4d

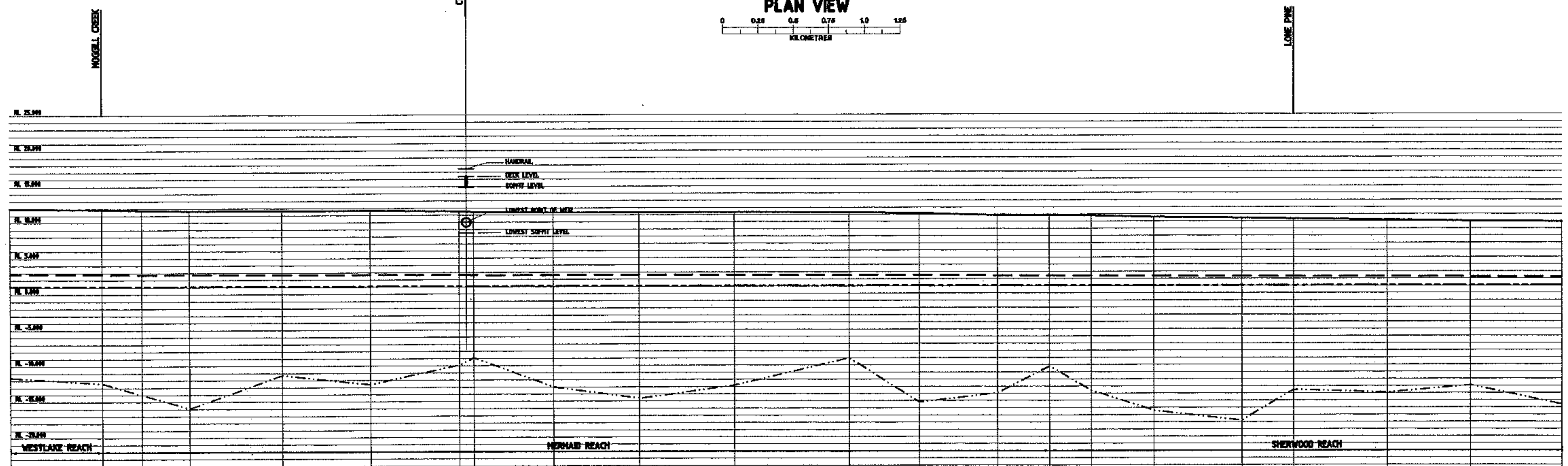
BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI
FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

SINCLAIR KNIGHT MERZ



LEGEND
AMTD LINE
BN 1250 SURVEYED CROSS SECTION
S1 LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW
0 0.25 0.5 0.75 1.0 1.25
KILOMETRES



DATUM RL. -25.000

2 YEAR ARI DESIGN FLOOD LEVEL	1.890	1.890	1.890	1.890	1.880	1.880	1.880	1.870	1.870	1.870	1.870	1.870	1.870	1.860	1.860	1.860	1.850	1.850	1.850	1.850	1.850	1.840
10 YEAR ARI DESIGN FLOOD LEVEL	2.830	2.780	2.750	2.730	2.710	2.700	2.670	2.630	2.600	2.600	2.580	2.560	2.540	2.470	2.440	2.410	2.370	2.340	2.310	2.280	2.250	2.220
50 YEAR ARI DESIGN FLOOD LEVEL	11.940	11.840	11.730	11.620	11.440	11.450	11.540	11.450	11.350	11.340	11.360	11.290	11.170	10.970	10.870	10.790	10.590	10.450	10.340	10.170	10.030	9.930
BED LEVEL (m AHD)	-11.400	-12.400	-14.000	-15.900	-11.300	-12.400	-9.900	-8.900	-13.000	-14.400	-12.800	-7.800	-15.200	-13.900	-10.200	-13.600	-14.400	-17.400	-13.500	-13.900	-12.900	-15.400
CROSS SECTION NUMBER	BN 1420	BN 1410	BN 1400	BN 1390	BN 1380	BN 1370	BN 1350	BN 1340	BN 1330	BN 1320	BN 1310	BN 1300	BN 1290	BN 1280	BN 1270	BN 1260	BN 1250	BN 1240	BN 1230	BN 1220	BN 1210	BN 1200
MIKE 11 CHAINAGE (km)	1026.170	1026.440	1026.990	1027.140	1027.640	1028.190	1028.600	1028.760	1029.280	1029.680	1030.220	1030.870	1031.260	1031.760	1031.995	1032.230	1032.585	1033.440	1033.370	1033.980	1034.370	1034.890
AMTD CHAINAGE (km)	52.490	51.980	51.740	51.500	50.980	50.480	49.980	49.900	49.440	48.980	48.440	47.790	47.400	46.960	46.665	46.430	46.075	45.540	45.290	44.740	44.290	43.770

LEGEND
S1 LOCATION AND IDENTIFICATION OF STRUCTURE
2 YEAR ARI DESIGN FLOOD
10 YEAR ARI DESIGN FLOOD
50 YEAR ARI DESIGN FLOOD
EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1420 TO BN 1200

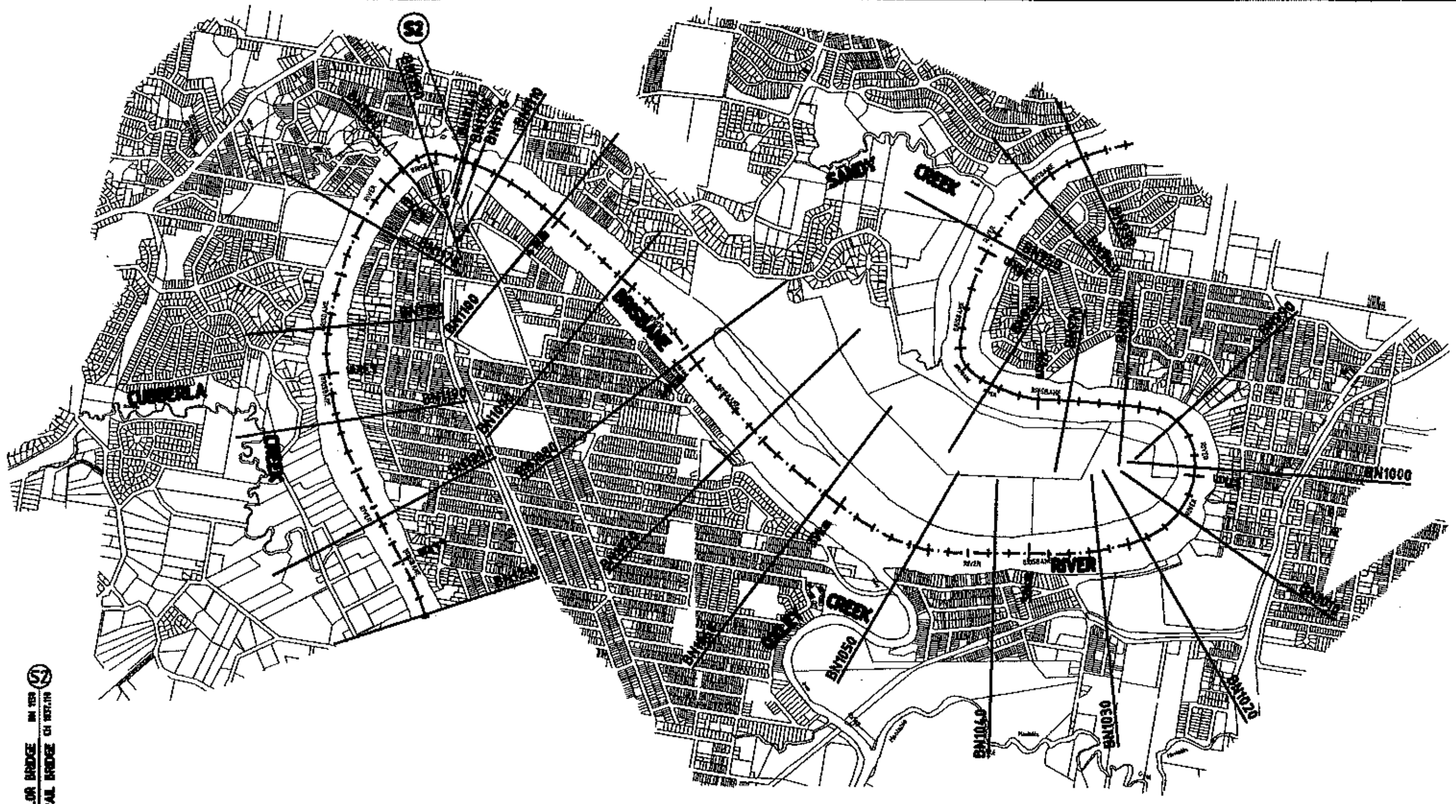
FILE NAME: 415... PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

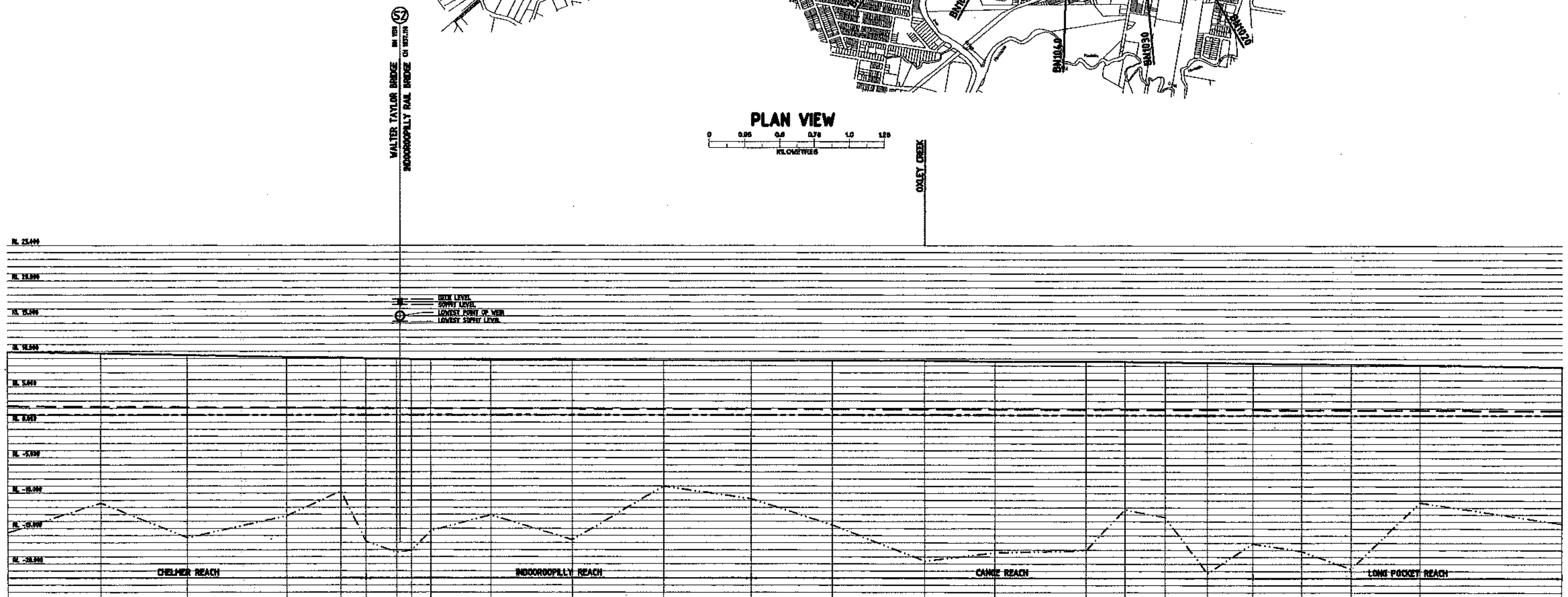
FIGURE H-4e

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW



DATUM RL. -25.000

2 YEAR ARI DESIGN FLOOD LEVEL	1.040	1.040	1.040	1.030	1.030	1.030	1.030	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.010	1.010	1.010	1.010	1.010	1.010	1.010	1.000
10 YEAR ARI DESIGN FLOOD LEVEL	2.220	2.160	2.100	2.050	2.020	2.000	2.000	1.940	1.930	1.910	1.900	1.880	1.860	1.850	1.860	1.840	1.840	1.830	1.810	1.810	1.790	1.770	1.770	1.740	1.670
50 YEAR ARI DESIGN FLOOD LEVEL	9.930	9.720	9.470	9.210	9.130	9.010	8.980	8.900	8.860	8.830	8.810	8.790	8.760	8.750	8.720	8.660	8.620	8.580	8.540	8.480	8.360	8.330	8.310	8.130	7.850
BED LEVEL (m AHD)	-15.600	-11.600	-16.300	-13.200	-9.700	-14.800	-18.400	-18.100	-15.300	-13.190	-15.600	-9.090	-10.800	-14.500	-19.600	-18.400	-18.180	-12.380	-13.400	-21.350	-17.160	-18.200	-20.700	-11.300	-14.300
CROSS SECTION NUMBER	BN 1200	BN 1190	BN 1180	BN 1170	BN 1160	BN 1150	BN 1140	BN 1120	BN 1110	BN 1100	BN 1090	BN 1080	BN 1070	BN 1060	BN 1050	BN 1040	BN 1030	BN 1020	BN 1010	BN 1000	BN 990	BN 980	BN 970	BN 960	BN 950
MIKE 11 CHAINAGE (km)	1034.890	1035.414	1035.900	1036.440	1036.770	1036.915	1037.090	1037.175	1037.285	1037.625	1038.085	1038.600	1039.104	1039.565	1040.090	1040.490	1041.010	1041.230	1041.440	1041.700	1041.940	1042.235	1042.515	1042.910	1043.725
AMTD CHAINAGE (km)	43.770	43.244	42.760	42.200	41.890	41.765	41.570	41.445	41.375	41.035	40.575	40.060	39.560	39.050	38.570	38.170	37.540	37.430	37.280	36.940	36.700	36.425	36.145	35.750	34.935

LEGEND

- S14 LOCATION AND IDENTIFICATION OF STRUCTURE
- 2 YEAR ARI DESIGN FLOOD
- 10 YEAR ARI DESIGN FLOOD
- 50 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1200 TO BN 950

FILE NAME: 4157-132
PLOT SCALE: 1:30
DISK N°: C:\DWG
JOB N°: T00415?
DATE: 23/3/?

BCC.121.0266

FIGURE H-4f

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

PLAN VIEW

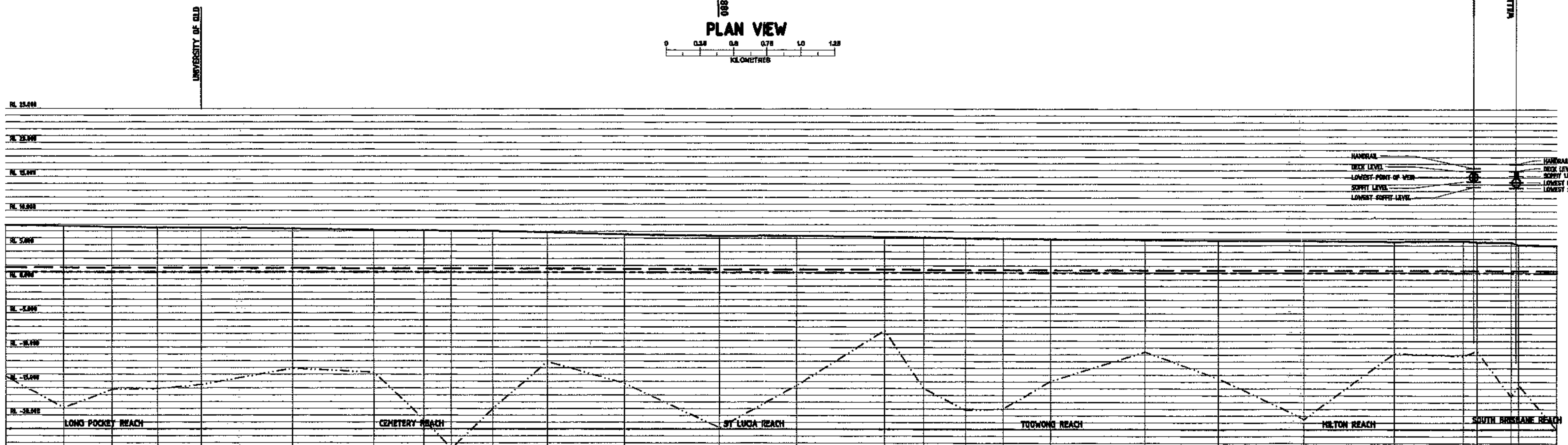
0 0.25 0.5 0.75 1.0 1.25 KILOMETRES

LEGEND

AMTD LINE

BN 1250 SURVEYED CROSS SECTION

S16 LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

CROSS SECTION NUMBER	2 YEAR ARI DESIGN FLOOD LEVEL	10 YEAR ARI DESIGN FLOOD LEVEL	50 YEAR ARI DESIGN FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 950	1.000	1.670	7.850	-16.300	1043.725	36.935
BN 940	1.000	1.660	7.750	-18.900	1044.060	34.600
BN 930	1.000	1.640	7.610	-16.200	1044.340	34.320
BN 920	1.000	1.630	7.550	-16.100	1044.605	34.055
BN 910	1.000	1.610	7.510	-15.500	1044.860	33.800
BN 900	0.990	1.580	7.340	-13.100	1045.400	33.260
BN 890	0.990	1.540	7.150	-13.700	1045.885	32.775
BN 880	0.990	1.540	7.180	-20.480	1046.180	32.480
BN 870	0.990	1.530	7.060	-24.900	1046.340	32.320
BN 860	0.990	1.530	7.020	-19.080	1046.580	32.080
BN 850	0.990	1.500	6.850	-12.100	1046.900	31.760
BN 840	0.980	1.440	6.540	-15.300	1047.350	31.310
BN 830	0.980	1.430	6.350	-21.800	1047.915	30.745
BN 820	0.980	1.430	6.300	-15.600	1048.375	30.285
BN 810	0.980	1.400	6.180	-7.500	1048.890	29.770
BN 800	0.980	1.390	6.140	-16.000	1049.120	29.540
BN 790	0.980	1.370	5.990	-19.280	1049.370	29.290
BN 780	0.980	1.370	5.970	-19.000	1049.590	[illegible]
BN 770	0.980	1.360	5.880	-14.940	1049.870	28.790
BN 760	0.970	1.350	5.820	-10.400	1050.430	28.230
BN 750	0.970	1.340	5.730	-16.500	1050.860	27.800
BN 740	0.970	1.340	5.730	-20.500	1051.360	27.300
BN 730	0.970	1.310	5.570	-10.800	1051.895	26.765
BN 720	0.970	1.320	5.650	-11.200	1052.310	26.350
BN 700	0.970	1.300	5.510	-10.400	1052.390	26.270
BN 680	0.970	1.300	5.450	-17.280	1052.595	26.065
BN 670	0.960	1.280	5.080	-15.580	1052.640	26.020
BN 660	0.960	1.280	4.980	-22.000	1052.865	25.795

LEGEND

S16 LOCATION AND IDENTIFICATION OF STRUCTURE

2 YEAR ARI DESIGN FLOOD

10 YEAR ARI DESIGN FLOOD

50 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 950 TO BN 660

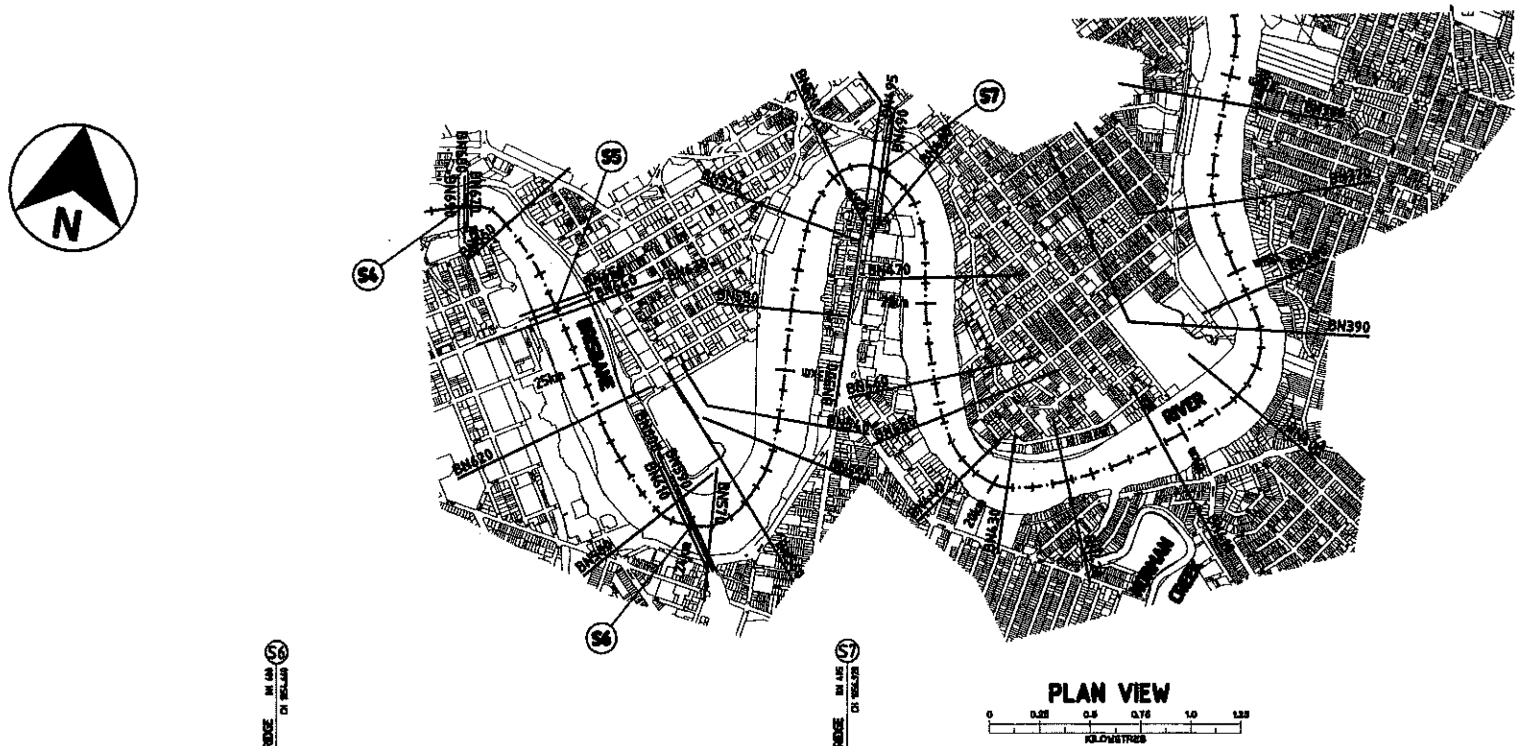
FILE NAME: 4157-133 PLOT SCALE: 1=30 DISK N: C:\DWG JOB N: T00415? DATE: 23/3/97

SINCLAIR KNIGHT MERZ

FIGURE H-4g

BRISBANE RIVER FLOOD STUDY

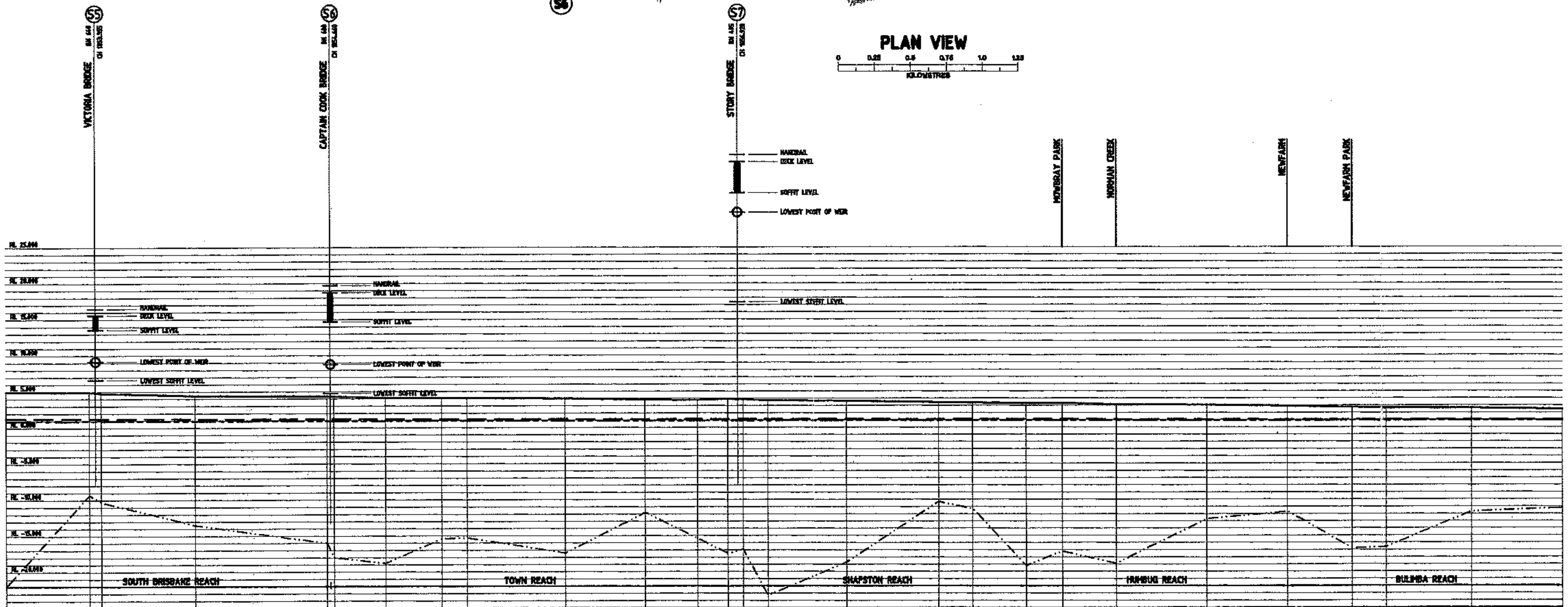
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW

LEGEND

- AMTD LINE
- BN 1250 — SURVEYED CROSS SECTION
- S16 — LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.800

CROSS SECTION NUMBER	2 YEAR ARI DESIGN FLOOD LEVEL	10 YEAR ARI DESIGN FLOOD LEVEL	50 YEAR ARI DESIGN FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 660	0.960	1.280	4.980	-22.900	1052.865	25.795
BN 650	0.960	1.260	4.920	-9.300	1053.320	25.350
BN 630	0.950	1.240	4.770	-10.300	1053.365	25.295
BN 620	0.950	1.200	4.430	-17.500	1053.900	24.760
BN 610	0.950	1.190	4.360	-16.000	1054.440	24.020
BN 590	0.950	1.180	4.300	-18.600	1054.480	23.980
BN 560	0.950	1.140	4.110	-18.840	1054.970	23.690
BN 550	0.950	1.160	4.080	-15.440	1055.280	23.380
BN 540	0.950	1.140	4.080	-15.380	1055.420	23.240
BN 530	0.950	1.150	4.020	-17.400	1055.960	22.700
BN 520	0.950	1.130	3.840	-11.800	1056.400	22.260
BN 510	0.950	1.130	3.790	-15.400	1056.495	21.965
BN 500	0.950	1.140	3.930	-17.500	1056.865	21.795
BN 490	0.940	1.130	3.850	-16.980	1056.950	21.710
BN 480	0.940	1.120	3.750	-23.300	1057.090	21.570
BN 470	0.940	1.120	3.450	-18.700	1057.530	21.130
BN 460	0.940	1.100	3.450	-10.300	1058.040	20.620
BN 450	0.940	1.090	3.390	-11.300	1058.230	20.430
BN 440	0.940	1.090	3.300	-19.200	1058.530	20.130
BN 430	0.940	1.090	3.370	-17.200	1058.735	19.925
BN 420	0.940	1.070	3.120	-18.900	1059.035	19.625
BN 410	0.940	1.070	3.080	-12.700	1059.540	19.120
BN 400	0.940	1.050	2.920	-11.700	1059.990	18.670
BN 390	0.940	1.040	2.740	-16.800	1060.345	18.315
BN 375	0.940	1.030	2.460	-16.400	1060.525	18.135
BN 370	0.940	1.030	2.620	-11.700	1061.015	17.645
BN 360	0.940	1.020	2.470	-16.200	1061.530	17.130

LEGEND

- S16 — LOCATION AND IDENTIFICATION OF STRUCTURE
- 2 YEAR ARI DESIGN FLOOD
- 10 YEAR ARI DESIGN FLOOD
- 50 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 660 TO BN 360

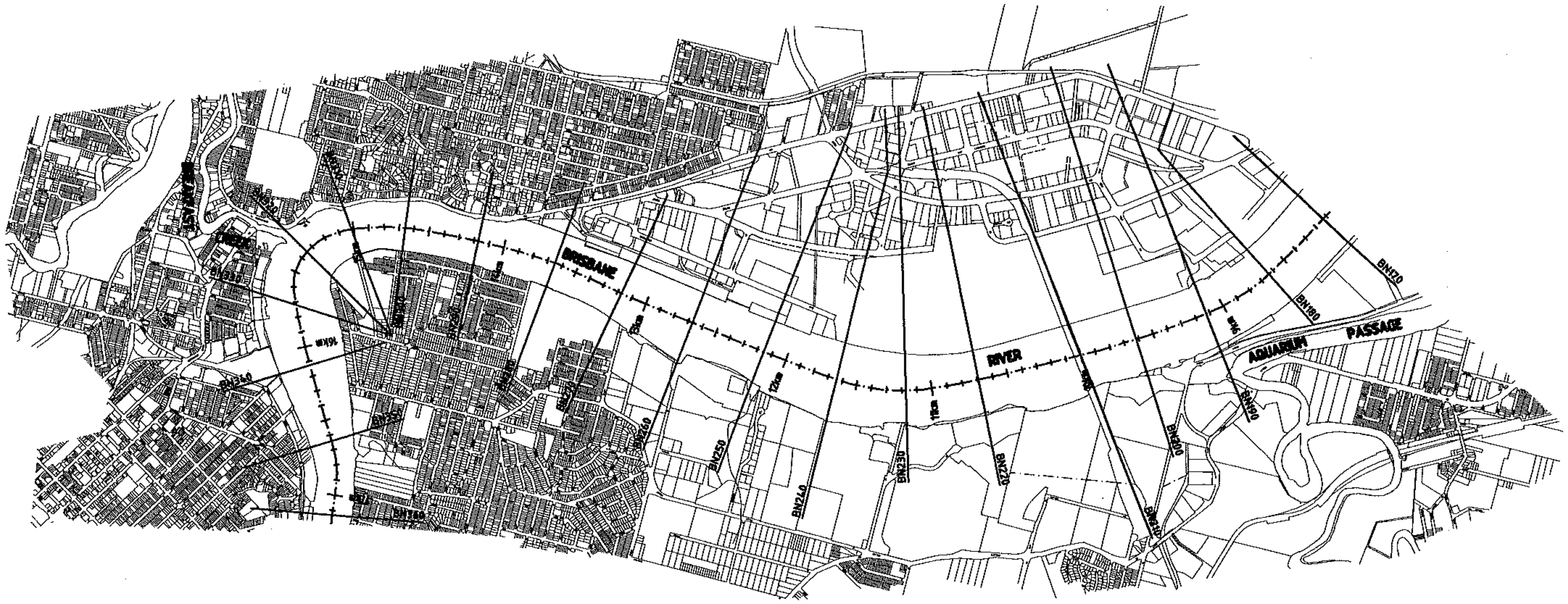
FILE NAME: 415... PLOT SCALE: 1=30

BCC.121.0268

FIGURE H-4h

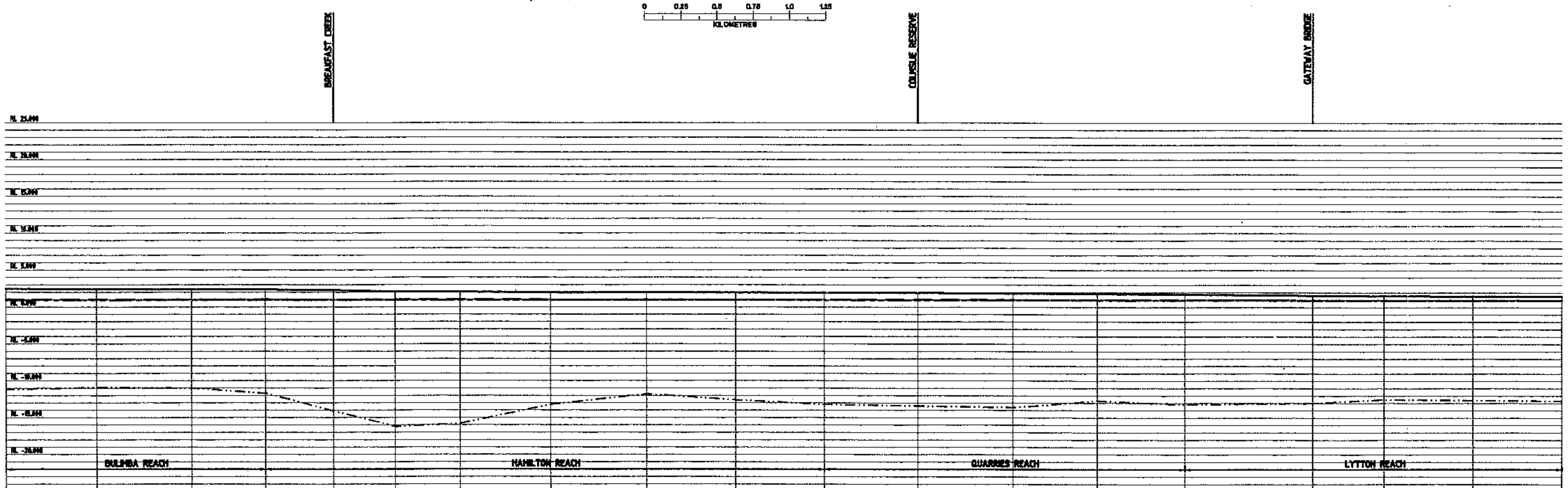
BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2, 10 AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

2 YEAR ARI DESIGN FLOOD LEVEL	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940
10 YEAR ARI DESIGN FLOOD LEVEL	1.020	1.010	1.010	1.010	1.000	0.990	0.990	0.980	0.980
50 YEAR ARI DESIGN FLOOD LEVEL	2.470	2.410	2.370	2.344	2.280	2.090	2.040	1.970	1.980
BED LEVEL (m AHD)	-11.200	-10.900	-11.880	-11.700	-14.100	-16.280	-15.800	-13.280	-11.800
CROSS SECTION NUMBER	BN 360	BN 350	BN 340	BN 330	BN 320	BN 310	BN 300	BN 290	BN 280
MIKE 11 CHAINAGE (km)	1061.530	1062.020	1062.535	1062.940	1063.310	1063.645	1064.000	1064.490	1065.010
AMTD CHAINAGE (km)	17.130	16.640	16.125	15.720	15.350	15.015	14.660	14.170	13.650

2 YEAR ARI DESIGN FLOOD LEVEL	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.930	0.930	0.930
10 YEAR ARI DESIGN FLOOD LEVEL	0.980	0.980	0.980	0.980	0.970	0.970	0.960	0.960	0.950	0.950
50 YEAR ARI DESIGN FLOOD LEVEL	1.950	1.960	1.910	1.880	1.810	1.730	1.610	1.560	1.520	1.440
BED LEVEL (m AHD)	-12.680	-13.200	-13.400	-13.680	-12.780	-13.280	-13.080	-12.540	-12.600	-12.700
CROSS SECTION NUMBER	BN 270	BN 260	BN 250	BN 240	BN 230	BN 220	BN 210	BN 200	BN 190	BN 180
MIKE 11 CHAINAGE (km)	1065.503	1065.990	1066.505	1067.020	1067.485	1067.965	1068.440	1069.045	1069.535	1070.025
AMTD CHAINAGE (km)	13.157	12.670	12.155	11.640	11.175	10.695	10.200	9.615	9.125	8.635

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 2 YEAR ARI DESIGN FLOOD
- 10 YEAR ARI DESIGN FLOOD
- 50 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

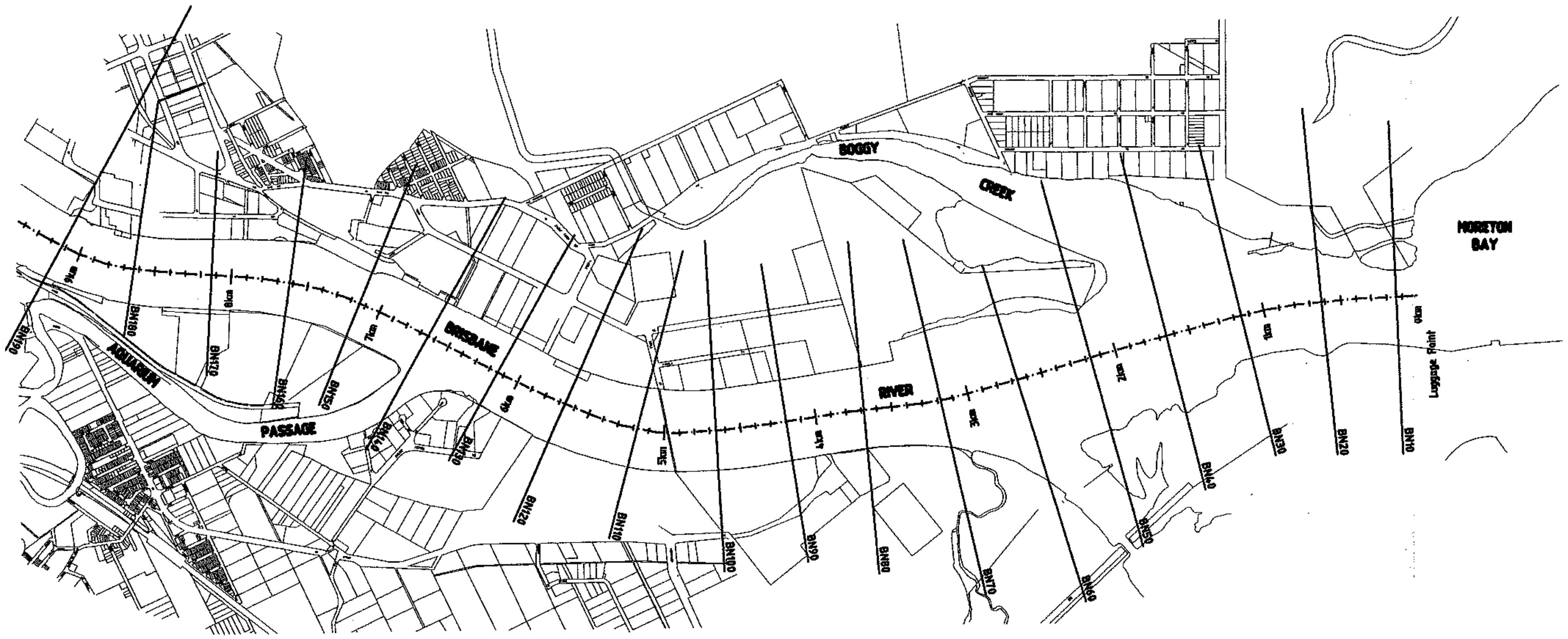
BRISBANE RIVER - BN 360 TO BN 180

FILE NAME: 415...200 DISK N: C:\DWG JOB N: T00415? DATE: 23/3/??
PLOT SCALE: 1=30

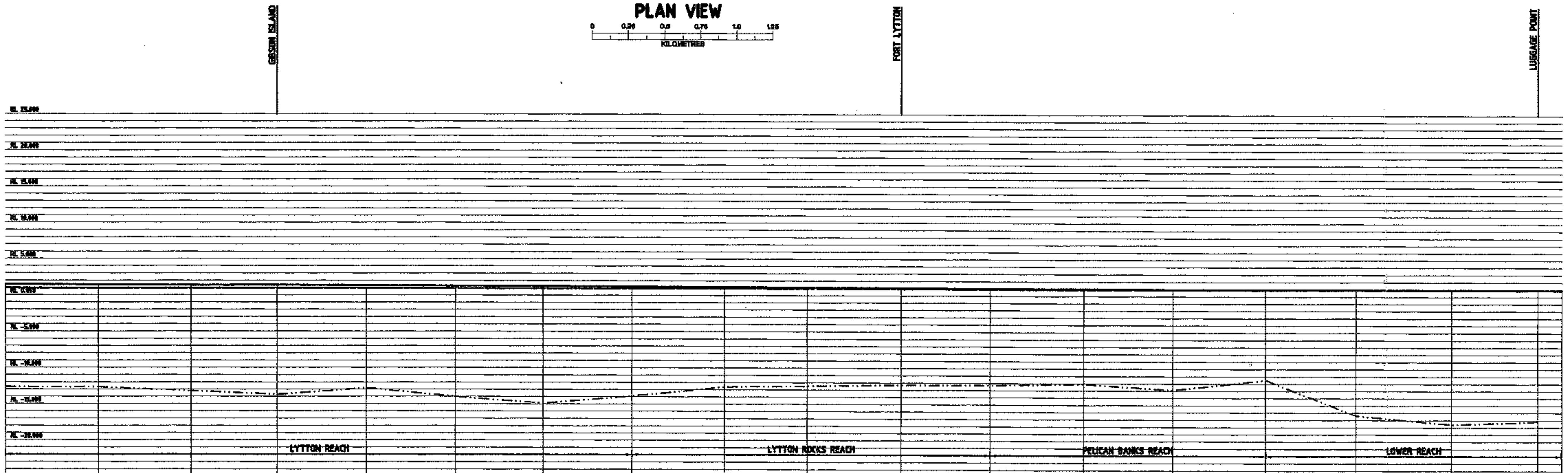
FIGURE H-4i

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW



2 YEAR ARI DESIGN FLOOD LEVEL	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
10 YEAR ARI DESIGN FLOOD LEVEL	0.950	0.950	0.940	0.940	0.940	0.940	0.940	0.930	0.930	0.930	0.930	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
50 YEAR ARI DESIGN FLOOD LEVEL	1.480	1.410	1.360	1.300	1.310	1.280	1.250	1.190	1.140	1.130	1.020	1.080	1.010	0.940	0.950	0.950	0.940	0.920	0.920
BED LEVEL (m AHD)	-12.700	-12.700	-13.200	-13.700	-12.800	-16.000	-14.900	-13.900	-12.600	-12.500	-12.300	-12.300	-12.100	-12.900	-11.500	-16.600	-17.600	-17.200	
CROSS SECTION NUMBER	BN 180	BN 170	BN 160	BN 150	BN 140	BN 130	BN 120	BN 110	BN 100	BN 90	BN 80	BN 70	BN 60	BN 50	BN 40	BN 30	BN 20	BN 10	
MIKE 11 CHAINAGE (km)	1070.025	1070.530	1071.040	1071.520	1072.015	1072.515	1072.995	1073.485	1074.000	1074.460	1074.985	1075.480	1076.000	1076.495	1077.010	1077.510	1078.040	1078.535	1078.440
AMTD CHAINAGE (km)	8.635	8.130	7.620	7.140	6.645	6.145	5.645	5.175	4.660	4.200	3.675	3.180	2.660	2.165	1.650	1.150	0.620	0.135	0

LEGEND
- LOCATION AND IDENTIFICATION OF STRUCTURE
- 2 YEAR ARI DESIGN FLOOD
- 10 YEAR ARI DESIGN FLOOD
- 50 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

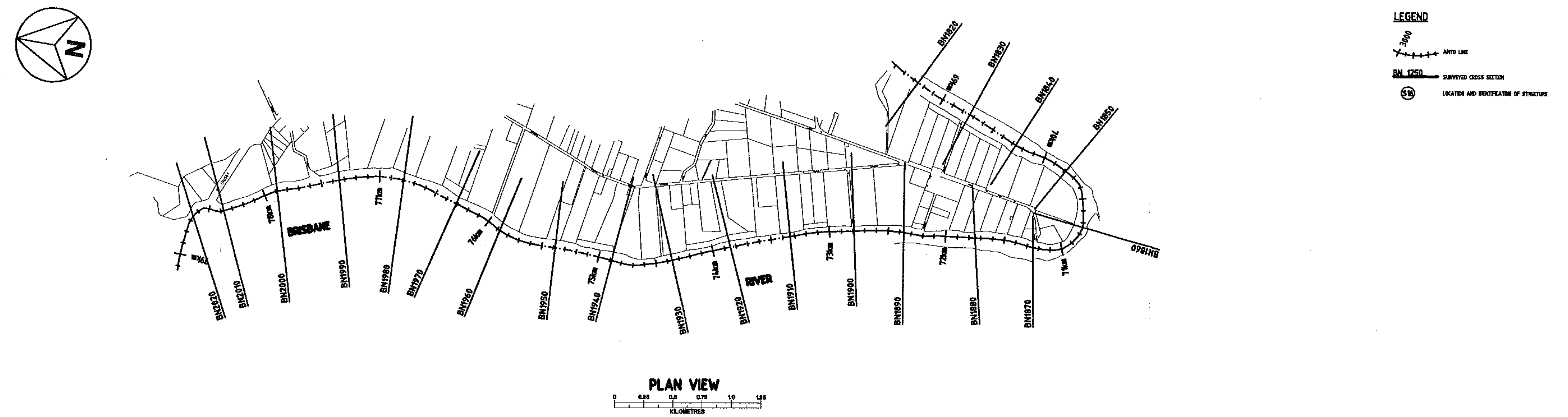
BRISBANE RIVER - BN 180 TO BN 10

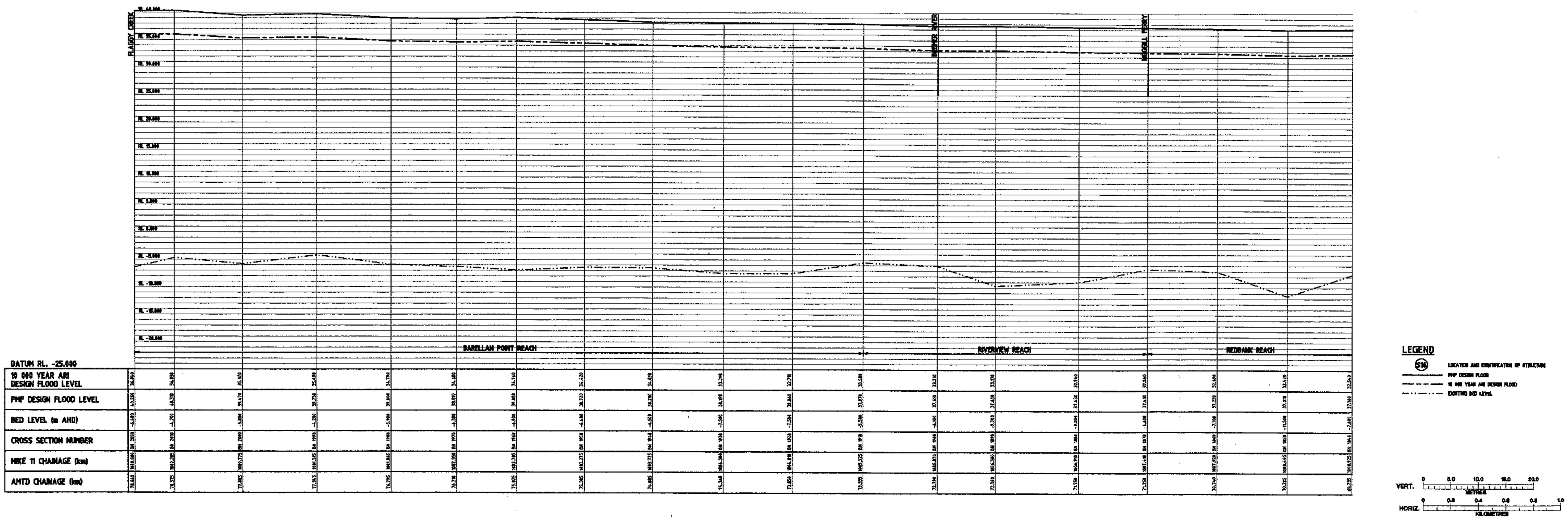
FILE NAME: ... PLOT SCALE: 1=30

FIGURE H-5a

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE PMF AND 10 000 YEAR ARI
FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

SINCLAIR KNIGHT MERZ





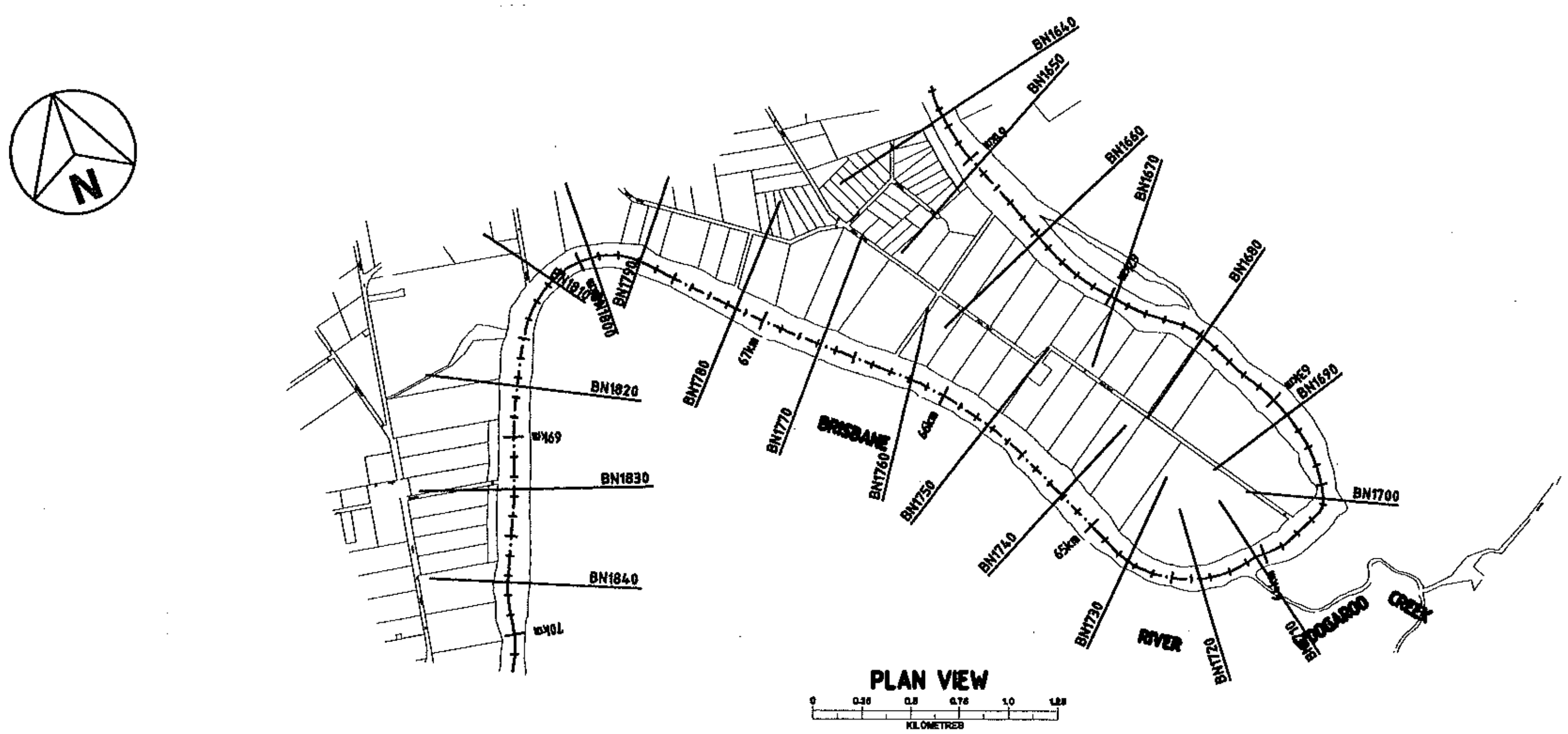
BRISBANE RIVER - BN 2020 TO BN 1840

FILE NAME: 415?-202 PLOT SCALE: 1=30 DISK N: C:\DWG JOB N: T00437 DATE: 23/3/??

SINCLAIR KNIGHT MERZ

FIGURE H-5b

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE PMF AND 10 000 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW

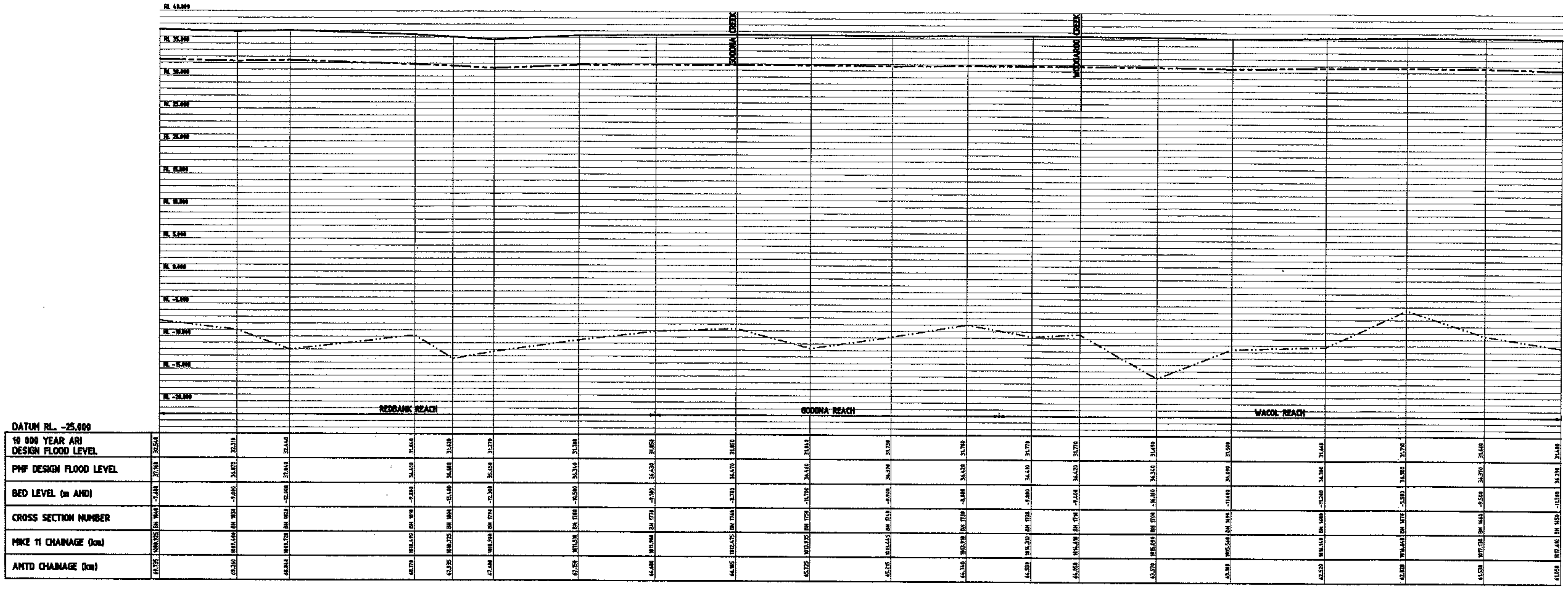
KILOMETRES

LEGEND

AMTD LINE

SURVEYED CROSS SECTION

LOCATION AND IDENTIFICATION OF STRUCTURE



LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE

PMF DESIGN FLOOD

10 000 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1840 TO BN 1650

PLOT SCALE: 1=30

BCC.121.0272

SINCLAIR KNIGHT MERZ

FIGURE H-5c

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE PMF AND 10 000 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

PLAN VIEW

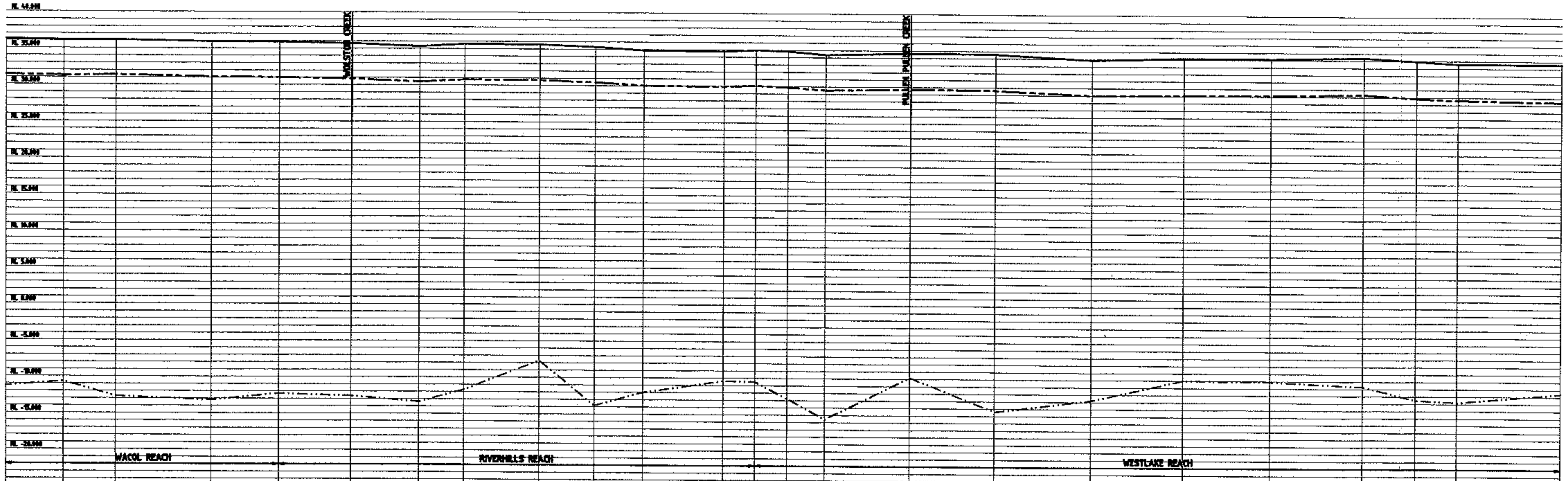
0 0.25 0.5 0.75 1.0 1.25 KILOMETRES

LEGEND

3000 ANTD LINE

BN 1250 SURVEYED CROSS SECTION

516 LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

10 000 YEAR ARI DESIGN FLOOD LEVEL	35.400	31.250	31.350	31.000	31.030	30.850	30.470	30.770
PMF DESIGN FLOOD LEVEL	36.230	36.110	34.160	35.930	35.070	35.490	35.320	35.450
BED LEVEL (m AHD)	-11.300	-10.700	-12.740	-13.280	-12.380	-12.440	-13.440	-11.100
CROSS SECTION NUMBER	BN 1650	BN 1640	BN 1630	BN 1620	BN 1610	BN 1600	BN 1590	BN 1580
MIKE 11 CHAINAGE (km)	1017.610	1017.920	1018.200	1018.725	1018.895	1019.480	1019.865	1020.115
ANTD CHAINAGE (km)	61.050	60.740	60.440	59.935	59.565	59.170	58.795	58.545

10 000 YEAR ARI DESIGN FLOOD LEVEL	30.150	30.450	30.050	29.930	30.080	29.800	29.530	29.690
PMF DESIGN FLOOD LEVEL	35.630	35.320	34.890	34.790	34.500	34.020	34.590	34.450
BED LEVEL (m AHD)	-7.700	-13.080	-12.080	-10.400	-10.540	-12.040	-15.400	-9.800
CROSS SECTION NUMBER	BN 1570	BN 1560	BN 1550	BN 1540	BN 1530	BN 1520	BN 1510	BN 1500
MIKE 11 CHAINAGE (km)	1020.525	1020.830	1021.095	1021.530	1021.715	1021.975	1022.505	1022.575
ANTD CHAINAGE (km)	58.135	57.830	57.565	57.121	56.945	56.745	56.555	56.085

10 000 YEAR ARI DESIGN FLOOD LEVEL	29.420	29.000	29.080	29.120	29.320	28.850	28.410	28.410
PMF DESIGN FLOOD LEVEL	34.400	33.870	34.110	34.150	34.390	33.140	33.550	33.410
BED LEVEL (m AHD)	-14.400	-12.880	-10.080	-10.100	-10.700	-12.500	-12.880	-11.400
CROSS SECTION NUMBER	BN 1490	BN 1480	BN 1470	BN 1460	BN 1450	BN 1440	BN 1430	BN 1420
MIKE 11 CHAINAGE (km)	1023.040	1023.570	1024.040	1024.563	1025.070	1025.340	1025.590	1026.570
ANTD CHAINAGE (km)	55.620	55.090	54.580	54.097	53.590	53.380	53.070	52.490

LEGEND

516 LOCATION AND IDENTIFICATION OF STRUCTURE

PMF DESIGN FLOOD

10 000 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1650 TO BN 1420

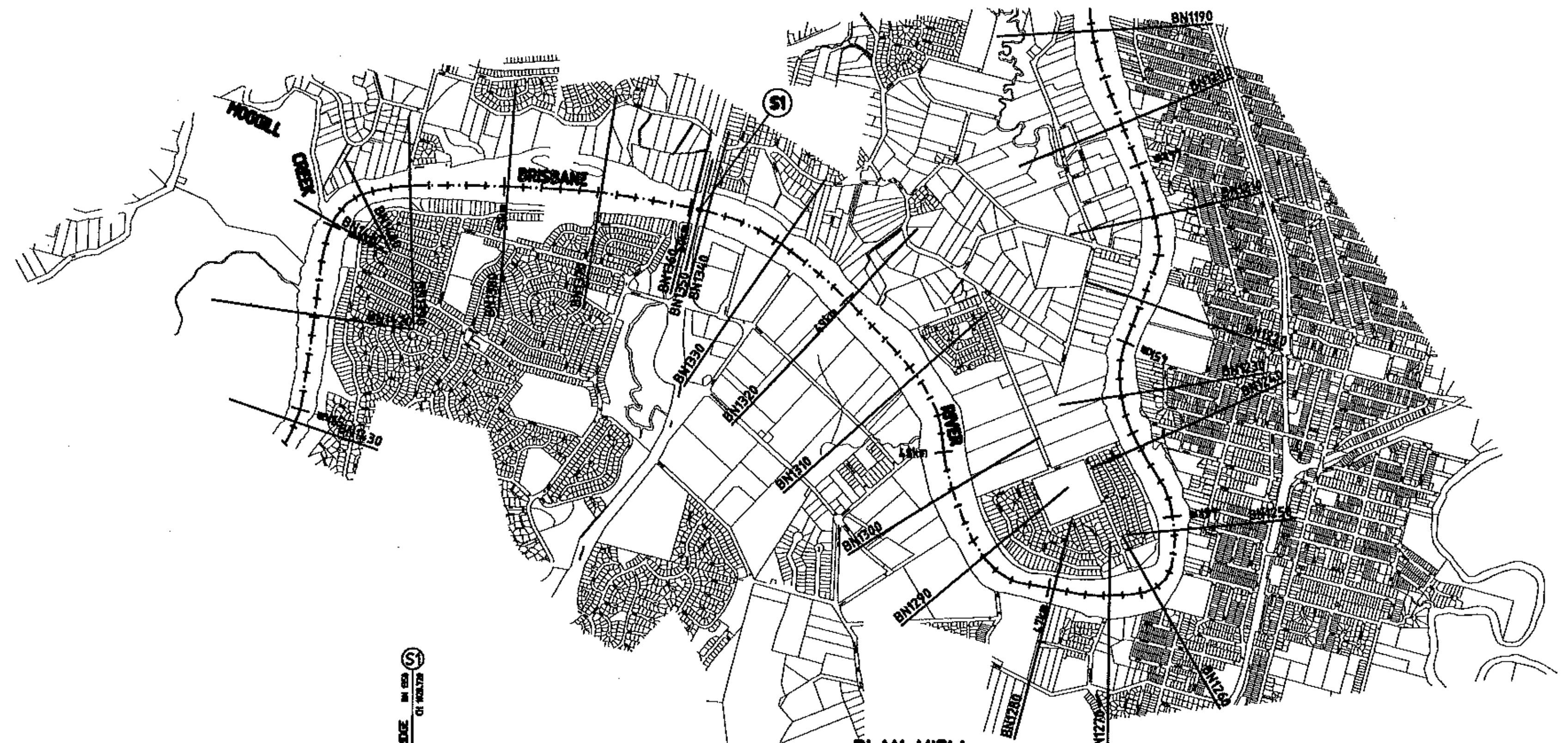
FILE ...415... PLOT SCALE: 1=30

BCC.121.0273

FIGURE H-5d

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE PMF AND 10 000 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW

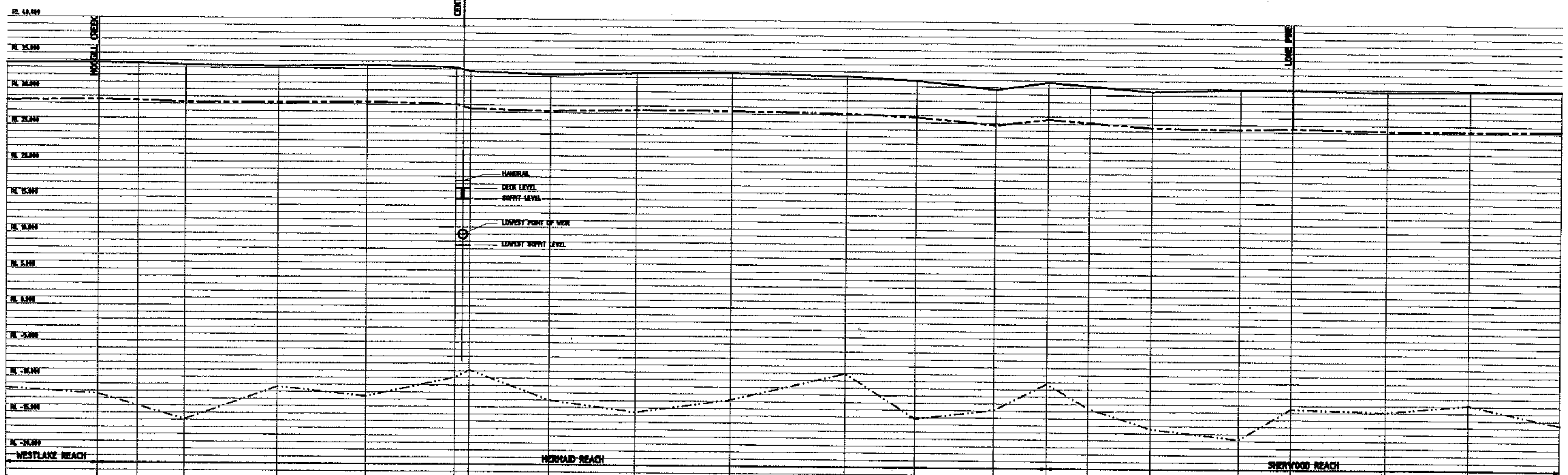
0 0.25 0.5 0.75 1.0 1.25
KILOMETRES

LEGEND

AMTD LINE

BN 1250 SURVEYED CROSS SECTION

(S1) LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

10 000 YEAR ARI DESIGN FLOOD LEVEL	28.430	28.560	28.470	28.230	28.220	28.370	28.110	27.500	27.220	27.440	27.380	27.190	26.750	25.720	26.570	26.120	25.480	25.320	25.520	25.439	25.210	25.320
PMF DESIGN FLOOD LEVEL	33.610	33.690	33.620	33.600	33.330	33.510	33.230	32.660	32.320	32.680	32.780	32.370	31.830	30.690	31.740	31.260	30.520	30.880	30.910	35.670	30.780	30.850
BED LEVEL (m AHD)	-11.600	-12.400	-14.000	-15.940	-11.300	-12.440	-9.900	-8.900	-13.000	-16.400	-12.880	-9.000	-15.780	-13.980	-10.280	-13.600	-16.490	-17.800	-13.500	-13.960	-12.900	-15.600
CROSS SECTION NUMBER	BN 1420	BN 1410	BN 1400	BN 1390	BN 1380	BN 1370	BN 1348	BN 1344	BN 1330	BN 1320	BN 1310	BN 1300	BN 1290	BN 1280	BN 1270	BN 1260	BN 1250	BN 1240	BN 1230	BN 1220	BN 1210	BN 1200
MIKE 11 CHAINAGE (km)	1024.170	1024.640	1024.900	1027.160	1027.680	1028.180	1028.680	1028.760	1029.200	1029.680	1030.220	1030.870	1031.260	1031.700	1031.995	1032.230	1032.585	1033.080	1033.370	1033.900	1034.370	1034.890
AMTD CHAINAGE (km)	52.490	51.980	51.740	51.500	50.980	50.440	49.980	49.904	49.440	48.980	48.440	47.790	47.400	46.960	46.665	46.430	46.075	45.580	45.290	44.760	44.290	43.770

BRISBANE RIVER - BN 1420 TO BN 1200

LEGEND

(S1) LOCATION AND IDENTIFICATION OF STRUCTURE

PMF DESIGN FLOOD

10 000 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

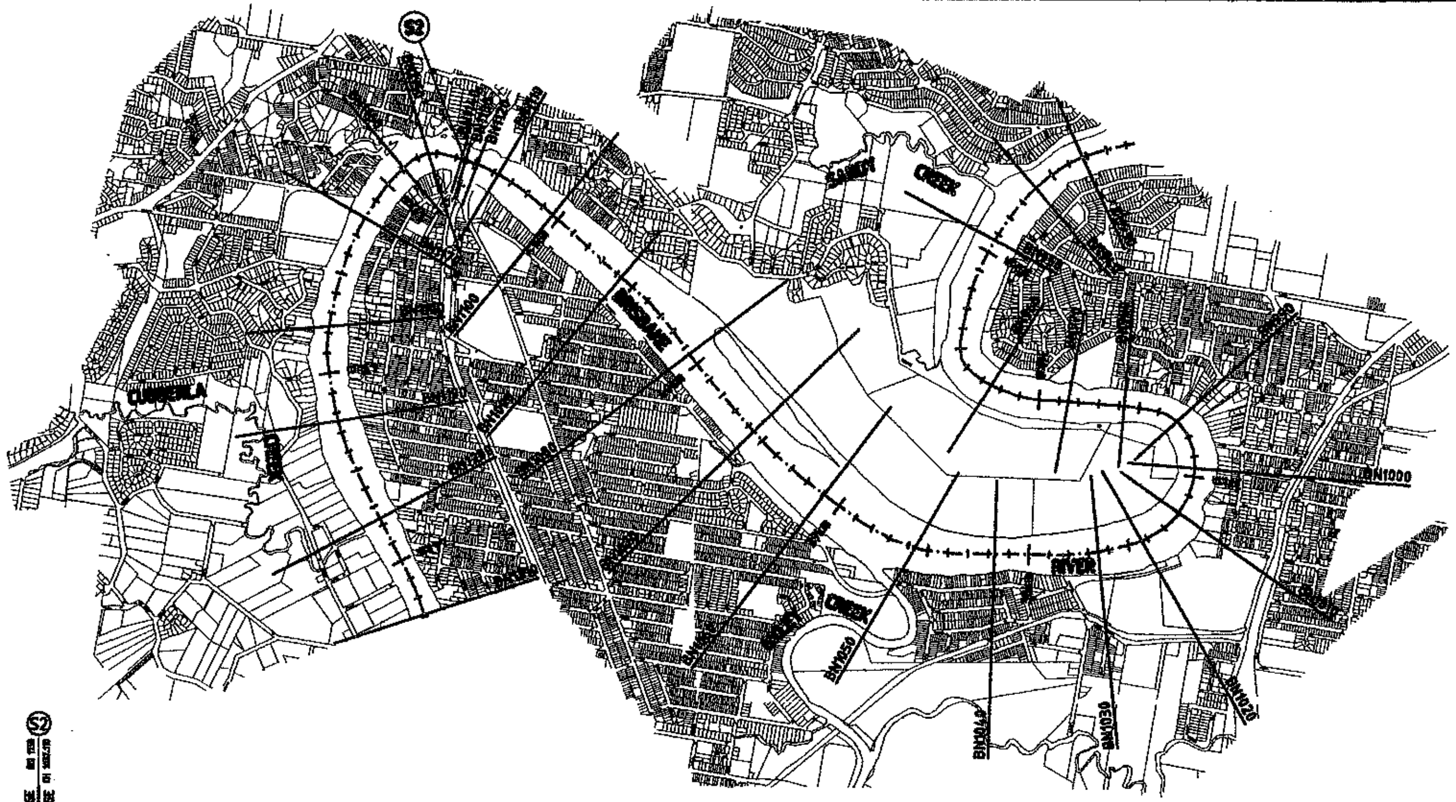
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

PLOT SCALE: 1=30

FIGURE H-5e

SINCLAIR KNIGHT MERZ

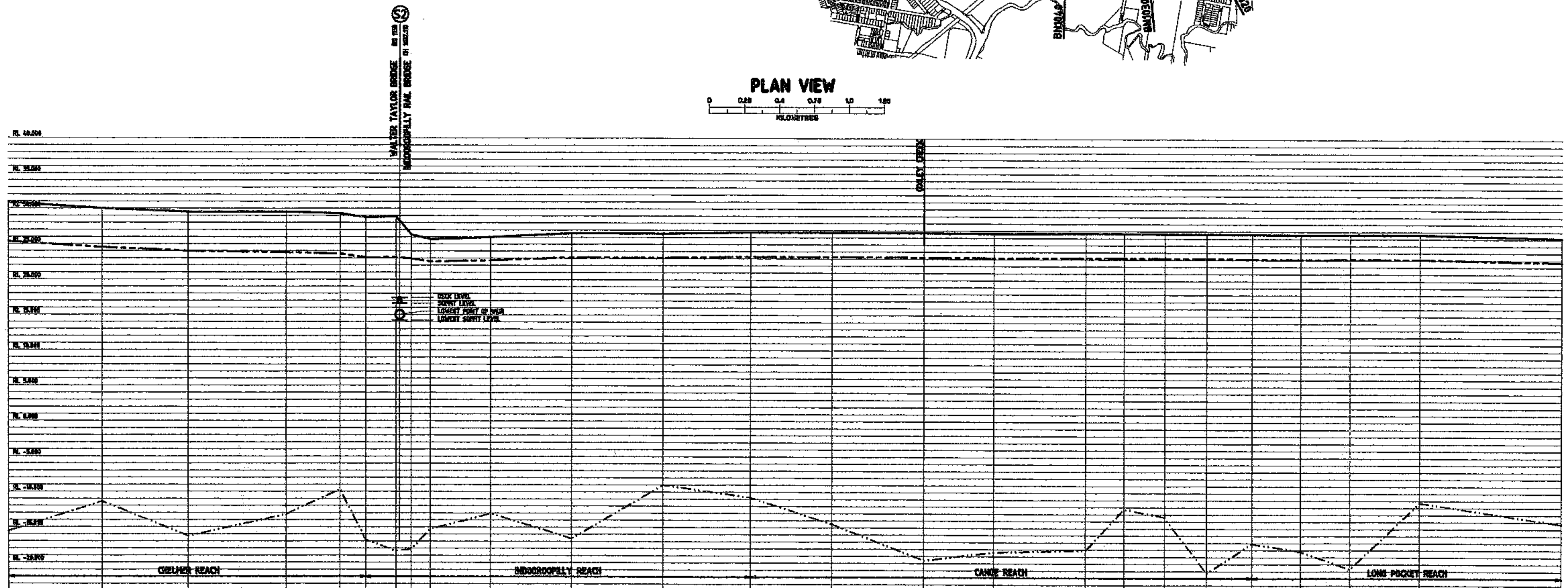
BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE PMF AND 10 000 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25
KILOMETRES

LEGEND
AMTD LINE
BN 1250 SURVEYED CROSS SECTION
(S1) LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

	BN 1200	BN 1190	BN 1180	BN 1170	BN 1160	BN 1150	BN 1140	BN 1120	BN 1110	BN 1100	BN 1090	BN 1080	BN 1070
10 000 YEAR ARI DESIGN FLOOD LEVEL	25.320	24.550	23.988	23.820	23.680	23.040	23.120	22.958	22.510	22.720	23.130	23.490	23.260
PMF DESIGN FLOOD LEVEL	30.850	30.010	29.580	29.540	29.250	28.710	28.858	26.338	25.478	25.998	26.560	26.510	26.720
BED LEVEL (m AHD)	-16.400	-11.440	-16.510	-13.260	-3.780	-14.880	-30.600	-19.188	-15.309	-13.100	-16.610	-9.580	-10.880
CROSS SECTION NUMBER	BN 1200	BN 1190	BN 1180	BN 1170	BN 1160	BN 1150	BN 1140	BN 1120	BN 1110	BN 1100	BN 1090	BN 1080	BN 1070
MIKE 11 CHAINAGE (km)	1034.890	1035.416	1035.900	1036.440	1036.770	1036.915	1037.098	1037.175	1037.285	1037.625	1038.085	1038.400	1039.100
AMTD CHAINAGE (km)	43.779	43.244	42.760	42.398	41.880	41.765	41.578	41.495	41.375	41.035	40.575	40.060	39.560

	BN 1060	BN 1050	BN 1040	BN 1030	BN 1020	BN 1010	BN 1000	BN 990	BN 980	BN 970	BN 960	BN 950
10 000 YEAR ARI DESIGN FLOOD LEVEL	23.250	23.200	23.660	23.490	23.590	23.568	23.556	23.898	23.040	23.110	23.180	22.770
PMF DESIGN FLOOD LEVEL	26.720	26.670	26.630	26.668	26.664	26.630	26.620	26.590	26.570	26.590	26.500	26.960
BED LEVEL (m AHD)	-14.500	-19.690	-18.460	-18.100	-12.500	-13.400	-21.340	-17.500	-15.200	-20.700	-11.310	-14.300
CROSS SECTION NUMBER	BN 1060	BN 1050	BN 1040	BN 1030	BN 1020	BN 1010	BN 1000	BN 990	BN 980	BN 970	BN 960	BN 950
MIKE 11 CHAINAGE (km)	1039.565	1040.070	1040.490	1041.010	1041.230	1041.440	1041.780	1041.960	1042.250	1042.515	1042.910	1043.725
AMTD CHAINAGE (km)	39.050	38.570	38.170	37.564	37.430	37.200	36.960	36.780	36.675	36.145	35.750	34.935

LEGEND
(S1) LOCATION AND IDENTIFICATION OF STRUCTURE
PMF DESIGN FLOOD
10 000 YEAR ARI DESIGN FLOOD
EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER – BN 1200 TO BN 950

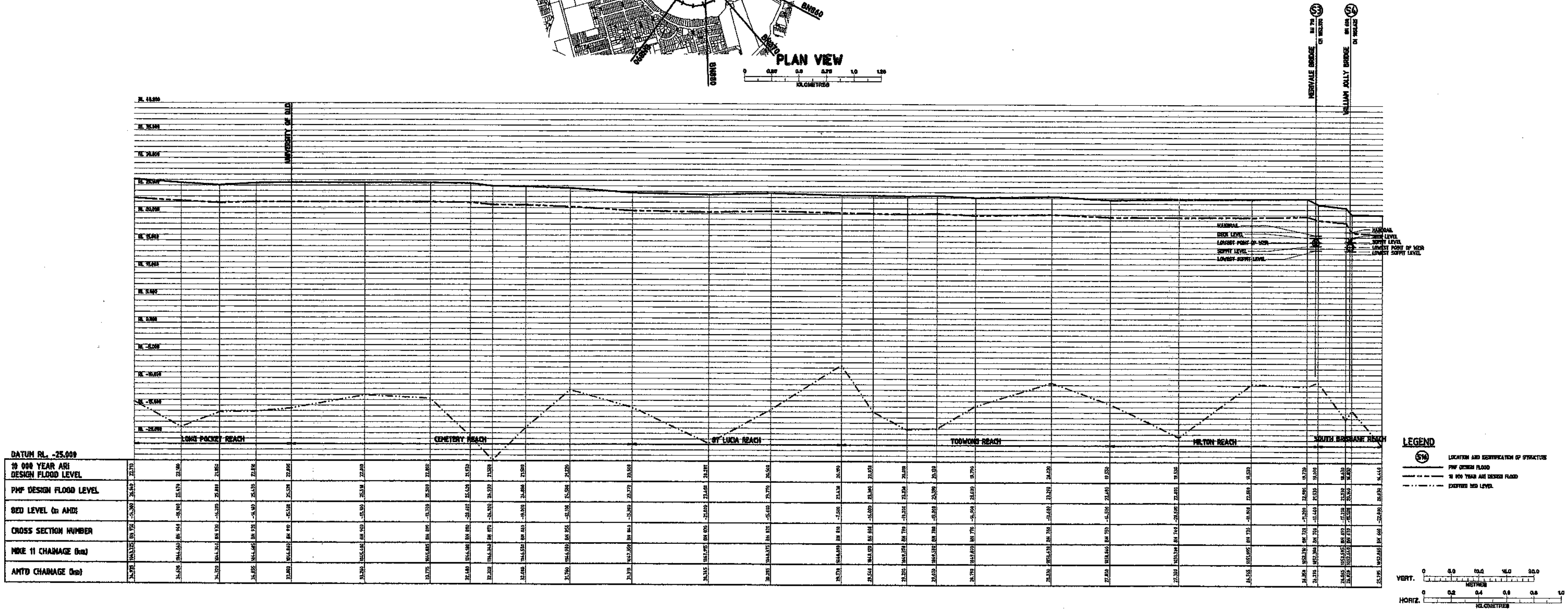
FILE NAME: 415/-141 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T00415? DATE: 23/3/97

SINCLAIR KNIGHT MERZ

FIGURE H-5f

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE PMF AND 10 000 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

LEGEND
AMTD LINE
BN 1250 SURVEYED CROSS SECTION
(S4) LOCATION AND IDENTIFICATION OF STRUCTURE



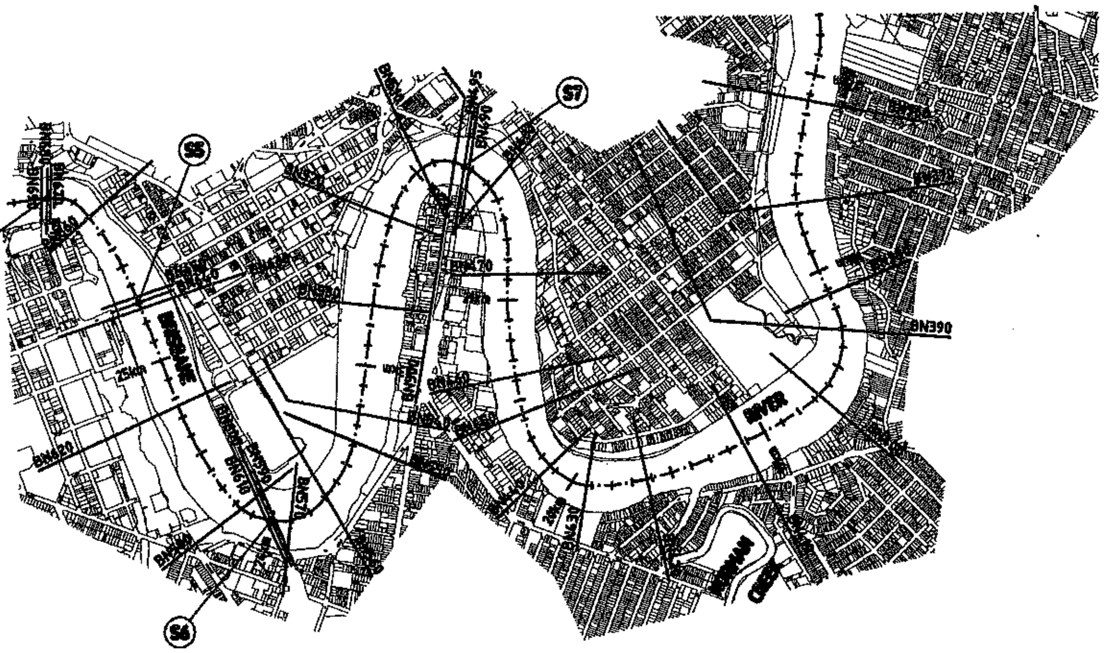
BRISBANE RIVER - BN 950 TO BN 660

FILE NAME: 415?-142 PLOT SCALE: 1=30 DISK N: C:\DWG JOB N: T00457 DATE: 23/3/97

SINCLAIR KNIGHT MERZ

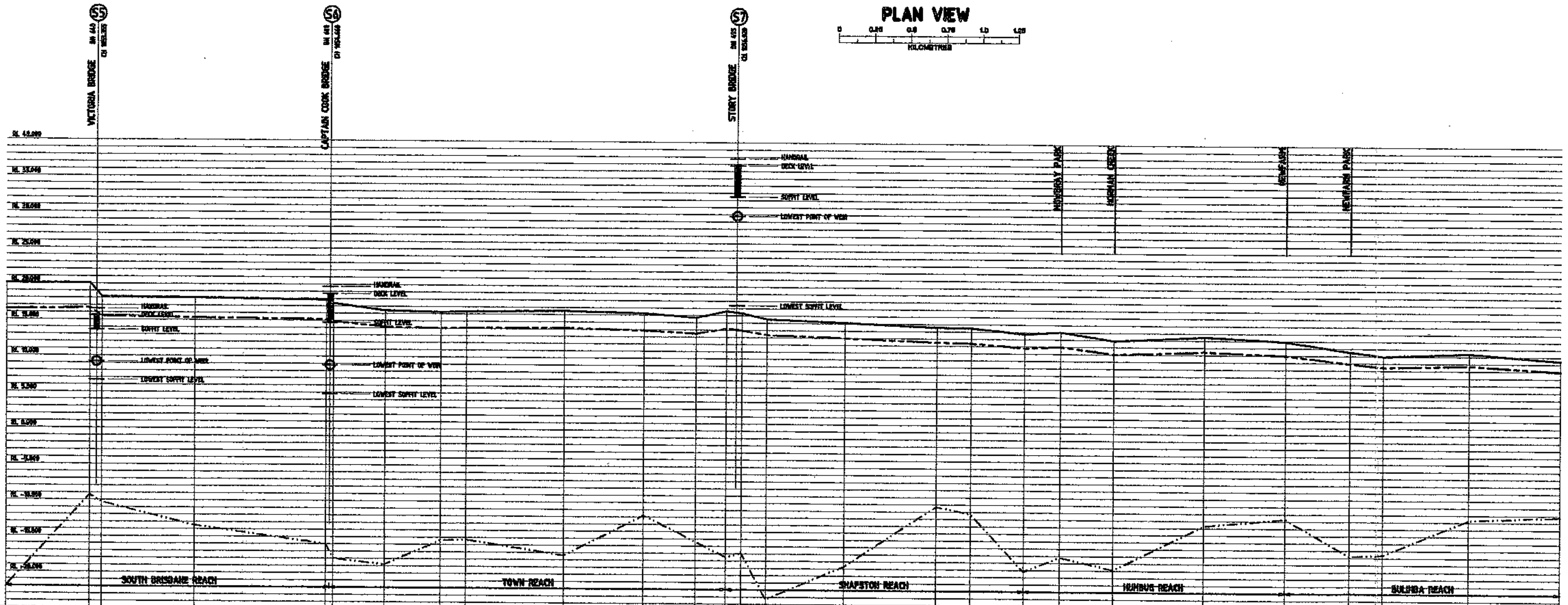
FIGURE H-5g

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE PMF AND 10 000 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW

LEGEND
AMTD LINE
BN 1250 SURVEYED CROSS SECTION
LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

10 000 YEAR ARI DESIGN FLOOD LEVEL	16.440	16.610	15.500	15.310	15.150	14.890	14.310	14.000	14.080	14.150	13.840	13.690	14.190	13.950	13.360	13.000	12.690	12.400	11.770	12.010	11.000	11.430	10.970	9.910	9.440	9.720	8.950
PMF DESIGN FLOOD LEVEL	20.830	20.470	19.150	18.080	17.840	17.360	16.610	16.330	16.350	16.530	16.230	15.700	16.570	16.320	15.550	15.130	14.530	14.490	13.730	14.130	12.870	13.500	12.910	11.560	10.670	11.400	10.630
BED LEVEL (m AHD)	-22.000	-9.300	-10.300	-13.500	-16.600	-18.090	-18.980	-15.400	-15.300	-17.400	-11.800	-15.400	-17.500	-16.900	-23.300	-18.700	-10.300	-11.300	-19.200	-17.200	-18.900	-12.700	-13.700	-16.800	-14.600	-11.700	-11.200
CROSS SECTION NUMBER	BN 660	BN 650	BN 638	BN 620	BN 610	BN 590	BN 564	BN 550	BN 540	BN 530	BN 520	BN 510	BN 500	BN 490	BN 480	BN 470	BN 460	BN 450	BN 440	BN 430	BN 420	BN 410	BN 400	BN 390	BN 383	BN 370	BN 360
MIKE 11 CHAINAGE (km)	1052.845	1053.320	1053.385	1053.900	1054.610	1054.680	1054.970	1055.280	1055.420	1055.960	1056.400	1056.695	1056.865	1056.950	1057.090	1057.530	1058.040	1058.230	1058.530	1058.735	1059.035	1059.540	1059.990	1060.345	1060.525	1061.015	1061.530
AMTD CHAINAGE (km)	25.795	25.340	25.295	24.760	24.020	23.950	23.690	23.380	23.240	22.700	22.260	21.965	21.795	21.710	21.570	21.130	20.620	20.430	20.130	19.925	19.625	19.120	18.670	18.315	18.135	17.645	17.130

LEGEND
LOCATION AND IDENTIFICATION OF STRUCTURE
PMF DESIGN FLOOD
10 000 YEAR ARI DESIGN FLOOD
EXISTING BED LEVEL

VERT. METRES
HORIZ. KILOMETRES

BRISBANE RIVER - BN 660 TO BN 360

FILE NAME: 415/143 PLOT SCALE: 1:30 DISK N°: CNDWG JOB N°: T00415? DATE: 23/3/97

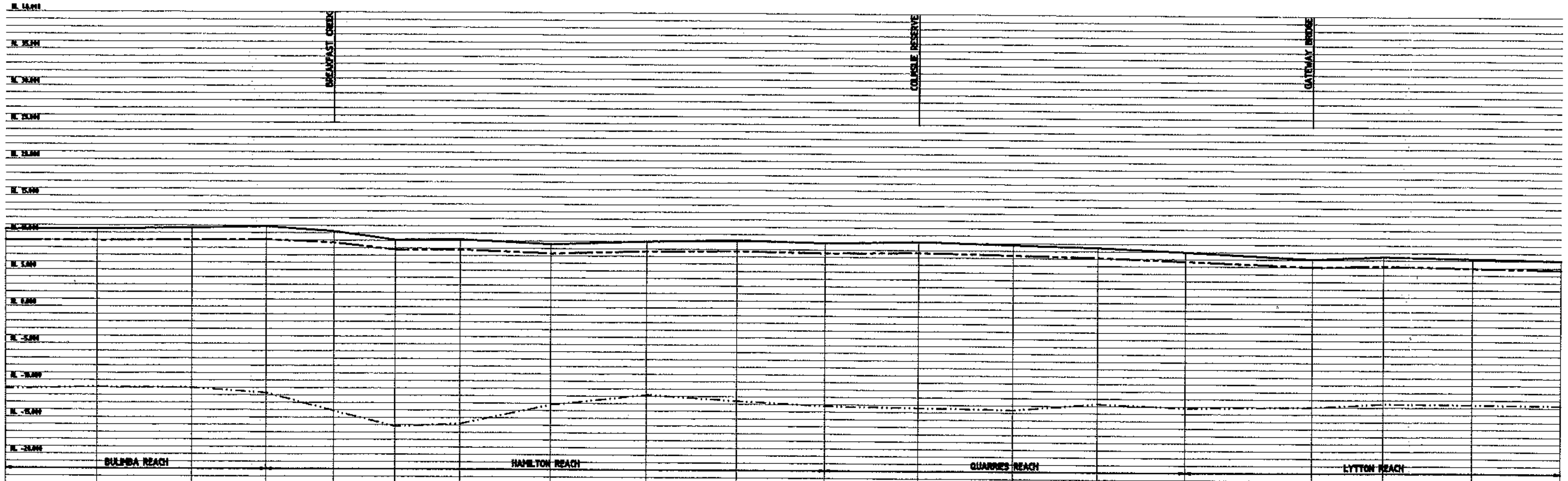
FIGURE H-5h

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE PMF AND 10 000 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

10 000 YEAR ARI DESIGN FLOOD LEVEL	8.950	8.970	9.040	9.020	8.700	7.770	7.730	7.330	7.650	7.730	7.540	7.440	7.390	7.140	6.690	6.900	6.270	5.930	5.740
PMF DESIGN FLOOD LEVEL	10.430	10.510	10.400	10.040	10.240	9.080	9.170	8.590	9.610	9.220	8.990	9.130	8.780	8.490	7.950	7.840	7.480	7.210	7.020
BED LEVEL (m AHD)	-11.200	-10.900	-11.080	-11.780	-14.300	-16.290	-15.800	-13.280	-11.800	-12.640	-13.280	-13.440	-13.480	-12.780	-13.280	-13.000	-12.580	-12.640	-12.700
CROSS SECTION NUMBER	BN 360	BN 350	BN 340	BN 330	BN 320	BN 310	BN 300	BN 290	BN 280	BN 270	BN 260	BN 250	BN 240	BN 230	BN 220	BN 210	BN 200	BN 190	BN 180
MIKE 11 CHAINAGE (km)	1061.530	1062.020	1062.575	1062.940	1063.310	1063.645	1064.080	1064.490	1065.030	1065.503	1065.990	1066.585	1067.020	1067.485	1067.965	1068.460	1069.045	1069.535	1070.025
AMTD CHAINAGE (km)	17.130	16.640	16.125	15.720	15.350	15.015	14.640	14.170	13.650	13.157	12.670	12.155	11.640	11.175	10.695	10.200	9.415	9.125	8.635

BRISBANE RIVER - BN 360 TO BN 180

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- PMF DESIGN FLOOD
- 10 000 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

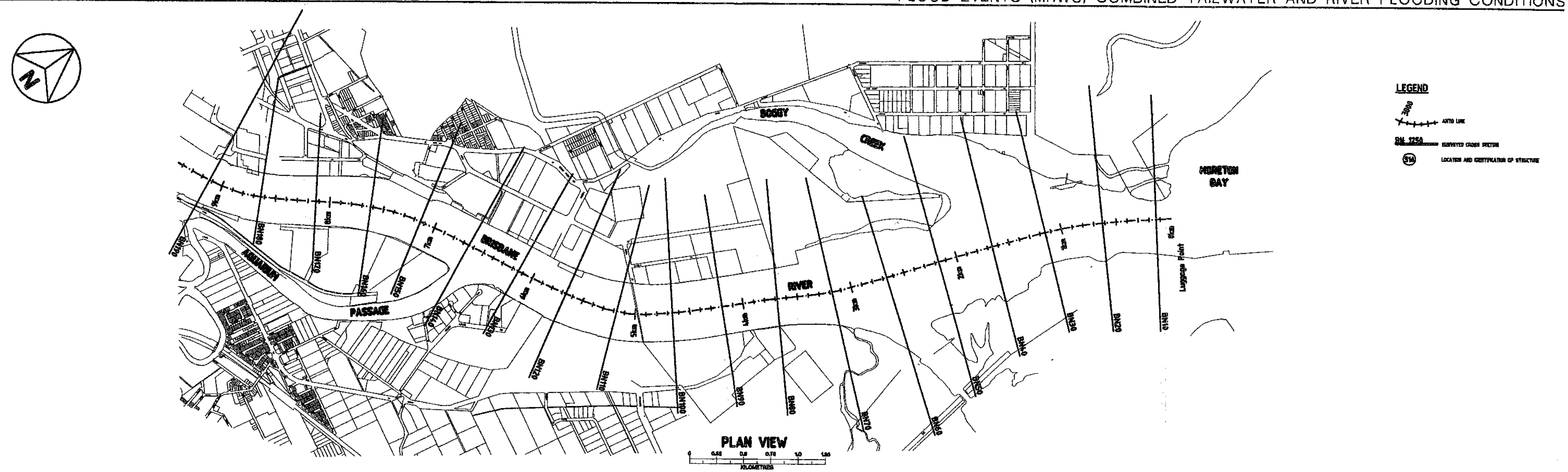
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

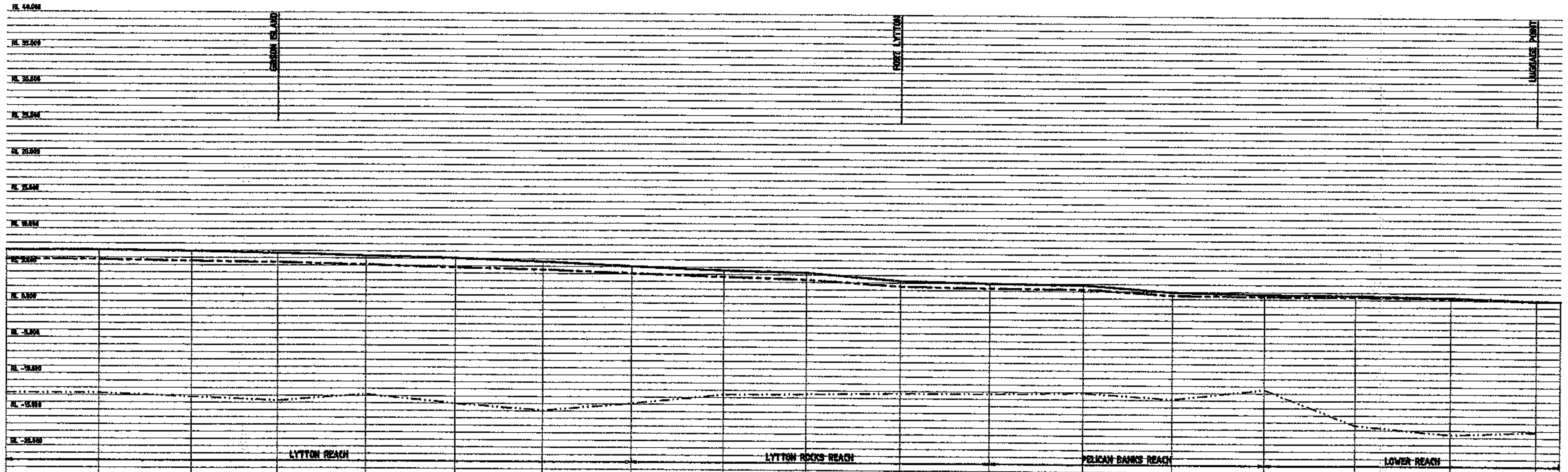
FILE NAME: 415-207 PLOT SCALE: 1=30 DESIGN: ENDWG JOB N: T00+137 DATE: 23/

SINCLAIR KNIGHT MERZ

FIGURE H-5I

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE PMF AND 10 000 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS





DATUM RL. -25.000

10 000 YEAR ARI DESIGN FLOOD LEVEL	5.740	5.740	5.550	5.410	5.110	4.800	4.550	4.270	3.680	3.330	2.580	2.290	2.210	1.480	1.340	1.340	1.280	0.920	0.920
PMF DESIGN FLOOD LEVEL	7.030	7.060	6.920	6.670	6.360	6.070	5.660	5.060	4.540	4.300	3.250	2.940	2.840	1.890	1.650	1.570	1.310	0.920	0.920
BED LEVEL (m AHD)	-12.700	-12.700	-13.300	-13.710	-12.910	-14.000	-14.990	-13.900	-12.600	-12.500	-12.300	-12.300	-12.100	-12.900	-11.500	-16.400	-17.400	-17.200	
CROSS SECTION NUMBER	BN 180	BN 170	BN 160	BN 150	BN 140	BN 130	BN 120	BN 110	BN 100	BN 90	BN 80	BN 70	BN 60	BN 50	BN 40	BN 30	BN 20	BN 10	-
MIKE 11 CHAINAGE (km)	1070.025	1070.530	1071.040	1071.520	1072.015	1072.515	1072.995	1073.485	1074.000	1074.440	1074.985	1075.480	1076.020	1076.495	1077.050	1077.510	1078.014	1078.525	1078.640
AMTD CHAINAGE (km)	8.635	8.130	7.620	7.140	6.645	6.145	5.665	5.175	4.560	4.200	3.675	3.180	2.640	2.145	1.650	1.150	0.620	0.115	-

LEGEND
- LOCATION AND IDENTIFICATION OF STRUCTURE
- PMF DESIGN FLOOD
- 10 000 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. METRES
HORIZ. KILOMETRES

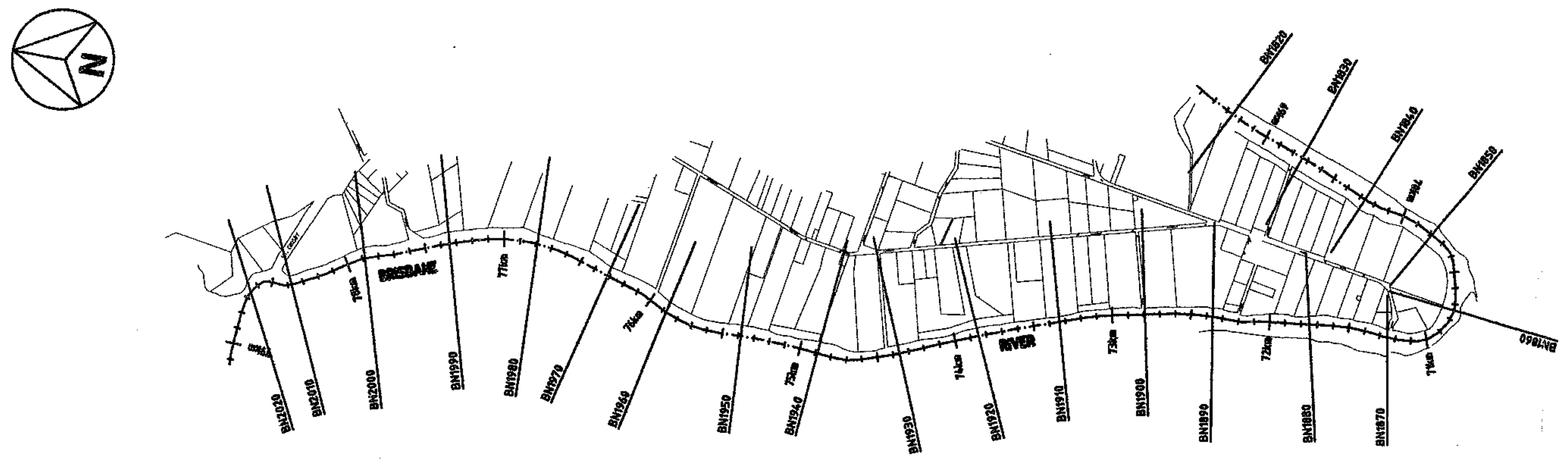
BRISBANE RIVER - BN 180 TO BN 10

FILE NAME: 415/-145 PLOT SCALE: 1=30 DISK N°: ENDWG JOB N°: T00457 DATE: 23/3/97

FIGURE H-6a

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2000, 1000, 500, AND 200 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



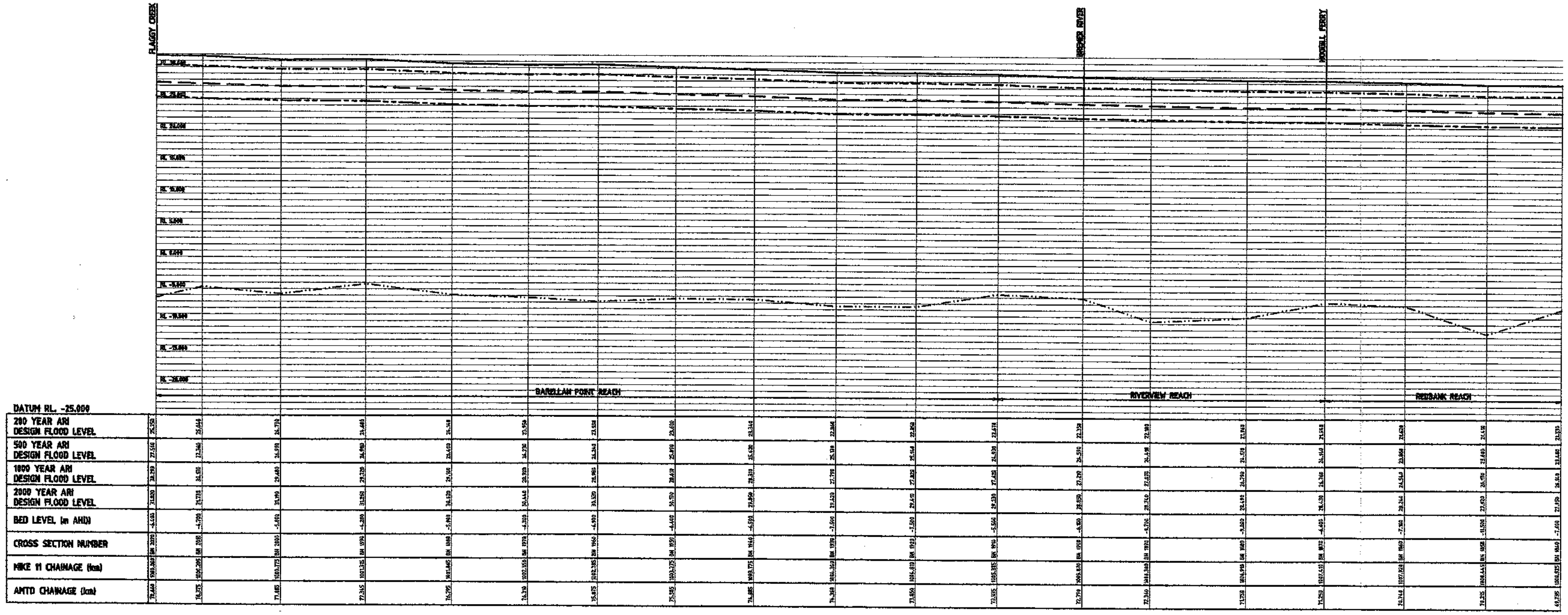
PLAN VIEW

LEGEND

AMTD LINE

BN 1250 SURVEYED CROSS SECTION

LOCATION AND IDENTIFICATION OF STRUCTURE



BRISBANE RIVER - BN 2020 TO BN 1840

LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE

2000 YEAR ARI DESIGN FLOOD LEVEL

1000 YEAR ARI DESIGN FLOOD LEVEL

500 YEAR ARI DESIGN FLOOD LEVEL

200 YEAR ARI DESIGN FLOOD LEVEL

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

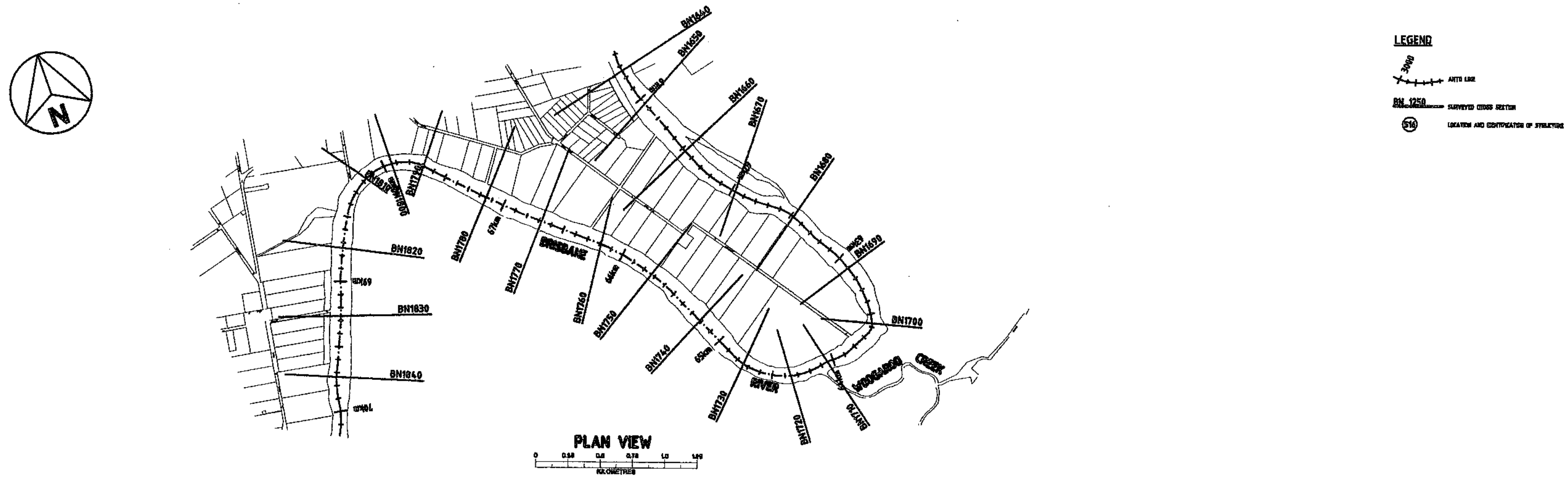
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

FILE NAME: 4157-146 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T00415? DATE: 23/3/97

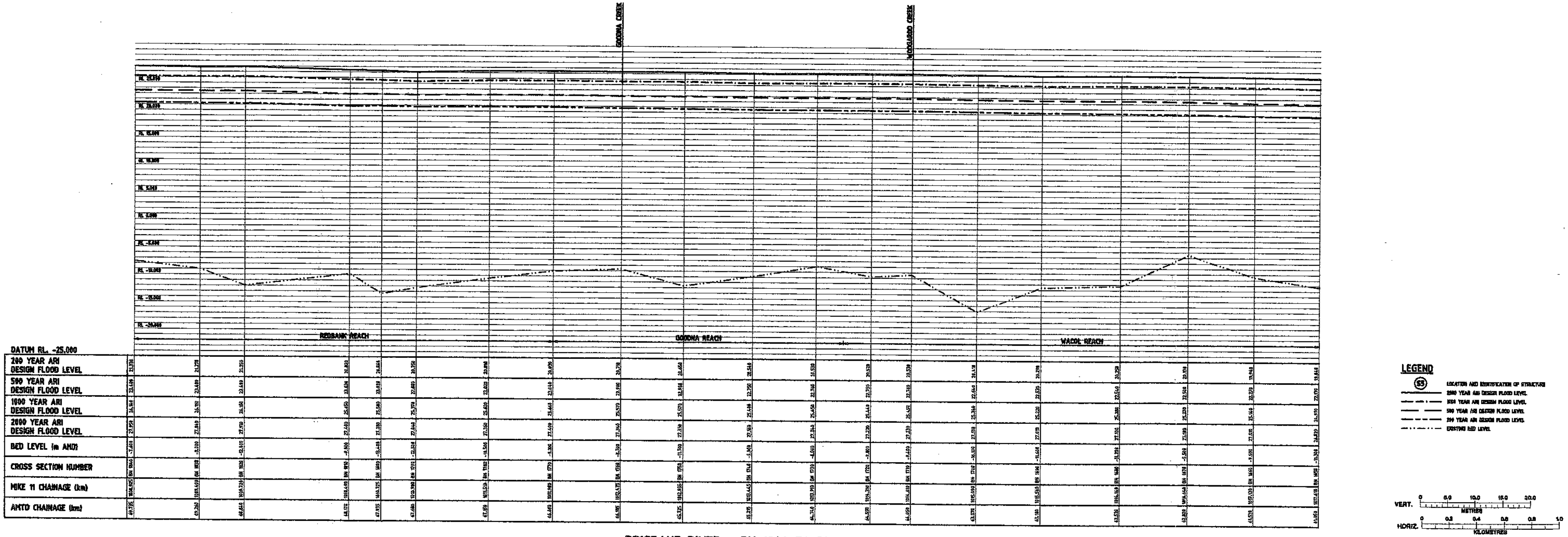
FIGURE H-6b

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2000, 1000, 500, AND 200 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITONS



PLAN VIEW

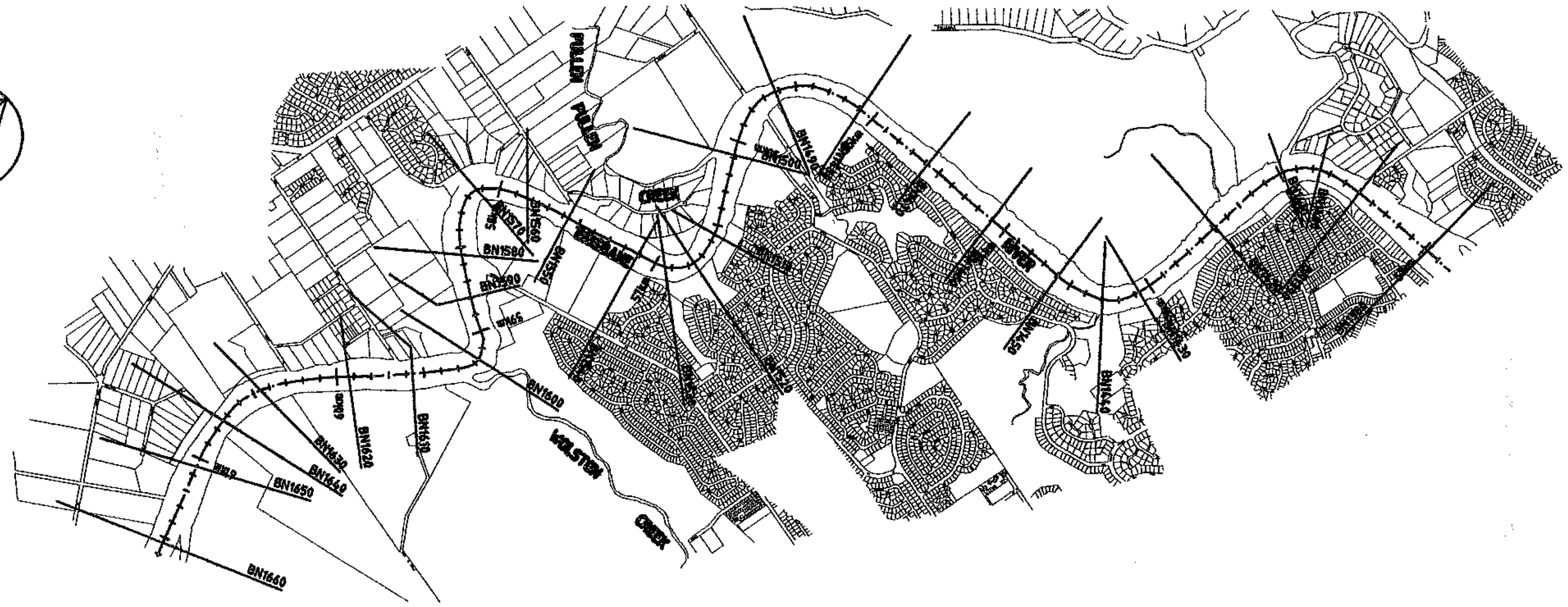


BRISBANE RIVER - BN 1840 TO BN 1650

FILE NAME: 415/-147 PLOT SCALE: 1=30 DISK N°: ENDWG JOB N°: T004157 DATE: 23/3/?

FIGURE H-6c

BRISBANE RIVER FLOOD STUDY
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2000, 1000, 500, AND 200 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW

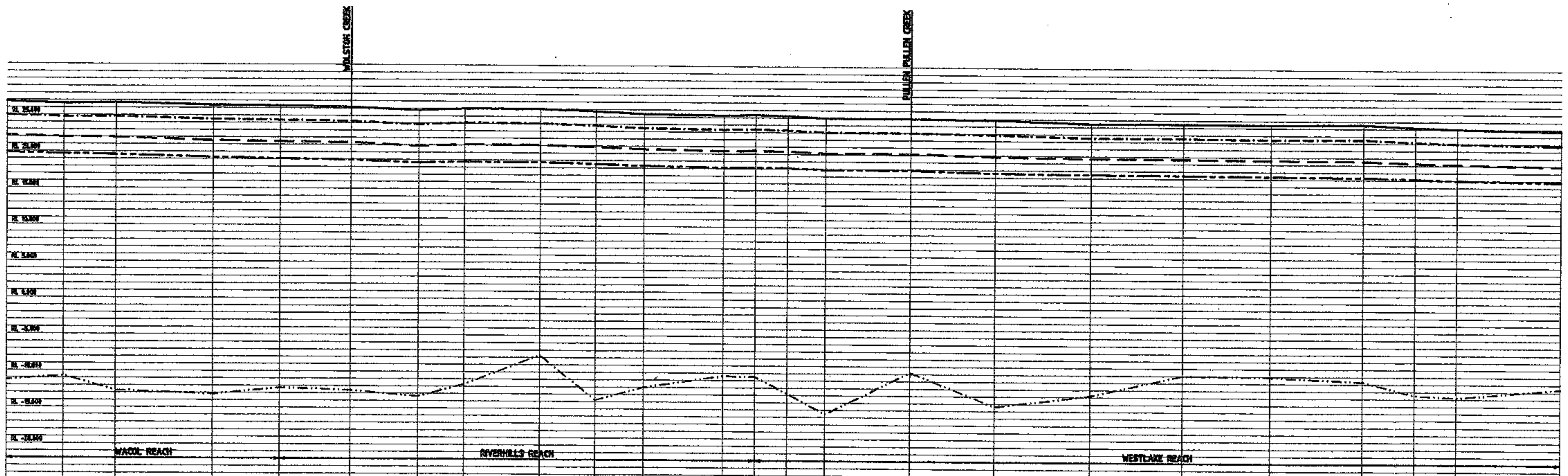
KILOMETRES

LEGEND

AMTD LINE

BN 1250 SURVEYED CROSS SECTION

LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

200 YEAR ARI DESIGN FLOOD LEVEL	19.840	19.670	19.590	19.210	19.070	18.950	18.600	18.750	18.730	18.540	18.300	18.120	18.160	18.080	17.920	17.850	17.590	17.440	17.430	17.370	17.250	17.120	16.950	16.780
500 YEAR ARI DESIGN FLOOD LEVEL	22.170	21.980	21.950	21.536	21.420	21.310	20.880	21.120	21.000	20.880	20.580	20.400	20.460	20.360	20.370	20.140	19.840	19.610	19.650	19.500	19.530	19.310	19.140	18.910
1000 YEAR ARI DESIGN FLOOD LEVEL	24.970	24.750	24.410	24.440	24.370	24.240	23.840	24.090	24.060	23.790	23.470	23.320	23.400	23.270	23.030	23.020	22.820	22.510	22.510	22.420	22.490	22.180	21.990	21.750
2000 YEAR ARI DESIGN FLOOD LEVEL	26.820	26.580	26.480	26.370	26.310	26.140	25.790	26.060	26.080	25.750	25.420	25.280	25.380	25.230	24.960	24.970	24.840	24.440	24.480	24.430	24.560	24.190	24.000	23.770
BED LEVEL (m AHD)	-11.300	-10.700	-12.750	-13.280	-12.300	-12.400	-13.400	-11.700	-7.700	-13.800	-12.000	-10.400	-10.500	-12.800	-15.600	-9.800	-14.450	-12.400	-10.440	-10.100	-10.700	-12.500	-12.800	-11.600
CROSS SECTION NUMBER	BN 1650	BN 1640	BN 1630	BN 1620	BN 1610	BN 1600	BN 1590	BN 1580	BN 1570	BN 1560	BN 1550	BN 1540	BN 1530	BN 1520	BN 1510	BN 1500	BN 1490	BN 1480	BN 1470	BN 1460	BN 1450	BN 1440	BN 1430	BN 1420
MIKE 11 CHAINAGE (km)	1017.418	1017.820	1018.209	1018.725	1019.095	1019.490	1019.665	1020.115	1020.525	1020.830	1021.095	1021.539	1021.715	1021.895	1022.505	1022.575	1023.040	1023.570	1024.080	1024.563	1025.070	1025.360	1025.590	1026.170
AMTD CHAINAGE (km)	61.050	60.740	60.440	59.935	59.545	59.170	58.795	58.545	58.135	57.830	57.565	57.121	56.945	56.765	54.555	56.085	55.620	55.090	54.580	54.097	53.590	53.300	53.070	52.490

BRISBANE RIVER - BN 1650 TO BN 1420

LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE
2000 YEAR ARI DESIGN FLOOD LEVEL
1000 YEAR ARI DESIGN FLOOD LEVEL
500 YEAR ARI DESIGN FLOOD LEVEL
200 YEAR ARI DESIGN FLOOD LEVEL
EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

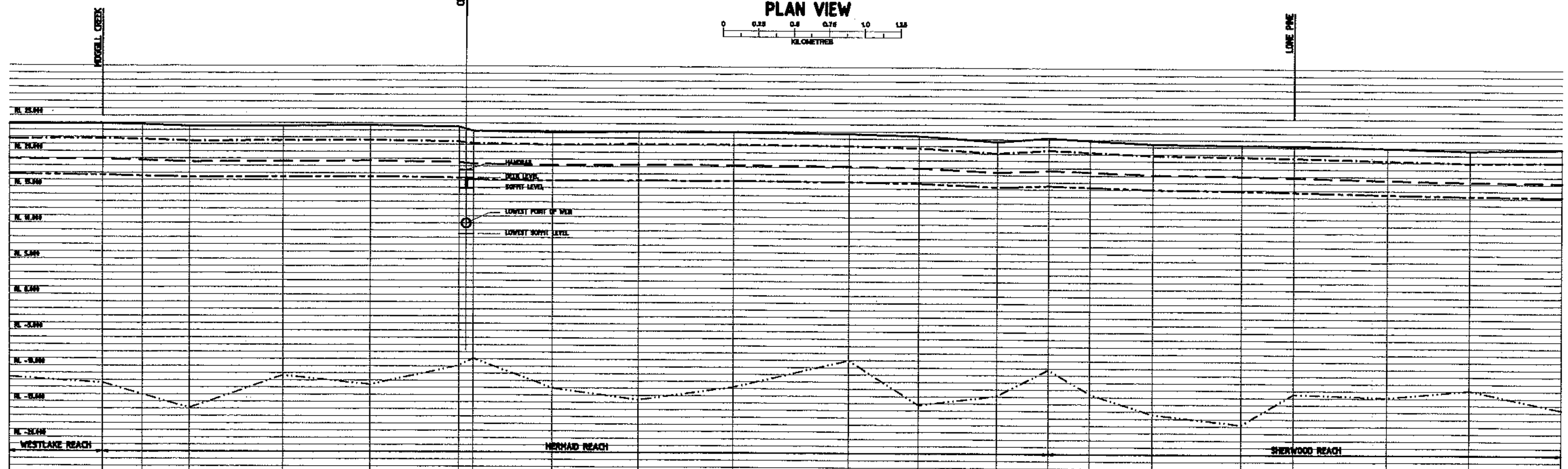
FILE NAME: 4... -148 PLOT SCALE: 1:30 DISK No: CHDWG JOB No: T00435 DATE: 23/5/97

FIGURE H-6d

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2000, 1000, 500, AND 200 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

PLAN VIEW



CROSS SECTION NUMBER	200 YEAR ARI DESIGN FLOOD LEVEL	500 YEAR ARI DESIGN FLOOD LEVEL	1000 YEAR ARI DESIGN FLOOD LEVEL	2000 YEAR ARI DESIGN FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 1420	16.780	18.920	21.750	23.770	-11.600	1026.170	52.490
BN 1410	16.700	18.920	21.820	23.670	-12.400	1026.600	51.900
BN 1400	16.544	18.780	21.700	23.770	-16.800	1026.900	51.760
BN 1390	16.380	18.530	21.450	23.530	-15.900	1027.160	51.500
BN 1380	16.470	18.660	21.540	23.580	-11.300	1027.600	50.980
BN 1370	16.510	18.710	21.620	23.400	-12.490	1028.180	50.480
BN 1360	16.360	18.550	21.430	23.440	-9.904	1028.680	49.980
BN 1340	16.140	18.320	21.180	22.920	-8.900	1028.740	49.908
BN 1330	16.080	18.180	21.041	22.760	-13.080	1029.200	49.440
BN 1320	16.050	18.260	21.160	22.900	-14.600	1029.680	48.980
BN 1310	16.040	18.230	21.110	22.840	-12.800	1030.220	48.440
BN 1300	15.960	18.140	21.010	22.720	-9.800	1030.870	47.790
BN 1290	15.770	17.920	20.720	22.430	-15.200	1031.260	47.400
BN 1280	15.300	17.360	20.040	21.650	-13.900	1031.700	46.960
BN 1270	15.510	17.610	20.500	22.200	-18.200	1031.995	46.665
BN 1260	15.344	17.460	20.230	21.890	-13.600	1032.230	46.430
BN 1250	15.050	17.110	19.810	21.430	-16.600	1032.585	46.075
BN 1240	14.890	16.950	19.650	21.270	-17.800	1033.080	45.580
BN 1230	14.760	16.810	19.540	21.260	-13.500	1033.370	45.290
BN 1220	14.470	16.480	19.220	20.970	-13.900	1033.900	44.760
BN 1210	14.290	16.270	18.950	20.660	-12.900	1034.370	44.290
BN 1200	14.200	16.190	19.060	20.870	-15.600	1034.890	43.770

BRISBANE RIVER - BN 1420 TO BN 1200

LEGEND

- S5 LOCATION AND IDENTIFICATION OF STRUCTURE
- 2000 YEAR ARI DESIGN FLOOD LEVEL
- 1000 YEAR ARI DESIGN FLOOD LEVEL
- 500 YEAR ARI DESIGN FLOOD LEVEL
- 200 YEAR ARI DESIGN FLOOD LEVEL
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

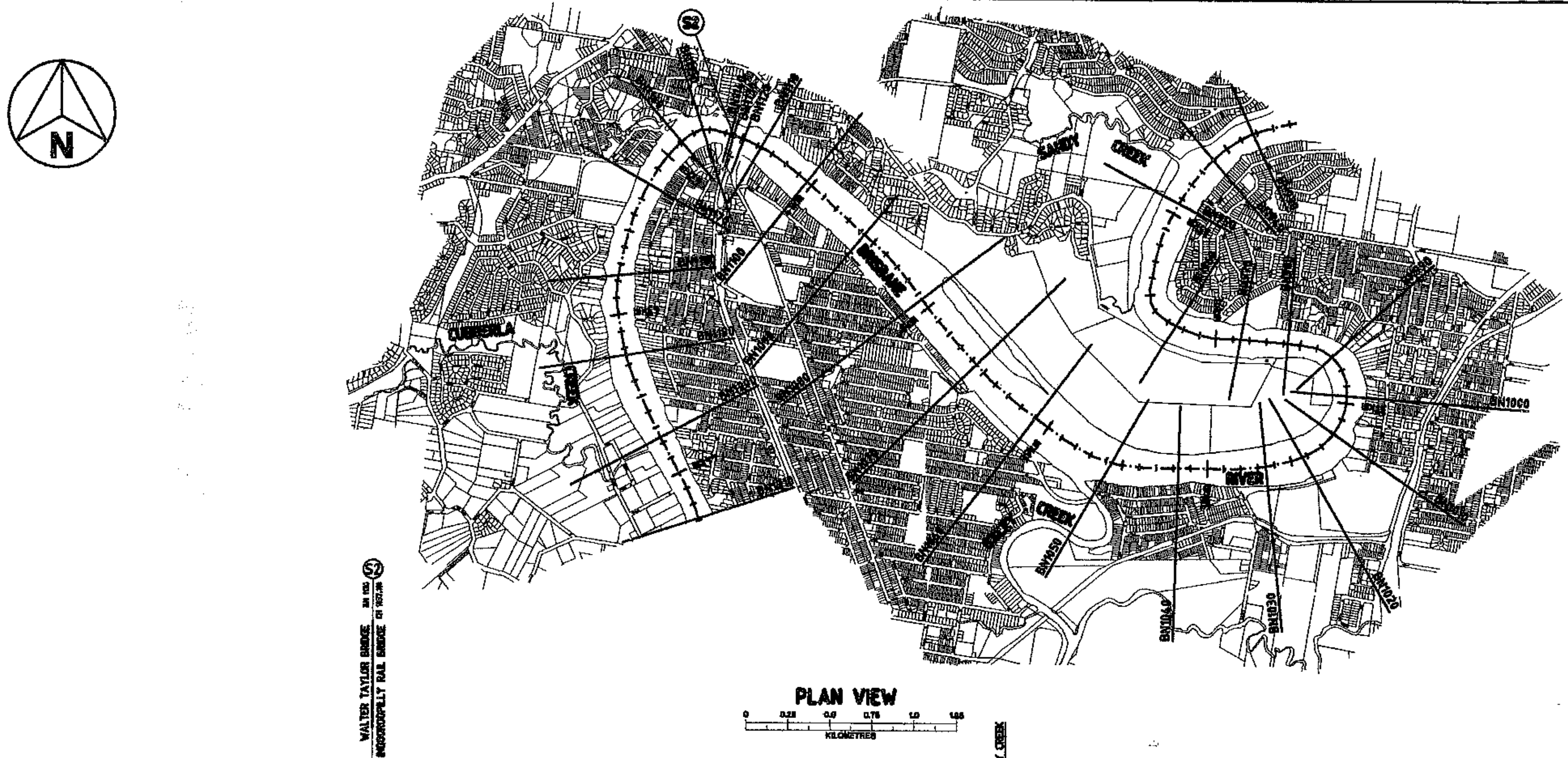
FILE NAME: 415? 2?4 DISK N: C:\DWG JOB N: T004157 DATE: 23/?/??
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE H-6e

BRISBANE RIVER FLOOD STUDY

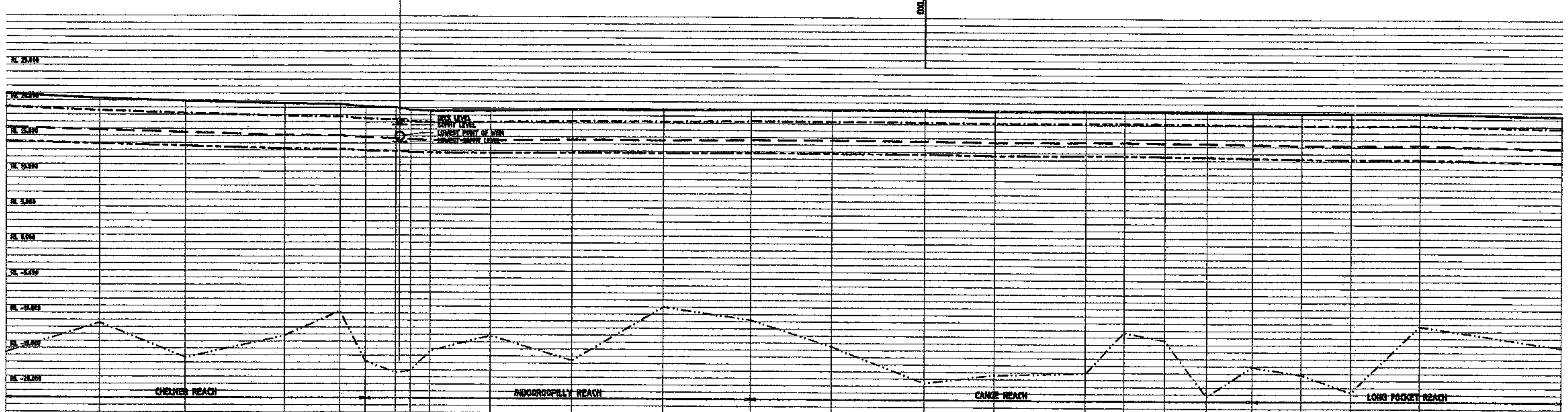
MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2000, 1000, 500, AND 200 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



PLAN VIEW

LEGEND

- AMTD LINE
- BN 1250 — SURVEYED CROSS SECTION
- (S16) LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000																									
200 YEAR ARI DESIGN FLOOD LEVEL	14.200	13.904	13.580	13.220	13.150	12.970	12.920	12.770	12.710	12.710	12.780	12.750	12.790	12.790	12.720	12.570	12.630	12.620	12.530	12.500	12.370	12.260	12.240	12.230	11.860
500 YEAR ARI DESIGN FLOOD LEVEL	16.590	15.850	15.500	15.110	15.060	14.810	14.770	14.540	14.470	14.440	14.480	14.570	14.640	14.630	14.560	14.430	14.580	14.580	14.440	14.410	14.380	14.210	14.200	14.230	13.850
1000 YEAR ARI DESIGN FLOOD LEVEL	19.060	18.510	18.280	17.860	17.770	17.445	17.350	17.100	17.010	17.040	17.220	17.190	17.290	17.280	17.220	17.130	17.150	17.190	17.150	17.090	17.050	16.980	16.940	17.030	16.650
2000 YEAR ARI DESIGN FLOOD LEVEL	20.870	20.390	19.910	19.610	19.500	19.150	19.100	18.720	18.580	18.660	18.860	18.930	18.940	18.930	18.890	18.810	18.860	18.860	18.820	18.770	18.740	18.680	18.730	18.740	18.410
BED LEVEL (m AHD)	-15.600	-11.650	-16.300	-13.200	-9.700	-16.800	-18.490	-16.900	-15.300	-13.400	-16.650	-9.800	-10.400	-14.500	-19.400	-18.640	-18.100	-12.300	-13.400	-21.380	-17.100	-18.280	-20.700	-11.300	-14.300
CROSS SECTION NUMBER	BN 1200	BN 1190	BN 1180	BN 1170	BN 1160	BN 1150	BN 1140	BN 1120	BN 1110	BN 1100	BN 1090	BN 1080	BN 1070	BN 1060	BN 1050	BN 1040	BN 1030	BN 1020	BN 1010	BN 1000	BN 990	BN 980	BN 970	BN 960	BN 950
MIKE 11 CHAINAGE (km)	1034.090	1035.414	1035.900	1036.460	1034.770	1034.975	1037.099	1037.115	1037.285	1037.625	1038.085	1038.600	1039.100	1039.565	1040.010	1040.490	1041.010	1041.230	1041.440	1041.700	1041.940	1042.235	1042.515	1042.910	1043.725
AMTD CHAINAGE (km)	43.770	43.144	42.760	42.340	41.880	41.745	41.570	41.485	41.375	41.035	40.575	40.060	39.560	39.450	38.530	38.170	37.560	37.430	37.200	36.960	36.700	36.425	36.145	35.750	34.935

BRISBANE RIVER - BN 1200 TO BN 950

LEGEND

- (S3) LOCATION AND IDENTIFICATION OF STRUCTURE
- 2000 YEAR ARI DESIGN FLOOD LEVEL
- 1000 YEAR ARI DESIGN FLOOD LEVEL
- 500 YEAR ARI DESIGN FLOOD LEVEL
- 200 YEAR ARI DESIGN FLOOD LEVEL
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

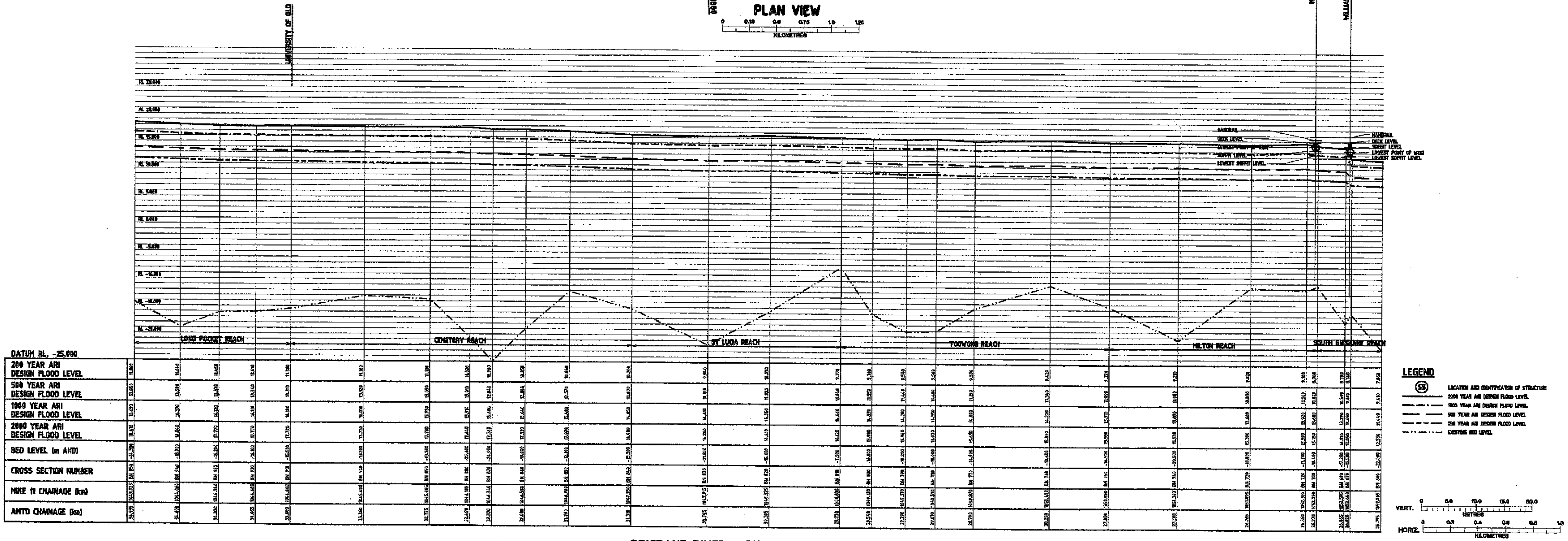
PLOT SCALE: 1=30

FIGURE H-6f

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2000, 1000, 500, AND 200 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS

PLAN VIEW



BRISBANE RIVER - BN 950 TO BN 660

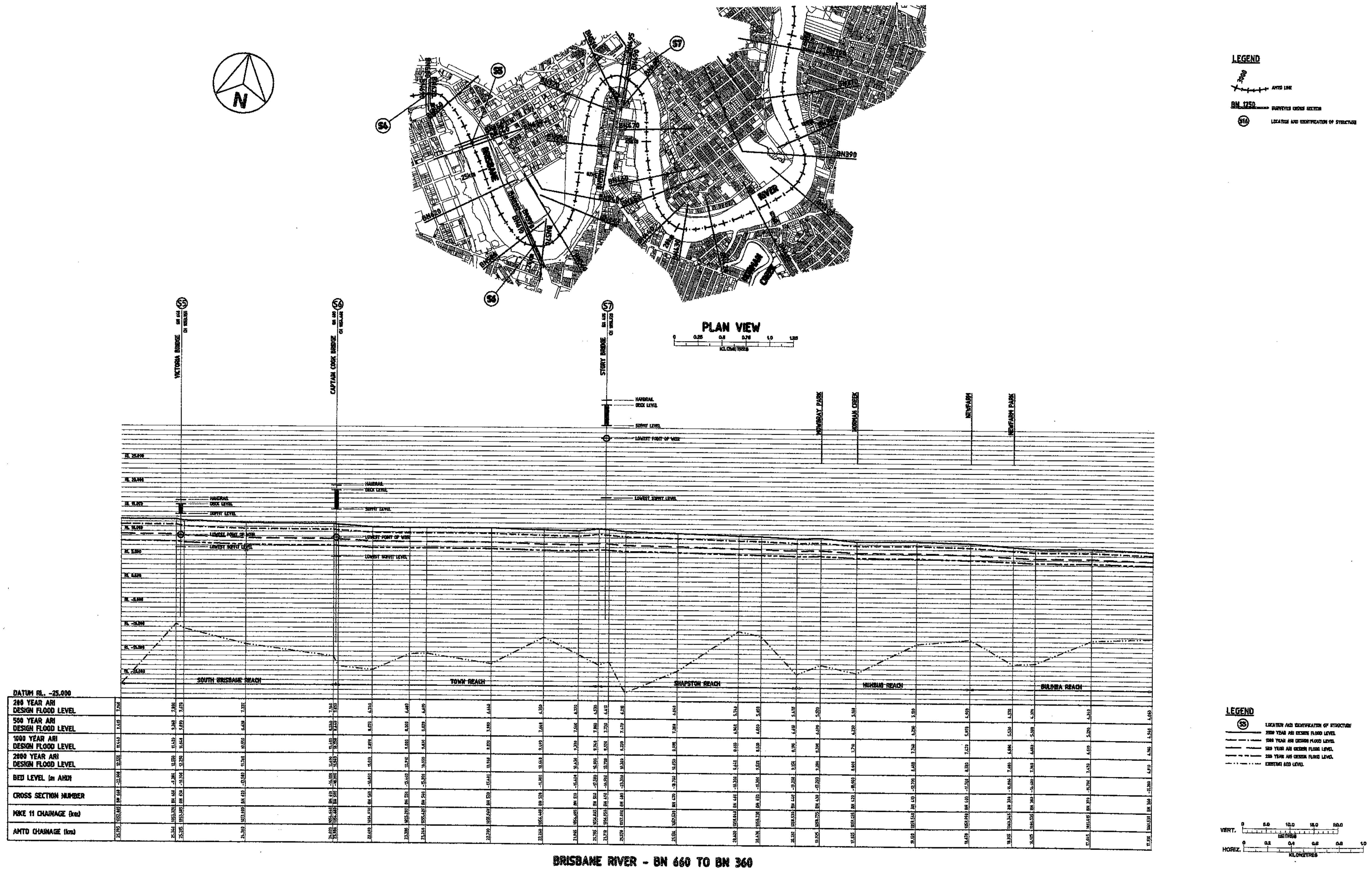
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE H-6g

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2000, 1000, 500, AND 200 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



BRISBANE RIVER - BN 660 TO BN 360

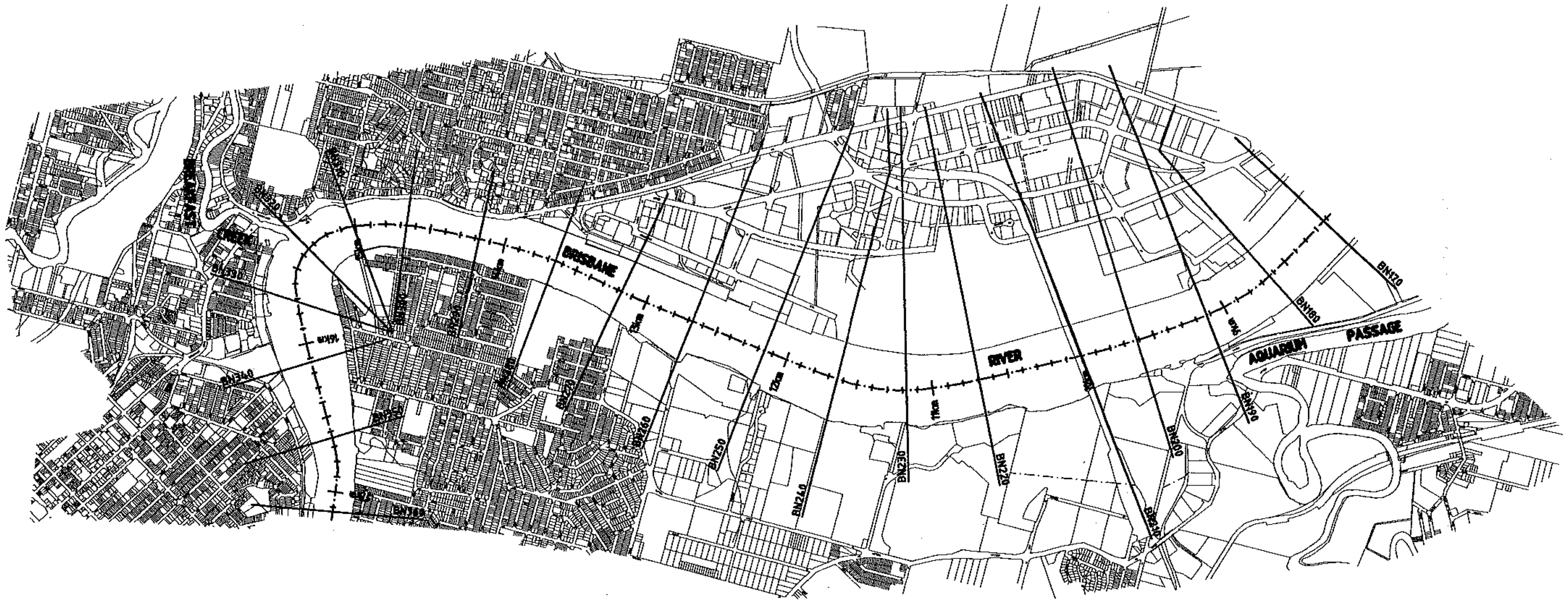
FILE NAME: 415-152 PLOT SCALE: 1=30 DISK Nº: CADWG JOB Nº: T00415 DATE: 23/3/97

SINCLAIR KNIGHT MERZ

FIGURE H-6h

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2000, 1000, 500, AND 200 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



LEGEND

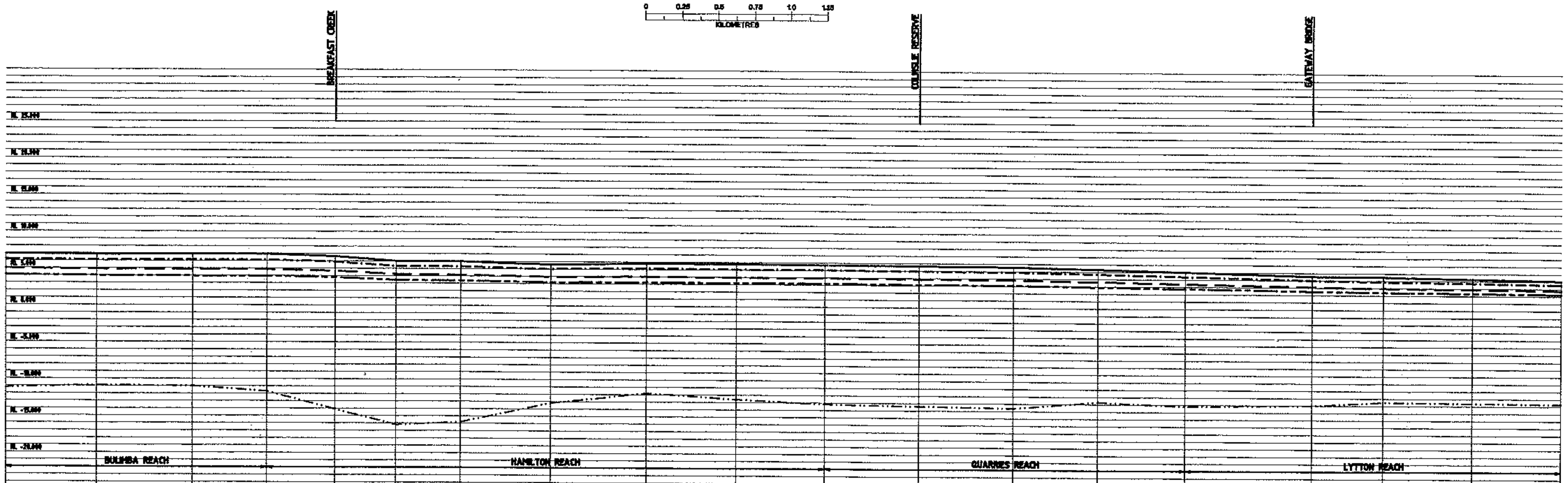
3000 — AMTD LINE

BN 1250 — SURVEYED CROSS SECTION

(S1) LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

200 YEAR ARI DESIGN FLOOD LEVEL	4.060	3.990	3.950	3.950	3.790	3.630	3.380	3.270	3.260	3.110	3.210	3.140	3.070	2.930	2.760	2.520	2.420	2.340	2.250
500 YEAR ARI DESIGN FLOOD LEVEL	4.940	4.870	4.850	4.850	4.650	4.270	4.160	3.940	4.030	3.940	3.950	3.850	3.790	3.630	3.410	3.100	2.970	2.880	2.750
1000 YEAR ARI DESIGN FLOOD LEVEL	6.180	6.120	6.130	6.140	5.890	5.320	5.290	5.410	5.150	5.050	5.050	4.940	4.860	4.660	4.490	4.000	3.860	3.720	3.540
2000 YEAR ARI DESIGN FLOOD LEVEL	6.710	6.930	6.900	6.920	6.630	5.980	5.950	5.630	5.810	5.760	5.720	5.640	5.530	5.330	5.410	4.540	4.510	4.280	4.170
BED LEVEL (m AHD)	-11.780	-10.980	-11.800	-11.700	-16.400	-16.280	-15.880	-13.280	-11.800	-12.480	-13.280	-13.480	-13.480	-12.780	-13.280	-13.080	-12.580	-12.480	-12.780
CROSS SECTION NUMBER	BN 360	BN 350	BN 340	BN 330	BN 320	BN 310	BN 300	BN 290	BN 280	BN 270	BN 260	BN 250	BN 240	BN 230	BN 220	BN 210	BN 200	BN 190	BN 180
MIKE 11 CHAINAGE (km)	1061.538	1062.020	1062.535	1062.940	1063.310	1063.445	1064.600	1064.470	1065.030	1065.583	1065.910	1066.595	1067.020	1067.405	1067.965	1068.640	1069.045	1069.535	1070.025
AMTD CHAINAGE (km)	17.130	16.660	16.135	15.720	15.350	15.075	14.660	14.170	13.650	13.157	12.670	12.155	11.660	11.175	10.695	10.000	9.435	9.135	8.635

BRISBANE RIVER - BN 360 TO BN 180

LEGEND

(S5) LOCATION AND IDENTIFICATION OF STRUCTURE
2000 YEAR ARI DESIGN FLOOD LEVEL
1000 YEAR ARI DESIGN FLOOD LEVEL
500 YEAR ARI DESIGN FLOOD LEVEL
200 YEAR ARI DESIGN FLOOD LEVEL
EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

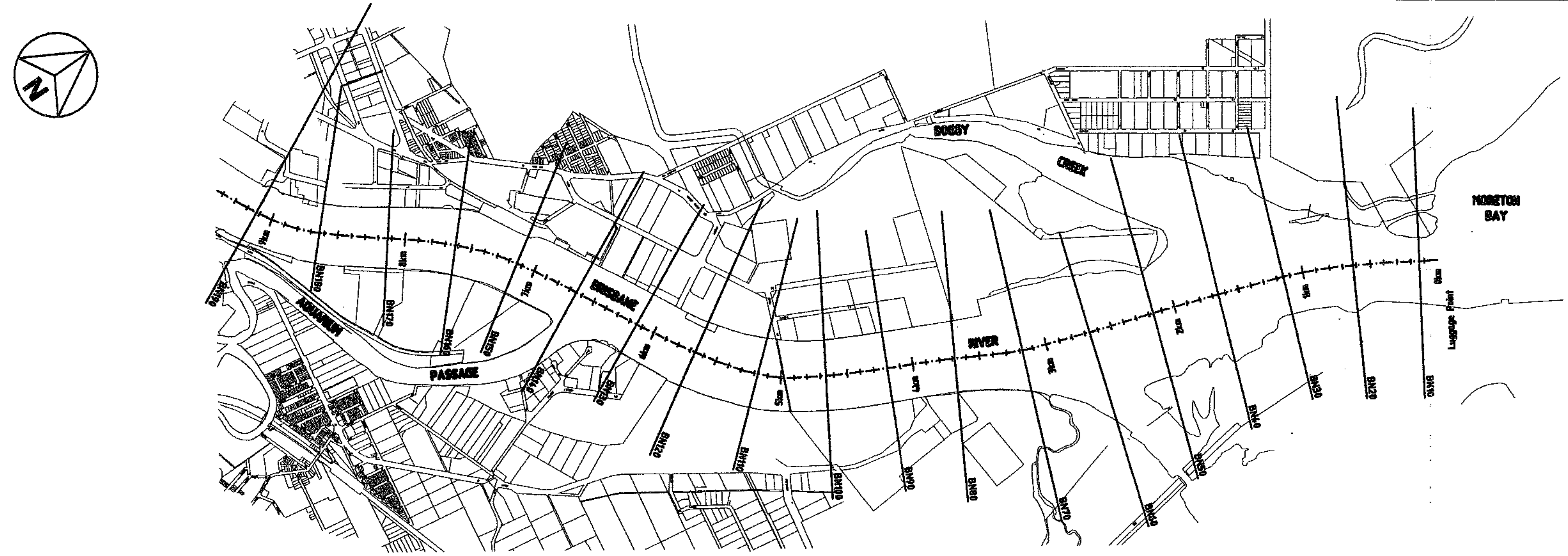
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE H-6i

BRISBANE RIVER FLOOD STUDY

MIKE 11 EXISTING DESIGN FLOOD PROFILES FOR THE 2000, 1000, 500, AND 200 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS



LEGEND

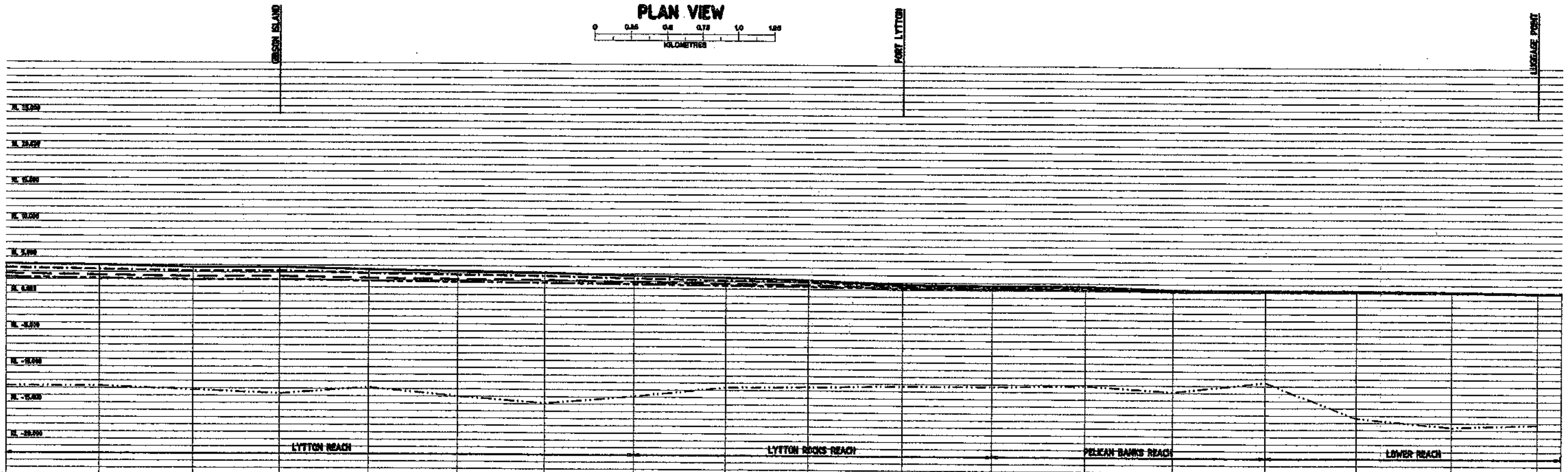
AMTD LINE

BN 1250 SURVEYED CROSS SECTION

LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

200 YEAR ARI DESIGN FLOOD LEVEL	2.258	2.110	1.998	2.440	1.880	1.798	1.738	1.850	1.480	1.318	1.588	1.140	1.150	0.940	0.990	1.008	0.970	0.920	0.920
500 YEAR ARI DESIGN FLOOD LEVEL	2.759	2.579	2.430	2.448	2.279	2.159	2.070	1.888	1.730	1.590	1.510	1.250	1.260	1.018	1.020	1.030	0.910	0.920	0.920
1000 YEAR ARI DESIGN FLOOD LEVEL	3.540	3.350	3.170	3.210	2.958	2.770	2.460	2.388	2.179	1.910	1.560	1.450	1.448	1.188	1.098	1.108	1.040	0.920	0.918
2000 YEAR ARI DESIGN FLOOD LEVEL	4.070	3.990	3.720	3.740	3.449	3.258	3.090	2.779	2.538	2.260	1.730	1.620	1.628	1.150	1.148	1.150	1.070	0.920	0.920
BED LEVEL (m AHD)	-12.780	-12.780	-13.380	-13.708	-12.400	-14.800	-14.900	-13.908	-12.400	-12.500	-12.300	-12.340	-12.900	-12.900	-11.550	-16.490	-17.400	-17.200	
CROSS SECTION NUMBER	BN 180	BN 170	BN 160	BN 150	BN 140	BN 130	BN 120	BN 110	BN 100	BN 90	BN 80	BN 70	BN 60	BN 50	BN 40	BN 30	BN 20	BN 10	-
MIKE 11 CHAINAGE (km)	1970.025	1970.530	1972.040	1971.520	1972.005	1972.505	1972.995	1973.445	1974.008	1974.460	1974.905	1975.430	1976.040	1976.495	1977.018	1977.510	1978.040	1978.525	1978.640
AMTD CHAINAGE (km)	8.635	8.130	7.620	7.140	6.645	6.145	5.665	5.175	4.640	4.200	3.675	3.180	2.640	2.185	1.650	1.150	0.620	0.135	0

BRISBANE RIVER - BN 180 TO BN 10

LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE

2000 YEAR ARI DESIGN FLOOD LEVEL

1000 YEAR ARI DESIGN FLOOD LEVEL

500 YEAR ARI DESIGN FLOOD LEVEL

200 YEAR ARI DESIGN FLOOD LEVEL

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

FILE NAME: 4157-154 DISK N°: ENDWG JOB N°: T00415? DATE: 23/3/?
PLOT SCALE: 1=30

Appendix I - HEC-RAS Hydraulic Model Results

Table I-1 - HEC-RAS Model Calibration

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	MIKE 11 100 YEAR ARI WL (m AHD)	HEC-RAS 100 YEAR ARI WL (m AHD)	100 YEAR ARI DIFFERENCE (m)	MIKE 11 10 YEAR ARI WL (m AHD)	HEC-RAS 10 YEAR ARI WL (m AHD)	10 YEAR ARI DIFFERENCE (m)
BRISBANE	1000	78.66	BN 2020		22.76	22.58	-0.18	7.25	7.14	-0.11
BRISBANE	1000.285	78.375	BN 2010		22.57	22.38	-0.19	7.16	7.04	-0.12
BRISBANE	1000.775	77.885	BN 2000		22.29	22.13	-0.16	7.00	6.91	-0.09
BRISBANE	1001.315	77.345	BN 1990		22.20	22.07	-0.13	6.86	6.77	-0.09
BRISBANE	1001.865	76.795	BN 1980		21.68	21.39	-0.29	6.64	6.51	-0.13
BRISBANE	1002.35	76.310	BN 1970		21.48	21.28	-0.20	6.42	6.33	-0.09
BRISBANE	1002.785	75.875	BN 1960		21.46	21.25	-0.21	6.34	6.25	-0.09
BRISBANE	1003.275	75.385	BN 1950		21.13	20.93	-0.20	6.16	6.08	-0.08
BRISBANE	1003.775	74.885	BN 1940		20.86	20.67	-0.19	5.97	5.89	-0.08
BRISBANE	1004.3	74.360	BN 1930		20.41	20.19	-0.22	5.75	5.65	-0.10
BRISBANE	1004.81	73.850	BN 1920		20.37	20.21	-0.16	5.63	5.53	-0.10
BRISBANE	1005.325	73.335	BN 1910		20.20	20.04	-0.16	5.47	5.35	-0.12
BRISBANE	1005.87	72.790	BN 1900		19.89	19.67	-0.22	5.25	5.09	-0.16
BRISBANE	1006.3	72.360	BN 1890	Moggill Gauge	19.72	19.55	-0.17	5.18	5.01	-0.17
BRISBANE	1006.91	71.750	BN 1880		19.51	19.38	-0.13	5.06	4.90	-0.16
BRISBANE	1007.41	71.250	BN 1870		19.48	19.34	-0.14	4.97	4.82	-0.15
BRISBANE	1007.92	70.740	BN 1860		19.19	18.99	-0.20	4.85	4.70	-0.15
BRISBANE	1008.445	70.215	BN 1850		19.02	18.89	-0.13	4.78	4.66	-0.12
BRISBANE	1008.925	69.735	BN 1840		18.96	18.85	-0.11	4.74	4.62	-0.12
BRISBANE	1009.4	69.260	BN 1830		18.86	18.74	-0.12	4.70	4.59	-0.11
BRISBANE	1009.72	68.940	BN 1820		18.85	18.72	-0.13	4.67	4.55	-0.12
BRISBANE	1010.49	68.170	BN 1810		18.50	18.39	-0.11	4.59	4.48	-0.11
BRISBANE	1010.725	67.935	BN 1800		18.52	18.37	-0.15	4.58	4.48	-0.10
BRISBANE	1010.98	67.680	BN 1790		18.44	18.34	-0.10	4.56	4.46	-0.10
BRISBANE	1011.51	67.150	BN 1780		18.43	18.33	-0.10	4.52	4.42	-0.10
BRISBANE	1011.98	66.680	BN 1770		18.43	18.30	-0.13	4.48	4.39	-0.09
BRISBANE	1012.475	66.185	BN 1760		18.33	18.21	-0.12	4.42	4.34	-0.08
BRISBANE	1012.935	65.725	BN 1750		18.22	18.15	-0.07	4.38	4.30	-0.08
BRISBANE	1013.445	65.215	BN 1740		18.14	18.07	-0.07	4.33	4.26	-0.07
BRISBANE	1013.91	64.750	BN 1730		18.08	18.06	-0.02	4.27	4.20	-0.07
BRISBANE	1014.31	64.350	BN 1720		18.05	17.99	-0.06	4.22	4.16	-0.06
BRISBANE	1014.61	64.050	BN 1710	Goodna Hospital Gauge	18.08	18.02	-0.06	4.18	4.13	-0.05
BRISBANE	1015.09	63.570	BN 1700		17.94	17.82	-0.12	4.17	4.12	-0.05
BRISBANE	1015.56	63.100	BN 1690		17.81	17.66	-0.15	4.13	4.08	-0.05
BRISBANE	1016.14	62.520	BN 1680		17.71	17.59	-0.12	4.09	4.04	-0.05
BRISBANE	1016.64	62.020	BN 1670		17.62	17.60	-0.02	4.01	3.97	-0.04
BRISBANE	1017.13	61.530	BN 1660		17.39	17.31	-0.08	3.87	3.81	-0.06
BRISBANE	1017.61	61.050	BN 1650		17.26	17.17	-0.09	3.77	3.72	-0.05
BRISBANE	1017.92	60.740	BN 1640		17.10	17.02	-0.08	3.69	3.66	-0.03
BRISBANE	1018.2	60.460	BN 1630		17.02	16.98	-0.04	3.67	3.63	-0.04
BRISBANE	1018.725	59.935	BN 1620		16.69	16.61	-0.08	3.60	3.55	-0.05
BRISBANE	1019.095	59.565	BN 1610		16.56	16.53	-0.03	3.54	3.50	-0.04
BRISBANE	1019.49	59.170	BN 1600		16.45	16.46	0.01	3.48	3.45	-0.03
BRISBANE	1019.865	58.795	BN 1590		16.15	16.14	-0.01	3.43	3.38	-0.05
BRISBANE	1020.115	58.545	BN 1580		16.25	16.21	-0.04	3.40	3.35	-0.05
BRISBANE	1020.525	58.135	BN 1570		16.22	16.20	-0.02	3.36	3.32	-0.04
BRISBANE	1020.83	57.830	BN 1560		16.07	16.03	-0.04	3.32	3.29	-0.03
BRISBANE	1021.095	57.565	BN 1550		15.86	15.79	-0.07	3.27	3.23	-0.04
BRISBANE	1021.539	57.121	BN 1540		15.69	15.66	-0.03	3.19	3.17	-0.02
BRISBANE	1021.715	56.945	BN 1530		15.72	15.66	-0.06	3.17	3.14	-0.03
BRISBANE	1021.895	56.765	BN 1520		15.65	15.61	-0.04	3.15	3.12	-0.03
BRISBANE	1022.105	56.555	BN 1510		15.53	15.49	-0.04	3.15	3.11	-0.04
BRISBANE	1022.575	56.085	BN 1500		15.45	15.43	-0.02	3.10	3.06	-0.04
BRISBANE	1023.04	55.620	BN 1490		15.21	15.12	-0.09	3.07	3.01	-0.06
BRISBANE	1023.57	55.090	BN 1480		15.12	15.05	-0.07	3.05	2.98	-0.07
BRISBANE	1024.08	54.580	BN 1470		15.07	14.98	-0.09	3.02	2.94	-0.08
BRISBANE	1024.563	54.097	BN 1460		15.01	14.95	-0.06	2.97	2.90	-0.07
BRISBANE	1025.07	53.590	BN 1450		14.91	14.87	-0.04	2.93	2.86	-0.07
BRISBANE	1025.36	53.300	BN 1440		14.77	14.70	-0.07	2.89	2.82	-0.07
BRISBANE	1025.59	53.070	BN 1430		14.61	14.53	-0.08	2.85	2.78	-0.07
BRISBANE	1026.17	52.490	BN 1420		14.48	14.43	-0.05	2.83	2.74	-0.09
BRISBANE	1026.68	51.980	BN 1410	Mt Ommaney Gauge	14.38	14.32	-0.06	2.78	2.69	-0.09
BRISBANE	1026.9	51.760	BN 1400		14.25	14.20	-0.05	2.75	2.67	-0.08
BRISBANE	1027.16	51.500	BN 1390		14.11	14.08	-0.03	2.73	2.65	-0.08
BRISBANE	1027.68	50.980	BN 1380		14.17	14.15	-0.02	2.71	2.63	-0.08
BRISBANE	1028.18	50.480	BN 1370		14.19	14.15	-0.04	2.70	2.62	-0.08
BRISBANE	1028.68	49.980	BN 1360		14.06	14.01	-0.05	2.67	2.60	-0.07
BRISBANE	1028.72	49.940	BN1350	Centenary Bridge						
BRISBANE	1028.76	49.900	BN 1340		13.91	13.96	0.05	2.63	2.58	-0.05
BRISBANE	1029.2	49.460	BN 1330		13.80	13.82	0.02	2.60	2.56	-0.04
BRISBANE	1029.68	48.980	BN 1320		13.82	13.81	-0.01	2.60	2.55	-0.05
BRISBANE	1030.22	48.440	BN 1310		13.82	13.85	0.03	2.58	2.54	-0.04
BRISBANE	1030.87	47.790	BN 1300		13.75	13.80	0.05	2.56	2.52	-0.04
BRISBANE	1031.26	47.400	BN 1290		13.59	13.64	0.05	2.54	2.50	-0.04
BRISBANE	1031.7	46.960	BN 1280	Darra Wharf Gauge	13.21	13.27	0.06	2.47	2.44	-0.03
BRISBANE	1031.995	46.665	BN 1270		13.31	13.28	-0.03	2.44	2.40	-0.04

BCC.121.0290

Table I-1 - HEC-RAS Model Calibration

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	MIKE 11 100 YEAR ARI WL (m AHD)	HEC-RAS 100 YEAR ARI WL (m AHD)	100 YEAR ARI DIFFERENCE (m)	MIKE 11 10 YEAR ARI WL (m AHD)	HEC-RAS 10 YEAR ARI WL (m AHD)	10 YEAR ARI DIFFERENCE (m)
BRISBANE	1032.23	46.430	BN 1260		13.18	13.21	0.03	2.41	2.38	-0.03
BRISBANE	1032.585	46.075	BN 1250		12.94	12.97	0.03	2.37	2.34	-0.03
BRISBANE	1033.08	45.580	BN 1240		12.79	12.84	0.05	2.34	2.31	-0.03
BRISBANE	1033.37	45.290	BN 1230		12.68	12.76	0.08	2.31	2.28	-0.03
BRISBANE	1033.9	44.760	BN 1220		12.45	12.55	0.10	2.28	2.24	-0.04
BRISBANE	1034.37	44.290	BN 1210		12.29	12.42	0.13	2.25	2.22	-0.03
BRISBANE	1034.89	43.770	BN 1200	Sherwood Gauge	12.19	12.31	0.12	2.22	2.19	-0.03
BRISBANE	1035.414	43.246	BN 1190		11.94	12.11	0.17	2.16	2.14	-0.02
BRISBANE	1035.9	42.760	BN 1180		11.65	11.80	0.15	2.10	2.08	-0.02
BRISBANE	1036.46	42.200	BN 1170		11.35	11.58	0.23	2.05	2.03	-0.02
BRISBANE	1036.77	41.890	BN 1160		11.28	11.52	0.24	2.02	1.99	-0.03
BRISBANE	1036.915	41.745	BN 1150		11.12	11.37	0.25	2.00	1.98	-0.02
BRISBANE	1037.09	41.570	BN 1140		11.07	11.18	0.11	2.00	1.96	-0.04
BRISBANE	1037.11	41.550	BN 1130	Indooroopilly Bridge						
BRISBANE	1037.175	41.485	BN 1120		10.98	11.08	0.10	1.94	1.95	0.01
BRISBANE	1037.285	41.375	BN 1110	Clarence Road Gauge	10.93	11.10	0.17	1.93	1.95	0.02
BRISBANE	1037.625	41.035	BN 1100		10.91	11.07	0.16	1.91	1.93	0.02
BRISBANE	1038.085	40.575	BN 1090		10.93	11.08	0.15	1.90	1.93	0.03
BRISBANE	1038.6	40.060	BN 1080		10.91	11.07	0.16	1.88	1.90	0.02
BRISBANE	1039.1	39.560	BN 1070		10.90	11.05	0.15	1.86	1.89	0.03
BRISBANE	1039.565	39.095	BN 1060	Oxley Creek Gauge	10.92	11.04	0.12	1.85	1.88	0.03
BRISBANE	1040.09	38.570	BN 1050	King Authur Terrace Gauge	10.84	10.99	0.15	1.86	1.88	0.02
BRISBANE	1040.49	38.170	BN 1040		10.71	10.81	0.10	1.84	1.86	0.02
BRISBANE	1041.01	37.650	BN 1030		10.74	10.84	0.10	1.84	1.86	0.02
BRISBANE	1041.23	37.430	BN 1020		10.71	10.80	0.09	1.83	1.85	0.02
BRISBANE	1041.46	37.200	BN 1010	Tennyson Power House Gaug	10.62	10.71	0.09	1.81	1.84	0.03
BRISBANE	1041.7	36.960	BN 1000		10.59	10.68	0.09	1.81	1.83	0.02
BRISBANE	1041.96	36.700	BN 990	Yeronga Street Gauge	10.45	10.49	0.04	1.79	1.81	0.02
BRISBANE	1042.235	36.425	BN 980		10.30	10.26	-0.04	1.77	1.79	0.02
BRISBANE	1042.515	36.145	BN 970		10.29	10.20	-0.09	1.77	1.78	0.01
BRISBANE	1042.91	35.750	BN 960		10.22	10.03	-0.19	1.74	1.75	0.01
BRISBANE	1043.725	34.935	BN 950		9.91	9.80	-0.11	1.67	1.70	0.03
BRISBANE	1044.06	34.600	BN 940	Sandy Creek Gauge	9.75	9.70	-0.05	1.66	1.69	0.03
BRISBANE	1044.34	34.320	BN 930		9.58	9.52	-0.06	1.64	1.66	0.02
BRISBANE	1044.605	34.055	BN 920		9.53	9.44	-0.09	1.63	1.65	0.02
BRISBANE	1044.86	33.800	BN 910		9.49	9.37	-0.12	1.61	1.64	0.03
BRISBANE	1045.4	33.260	BN 900		9.31	9.22	-0.09	1.58	1.60	0.02
BRISBANE	1045.885	32.775	BN 890		9.17	9.05	-0.12	1.54	1.56	0.02
BRISBANE	1046.18	32.480	BN 880		9.09	8.99	-0.10	1.54	1.56	0.02
BRISBANE	1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	9.02	8.92	-0.10	1.53	1.55	0.02
BRISBANE	1046.58	32.080	BN 860		8.97	8.88	-0.09	1.53	1.55	0.02
BRISBANE	1046.9	31.760	BN 850		8.78	8.69	-0.09	1.50	1.52	0.02
BRISBANE	1047.35	31.310	BN 840		8.41	8.34	-0.07	1.46	1.48	0.02
BRISBANE	1047.915	30.745	BN 830	Highgate Hill Gauge	8.17	8.17	0.00	1.43	1.46	0.03
BRISBANE	1048.375	30.285	BN 820		8.23	8.22	-0.01	1.43	1.46	0.03
BRISBANE	1048.89	29.770	BN 810	St Lucia Ferry Gauge	8.00	8.00	0.00	1.40	1.42	0.02
BRISBANE	1049.12	29.540	BN 800		7.94	7.96	0.02	1.39	1.42	0.03
BRISBANE	1049.37	29.290	BN 790		7.75	7.77	0.02	1.37	1.40	0.03
BRISBANE	1049.59	29.070	BN 780		7.74	7.75	0.01	1.37	1.40	0.03
BRISBANE	1049.87	28.790	BN 770		7.63	7.66	0.03	1.36	1.39	0.03
BRISBANE	1050.43	28.230	BN 760		7.61	7.62	0.01	1.35	1.37	0.02
BRISBANE	1050.86	27.800	BN 750		7.46	7.50	0.04	1.34	1.36	0.02
BRISBANE	1051.36	27.300	BN 740		7.46	7.49	0.03	1.34	1.36	0.02
BRISBANE	1051.895	26.765	BN 730		7.30	7.29	-0.01	1.31	1.34	0.03
BRISBANE	1052.31	26.350	BN 720		7.40	7.27	-0.13	1.32	1.33	0.01
BRISBANE	1052.37	26.290	BN 710	Merivale Bridge						
BRISBANE	1052.39	26.270	BN 700		7.23	7.11	-0.12	1.30	1.32	0.02
BRISBANE	1052.595	26.065	BN 690		7.14	7.04	-0.10	1.30	1.31	0.01
BRISBANE	1052.607	26.053	BN 680	William Jolly Bridge						
BRISBANE	1052.64	26.020	BN 670		6.63	6.49	-0.14	1.28	1.28	0.00
BRISBANE	1052.865	25.795	BN 660	Montague Road Gauge	6.49	6.38	-0.11	1.28	1.27	-0.01
BRISBANE	1053.32	25.340	BN 650		6.42	6.21	-0.21	1.26	1.25	-0.01
BRISBANE	1053.356	25.304	BN 640	Victoria Bridge						
BRISBANE	1053.385	25.275	BN630		6.24	6.13	-0.11	1.24	1.23	-0.01
BRISBANE	1053.9	24.760	BN 620		5.85	5.79	-0.06	1.20	1.19	-0.01
BRISBANE	1054.64	24.020	BN 610		5.78	5.70	-0.08	1.19	1.18	-0.01
BRISBANE	1054.66	24.000	BN 600	Captain Cook Bridge						
BRISBANE	1054.68	23.980	BN 590		5.70	5.61	-0.09	1.18	1.17	-0.01
BRISBANE	1054.97	23.690	BN 560		5.45	5.29	-0.16	1.16	1.15	-0.01
BRISBANE	1055.28	23.380	BN 550		5.40	5.28	-0.12	1.16	1.15	-0.01
BRISBANE	1055.42	23.240	BN 540		5.40	5.27	-0.13	1.16	1.15	-0.01
BRISBANE	1055.96	22.700	BN 530	Port Office Gauge	5.34	5.27	-0.07	1.15	1.15	0.00
BRISBANE	1056.4	22.260	BN 520		5.09	5.06	-0.03	1.13	1.13	0.00
BRISBANE	1056.695	21.965	BN 510		5.03	5.05	0.02	1.13	1.13	0.00
BRISBANE	1056.865	21.795	BN 500		5.22	4.99	-0.23	1.14	1.13	-0.01
BRISBANE	1056.92	21.740	BN 495	Story Bridge						

Table I-1 - HEC-RAS Model Calibration

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	MIKE 11 100 YEAR ARI WL (m AHD)	HEC-RAS 100 YEAR ARI WL (m AHD)	100 YEAR ARI DIFFERENCE (m)	MIKE 11 10 YEAR ARI WL (m AHD)	HEC-RAS 10 YEAR ARI WL (m AHD)	10 YEAR ARI DIFFERENCE (m)
BRISBANE	1056.95	21.710	BN 490		5.12	4.96	-0.16	1.13	1.13	0.00
BRISBANE	1057.09	21.570	BN 480		4.97	4.90	-0.07	1.12	1.12	0.00
BRISBANE	1057.53	21.130	BN 470		4.83	4.77	-0.06	1.12	1.11	-0.01
BRISBANE	1058.04	20.620	BN 460		4.58	4.52	-0.06	1.10	1.10	0.00
BRISBANE	1058.23	20.430	BN 450		4.50	4.45	-0.05	1.09	1.09	0.00
BRISBANE	1058.53	20.130	BN 440		4.37	4.33	-0.04	1.09	1.08	-0.01
BRISBANE	1058.735	19.925	BN 430		4.41	4.32	-0.09	1.09	1.08	-0.01
BRISBANE	1059.035	19.625	BN 420		4.13	4.07	-0.06	1.07	1.07	0.00
BRISBANE	1059.54	19.120	BN 410		4.09	4.02	-0.07	1.07	1.06	-0.01
BRISBANE	1059.99	18.670	BN 400		3.88	3.86	-0.02	1.05	1.05	0.00
BRISBANE	1060.345	18.315	BN 390		3.65	3.63	-0.02	1.04	1.04	0.00
BRISBANE	1060.535	18.125	BN 380		3.50	3.49	-0.01	1.03	1.03	0.00
BRISBANE	1061.015	17.645	BN 370		3.45	3.45	0.00	1.03	1.03	0.00
BRISBANE	1061.53	17.130	BN 360		3.24	3.25	0.01	1.02	1.02	0.00
BRISBANE	1062.02	16.640	BN 350		3.16	3.19	0.03	1.01	1.01	0.00
BRISBANE	1062.535	16.125	BN 340		3.12	3.15	0.03	1.01	1.01	0.00
BRISBANE	1062.94	15.720	BN 330		3.11	3.15	0.04	1.01	1.01	0.00
BRISBANE	1063.31	15.350	BN 320	Newstead Park Gauge	2.99	3.04	0.05	1.00	1.00	0.00
BRISBANE	1063.645	15.015	BN 310	Cresent Road Gauge	2.72	2.70	-0.02	0.99	0.99	0.00
BRISBANE	1064	14.660	BN 300		2.68	2.68	0.00	0.99	0.99	0.00
BRISBANE	1064.49	14.170	BN 290		2.55	2.56	0.01	0.98	0.98	0.00
BRISBANE	1065.01	13.650	BN 280		2.57	2.58	0.01	0.98	0.98	0.00
BRISBANE	1065.503	13.157	BN 270		2.53	2.56	0.03	0.98	0.98	0.00
BRISBANE	1065.99	12.670	BN 260	Cairncross Dock Gauge	2.54	2.56	0.02	0.98	0.98	0.00
BRISBANE	1066.505	12.155	BN 250		2.46	2.48	0.02	0.98	0.98	0.00
BRISBANE	1067.02	11.640	BN 240		2.43	2.45	0.02	0.98	0.98	0.00
BRISBANE	1067.485	11.175	BN 230		2.32	2.34	0.02	0.97	0.97	0.00
BRISBANE	1067.965	10.695	BN 220		2.20	2.23	0.03	0.97	0.97	0.00
BRISBANE	1068.66	10.000	BN 210		2.02	2.05	0.03	0.96	0.96	0.00
BRISBANE	1069.045	9.615	BN 200		1.95	1.98	0.03	0.96	0.96	0.00
BRISBANE	1069.535	9.125	BN 190	Bulimba Power House Gauge	1.89	1.92	0.03	0.95	0.95	0.00
BRISBANE	1070.025	8.635	BN 180		1.82	1.87	0.05	0.95	0.95	0.00
BRISBANE	1070.53	8.130	BN 170		1.72	1.78	0.06	0.95	0.95	0.00
BRISBANE	1071.04	7.620	BN 160		1.64	1.71	0.07	0.94	0.94	0.00
BRISBANE	1071.52	7.140	BN 150		1.67	1.73	0.06	0.94	0.95	0.01
BRISBANE	1072.015	6.645	BN 140		1.56	1.62	0.06	0.94	0.94	0.00
BRISBANE	1072.515	6.145	BN 130		1.50	1.57	0.07	0.94	0.94	0.00
BRISBANE	1072.995	5.665	BN 120		1.46	1.53	0.07	0.94	0.94	0.00
BRISBANE	1073.485	5.175	BN 110		1.36	1.44	0.08	0.93	0.93	0.00
BRISBANE	1074	4.660	BN 100		1.29	1.38	0.09	0.93	0.93	0.00
BRISBANE	1074.46	4.200	BN 90		1.22	1.32	0.10	0.93	0.93	0.00
BRISBANE	1074.985	3.675	BN 80		1.09	1.19	0.10	0.93	0.93	0.00
BRISBANE	1075.48	3.180	BN 70		1.06	1.14	0.08	0.92	0.92	0.00
BRISBANE	1076	2.660	BN 60		1.07	1.15	0.08	0.92	0.92	0.00
BRISBANE	1076.495	2.165	BN 50		0.96	1.04	0.08	0.92	0.92	0.00
BRISBANE	1077.01	1.650	BN 40		0.96	1.02	0.06	0.92	0.92	0.00
BRISBANE	1077.51	1.150	BN 30		0.97	1.03	0.06	0.92	0.92	0.00
BRISBANE	1078.04	0.620	BN 20		0.95	1.01	0.06	0.92	0.92	0.00
BRISBANE	1078.525	0.135	BN 10		0.92	0.92	0.00	0.92	0.92	0.00
BRISBANE	1078.66	0.000	-	Western Inner Bar Gauge	0.92	0.92	0.00	0.92	0.92	0.00

Table I-2 - Comparison of MIKE 11 & HEC-RAS Mannings n Roughness

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	MIKE 11 MANNINGS COEFFICIENT CHANNEL	HEC-RAS MANNINGS COEFFICIENT CHANNEL	RATIO CHANNEL	MIKE 11 MANNINGS COEFFICIENT BANKS	HEC-RAS MANNINGS COEFFICIENT BANKS	RATIO BANKS
BRISBANE	1000	78.66	BN 2020		0.075	0.0637	0.85	0.180	0.153	0.85
BRISBANE	1000.285	78.375	BN 2010		0.075	0.0637	0.85	0.158	0.134	0.85
BRISBANE	1000.775	77.885	BN 2000		0.070	0.0595	0.85	0.147	0.125	0.85
BRISBANE	1001.315	77.345	BN 1990		0.070	0.0595	0.85	0.147	0.125	0.85
BRISBANE	1001.865	76.795	BN 1980		0.070	0.0595	0.85	0.175	0.149	0.85
BRISBANE	1002.35	76.310	BN 1970		0.065	0.0552	0.85	0.104	0.088	0.85
BRISBANE	1002.785	75.875	BN 1960		0.065	0.0552	0.85	0.104	0.088	0.85
BRISBANE	1003.275	75.385	BN 1950		0.075	0.0637	0.85	0.120	0.102	0.85
BRISBANE	1003.775	74.885	BN 1940		0.075	0.0637	0.85	0.150	0.128	0.85
BRISBANE	1004.3	74.360	BN 1930		0.075	0.0637	0.85	0.150	0.128	0.85
BRISBANE	1004.81	73.850	BN 1920		0.075	0.0637	0.85	0.150	0.128	0.85
BRISBANE	1005.325	73.335	BN 1910		0.070	0.0595	0.85	0.168	0.143	0.85
BRISBANE	1005.87	72.790	BN 1900		0.075	0.0637	0.85	0.180	0.153	0.85
BRISBANE	1006.3	72.360	BN 1890	Moggill Gauge	0.075	0.0637	0.85	0.180	0.153	0.85
BRISBANE	1006.91	71.750	BN 1880		0.075	0.0637	0.85	0.180	0.153	0.85
BRISBANE	1007.41	71.250	BN 1870		0.050	0.0425	0.85	0.120	0.102	0.85
BRISBANE	1007.92	70.740	BN 1860		0.070	0.0595	0.85	0.210	0.179	0.85
BRISBANE	1008.445	70.215	BN 1850		0.050	0.0425	0.85	0.165	0.140	0.85
BRISBANE	1008.925	69.735	BN 1840		0.050	0.0425	0.85	0.170	0.145	0.85
BRISBANE	1009.4	69.260	BN 1830		0.050	0.0425	0.85	0.170	0.145	0.85
BRISBANE	1009.72	68.940	BN 1820		0.050	0.0425	0.85	0.170	0.145	0.85
BRISBANE	1010.49	68.170	BN 1810		0.050	0.0425	0.85	0.170	0.145	0.85
BRISBANE	1010.725	67.935	BN 1800		0.050	0.0425	0.85	0.170	0.145	0.85
BRISBANE	1010.98	67.680	BN 1790		0.050	0.0425	0.85	0.170	0.145	0.85
BRISBANE	1011.51	67.150	BN 1780		0.050	0.0425	0.85	0.170	0.145	0.85
BRISBANE	1011.98	66.680	BN 1770		0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1012.475	66.185	BN 1760		0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1012.935	65.725	BN 1750		0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1013.445	65.215	BN 1740		0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1013.91	64.750	BN 1730		0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1014.31	64.350	BN 1720		0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1014.61	64.050	BN 1710	Goodna Hospital Gauge	0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1015.09	63.570	BN 1700		0.055	0.0467	0.85	0.165	0.140	0.85
BRISBANE	1015.56	63.100	BN 1690		0.055	0.0467	0.85	0.143	0.122	0.85
BRISBANE	1016.14	62.520	BN 1680		0.055	0.0467	0.85	0.176	0.150	0.85
BRISBANE	1016.64	62.020	BN 1670		0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1017.13	61.530	BN 1660		0.070	0.0595	0.85	0.238	0.202	0.85
BRISBANE	1017.61	61.050	BN 1650		0.070	0.0595	0.85	0.238	0.202	0.85
BRISBANE	1017.92	60.740	BN 1640		0.070	0.0595	0.85	0.238	0.202	0.85
BRISBANE	1018.2	60.460	BN 1630		0.075	0.0637	0.85	0.255	0.217	0.85
BRISBANE	1018.725	59.935	BN 1620		0.075	0.0637	0.85	0.255	0.217	0.85
BRISBANE	1019.095	59.565	BN 1610		0.075	0.0637	0.85	0.255	0.217	0.85
BRISBANE	1019.49	59.170	BN 1600		0.075	0.0637	0.85	0.255	0.217	0.85
BRISBANE	1019.865	58.795	BN 1590		0.075	0.0637	0.85	0.255	0.217	0.85
BRISBANE	1020.115	58.545	BN 1580		0.075	0.0637	0.85	0.255	0.217	0.85
BRISBANE	1020.525	58.135	BN 1570		0.075	0.0637	0.85	0.203	0.173	0.85
BRISBANE	1020.83	57.830	BN 1560		0.075	0.0637	0.85	0.195	0.166	0.85
BRISBANE	1021.095	57.565	BN 1550		0.075	0.0637	0.85	0.195	0.166	0.85
BRISBANE	1021.539	57.121	BN 1540		0.070	0.0595	0.85	0.182	0.155	0.85
BRISBANE	1021.715	56.945	BN 1530		0.070	0.0595	0.85	0.182	0.155	0.85
BRISBANE	1021.895	56.765	BN 1520		0.070	0.0595	0.85	0.182	0.155	0.85
BRISBANE	1022.105	56.555	BN 1510		0.070	0.0595	0.85	0.182	0.155	0.85
BRISBANE	1022.575	56.085	BN 1500		0.045	0.0382	0.85	0.090	0.077	0.85
BRISBANE	1023.04	55.620	BN 1490		0.045	0.0382	0.85	0.099	0.084	0.85
BRISBANE	1023.57	55.090	BN 1480		0.045	0.0382	0.85	0.117	0.100	0.85
BRISBANE	1024.08	54.580	BN 1470		0.045	0.0382	0.85	0.117	0.100	0.85
BRISBANE	1024.563	54.097	BN 1460		0.055	0.0467	0.85	0.143	0.122	0.85
BRISBANE	1025.07	53.590	BN 1450		0.055	0.0467	0.85	0.143	0.122	0.85
BRISBANE	1025.36	53.300	BN 1440		0.055	0.0467	0.85	0.143	0.122	0.85
BRISBANE	1025.59	53.070	BN 1430		0.055	0.0467	0.85	0.110	0.094	0.85
BRISBANE	1026.17	52.490	BN 1420		0.055	0.0467	0.85	0.143	0.122	0.85
BRISBANE	1026.68	51.980	BN 1410	Mt Ommaney Gauge	0.055	0.0467	0.85	0.143	0.122	0.85
BRISBANE	1026.9	51.760	BN 1400		0.055	0.0467	0.85	0.143	0.122	0.85
BRISBANE	1027.16	51.500	BN 1390		0.055	0.0467	0.85	0.143	0.122	0.85
BRISBANE	1027.68	50.980	BN 1380		0.030	0.0255	0.85	0.078	0.066	0.85
BRISBANE	1028.18	50.480	BN 1370		0.030	0.0255	0.85	0.078	0.066	0.85
BRISBANE	1028.68	49.980	BN 1360		0.030	0.0255	0.85	0.078	0.066	0.85
BRISBANE	1028.72	49.940	BN1350	Centenary Bridge						
BRISBANE	1028.76	49.900	BN 1340		0.035	0.0297	0.85	0.091	0.077	0.85
BRISBANE	1029.2	49.460	BN 1330		0.035	0.0297	0.85	0.098	0.083	0.85
BRISBANE	1029.68	48.980	BN 1320		0.030	0.0255	0.85	0.090	0.077	0.85
BRISBANE	1030.22	48.440	BN 1310		0.030	0.0255	0.85	0.114	0.097	0.85
BRISBANE	1030.87	47.790	BN 1300		0.030	0.0255	0.85	0.117	0.100	0.85
BRISBANE	1031.26	47.400	BN 1290		0.050	0.0425	0.85	0.200	0.170	0.85
BRISBANE	1031.7	46.960	BN 1280	Darra Wharf Gauge	0.075	0.0637	0.85	0.315	0.268	0.85
BRISBANE	1031.995	46.665	BN 1270		0.075	0.0637	0.85	0.330	0.281	0.85
BRISBANE	1032.23	46.430	BN 1260		0.065	0.0552	0.85	0.286	0.243	0.85
BRISBANE	1032.585	46.075	BN 1250		0.075	0.0637	0.85	0.330	0.281	0.85

Table I-2 - Comparison of MIKE 11 & HEC-RAS Mannings n Roughness

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	MIKE 11 MANNINGS COEFFICIENT CHANNEL	HEC-RAS MANNINGS COEFFICIENT CHANNEL	RATIO CHANNEL	MIKE 11 MANNINGS COEFFICIENT BANKS	HEC-RAS MANNINGS COEFFICIENT BANKS	RATIO BANKS
BRISBANE	1033.08	45.580	BN 1240		0.055	0.0467	0.85	0.242	0.206	0.85
BRISBANE	1033.37	45.290	BN 1230		0.055	0.0467	0.85	0.242	0.206	0.85
BRISBANE	1033.9	44.760	BN 1220		0.050	0.0425	0.85	0.220	0.187	0.85
BRISBANE	1034.37	44.290	BN 1210		0.050	0.0425	0.85	0.210	0.179	0.85
BRISBANE	1034.89	43.770	BN 1200	Sherwood Gauge	0.065	0.0552	0.85	0.267	0.227	0.85
BRISBANE	1035.414	43.246	BN 1190		0.060	0.051	0.85	0.234	0.199	0.85
BRISBANE	1035.9	42.760	BN 1180		0.065	0.0552	0.85	0.260	0.221	0.85
BRISBANE	1036.46	42.200	BN 1170		0.065	0.0552	0.85	0.273	0.232	0.85
BRISBANE	1036.77	41.890	BN 1160		0.065	0.0552	0.85	0.260	0.221	0.85
BRISBANE	1036.915	41.745	BN 1150		0.065	0.0552	0.85	0.254	0.216	0.85
BRISBANE	1037.09	41.570	BN 1140		0.065	0.0552	0.85	0.247	0.210	0.85
BRISBANE	1037.11	41.550	BN 1130	Indooroopilly Bridge						
BRISBANE	1037.175	41.485	BN 1120		0.055	0.0467	0.85	0.209	0.178	0.85
BRISBANE	1037.285	41.375	BN 1110	Clarence Road Gauge	0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1037.625	41.035	BN 1100		0.055	0.0467	0.85	0.187	0.159	0.85
BRISBANE	1038.085	40.575	BN 1090		0.030	0.0255	0.85	0.102	0.087	0.85
BRISBANE	1038.6	40.060	BN 1080		0.030	0.0255	0.85	0.102	0.087	0.85
BRISBANE	1039.1	39.560	BN 1070		0.030	0.0255	0.85	0.102	0.087	0.85
BRISBANE	1039.565	39.095	BN 1060	Oxley Creek Gauge	0.030	0.0255	0.85	0.102	0.087	0.85
BRISBANE	1040.09	38.570	BN 1050	King Authur Terrace Gauge	0.030	0.0255	0.85	0.120	0.102	0.85
BRISBANE	1040.49	38.170	BN 1040		0.030	0.0255	0.85	0.126	0.107	0.85
BRISBANE	1041.01	37.650	BN 1030		0.060	0.051	0.85	0.252	0.214	0.85
BRISBANE	1041.23	37.430	BN 1020		0.060	0.051	0.85	0.252	0.214	0.85
BRISBANE	1041.46	37.200	BN 1010	Tennyson Power House Gauge	0.060	0.051	0.85	0.252	0.214	0.85
BRISBANE	1041.7	36.960	BN 1000		0.060	0.051	0.85	0.252	0.214	0.85
BRISBANE	1041.96	36.700	BN 990	Yeronga Street Gauge	0.060	0.051	0.85	0.252	0.214	0.85
BRISBANE	1042.235	36.425	BN 980		0.060	0.051	0.85	0.252	0.214	0.85
BRISBANE	1042.515	36.145	BN 970		0.060	0.051	0.85	0.252	0.214	0.85
BRISBANE	1042.91	35.750	BN 960		0.060	0.051	0.85	0.252	0.214	0.85
BRISBANE	1043.725	34.935	BN 950		0.060	0.051	0.85	0.252	0.214	0.85
BRISBANE	1044.06	34.600	BN 940	Sandy Creek Gauge	0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1044.34	34.320	BN 930		0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1044.605	34.055	BN 920		0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1044.86	33.800	BN 910		0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1045.4	33.260	BN 900		0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1045.885	32.775	BN 890		0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1046.18	32.480	BN 880		0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1046.58	32.080	BN 860		0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1046.9	31.760	BN 850		0.070	0.0595	0.85	0.294	0.250	0.85
BRISBANE	1047.35	31.310	BN 840		0.070	0.0595	0.85	0.315	0.268	0.85
BRISBANE	1047.915	30.745	BN 830	Highgate Hill Gauge	0.050	0.0425	0.85	0.260	0.221	0.85
BRISBANE	1048.375	30.285	BN 820		0.050	0.0425	0.85	0.260	0.221	0.85
BRISBANE	1048.89	29.770	BN 810	St Lucia Ferry Gauge	0.050	0.0425	0.85	0.260	0.221	0.85
BRISBANE	1049.12	29.540	BN 800		0.050	0.0425	0.85	0.260	0.221	0.85
BRISBANE	1049.37	29.290	BN 790		0.050	0.0425	0.85	0.260	0.221	0.85
BRISBANE	1049.59	29.070	BN 780		0.045	0.0382	0.85	0.234	0.199	0.85
BRISBANE	1049.87	28.790	BN 770		0.045	0.0382	0.85	0.225	0.191	0.85
BRISBANE	1050.43	28.230	BN 760		0.030	0.0255	0.85	0.132	0.112	0.85
BRISBANE	1050.86	27.800	BN 750		0.030	0.0255	0.85	0.126	0.107	0.85
BRISBANE	1051.36	27.300	BN 740		0.030	0.0255	0.85	0.150	0.128	0.85
BRISBANE	1051.895	26.765	BN 730		0.030	0.0255	0.85	0.156	0.133	0.85
BRISBANE	1052.31	26.350	BN 720		0.030	0.0255	0.85	0.156	0.133	0.85
BRISBANE	1052.37	26.290	BN 710	Merivale Bridge						
BRISBANE	1052.39	26.270	BN 700		0.030	0.0255	0.85	0.156	0.133	0.85
BRISBANE	1052.595	26.065	BN 690		0.030	0.0255	0.85	0.156	0.133	0.85
BRISBANE	1052.607	26.053	BN 680	William Jolly Bridge						
BRISBANE	1052.64	26.020	BN 670		0.045	0.0382	0.85	0.234	0.199	0.85
BRISBANE	1052.865	25.795	BN 660	Montague Road Gauge	0.050	0.0425	0.85	0.360	0.306	0.85
BRISBANE	1053.32	25.340	BN 650		0.060	0.051	0.85	0.312	0.265	0.85
BRISBANE	1053.356	25.304	BN 640	Victoria Bridge						
BRISBANE	1053.385	25.275	BN630		0.060	0.051	0.85	0.312	0.265	0.85
BRISBANE	1053.9	24.760	BN 620		0.060	0.051	0.85	0.288	0.245	0.85
BRISBANE	1054.64	24.020	BN 610		0.060	0.051	0.85	0.276	0.235	0.85
BRISBANE	1054.66	24.000	BN 600	Captain Cook Bridge						
BRISBANE	1054.68	23.980	BN 590		0.060	0.051	0.85	0.270	0.230	0.85
BRISBANE	1054.97	23.690	BN 560		0.025	0.0212	0.85	0.113	0.096	0.85
BRISBANE	1055.28	23.380	BN 550		0.025	0.0212	0.85	0.105	0.089	0.85
BRISBANE	1055.42	23.240	BN 540		0.025	0.0212	0.85	0.105	0.089	0.85
BRISBANE	1055.96	22.700	BN 530	Port Office Gauge	0.025	0.0212	0.85	0.108	0.092	0.85
BRISBANE	1056.4	22.260	BN 520		0.025	0.0212	0.85	0.118	0.100	0.85
BRISBANE	1056.695	21.965	BN 510		0.025	0.0212	0.85	0.130	0.111	0.85
BRISBANE	1056.865	21.795	BN 500		0.040	0.034	0.85	0.208	0.177	0.85
BRISBANE	1056.92	21.740	BN 495	Story Bridge						
BRISBANE	1056.95	21.710	BN 490		0.040	0.034	0.85	0.208	0.177	0.85
BRISBANE	1057.09	21.570	BN 480		0.040	0.034	0.85	0.208	0.177	0.85
BRISBANE	1057.53	21.130	BN 470		0.040	0.034	0.85	0.208	0.177	0.85
BRISBANE	1058.04	20.620	BN 460		0.040	0.034	0.85	0.180	0.153	0.85

Table I-2 - Comparison of MIKE 11 & HEC-RAS Mannings n Roughness

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	MIKE 11 MANNINGS COEFFICIENT CHANNEL	HEC-RAS MANNINGS COEFFICIENT CHANNEL	RATIO CHANNEL	MIKE 11 MANNINGS COEFFICIENT BANKS	HEC-RAS MANNINGS COEFFICIENT BANKS	RATIO BANKS
BRISBANE	1058.23	20.430	BN 450		0.040	0.034	0.85	0.180	0.153	0.85
BRISBANE	1058.53	20.130	BN 440		0.040	0.034	0.85	0.176	0.150	0.85
BRISBANE	1058.735	19.925	BN 430		0.050	0.0425	0.85	0.225	0.191	0.85
BRISBANE	1059.035	19.625	BN 420		0.050	0.0425	0.85	0.250	0.213	0.85
BRISBANE	1059.54	19.120	BN 410		0.050	0.0425	0.85	0.220	0.187	0.85
BRISBANE	1059.99	18.670	BN 400		0.050	0.0425	0.85	0.215	0.183	0.85
BRISBANE	1060.345	18.315	BN 390		0.045	0.0382	0.85	0.203	0.173	0.85
BRISBANE	1060.535	18.125	BN 380		0.035	0.0297	0.85	0.175	0.149	0.85
BRISBANE	1061.015	17.645	BN 370		0.035	0.0297	0.85	0.182	0.155	0.85
BRISBANE	1061.53	17.130	BN 360		0.035	0.0297	0.85	0.182	0.155	0.85
BRISBANE	1062.02	16.640	BN 350		0.035	0.0297	0.85	0.182	0.155	0.85
BRISBANE	1062.535	16.125	BN 340		0.035	0.0297	0.85	0.182	0.155	0.85
BRISBANE	1062.94	15.720	BN 330		0.035	0.0297	0.85	0.182	0.155	0.85
BRISBANE	1063.31	15.350	BN 320	Newstead Park Gauge	0.050	0.0425	0.85	0.260	0.221	0.85
BRISBANE	1063.645	15.015	BN 310	Cresent Road Gauge	0.031	0.0264	0.85	0.161	0.137	0.85
BRISBANE	1064	14.660	BN 300		0.031	0.0264	0.85	0.161	0.137	0.85
BRISBANE	1064.49	14.170	BN 290		0.031	0.0264	0.85	0.161	0.137	0.85
BRISBANE	1065.01	13.650	BN 280		0.031	0.0264	0.85	0.143	0.122	0.85
BRISBANE	1065.503	13.157	BN 270		0.031	0.0264	0.85	0.105	0.089	0.85
BRISBANE	1065.99	12.670	BN 260	Cairncross Dock Gauge	0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1066.505	12.155	BN 250		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1067.02	11.640	BN 240		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1067.485	11.175	BN 230		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1067.965	10.695	BN 220		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1068.66	10.000	BN 210		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1069.045	9.615	BN 200		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1069.535	9.125	BN 190	Bulimba Power House Gauge	0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1070.025	8.635	BN 180		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1070.53	8.130	BN 170		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1071.04	7.620	BN 160		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1071.52	7.140	BN 150		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1072.015	6.645	BN 140		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1072.515	6.145	BN 130		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1072.995	5.665	BN 120		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1073.485	5.175	BN 110		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1074	4.660	BN 100		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1074.46	4.200	BN 90		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1074.985	3.675	BN 80		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1075.48	3.180	BN 70		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1076	2.660	BN 60		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1076.495	2.165	BN 50		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1077.01	1.650	BN 40		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1077.51	1.150	BN 30		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1078.04	0.620	BN 20		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1078.525	0.135	BN 10		0.031	0.0264	0.85	0.104	0.088	0.85
BRISBANE	1078.66	0.000	-	Western Inner Bar Gauge	0.031	0.026	0.85	0.104	0.088	0.85

Table I-3 - HEC-RAS Predicted Velocities

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI FLOOD				BANK FULL				
					AVERAGE VELOCITY m/s	CHANNEL VELOCITY m/s	LEFT BANK VELOCITY m/s	RIGHT BANK VELOCITY m/s	BANK FULL FLOW m^3/s	AVERAGE VELOCITY m/s	CHANNEL VELOCITY m/s	LEFT BANK VELOCITY m/s	RIGHT BANK VELOCITY m/s
BRISBANE	1000	78.66	BN 2020		1.65	2.27	0.44	0.54	6000	1.47	1.87	0.41	0.42
BRISBANE	1000.285	78.375	BN 2010		1.96	2.79	0.71	0.76	6000	1.80	2.38	0.58	0.57
BRISBANE	1000.775	77.885	BN 2000		2.18	2.93	0.78	0.75	750	0.83	0.87	0.21	0.19
BRISBANE	1001.315	77.345	BN 1990		1.59	2.40	0.88	0.53	3500	1.22	1.69	0.55	0.35
BRISBANE	1001.865	76.795	BN 1980		2.58	3.76	0.73	0.68	6000	2.38	3.13	0.65	0.63
BRISBANE	1002.35	76.310	BN 1970		2.36	3.20	0.96	1.10	2000	1.62	1.77	0.63	0.51
BRISBANE	1002.785	75.875	BN 1960		1.85	2.52	0.87	0.86	750	0.81	0.84	0.26	0.08
BRISBANE	1003.275	75.385	BN 1950		2.32	2.98	0.84	0.84	3000	1.74	1.89	0.35	0.63
BRISBANE	1003.775	74.885	BN 1940		2.13	3.11	1.02	0.78	1500	1.15	1.38	0.35	0.42
BRISBANE	1004.3	74.360	BN 1930		2.41	3.64	0.90	0.94	750	0.96	1.03	0.25	0.16
BRISBANE	1004.81	73.850	BN 1920		1.70	2.17	0.58	0.60	3500	1.40	1.54	0.39	0.25
BRISBANE	1005.325	73.335	BN 1910		1.47	2.44	0.72	0.59	2000	1.15	1.47	0.39	0.17
BRISBANE	1005.87	72.790	BN 1900		1.88	3.01	0.75	0.66	750	0.93	1.02	0.18	0.18
BRISBANE	1006.3	72.360	BN 1890	Moggill Gauge	1.95	2.49	0.60	0.54	750	0.63	0.65	0.08	0.09
BRISBANE	1006.91	71.750	BN 1880		1.55	2.38	0.49	0.56	2500	1.19	1.34	0.19	0.31
BRISBANE	1007.41	71.250	BN 1870		1.22	2.09	0.55	0.38	1000	0.81	0.85	0.15	0.16
BRISBANE	1007.92	70.740	BN 1860		1.83	2.95	0.50	0.42	2000	1.42	1.51	0.19	0.21
BRISBANE	1008.445	70.215	BN 1850		1.99	2.69	0.41	0.38	2500	1.18	1.32	0.19	0.18
BRISBANE	1008.925	69.735	BN 1840		1.92	2.49	0.39	0.37	5000	1.59	1.84	0.29	0.29
BRISBANE	1009.4	69.260	BN 1830		1.71	2.63	0.36	0.35	5000	1.57	1.94	0.29	0.29
BRISBANE	1009.72	68.940	BN 1820		1.43	2.32	0.27	0.32	3000	1.27	1.38	0.18	0.17
BRISBANE	1010.49	68.170	BN 1810		2.34	3.06	0.41	0.44	2000	1.27	1.35	0.14	0.18
BRISBANE	1010.725	67.935	BN 1800		2.17	2.89	0.30	0.36	5000	1.74	2.03	0.29	0.27
BRISBANE	1010.98	67.680	BN 1790		2.12	2.84	0.36	0.45	3000	1.35	1.53	0.22	0.23
BRISBANE	1011.51	67.150	BN 1780		1.53	2.44	0.36	0.46	1000	0.68	0.73	0.08	0.08
BRISBANE	1011.98	66.680	BN 1770		1.27	2.24	0.38	0.27	5000	1.19	1.76	0.21	0.21
BRISBANE	1012.475	66.185	BN 1760		1.16	2.27	0.30	0.28	3000	1.07	1.39	0.17	0.20
BRISBANE	1012.935	65.725	BN 1750		1.30	2.22	0.38	0.21	1000	0.71	0.72	0.06	0.04
BRISBANE	1013.445	65.215	BN 1740		1.24	2.14	0.25	0.21	1500	0.87	0.88	0.08	0.07
BRISBANE	1013.91	64.750	BN 1730		0.87	2.05	0.16	0.47	7000	0.87	1.86	0.12	0.41
BRISBANE	1014.31	64.350	BN 1720		0.85	2.12	0.26	0.45	7000	0.85	1.94	0.18	0.40
BRISBANE	1014.61	64.050	BN 1710	Goodna Hospital Gauge	0.76	1.38	0.26	0.38	1000	0.60	0.80	0.11	0.09
BRISBANE	1015.09	63.570	BN 1700		1.61	2.05	0.36	0.25	1500	0.64	0.66	0.08	0.05
BRISBANE	1015.56	63.100	BN 1690		1.99	2.48	0.41	0.51	5000	1.58	1.81	0.27	0.29
BRISBANE	1016.14	62.520	BN 1680		1.74	2.29	0.40	0.23	3000	1.15	1.26	0.18	0.18
BRISBANE	1016.64	62.020	BN 1670		1.37	1.69	0.25	0.16	3500	1.19	1.24	0.16	0.24
BRISBANE	1017.13	61.530	BN 1660		1.42	2.74	0.43	0.40	4000	1.34	1.98	0.32	0.28
BRISBANE	1017.61	61.050	BN 1650		1.17	2.46	0.31	0.22	3500	1.43	1.66	0.18	0.18
BRISBANE	1017.92	60.740	BN 1640		1.30	2.66	0.34	0.33	750	0.63	0.64	0.04	0.04
BRISBANE	1018.2	60.460	BN 1630		1.44	2.23	0.24	0.33	2000	0.99	1.02	0.08	0.10
BRISBANE	1018.725	59.935	BN 1620		2.08	2.89	0.25	0.47	3000	1.38	1.54	0.19	0.17
BRISBANE	1019.095	59.565	BN 1610		1.69	2.51	0.27	0.27	5000	1.66	1.86	0.21	0.23
BRISBANE	1019.49	59.170	BN 1600		1.40	2.19	0.40	0.28	1500	0.76	0.85	0.10	0.04
BRISBANE	1019.865	58.795	BN 1590		2.17	2.81	0.43	0.40	1000	0.67	0.70	0.07	0.07
BRISBANE	1020.115	58.545	BN 1580		1.09	1.97	0.36	0.28	1000	0.55	0.63	0.07	0.08
BRISBANE	1020.525	58.135	BN 1570		1.01	1.32	0.32	0.19	1000	0.43	0.46	0.08	0.07
BRISBANE	1020.83	57.830	BN 1560		1.52	2.01	0.39	0.38	2000	0.76	0.83	0.15	0.12
BRISBANE	1021.095	57.565	BN 1550		2.14	2.65	0.53	0.48	1500	0.91	0.94	0.14	0.09
BRISBANE	1021.539	57.121	BN 1540		1.87	2.45	0.60	0.45	5000	1.52	1.81	0.41	0.38
BRISBANE	1021.715	56.945	BN 1530		1.62	2.07	0.46	0.31	5000	1.36	1.57	0.36	0.24
BRISBANE	1021.895	56.765	BN 1520		1.64	2.12	0.42	0.46	750	0.45	0.46	0.05	0.06
BRISBANE	1022.105	56.555	BN 1510		2.01	2.35	0.41	0.43	4000	1.38	1.47	0.21	0.22
BRISBANE	1022.575	56.085	BN 1500		1.81	2.21	0.42	0.61	5000	1.49	1.66	0.37	0.50
BRISBANE	1023.04	55.620	BN 1490		2.23	3.11	0.56	0.68	5000	1.99	2.27	0.33	0.48
BRISBANE	1023.57	55.090	BN 1480		2.44	2.84	0.46	0.47	3500	1.60	1.69	0.28	0.23
BRISBANE	1024.08	54.580	BN 1470		2.16	2.78	0.47	0.47	7000	2.00	2.38	0.49	0.40
BRISBANE	1024.563	54.097	BN 1460		1.97	2.35	0.44	0.38	4000	1.51	1.61	0.30	0.28
BRISBANE	1025.07	53.590	BN 1450		1.76	2.20	0.27	0.42	5000	1.49	1.64	0.32	0.29
BRISBANE	1025.36	53.300	BN 1440		2.00	2.66	0.49	0.41	3500	1.49	1.61	0.26	0.25
BRISBANE	1025.59	53.070	BN 1430		2.43	3.01	0.74	0.50	4000	1.83	1.96	0.39	0.35
BRISBANE	1026.17	52.490	BN 1420		2.27	2.65	0.52	0.47	5000	1.77	1.92	0.36	0.30
BRISBANE	1026.68	51.980	BN 1410	Mt Ommaney Gauge	1.93	2.59	0.40	0.37	750	0.50	0.51	0.05	0.05

Table I-3 - HEC-RAS Predicted Velocities

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI FLOOD AVERAGE VELOCITY m/s	CHANNEL VELOCITY m/s	LEFT BANK VELOCITY m/s	RIGHT BANK VELOCITY m/s	BANK FULL BANK FULL FLOW m^3/s	AVERAGE VELOCITY m/s	CHANNEL VELOCITY m/s	LEFT BANK VELOCITY m/s	RIGHT BANK VELOCITY m/s
BRISBANE	1026.9	51.760	BN 1400		2.07	2.85	0.42	0.56	1500	0.89	0.94	0.08	0.13
BRISBANE	1027.16	51.500	BN 1390		2.45	2.93	0.43	0.38	7000	2.19	2.47	0.44	0.30
BRISBANE	1027.68	50.980	BN 1380		1.77	2.25	0.40	0.50	4000	1.32	1.51	0.32	0.31
BRISBANE	1028.18	50.480	BN 1370		1.54	2.11	0.30	0.53	1000	0.58	0.61	0.08	0.08
BRISBANE	1028.68	49.980	BN 1360		1.97	2.49	0.36	0.36	2500	1.29	1.31	0.14	0.14
BRISBANE	1028.72	49.940	BN1350	Centenary Bridge	Bridge				2500				
BRISBANE	1028.76	49.900	BN 1340		1.94	2.52	0.35	0.56	2000	1.14	1.18	0.17	0.16
BRISBANE	1029.2	49.460	BN 1330		1.90	2.88	0.46	0.42	3500	1.60	1.79	0.28	0.23
BRISBANE	1029.68	48.980	BN 1320		1.61	2.72	0.31	0.34	5000	1.63	1.99	0.30	0.25
BRISBANE	1030.22	48.440	BN 1310		1.17	2.30	0.28	0.28	1000	0.62	0.63	0.04	0.05
BRISBANE	1030.87	47.790	BN 1300		1.58	2.24	0.20	0.28	2000	1.04	1.07	0.11	0.09
BRISBANE	1031.26	47.400	BN 1290		2.09	2.67	0.29	0.24	2500	1.29	1.32	0.09	0.10
BRISBANE	1031.7	46.960	BN 1280	Darra Wharf Gauge	2.70	3.30	0.37	0.27	1000	0.71	0.72	0.05	0.04
BRISBANE	1031.995	46.665	BN 1270		1.81	2.46	0.28	0.20	1000	0.58	0.60	0.05	0.04
BRISBANE	1032.23	46.430	BN 1260		1.73	2.37	0.31	0.20	1500	0.75	0.80	0.06	0.06
BRISBANE	1032.585	46.075	BN 1250		2.28	2.73	0.22	0.17	1000	0.56	0.56	0.02	0.03
BRISBANE	1033.08	45.580	BN 1240		1.86	2.58	0.22	0.21	5000	1.68	1.81	0.14	0.16
BRISBANE	1033.37	45.290	BN 1230		2.10	2.63	0.23	0.22	1000	0.59	0.60	0.02	0.04
BRISBANE	1033.9	44.760	BN 1220		2.34	2.87	0.28	0.30	3500	1.54	1.62	0.12	0.14
BRISBANE	1034.37	44.290	BN 1210		2.44	2.89	0.34	0.26	5000	1.85	2.01	0.22	0.20
BRISBANE	1034.89	43.770	BN 1200	Sherwood Gauge	1.88	2.69	0.30	0.24	5000	1.66	1.89	0.17	0.17
BRISBANE	1035.414	43.246	BN 1190		2.31	2.72	0.31	0.29	6000	1.92	2.13	0.27	0.21
BRISBANE	1035.9	42.760	BN 1180		2.41	3.08	0.29	0.38	5000	1.93	2.14	0.21	0.24
BRISBANE	1036.46	42.200	BN 1170		2.41	2.85	0.23	0.34	3000	1.41	1.45	0.10	0.14
BRISBANE	1036.77	41.890	BN 1160		1.97	2.49	0.26	0.30	8000	1.84	2.25	0.28	0.28
BRISBANE	1036.915	41.745	BN 1150		2.40	2.78	0.23	0.29	2500	1.16	1.18	0.06	0.08
BRISBANE	1037.09	41.570	BN 1140		2.70	3.12	0.36	0.29	1000	0.58	0.59	0.03	0.03
BRISBANE	1037.11	41.550	BN 1130	Indooroopilly Bridge	Bridge				1000				
BRISBANE	1037.175	41.485	BN 1120		2.71	3.04	0.40	0.30	2500	1.23	1.27	0.10	0.08
BRISBANE	1037.285	41.375	BN 1110	Clarence Road Gauge	2.54	2.77	0.37	0.33	1500	0.78	0.79	0.07	0.05
BRISBANE	1037.625	41.035	BN 1100		2.07	2.47	0.40	0.36	3000	1.19	1.28	0.15	0.14
BRISBANE	1038.085	40.575	BN 1090		1.31	2.08	0.17	0.26	1500	0.64	0.64	0.06	0.03
BRISBANE	1038.6	40.060	BN 1080		1.17	2.01	0.25	0.29	1500	0.77	0.78	0.06	0.02
BRISBANE	1039.1	39.560	BN 1070		1.03	2.01	0.25	0.29	5000	1.16	1.62	0.15	0.21
BRISBANE	1039.565	39.095	BN 1060	Oxley Creek Gauge	1.06	1.83	0.23	0.29	5000	1.14	1.47	0.11	0.18
BRISBANE	1040.09	38.570	BN 1050	King Authur Terrace Gauge	1.32	1.90	0.15	0.24	5000	1.10	1.34	0.10	0.10
BRISBANE	1040.49	38.170	BN 1040		1.70	2.61	0.25	0.30	5000	1.43	1.82	0.14	0.13
BRISBANE	1041.01	37.650	BN 1030		1.40	2.01	0.17	0.20	4000	1.17	1.25	0.07	0.08
BRISBANE	1041.23	37.430	BN 1020		1.24	2.00	0.19	0.18	3000	1.00	1.06	0.09	0.08
BRISBANE	1041.46	37.200	BN 1010	Tennyson Power House Gauge	1.65	2.14	0.27	0.20	3000	1.04	1.10	0.10	0.05
BRISBANE	1041.7	36.960	BN 1000		1.66	2.03	0.14	0.15	1500	0.51	0.51	0.02	0.02
BRISBANE	1041.96	36.700	BN 990	Yeronga Street Gauge	1.94	2.55	0.21	0.21	2000	0.89	0.90	0.05	0.05
BRISBANE	1042.235	36.425	BN 980		2.43	2.85	0.20	0.16	2000	0.94	0.95	0.05	0.03
BRISBANE	1042.515	36.145	BN 970		2.01	2.48	0.27	0.19	6000	1.68	1.86	0.18	0.13
BRISBANE	1042.91	35.750	BN 960		2.11	2.61	0.27	0.16	3000	1.27	1.31	0.11	0.10
BRISBANE	1043.725	34.935	BN 950		2.00	2.18	0.15	0.23	5000	1.51	1.56	0.12	0.14
BRISBANE	1044.06	34.600	BN 940	Sandy Creek Gauge	2.00	2.21	0.21	0.19	4000	1.25	1.30	0.11	0.08
BRISBANE	1044.34	34.320	BN 930		2.18	2.44	0.19	0.20	2000	0.84	0.85	0.06	0.04
BRISBANE	1044.605	34.055	BN 920		1.80	2.18	0.17	0.21	1500	0.60	0.61	0.04	0.04
BRISBANE	1044.86	33.800	BN 910		1.42	1.93	0.18	0.20	2500	0.87	0.88	0.07	0.07
BRISBANE	1045.4	33.260	BN 900		1.40	1.89	0.16	0.24	1500	0.57	0.58	0.04	0.04
BRISBANE	1045.885	32.775	BN 890		1.31	1.99	0.18	0.16	1500	0.60	0.62	0.04	0.04
BRISBANE	1046.18	32.480	BN 880		1.36	1.76	0.11	0.10	2500	0.68	0.69	0.04	0.03
BRISBANE	1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	1.76	1.87	0.10	0.09	3000	0.82	0.83	0.04	0.03
BRISBANE	1046.58	32.080	BN 860		1.60	1.84	0.18	0.11	4000	1.06	1.09	0.09	0.06
BRISBANE	1046.9	31.760	BN 850		1.85	2.25	0.19	0.19	4000	1.39	1.42	0.10	0.12
BRISBANE	1047.35	31.310	BN 840		2.33	2.75	0.18	0.18	6000	2.07	2.15	0.12	0.13
BRISBANE	1047.915	30.745	BN 830	Highgate Hill Gauge	2.00	2.67	0.13	0.15	5000	1.71	1.79	0.10	0.06
BRISBANE	1048.375	30.285	BN 820		1.26	1.89	0.11	0.13	1500	0.51	0.51	0.02	0.02
BRISBANE	1048.89	29.770	BN 810	St Lucia Ferry Gauge	2.01	2.39	0.18	0.11	2000	0.95	0.96	0.06	0.05
BRISBANE	1049.12	29.540	BN 800		1.88	2.30	0.14	0.14	2000	0.80	0.81	0.04	0.04
BRISBANE	1049.37	29.290	BN 790		2.34	2.74	0.15	0.16	2500	1.10	1.11	0.06	0.04

Table I-3 - HEC-RAS Predicted Velocities

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI FLOOD AVERAGE VELOCITY m/s	CHANNEL VELOCITY m/s	LEFT BANK VELOCITY m/s	RIGHT BANK VELOCITY m/s	BANK FULL BANK FULL FLOW m^3/s	AVERAGE VELOCITY m/s	CHANNEL VELOCITY m/s	LEFT BANK VELOCITY m/s	RIGHT BANK VELOCITY m/s
BRISBANE	1049.59	29.070	BN 780		2.07	2.59	0.13	0.15	2000	0.83	0.83	0.03	0.03
BRISBANE	1049.87	28.790	BN 770		2.35	2.69	0.15	0.22	3000	1.27	1.28	0.06	0.07
BRISBANE	1050.43	28.230	BN 760		1.94	2.42	0.17	0.22	2000	0.88	0.89	0.04	0.07
BRISBANE	1050.86	27.800	BN 750		2.28	2.70	0.16	0.26	2000	0.92	0.93	0.06	0.05
BRISBANE	1051.36	27.300	BN 740		1.97	2.49	0.12	0.20	3000	1.11	1.14	0.06	0.04
BRISBANE	1051.895	26.765	BN 730		2.27	2.96	0.18	0.18	3000	1.45	1.48	0.08	0.06
BRISBANE	1052.31	26.350	BN 720		2.57	2.76	0.28	0.22	3000	1.36	1.38	0.08	0.06
BRISBANE	1052.37	26.290	BN 710	Merivale Bridge	Bridge				2500				
BRISBANE	1052.39	26.270	BN 700		2.63	2.76	0.33	0.17	2500	1.16	1.18	0.07	0.06
BRISBANE	1052.595	26.065	BN 690		2.73	2.89	0.20	0.15	4000	1.66	1.68	0.10	0.07
BRISBANE	1052.607	26.053	BN 680	William Jolly Bridge	Bridge				4000				
BRISBANE	1052.64	26.020	BN 670		2.50	2.64	0.16	0.18	1500	0.62	0.62	0.03	0.01
BRISBANE	1052.865	25.795	BN 660	Montague Road Gauge	2.57	2.81	0.08	0.10	4000	1.53	1.53	0.03	0.04
BRISBANE	1053.32	25.340	BN 650		2.65	2.67	0.31	0.19	1500	0.72	0.72	0.05	0.03
BRISBANE	1053.356	25.304	BN 640	Victoria Bridge	Bridge				1500				
BRISBANE	1053.385	25.275	BN630		2.58	2.67	0.26	0.20	3000	1.32	1.33	0.09	0.05
BRISBANE	1053.9	24.760	BN 620		2.46	2.72	0.13	0.21	3500	1.42	1.44	0.04	0.11
BRISBANE	1054.64	24.020	BN 610		1.61	1.68	0.11	0.21	3000	0.75	0.77	0.04	0.06
BRISBANE	1054.66	24.000	BN 600	Captain Cook Bridge	Bridge				3000				
BRISBANE	1054.68	23.980	BN 590		1.73	1.89		0.19	3000	0.81	0.84		0.04
BRISBANE	1054.97	23.690	BN 560		2.44	2.66	0.18	0.23	3000	1.14	1.16	0.06	0.07
BRISBANE	1055.28	23.380	BN 550		2.41	2.56	0.22	0.20	4000	1.40	1.42	0.08	0.09
BRISBANE	1055.42	23.240	BN 540		2.44	2.54	0.19	0.24	5000	1.69	1.71	0.10	0.13
BRISBANE	1055.96	22.700	BN 530	Port Office Gauge	2.16	2.27	0.20	0.07	5000	1.52	1.54	0.13	0.02
BRISBANE	1056.4	22.260	BN 520		2.73	2.87	0.18	0.17	5000	1.91	1.95	0.15	0.03
BRISBANE	1056.695	21.965	BN 510		2.57	2.73	0.13	0.13	3500	1.33	1.35	0.08	0.00
BRISBANE	1056.865	21.795	BN 500		2.78	2.84	0.25	0.08	1500	0.62	0.62	0.02	0.03
BRISBANE	1056.92	21.740	BN 495	Story Bridge	Bridge				1500				
BRISBANE	1056.95	21.710	BN 490		2.82	2.86		0.12	7000	2.37	2.38		0.04
BRISBANE	1057.09	21.570	BN 480		2.02	2.14	0.13	0.12	7000	1.70	1.76	0.11	0.07
BRISBANE	1057.53	21.130	BN 470		2.36	2.40	0.11	0.12	5000	1.55	1.55	0.04	0.06
BRISBANE	1058.04	20.620	BN 460		2.78	2.85	0.22	0.18	6000	2.13	2.16	0.15	0.17
BRISBANE	1058.23	20.430	BN 450		2.77	2.88	0.26	0.17	5000	1.87	1.89	0.14	0.07
BRISBANE	1058.53	20.130	BN 440		2.86	2.95	0.15	0.12	4000	1.54	1.55	0.08	0.08
BRISBANE	1058.735	19.925	BN 430		2.52	2.69	0.19	0.17	3000	1.08	1.10	0.06	0.07
BRISBANE	1059.035	19.625	BN 420		3.01	3.09	0.11	0.14	3500	1.41	1.42	0.04	0.04
BRISBANE	1059.54	19.120	BN 410		2.25	2.32	0.09	0.16	6000	1.70	1.72	0.05	0.14
BRISBANE	1059.99	18.670	BN 400		2.26	2.35	0.12	0.17	3500	1.12	1.13	0.08	0.07
BRISBANE	1060.345	18.315	BN 390		2.71	2.73	0.16	0.15	13000	3.45	3.50	0.24	0.21
BRISBANE	1060.535	18.125	BN 380		2.98	3.01	0.15	0.17	11000	3.41	3.46	0.19	0.13
BRISBANE	1061.015	17.645	BN 370		2.59	2.66	0.13	0.10	5000	1.67	1.68	0.07	0.05
BRISBANE	1061.53	17.130	BN 360		2.85	2.89	0.19		5000	1.78	1.79	0.09	0.02
BRISBANE	1062.02	16.640	BN 350		2.55	2.62	0.12	0.16	9000	2.53	2.60	0.14	0.16
BRISBANE	1062.535	16.125	BN 340		2.15	2.23	0.17	0.16	8000	1.97	2.04	0.16	0.16
BRISBANE	1062.94	15.720	BN 330		1.77	1.80	0.12	0.06	8000	1.63	1.65	0.11	0.08
BRISBANE	1063.31	15.350	BN 320	Newstead Park Gauge	1.97	1.99	0.09		6000	1.44	1.44	0.07	0.14
BRISBANE	1063.645	15.015	BN 310	Cresent Road Gauge	2.75	2.91	0.21	0.19	9000	2.73	2.89	0.21	0.18
BRISBANE	1064	14.660	BN 300		2.55	2.69	0.11	0.13	6000	1.86	1.91	0.12	0.08
BRISBANE	1064.49	14.170	BN 290		2.61	2.76	0.07	0.14	3500	1.19	1.20	0.06	0.05
BRISBANE	1065.01	13.650	BN 280		2.11	2.18	0.06	0.15	7000	1.75	1.76	0.08	0.12
BRISBANE	1065.503	13.157	BN 270		1.92	1.96	0.08		6000	1.38	1.39	0.09	0.08
BRISBANE	1065.99	12.670	BN 260	Cairncross Dock Gauge	1.67	1.67			14000	2.27	2.30		0.10
BRISBANE	1066.505	12.155	BN 250		1.80	1.82		0.07	14000	2.14	2.49		0.15
BRISBANE	1067.02	11.640	BN 240		1.64	1.74	0.18	0.11	13000	2.00	2.27	0.30	0.16
BRISBANE	1067.485	11.175	BN 230		1.89	2.06	0.21	0.12	8000	1.75	1.87	0.17	0.13
BRISBANE	1067.965	10.695	BN 220		2.14	2.23	0.13	0.13	6000	1.55	1.58	0.08	0.14
BRISBANE	1068.66	10.000	BN 210		2.37	2.41	0.21	0.24	9000	2.35	2.39	0.20	0.24
BRISBANE	1069.045	9.615	BN 200		2.34	2.39		0.20	7000	1.89	1.92		0.18
BRISBANE	1069.535	9.125	BN 190	Bulimba Power House Gauge	2.16	2.21		0.14	8000	1.95	1.99		0.18
BRISBANE	1070.025	8.635	BN 180		2.06	2.08	0.06	0.21	19000	3.38	3.60	0.14	0.18
BRISBANE	1070.53	8.130	BN 170		2.11	2.13	0.14	0.11	5000	1.24	1.25	0.08	0.05
BRISBANE	1071.04	7.620	BN 160		2.05	2.09	0.18	0.13	8000	1.84	1.87	0.15	0.13

Table I-3 - HEC-RAS Predicted Velocities

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI FLOOD				BANK FULL				
					AVERAGE VELOCITY m/s	CHANNEL VELOCITY m/s	LEFT BANK VELOCITY m/s	RIGHT BANK VELOCITY m/s	BANK FULL FLOW m^3/s	AVERAGE VELOCITY m/s	CHANNEL VELOCITY m/s	LEFT BANK VELOCITY m/s	RIGHT BANK VELOCITY m/s
BRISBANE	1071.52	7.140	BN 150		1.53	1.55	0.14	0.06	11000	1.79	1.83	0.16	0.08
BRISBANE	1072.015	6.645	BN 140		1.92	1.92		0.07	17000	3.06	3.12		0.11
BRISBANE	1072.515	6.145	BN 130		1.86	1.89	0.13	0.12	750	0.16	0.17	0.01	0.01
BRISBANE	1072.995	5.665	BN 120		1.76	1.77	0.12	0.12	14000	2.54	2.55	0.20	0.18
BRISBANE	1073.485	5.175	BN 110		1.95	1.97	0.14	0.19	14000	2.81	2.85	0.22	0.12
BRISBANE	1074	4.660	BN 100		1.91	1.91	0.13	0.16	13000	2.60	2.62	0.20	0.22
BRISBANE	1074.46	4.200	BN 90		1.89	1.89	0.13	0.13	17000	3.18	3.24	0.27	0.12
BRISBANE	1074.985	3.675	BN 80		2.11	2.12	0.15	0.15	15000	3.31	3.33	0.26	0.24
BRISBANE	1075.48	3.180	BN 70		1.75	1.85	0.12	0.18	12000	2.25	2.39	0.16	0.25
BRISBANE	1076	2.660	BN 60		1.22	1.29	0.09	0.14	26000	2.88	3.11	0.11	0.42
BRISBANE	1076.495	2.165	BN 50		1.67	1.68		0.13	33000	4.95	4.96		0.22
BRISBANE	1077.01	1.650	BN 40		1.17	1.26	0.08	0.14	9000	1.16	1.24	0.08	0.14
BRISBANE	1077.51	1.150	BN 30		0.89	0.89	0.04	0.05	26000	2.36	2.38	0.15	0.15
BRISBANE	1078.04	0.620	BN 20		0.94	0.95	0.05	0.04	19000	1.92	1.95	0.10	0.10
BRISBANE	1078.525	0.135	BN 10		1.43	1.54	0.31	0.07	-	-	-	-	-
BRISBANE	1078.66	0.000	-	Western Inner Bar Gauge					-	-	-	-	-

Table I-4 - HEC-RAS Predicted Conveyances

LOCATION	MIKE 11 CHAINAGE (km)	AMTO CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI							20 YEAR ARI						
					TOTAL CONVEYANCE (m^3/s)	CHANNEL CONVEYANCE (m^3/s)	LEFT CONVEYANCE (m^3/s)	RIGHT CONVEYANCE (m^3/s)	% CHANNEL CONVEYANCE	% LEFT CONVEYANCE	% RIGHT CONVEYANCE	TOTAL CONVEYANCE (m^3/s)	CHANNEL CONVEYANCE (m^3/s)	LEFT CONVEYANCE (m^3/s)	RIGHT CONVEYANCE (m^3/s)	% CHANNEL CONVEYANCE	% LEFT CONVEYANCE	% RIGHT CONVEYANCE
BRISBANE	1000	78.66	BN 2020		572181	515467	35924	20791	90.1	6.3	3.6	270084	253823	11100	5161	94.0	4.1	1.9
BRISBANE	1000.285	78.375	BN 2010		455798	388138	43063	24598	85.2	9.4	5.4	202694	186709	10941	5043	92.1	5.4	2.5
BRISBANE	1000.775	77.885	BN 2000		469461	411860	39718	17884	87.7	8.5	3.8	217749	201853	10716	5180	92.7	4.9	2.4
BRISBANE	1001.315	77.345	BN 1990		554485	412732	121822	19931	74.4	22.0	3.6	233868	190083	40787	2997	81.3	17.4	1.3
BRISBANE	1001.865	76.795	BN 1980		357587	319736	23561	14290	89.4	6.6	4.0	164502	154529	5846	4127	93.9	3.6	2.5
BRISBANE	1002.35	76.310	BN 1970		444458	368989	34059	41410	83.0	7.7	9.3	184104	170651	6416	7037	92.7	3.5	3.8
BRISBANE	1002.785	75.875	BN 1960		571203	463604	46654	60945	81.2	8.2	10.7	245720	217392	11480	16848	88.5	4.7	6.9
BRISBANE	1003.275	75.385	BN 1950		406807	361847	9137	35824	88.9	2.2	8.8	173581	165191	992	7398	95.2	0.6	4.3
BRISBANE	1003.775	74.885	BN 1940		405133	330959	37474	36700	81.7	9.2	9.1	180955	156906	12572	11477	86.7	6.9	6.3
BRISBANE	1004.3	74.360	BN 1930		346986	286115	16162	44709	82.5	4.7	12.9	149219	137998	4638	6582	92.5	3.1	4.4
BRISBANE	1004.81	73.850	BN 1920		544699	488061	15284	41354	89.6	2.8	7.6	214624	208719	3134	2770	97.2	1.5	1.3
BRISBANE	1005.325	73.335	BN 1910		526655	397545	78527	50583	75.5	14.9	9.6	197653	170400	21596	5658	86.2	10.9	2.9
BRISBANE	1005.87	72.790	BN 1900		399670	322554	64285	12831	80.7	16.1	3.2	154520	139187	13891	1442	90.1	9.0	0.9
BRISBANE	1006.3	72.360	BN 1890	Moggill Gauge	504765	461286	31034	12445	91.4	6.1	2.5	222266	213474	5849	2943	96.0	2.6	1.3
BRISBANE	1006.91	71.750	BN 1880		540594	463090	59892	17612	85.7	11.1	3.3	222499	211711	5668	5121	95.2	2.5	2.3
BRISBANE	1007.41	71.250	BN 1870		893635	695394	149714	48527	77.8	16.8	5.4	334569	298088	25109	11372	89.1	7.5	3.4
BRISBANE	1007.92	70.740	BN 1860		449763	402046	11866	35851	89.4	2.6	8.0	179494	174897	1353	3245	97.4	0.8	1.8
BRISBANE	1008.445	70.215	BN 1850		735885	690763	19426	25696	93.9	2.6	3.5	346454	336970	4477	5007	97.3	1.3	1.4
BRISBANE	1008.925	69.735	BN 1840		755176	716056	15060	24059	94.8	2.0	3.2	324257	316560	3445	4253	97.6	1.1	1.3
BRISBANE	1009.4	69.260	BN 1830		740203	678317	18305	43581	91.6	2.5	5.9	333301	322307	3982	7012	96.7	1.2	2.1
BRISBANE	1009.72	68.940	BN 1820		811928	734485	21606	55838	90.5	2.7	6.9	344150	338932	2296	2922	98.5	0.7	0.8
BRISBANE	1010.49	68.170	BN 1810		627096	596180	19281	11636	95.1	3.1	1.9	286312	281642	2190	2479	98.4	0.8	0.9
BRISBANE	1010.725	67.935	BN 1800		686738	659438	20898	6402	96.0	3.0	0.9	338551	331315	5276	1960	97.9	1.6	0.6
BRISBANE	1010.98	67.680	BN 1790		691381	653989	25029	12364	94.6	3.6	1.8	329012	320743	4701	3569	97.5	1.4	1.1
BRISBANE	1011.51	67.150	BN 1780		788892	697499	53176	38217	88.4	6.7	4.8	343526	329570	5849	8107	95.9	1.7	2.4
BRISBANE	1011.98	66.680	BN 1770		768693	654241	101958	12494	85.1	13.3	1.6	312344	298728	12369	1247	95.6	4.0	0.4
BRISBANE	1012.475	66.185	BN 1760		754567	646168	99809	8590	85.6	13.2	1.1	310805	294531	14330	1943	94.8	4.6	0.6
BRISBANE	1012.935	65.725	BN 1750		768103	668072	87473	12558	87.0	11.4	1.6	309654	303199	6111	344	97.9	2.0	0.1
BRISBANE	1013.445	65.215	BN 1740		787697	718233	41929	27536	91.2	5.3	3.5	328595	320733	7464	398	97.6	2.3	0.1
BRISBANE	1013.91	64.750	BN 1730		817126	535825	19691	261610	65.6	2.4	32.0	306305	235914	390	70001	77.0	0.1	22.9
BRISBANE	1014.31	64.350	BN 1720		821620	557683	68947	194990	67.9	8.4	23.7	312025	260958	1452	49616	83.6	0.5	15.9
BRISBANE	1014.61	64.050	BN 1710	Goodna Hospital Gauge	953822	710061	77468	166294	74.4	8.1	17.4	264167	218637	8164	37366	82.8	3.1	14.1
BRISBANE	1015.09	63.570	BN 1700		908263	866952	17130	24181	95.5	1.9	2.7	458515	450969	3441	4104	98.4	0.8	0.9
BRISBANE	1015.56	63.100	BN 1690		700452	657474	6447	36532	93.9	0.9	5.2	321989	314905	939	6145	97.8	0.3	1.9
BRISBANE	1016.14	62.520	BN 1680		757002	718828	23969	14205	95.0	3.2	1.9	347313	341501	2698	3113	98.3	0.8	0.9
BRISBANE	1016.64	62.020	BN 1670		862178	831409	25118	5652	96.4	2.9	0.7	284849	282404	469	1977	99.1	0.2	0.7
BRISBANE	1017.13	61.530	BN 1660		466582	384915	77142	4525	82.5	16.5	1.0	181203	166154	14047	1002	91.7	7.8	0.6
BRISBANE	1017.61	61.050	BN 1650		540474	462210	62629	15635	85.5	11.6	2.9	216590	213055	2748	787	98.4	1.3	0.4
BRISBANE	1017.92	60.740	BN 1640		500821	425293	57671	17856	84.9	11.5	3.6	202914	198943	3231	741	98.0	1.6	0.4
BRISBANE	1018.2	60.460	BN 1630		558809	517162	25733	15914	92.5	4.6	2.8	243418	239633	2029	1757	98.4	0.8	0.7
BRISBANE	1018.725	59.935	BN 1620		443699	421059	10679	11960	94.9	2.4	2.7	212911	208765	1954	2193	98.1	0.9	1.0
BRISBANE	1019.095	59.565	BN 1610		495632	466711	21525	7396	94.2	4.3	1.5	222666	220016	1752	898	98.8	0.8	0.4
BRISBANE	1019.49	59.170	BN 1600		560051	500255	38254	21543	89.3	6.8	3.8	242823	231123	8507	3193	95.2	3.5	1.3
BRISBANE	1019.865	58.795	BN 1590		447235	424229	12418	10589	94.9	2.8	2.4	211850	207433	2370	2047	97.9	1.1	1.0
BRISBANE	1020.115	58.545	BN 1580		608911	513384	50467	45061	84.3	8.3	7.4	248374	227858	12290	8226	91.7	4.9	3.3
BRISBANE	1020.525	58.135	BN 1570		855178	786457	50010	18711	92.0	5.8	2.2	331757	313602	10222	7934	94.5	3.1	2.4
BRISBANE	1020.83	57.830	BN 1560		639617	590633	38754	10231	92.3	6.1	1.6	305029	295871	7282	1877	97.0	2.4	0.6
BRISBANE	1021.095	57.565	BN 1550		461838	435820	16841	9177	94.4	3.6	2.0	210823	206740	3066	1017	98.1	1.5	0.5
BRISBANE	1021.539	57.121	BN 1540		522323	478757	24519	19047	91.7	4.7	3.6	227962	218252	5534	4176	95.7	2.4	1.8
BRISBANE	1021.715	56.945	BN 1530		592915	550449	33390	9076	92.8	5.6	1.5	240722	232494	7547	681	96.6	3.1	0.3
BRISBANE	1021.895	56.765	BN 1520		606555	558474	9134	38948	92.1	1.5	6.4	265201	255830	1688	7684	96.5	0.6	2.9
BRISBANE	1022.105	56.555	BN 1510		556098	535869	6262	13968	96.4	1.1	2.5	270233	267706	755	1772	99.1	0.3	0.7
BRISBANE	1022.575	56.085	BN 1500		860388	801411	20169	38809	93.1	2.3	4.5	352180	339315	3330	9535	96.3	0.9	2.7
BRISBANE	1023.04	55.620	BN 1490		670547	609509	45412	15626	90.9	6.8	2.3	322828	315447	4001	3380	97.7	1.2	1.0
BRISBANE	1023.57	55.090	BN 1480		699396	677247	16656	5493	96.8	2.4	0.8	322411	319038	2590	783	99.0	0.8	0.2
BRISBANE	1024.08	54.580	BN 1470		696432	656190	34020	6222	94.2	4.9	0.9	308335	298860	8482	993	96.9	2.8	0.3
BRISBANE	1024.563	54.097	BN 1460		645857	618880	19938	7039	95.8	3.1	1.1	263298	260269	2122	908	98.8	0.8	0.3
BRISBANE	1025.07	53.590	BN 1450		708908	677975	15618	15315	95.6	2.2	2.2	300902	294880	3048	2974	98.0	1.0	1.0
BRISBANE	1025.36	53.300	BN 1440		614681	574135	18687	21859	93.4	3.0	3.6	277822	273368	2826	1628	98.4	1.0	0.6
BRISBANE	1025.59	53.070	BN 1430		534096	502509	16438	15150	94.1	3.1	2.8	243042	239618	2136	1288	98.6	0.9	0.5

Table I-4 - HEC-RAS Predicted Conveyances

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI TOTAL CONVEYANCE (m^3/s)	CHANNEL CONVEYANCE (m^3/s)	LEFT CONVEYANCE (m^3/s)	RIGHT CONVEYANCE (m^3/s)	% CHANNEL CONVEYANCE	% LEFT CONVEYANCE	% RIGHT CONVEYANCE	20 YEAR ARI TOTAL CONVEYANCE (m^3/s)	CHANNEL CONVEYANCE (m^3/s)	LEFT CONVEYANCE (m^3/s)	RIGHT CONVEYANCE (m^3/s)	% CHANNEL CONVEYANCE	% LEFT CONVEYANCE	% RIGHT CONVEYANCE
BRISBANE	1026.17	52.490	BN 1420		603147	580125	10124	12898	96.2	1.7	2.1	273264	269735	1970	1559	98.7	0.7	0.6
BRISBANE	1026.68	51.980	BN 1410	Mt Ommaney Gauge	617600	580004	31627	5968	93.9	5.1	1.0	277543	271816	5019	708	97.9	1.8	0.3
BRISBANE	1026.9	51.760	BN 1400		583010	540872	28929	13210	92.8	5.0	2.3	278512	271580	4203	2729	97.5	1.5	1.0
BRISBANE	1027.16	51.500	BN 1390		562209	543388	16645	2177	96.7	3.0	0.4	277066	273562	3267	236	98.7	1.2	0.1
BRISBANE	1027.68	50.980	BN 1380		1244963	1159168	36323	49472	93.1	2.9	4.0	525222	507354	8713	9155	96.6	1.7	1.7
BRISBANE	1028.18	50.480	BN 1370		1315831	1196068	42133	77631	90.9	3.2	5.9	537048	515977	6018	15053	96.1	1.1	2.8
BRISBANE	1028.68	49.980	BN 1360		1117645	1066603	46106	4936	95.4	4.1	0.4	465833	464263	1073	498	99.7	0.2	0.1
BRISBANE	1028.72	49.940	BN1350	Centenary Bridge	Bridge							Bridge						
BRISBANE	1028.76	49.900	BN 1340		940823	886758	33871	20193	94.3	3.6	2.1	387264	382316	2188	2761	98.7	0.6	0.7
BRISBANE	1029.2	49.460	BN 1330		868088	786563	51851	29674	90.6	6.0	3.4	383289	375322	6037	1930	97.9	1.6	0.5
BRISBANE	1029.68	48.980	BN 1320		1119674	1014903	57329	47442	90.6	5.1	4.2	530062	518847	6835	4380	97.9	1.3	0.8
BRISBANE	1030.22	48.440	BN 1310		1259074	1092284	136363	30428	86.8	10.8	2.4	521416	508113	8928	4374	97.4	1.7	0.8
BRISBANE	1030.87	47.790	BN 1300		1204430	1148975	40184	15272	95.4	3.3	1.3	481932	477740	1813	2380	99.1	0.4	0.5
BRISBANE	1031.26	47.400	BN 1290		634870	614754	14327	5790	96.8	2.3	0.9	283202	282171	579	452	99.6	0.2	0.2
BRISBANE	1031.7	46.960	BN 1280	Darra Wharf Gauge	354950	346986	3041	4924	97.8	0.9	1.4	176430	175253	435	742	99.3	0.2	0.4
BRISBANE	1031.995	46.665	BN 1270		460001	443031	7230	9740	96.3	1.6	2.1	207490	205185	1024	1282	98.9	0.5	0.6
BRISBANE	1032.23	46.430	BN 1260		555440	532132	11046	12263	95.8	2.0	2.2	255504	251530	2016	1958	98.4	0.8	0.8
BRISBANE	1032.585	46.075	BN 1250		441720	435663	892	5164	98.6	0.2	1.2	228701	227858	110	734	99.6	0.0	0.3
BRISBANE	1033.08	45.580	BN 1240		631484	609909	7829	13746	96.6	1.2	2.2	318819	317637	620	562	99.6	0.2	0.2
BRISBANE	1033.37	45.290	BN 1230		589070	575256	5278	8535	97.7	0.9	1.4	278324	276691	463	1170	99.4	0.2	0.4
BRISBANE	1033.9	44.760	BN 1220		606348	591179	9194	5975	97.5	1.5	1.0	299561	298232	478	851	99.6	0.2	0.3
BRISBANE	1034.37	44.290	BN 1210		600024	588048	4493	7482	98.0	0.7	1.2	300095	298163	967	965	99.4	0.3	0.3
BRISBANE	1034.89	43.770	BN 1200	Sherwood Gauge	507150	484222	6947	15981	95.5	1.4	3.2	256096	253753	1162	1181	99.1	0.5	0.5
BRISBANE	1035.414	43.246	BN 1190		506035	494654	9503	1878	97.8	1.9	0.4	239803	237948	1643	212	99.2	0.7	0.1
BRISBANE	1035.9	42.760	BN 1180		428992	415498	9291	4204	96.9	2.2	1.0	217902	216256	864	782	99.2	0.4	0.4
BRISBANE	1036.46	42.200	BN 1170		446921	438687	5043	3191	98.2	1.1	0.7	218914	218150	162	601	99.7	0.1	0.3
BRISBANE	1036.77	41.890	BN 1160		485034	468439	5766	10829	96.6	1.2	2.2	214626	212243	854	1529	98.9	0.4	0.7
BRISBANE	1036.915	41.745	BN 1150		478509	471145	5046	2317	98.5	1.1	0.5	252295	251867	249	180	99.8	0.1	0.1
BRISBANE	1037.09	41.570	BN 1140		429873	421457	7264	1153	98.0	1.7	0.3	232501	231773	608	119	99.7	0.3	0.1
BRISBANE	1037.11	41.550	BN 1130	Indooroopilly Bridge	Bridge							Bridge						
BRISBANE	1037.175	41.485	BN 1120		515979	507053	7194	1732	98.3	1.4	0.3	277412	276355	871	186	99.6	0.3	0.1
BRISBANE	1037.285	41.375	BN 1110	Clarence Road Gauge	549500	542132	5451	1918	98.7	1.0	0.3	283812	283022	578	211	99.7	0.2	0.1
BRISBANE	1037.625	41.035	BN 1100		593720	572209	17029	4483	96.4	2.9	0.8	285509	282308	2475	726	98.9	0.9	0.3
BRISBANE	1038.085	40.575	BN 1090		1311814	1239753	64049	8013	94.5	4.9	0.6	625041	623041	961	1039	99.7	0.2	0.2
BRISBANE	1038.6	40.060	BN 1080		1220366	1086038	62258	72070	89.0	5.1	5.9	466150	460354	414	5382	98.8	0.1	1.2
BRISBANE	1039.1	39.560	BN 1070		1240656	1053839	53216	133601	84.9	4.3	10.8	471928	459074	1206	11648	97.3	0.3	2.5
BRISBANE	1039.565	39.095	BN 1060	Oxley Creek Gauge	1359194	1184974	48087	126133	87.2	3.5	9.3	527176	516993	535	9648	98.1	0.1	1.8
BRISBANE	1040.09	38.570	BN 1050	King Authur Terrace Gauge	1483285	1391325	2132	89828	93.8	0.1	6.1	740731	735704	223	4804	99.3	0.0	0.6
BRISBANE	1040.49	38.170	BN 1040		1114236	1038776	3186	72274	93.2	0.3	6.5	582095	577546	353	4197	99.2	0.1	0.7
BRISBANE	1041.01	37.650	BN 1030		682433	651733	10486	20214	95.5	1.5	3.0	333385	332293	239	853	99.7	0.1	0.3
BRISBANE	1041.23	37.430	BN 1020		673236	630535	27366	15335	93.7	4.1	2.3	315679	313795	1064	821	99.4	0.3	0.3
BRISBANE	1041.46	37.200	BN 1010	Tennyson Power House Gauge	629956	607862	8447	13648	96.5	1.3	2.2	307077	305059	1509	510	99.3	0.5	0.2
BRISBANE	1041.7	36.960	BN 1000		762624	749205	1790	11629	98.2	0.2	1.5	444335	443647	199	489	99.8	0.0	0.1
BRISBANE	1041.96	36.700	BN 990	Yeronga Street Gauge	553664	537701	5246	10718	97.1	0.9	1.9	293475	292850	414	211	99.8	0.1	0.1
BRISBANE	1042.235	36.425	BN 980		506060	500748	1178	4135	99.0	0.2	0.8	285579	285174	125	280	99.9	0.0	0.1
BRISBANE	1042.515	36.145	BN 970		577911	564948	5083	7881	97.8	0.9	1.4	322682	321439	768	476	99.6	0.2	0.1
BRISBANE	1042.91	35.750	BN 960		500417	488412	10009	1995	97.6	2.0	0.4	249493	248737	500	256	99.7	0.2	0.1
BRISBANE	1043.725	34.935	BN 950		574763	570035	2590	2138	99.2	0.5	0.4	297360	296959	137	265	99.9	0.0	0.1
BRISBANE	1044.06	34.600	BN 940	Sandy Creek Gauge	531749	525826	4971	951	98.9	0.9	0.2	307127	306330	701	97	99.7	0.2	0.0
BRISBANE	1044.34	34.320	BN 930		460849	456230	3992	627	99.0	0.9	0.1	257032	256608	363	62	99.8	0.1	0.0
BRISBANE	1044.605	34.055	BN 920		505540	495677	4987	4877	98.0	1.0	1.0	271950	271277	250	422	99.8	0.1	0.2
BRISBANE	1044.86	33.800	BN 910		542911	522117	18389	2405	96.2	3.4	0.4	273568	272897	499	172	99.8	0.2	0.1
BRISBANE	1045.4	33.260	BN 900		536063	517630	14605	3828	96.6	2.7	0.7	261210	260159	441	609	99.6	0.2	0.2
BRISBANE	1045.885	32.775	BN 890		505967	480626	13986	11355	95.0	2.8	2.2	243150	242254	360	537	99.6	0.1	0.2
BRISBANE	1046.18	32.480	BN 880		690501	677545	8392	4563	98.1	1.2	0.7	419853	419344	409	100	99.9	0.1	0.0
BRISBANE	1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	666021	663721	1097	1203	99.7	0.2	0.2	423747	423663	60	24	100.0	0.0	0.0
BRISBANE	1046.58	32.080	BN 860		612509	605306	3797	3407	98.8	0.6	0.6	350967	350371	514	82	99.8	0.1	0.0
BRISBANE	1046.9	31.760	BN 850		447127	437991	835	8301	98.0	0.2	1.9	227681	227386	87	208	99.9	0.0	0.1
BRISBANE	1047.35	31.310	BN 840		394397	389382	303	4713	98.7	0.1	1.2	228129	227891	29	209	99.9	0.0	0.1
BRISBANE	1047.915	30.745	BN 830	Highgate Hill Gauge	610837	599179	1421	10237	98.1	0.2	1.7	381709	381360	137	211	99.9	0.0	0.1

Table I-4 - HEC-RAS Predicted Conveyances

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI							20 YEAR ARI						
					TOTAL CONVEYANCE (m^3/s)	CHANNEL CONVEYANCE (m^3/s)	LEFT CONVEYANCE (m^3/s)	RIGHT CONVEYANCE (m^3/s)	% CHANNEL CONVEYANCE	% LEFT CONVEYANCE	% RIGHT CONVEYANCE	TOTAL CONVEYANCE (m^3/s)	CHANNEL CONVEYANCE (m^3/s)	LEFT CONVEYANCE (m^3/s)	RIGHT CONVEYANCE (m^3/s)	% CHANNEL CONVEYANCE	% LEFT CONVEYANCE	% RIGHT CONVEYANCE
BRISBANE	1048.375	30.285	BN 820		789939	761835	3780	24324	96.4	0.5	3.1	438190	437986	76	129	100.0	0.0	0.0
BRISBANE	1048.89	29.770	BN 810	St Lucia Ferry Gauge	522367	515928	4228	2212	98.8	0.8	0.4	241955	241703	188	65	99.9	0.1	0.0
BRISBANE	1049.12	29.540	BN 800		609455	600734	5165	3556	98.6	0.8	0.6	331682	331230	249	203	99.9	0.1	0.1
BRISBANE	1049.37	29.290	BN 790		529125	523865	4310	950	99.0	0.8	0.2	306492	306217	227	48	99.9	0.1	0.0
BRISBANE	1049.59	29.070	BN 780		658504	649525	6366	2613	98.6	1.0	0.4	399118	398760	209	149	99.9	0.1	0.0
BRISBANE	1049.87	28.790	BN 770		588985	583373	4040	1572	99.0	0.7	0.3	334946	334650	98	198	99.9	0.0	0.1
BRISBANE	1050.43	28.230	BN 760		910072	891530	13977	4564	98.0	1.5	0.5	469012	468440	187	385	99.9	0.0	0.1
BRISBANE	1050.86	27.800	BN 750		848181	837211	8508	2462	98.7	1.0	0.3	469174	468417	611	146	99.8	0.1	0.0
BRISBANE	1051.36	27.300	BN 740		1013430	998659	11696	3074	98.5	1.2	0.3	618240	617437	583	220	99.9	0.1	0.0
BRISBANE	1051.895	26.765	BN 730		736167	721833	11827	2508	98.1	1.6	0.3	389061	388457	448	157	99.8	0.1	0.0
BRISBANE	1052.31	26.350	BN 720		779061	773012	4525	1524	99.2	0.6	0.2	410680	410220	357	103	99.9	0.1	0.0
BRISBANE	1052.37	26.290	BN 710	Merivale Bridge	Bridge							Bridge						
BRISBANE	1052.39	26.270	BN 700		776336	772353	2789	1195	99.5	0.4	0.2	415844	415262	472	110	99.9	0.1	0.0
BRISBANE	1052.595	26.065	BN 690		801070	797902	2665	503	99.6	0.3	0.1	472383	472131	217	36	99.9	0.0	0.0
BRISBANE	1052.607	26.053	BN 680	William Jolly Bridge	Bridge							Bridge						
BRISBANE	1052.64	26.020	BN 670		599039	596645	1319	1076	99.6	0.2	0.2	380066	379791	199	76	99.9	0.1	0.0
BRISBANE	1052.865	25.795	BN 660	Montague Road Gauge	527861	526418	1334	109	99.7	0.3	0.0	352647	352628	8	12	100.0	0.0	0.0
BRISBANE	1053.32	25.340	BN 650		362628	362357	43	228	99.9	0.0	0.1	194123	194087	10	27	100.0	0.0	0.0
BRISBANE	1053.356	25.304	BN 640	Victoria Bridge	Bridge							Bridge						
BRISBANE	1053.385	25.275	BN630		356090	354925	818	347	99.7	0.2	0.1	186868	186753	95	20	99.9	0.1	0.0
BRISBANE	1053.9	24.760	BN 620		372589	369592	531	2466	99.2	0.1	0.7	217250	216909	4	338	99.8	0.0	0.2
BRISBANE	1054.64	24.020	BN 610		617361	614118	307	2935	99.5	0.0	0.5	370375	369714	31	630	99.8	0.0	0.2
BRISBANE	1054.66	24.000	BN 600	Captain Cook Bridge	Bridge							Bridge						
BRISBANE	1054.68	23.980	BN 590		579194	573121		6073	99.0	0.0	1.0	367689	366954		735	99.8	0.0	0.2
BRISBANE	1054.97	23.690	BN 560		972507	964703	1494	6311	99.2	0.2	0.6	629645	628799	142	705	99.9	0.0	0.1
BRISBANE	1055.28	23.380	BN 550		1011175	1005454	4394	1327	99.4	0.4	0.1	658020	657449	401	171	99.9	0.1	0.0
BRISBANE	1055.42	23.240	BN 540		961915	958317	1491	2107	99.6	0.2	0.2	596027	595638	67	322	99.9	0.0	0.1
BRISBANE	1055.96	22.700	BN 530	Port Office Gauge	1051042	1047576	2568	898	99.7	0.2	0.1	643082	642634	448		99.9	0.1	0.0
BRISBANE	1056.4	22.260	BN 520		801994	799122	2534	338	99.6	0.3	0.0	491617	491070	547		99.9	0.1	0.0
BRISBANE	1056.695	21.965	BN 510		917018	914137	2733	148	99.7	0.3	0.0	598695	598141	554	0	99.9	0.1	0.0
BRISBANE	1056.865	21.795	BN 500		572493	571311	1144	38	99.8	0.2	0.0	395262	395081	180		100.0	0.0	0.0
BRISBANE	1056.92	21.740	BN 495	Story Bridge	Bridge							Bridge						
BRISBANE	1056.95	21.710	BN 490		596689	596329		361	99.9	0.0	0.1	425017	425017			100.0	0.0	0.0
BRISBANE	1057.09	21.570	BN 480		852010	848957	1010	2044	99.6	0.1	0.2	623767	623217	244	307	99.9	0.0	0.0
BRISBANE	1057.53	21.130	BN 470		671781	671294	369	118	99.9	0.1	0.0	461470	461432	23	15	100.0	0.0	0.0
BRISBANE	1058.04	20.620	BN 460		507478	506652	338	488	99.8	0.1	0.1	330855	330696	50	109	100.0	0.0	0.0
BRISBANE	1058.23	20.430	BN 450		509576	508102	707	767	99.7	0.1	0.2	338824	338632	151	41	99.9	0.0	0.0
BRISBANE	1058.53	20.130	BN 440		547876	547129	283	464	99.9	0.1	0.1	394732	394643	48	40	100.0	0.0	0.0
BRISBANE	1058.735	19.925	BN 430		476336	474166	542	1628	99.5	0.1	0.3	340108	339642	76	390	99.9	0.0	0.1
BRISBANE	1059.035	19.625	BN 420		421711	421196	135	380	99.9	0.0	0.1	313671	313645	9	17	100.0	0.0	0.0
BRISBANE	1059.54	19.120	BN 410		508420	507309	54	1056	99.8	0.0	0.2	357728	357476	3	249	99.9	0.0	0.1
BRISBANE	1059.99	18.670	BN 400		466569	465238	260	1071	99.7	0.1	0.2	318768	318578	88	103	99.9	0.0	0.0
BRISBANE	1060.345	18.315	BN 390		513249	512957	172	120	99.9	0.0	0.0	390772	390727	30	16	100.0	0.0	0.0
BRISBANE	1060.535	18.125	BN 380		604669	604251	170	248	99.9	0.0	0.0	470170	470089	29	52	100.0	0.0	0.0
BRISBANE	1061.015	17.645	BN 370		604381	603570	776	34	99.9	0.1	0.0	443928	443843	79	6	100.0	0.0	0.0
BRISBANE	1061.53	17.130	BN 360		563580	562977	602		99.9	0.1	0.0	432709	432537	172		100.0	0.0	0.0
BRISBANE	1062.02	16.640	BN 350		616367	615458	689	219	99.9	0.1	0.0	468560	468115	385	60	99.9	0.1	0.0
BRISBANE	1062.535	16.125	BN 340		645217	643290	605	1322	99.7	0.1	0.2	463831	463203	195	433	99.9	0.0	0.1
BRISBANE	1062.94	15.720	BN 330		800826	800063	440	323	99.9	0.1	0.0	577162	576827	154	182	99.9	0.0	0.0
BRISBANE	1063.31	15.350	BN 320	Newstead Park Gauge	536186	536038	148		100.0	0.0	0.0	406440	406413	27		100.0	0.0	0.0
BRISBANE	1063.645	15.015	BN 310	Cresent Road Gauge	621278	618467	2145	666	99.5	0.3	0.1	500465	499424	816	224	99.8	0.2	0.0
BRISBANE	1064	14.660	BN 300		670769	669123	1515	131	99.8	0.2	0.0	541442	540879	532	31	99.9	0.1	0.0
BRISBANE	1064.49	14.170	BN 290		635085	634070	888	127	99.8	0.1	0.0	515419	515158	229	32	99.9	0.0	0.0
BRISBANE	1065.01	13.650	BN 280		813116	812164	689	263	99.9	0.1	0.0	660492	660314	73	105	100.0	0.0	0.0
BRISBANE	1065.503	13.157	BN 270		919610	918778	832		99.9	0.1	0.0	758023	757863	160		100.0	0.0	0.0
BRISBANE	1065.99	12.670	BN 260	Cairncross Dock Gauge	1086542	1086542			100.0	0.0	0.0	904860	904860			100.0	0.0	0.0
BRISBANE	1066.505	12.155	BN 250		976146	975637		509	99.9	0.0	0.1	811936	811905		31	100.0	0.0	0.0
BRISBANE	1067.02	11.640	BN 240		1036259	1030838	2121	3300	99.5	0.2	0.3	857339	856200	724	414	99.9	0.1	0.0
BRISBANE	1067.485	11.175	BN 230		766947	762205	645	4097	99.4	0.1	0.5	617834	616266	173	1395	99.7	0.0	0.2
BRISBANE	1067.965	10.695	BN 220		724184	722411	38	1735	99.8	0.0	0.2	598741	598108	12	622	99.9	0.0	0.1

Table I-4 - HEC-RAS Predicted Conveyances

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI							20 YEAR ARI						
					TOTAL CONVEYANCE (m^3/s)	CHANNEL CONVEYANCE (m^3/s)	LEFT CONVEYANCE (m^3/s)	RIGHT CONVEYANCE (m^3/s)	% CHANNEL CONVEYANCE	% LEFT CONVEYANCE	% RIGHT CONVEYANCE	TOTAL CONVEYANCE (m^3/s)	CHANNEL CONVEYANCE (m^3/s)	LEFT CONVEYANCE (m^3/s)	RIGHT CONVEYANCE (m^3/s)	% CHANNEL CONVEYANCE	% LEFT CONVEYANCE	% RIGHT CONVEYANCE
BRISBANE	1068.66	10.000	BN 210		628796	627875	220	701	99.9	0.0	0.1	524757	524407	60	291	99.9	0.0	0.1
BRISBANE	1069.045	9.615	BN 200		653733	652569		1164	99.8	0.0	0.2	558390	557846		545	99.9	0.0	0.1
BRISBANE	1069.535	9.125	BN 190	Bulimba Power House Gauge	703154	701974		1180	99.8	0.0	0.2	605729	604998		731	99.9	0.0	0.1
BRISBANE	1070.025	8.635	BN 180		775320	774695	4	621	99.9	0.0	0.1	676164	675859	2	303	100.0	0.0	0.0
BRISBANE	1070.53	8.130	BN 170		718031	717738	274	19	100.0	0.0	0.0	627123	627018	103	3	100.0	0.0	0.0
BRISBANE	1071.04	7.620	BN 160		731226	730142	364	720	99.9	0.0	0.1	646346	645727	153	466	99.9	0.0	0.1
BRISBANE	1071.52	7.140	BN 150		1209461	1208298	749	414	99.9	0.1	0.0	1107901	1107385	420	95	100.0	0.0	0.0
BRISBANE	1072.015	6.645	BN 140		772750	772747		3	100.0	0.0	0.0	690071	690071		0	100.0	0.0	0.0
BRISBANE	1072.515	6.145	BN 130		908334	907136	1096	102	99.9	0.1	0.0	835138	834481	606	50	99.9	0.1	0.0
BRISBANE	1072.995	5.665	BN 120		918726	918552	65	109	100.0	0.0	0.0	842304	842214	35	55	100.0	0.0	0.0
BRISBANE	1073.485	5.175	BN 110		775434	774716	79	639	99.9	0.0	0.1	715218	714754	44	419	99.9	0.0	0.1
BRISBANE	1074	4.660	BN 100		795478	795207	96	175	100.0	0.0	0.0	740730	740558	56	115	100.0	0.0	0.0
BRISBANE	1074.46	4.200	BN 90		803353	803217	76	60	100.0	0.0	0.0	754708	754623	48	38	100.0	0.0	0.0
BRISBANE	1074.985	3.675	BN 80		666783	666654	55	75	100.0	0.0	0.0	636100	636009	39	53	100.0	0.0	0.0
BRISBANE	1075.48	3.180	BN 70		740283	735674	61	4548	99.4	0.0	0.6	709723	706016	46	3661	99.5	0.0	0.5
BRISBANE	1076	2.660	BN 60		1086764	1080048	86	6630	99.4	0.0	0.6	1041255	1035731	64	5459	99.5	0.0	0.5
BRISBANE	1076.495	2.165	BN 50		695470	695416		53	100.0	0.0	0.0	678503	678457		46	100.0	0.0	0.0
BRISBANE	1077.01	1.650	BN 40		1037931	1028392	533	9007	99.1	0.1	0.9	1016981	1008152	465	8364	99.1	0.0	0.8
BRISBANE	1077.51	1.150	BN 30		1921670	1921328	26	316	100.0	0.0	0.0	1894493	1894202	22	269	100.0	0.0	0.0
BRISBANE	1078.04	0.620	BN 20		2148044	2146871	1045	128	99.9	0.0	0.0	2128242	2127217	917	108	100.0	0.0	0.0
BRISBANE	1078.525	0.135	BN 10		1320378	1295085	25237	57	98.1	1.9	0.0	1320378	1295085	25237	57	98.1	1.9	0.0
BRISBANE	1078.66	0.000	-	Western Inner Bar Gauge	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix J - Design Hydraulic Model Results

TABLE J-1 - Flood Levels for the Regulation Lines & Revegetation Case for Flood Events 100 Year ARI to 2 Year ARI

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	REGULATION LINES & REVEGETATION IN PLACE					
					100 YEAR ARI WL (m AHD)	50 YEAR ARI WL (m AHD)	20 YEAR ARI WL (m AHD)	10 YEAR ARI WL (m AHD)	5 YEAR ARI WL (m AHD)	2 YEAR ARI WL (m AHD)
BRISBANE	1000	78.66	BN 2020		22.79	19.75	13.30	7.34	4.83	1.83
BRISBANE	1000.285	78.375	BN 2010		22.57	19.56	13.12	7.24	4.76	1.80
BRISBANE	1000.775	77.885	BN 2000		22.31	19.32	12.87	7.08	4.63	1.76
BRISBANE	1001.315	77.345	BN 1990		22.22	19.21	12.71	6.94	4.50	1.70
BRISBANE	1001.865	76.795	BN 1980		21.69	18.74	12.29	6.71	4.32	1.63
BRISBANE	1002.35	76.310	BN 1970		21.50	18.53	11.98	6.49	4.17	1.59
BRISBANE	1002.785	75.875	BN 1960		21.48	18.51	11.92	6.42	4.09	1.56
BRISBANE	1003.275	75.385	BN 1950		21.15	18.19	11.60	6.24	3.96	1.52
BRISBANE	1003.775	74.885	BN 1940		20.88	17.95	11.34	6.05	3.82	1.50
BRISBANE	1004.3	74.360	BN 1930		20.42	17.54	10.91	5.84	3.68	1.49
BRISBANE	1004.81	73.850	BN 1920		20.39	17.49	10.79	5.72	3.58	1.48
BRISBANE	1005.325	73.335	BN 1910		20.20	17.32	10.63	5.58	3.46	1.47
BRISBANE	1005.87	72.790	BN 1900		19.88	17.04	10.37	5.38	3.30	1.45
BRISBANE	1006.3	72.360	BN 1890	Moggill Gauge	19.72	16.90	10.27	5.29	3.23	1.44
BRISBANE	1006.91	71.750	BN 1880		19.52	16.69	10.08	5.16	3.15	1.42
BRISBANE	1007.41	71.250	BN 1870		19.42	16.60	9.99	5.08	3.08	1.40
BRISBANE	1007.92	70.740	BN 1860		19.09	16.33	9.79	4.94	3.00	1.38
BRISBANE	1008.445	70.215	BN 1850		18.96	16.21	9.70	4.88	2.95	1.36
BRISBANE	1008.925	69.735	BN 1840		18.89	16.14	9.63	4.83	2.92	1.35
BRISBANE	1009.4	69.260	BN 1830		18.79	16.04	9.56	4.79	2.89	1.35
BRISBANE	1009.72	68.940	BN 1820		18.73	16.00	9.53	4.77	2.88	1.34
BRISBANE	1010.49	68.170	BN 1810		18.43	15.75	9.36	4.68	2.83	1.33
BRISBANE	1010.725	67.935	BN 1800		18.44	15.75	9.37	4.68	2.82	1.33
BRISBANE	1010.98	67.680	BN 1790		18.38	15.69	9.33	4.66	2.81	1.33
BRISBANE	1011.51	67.150	BN 1780		18.37	15.68	9.28	4.62	2.79	1.32
BRISBANE	1011.98	66.680	BN 1770		18.36	15.63	9.23	4.58	2.76	1.32
BRISBANE	1012.475	66.185	BN 1760		18.31	15.56	9.16	4.53	2.73	1.31
BRISBANE	1012.935	65.725	BN 1750		18.20	15.47	9.08	4.48	2.70	1.30
BRISBANE	1013.445	65.215	BN 1740		18.11	15.38	9.01	4.44	2.67	1.29
BRISBANE	1013.91	64.750	BN 1730		18.05	15.31	8.94	4.38	2.63	1.28
BRISBANE	1014.31	64.350	BN 1720		18.01	15.25	8.88	4.34	2.60	1.27
BRISBANE	1014.61	64.050	BN 1710	Goodna Hospital Gauge	18.05	15.27	8.83	4.30	2.58	1.27
BRISBANE	1015.09	63.570	BN 1700		17.91	15.16	8.80	4.29	2.57	1.27
BRISBANE	1015.56	63.100	BN 1690		17.75	15.03	8.71	4.25	2.55	1.26
BRISBANE	1016.14	62.520	BN 1680		17.67	14.95	8.65	4.21	2.53	1.26
BRISBANE	1016.64	62.020	BN 1670		17.60	14.87	8.56	4.13	2.47	1.24
BRISBANE	1017.13	61.530	BN 1660		17.37	14.66	8.38	3.98	2.37	1.22
BRISBANE	1017.61	61.050	BN 1650		17.26	14.47	8.21	3.87	2.30	1.20
BRISBANE	1017.92	60.740	BN 1640		17.14	14.34	8.09	3.80	2.26	1.19
BRISBANE	1018.2	60.460	BN 1630		17.08	14.29	8.05	3.77	2.25	1.19
BRISBANE	1018.725	59.935	BN 1620		16.76	14.01	7.88	3.68	2.20	1.18
BRISBANE	1019.095	59.565	BN 1610		16.62	13.87	7.77	3.63	2.17	1.17
BRISBANE	1019.49	59.170	BN 1600		16.49	13.76	7.68	3.57	2.14	1.17
BRISBANE	1019.865	58.795	BN 1590		16.22	13.53	7.54	3.50	2.10	1.16
BRISBANE	1020.115	58.545	BN 1580		16.29	13.57	7.53	3.48	2.09	1.16
BRISBANE	1020.525	58.135	BN 1570		16.28	13.54	7.49	3.44	2.06	1.15
BRISBANE	1020.83	57.830	BN 1560		16.11	13.41	7.41	3.40	2.04	1.15
BRISBANE	1021.095	57.565	BN 1550		15.91	13.24	7.31	3.36	2.02	1.14
BRISBANE	1021.539	57.121	BN 1540		15.74	13.09	7.19	3.29	1.98	1.14
BRISBANE	1021.715	56.945	BN 1530		15.78	13.10	7.17	3.27	1.97	1.13
BRISBANE	1021.895	56.765	BN 1520		15.69	13.04	7.13	3.24	1.95	1.13
BRISBANE	1022.105	56.555	BN 1510		15.49	12.87	7.02	3.19	1.93	1.13
BRISBANE	1022.575	56.085	BN 1500		15.52	12.87	7.01	3.18	1.92	1.12
BRISBANE	1023.04	55.620	BN 1490		15.23	12.64	6.89	3.14	1.90	1.12
BRISBANE	1023.57	55.090	BN 1480		15.17	12.60	6.85	3.11	1.88	1.12
BRISBANE	1024.08	54.580	BN 1470		15.12	12.54	6.79	3.07	1.87	1.11
BRISBANE	1024.563	54.097	BN 1460		15.05	12.47	6.72	3.02	1.84	1.11
BRISBANE	1025.07	53.590	BN 1450		14.95	12.38	6.65	2.98	1.81	1.10
BRISBANE	1025.36	53.300	BN 1440		14.80	12.25	6.57	2.94	1.80	1.10
BRISBANE	1025.59	53.070	BN 1430		14.61	12.10	6.48	2.91	1.78	1.10
BRISBANE	1026.17	52.490	BN 1420		14.50	11.99	6.40	2.86	1.75	1.09
BRISBANE	1026.68	51.980	BN 1410	Mt Ommaney Gauge	14.38	11.87	6.30	2.81	1.73	1.09
BRISBANE	1026.9	51.760	BN 1400		14.21	11.75	6.24	2.79	1.72	1.09
BRISBANE	1027.16	51.500	BN 1390		14.12	11.68	6.20	2.77	1.71	1.09
BRISBANE	1027.68	50.980	BN 1380		14.19	11.70	6.18	2.75	1.70	1.08
BRISBANE	1028.18	50.480	BN 1370		14.19	11.70	6.17	2.74	1.69	1.08
BRISBANE	1028.68	49.980	BN 1360		14.10	11.62	6.11	2.71	1.68	1.08
BRISBANE	1028.72	49.940	BN1350	Centenary Bridge						
BRISBANE	1028.76	49.900	BN 1340		13.97	11.49	6.02	2.67	1.66	1.08
BRISBANE	1029.2	49.460	BN 1330		13.80	11.37	5.95	2.64	1.65	1.07
BRISBANE	1029.68	48.980	BN 1320		13.80	11.37	5.95	2.64	1.64	1.07
BRISBANE	1030.22	48.440	BN 1310		13.85	11.35	5.93	2.62	1.64	1.07
BRISBANE	1030.87	47.790	BN 1300		13.81	11.33	5.89	2.60	1.63	1.07
BRISBANE	1031.26	47.400	BN 1290		13.69	11.24	5.83	2.57	1.61	1.07
BRISBANE	1031.7	46.960	BN 1280	Darra Wharf Gauge	13.33	10.95	5.68	2.51	1.58	1.06
BRISBANE	1031.995	46.665	BN 1270		13.41	10.96	5.63	2.47	1.57	1.06
BRISBANE	1032.23	46.430	BN 1260		13.28	10.86	5.57	2.44	1.55	1.06
BRISBANE	1032.585	46.075	BN 1250		13.03	10.67	5.47	2.41	1.54	1.05
BRISBANE	1033.08	45.580	BN 1240		12.90	10.53	5.38	2.37	1.52	1.05
BRISBANE	1033.37	45.290	BN 1230		12.83	10.45	5.32	2.34	1.51	1.05
BRISBANE	1033.9	44.760	BN 1220		12.57	10.25	5.22	2.30	1.49	1.05
BRISBANE	1034.37	44.290	BN 1210		12.42	10.13	5.14	2.27	1.48	1.05
BRISBANE	1034.89	43.770	BN 1200	Sherwood Gauge	12.32	10.02	5.07	2.24	1.46	1.04

TABLE J-1 - Flood Levels for the Regulation Lines & Revegetation Case for Flood Events 100 Year ARI to 2 Year ARI

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	REGULATION LINES & REVEGETATION IN PLACE					
					100 YEAR ARI WL (m AHD)	50 YEAR ARI WL (m AHD)	20 YEAR ARI WL (m AHD)	10 YEAR ARI WL (m AHD)	5 YEAR ARI WL (m AHD)	2 YEAR ARI WL (m AHD)
BRISBANE	1035.414	43.246	BN 1190		12.08	9.82	4.95	2.19	1.44	1.04
BRISBANE	1035.9	42.760	BN 1180		11.76	9.55	4.79	2.13	1.41	1.04
BRISBANE	1036.46	42.200	BN 1170		11.46	9.30	4.64	2.07	1.39	1.03
BRISBANE	1036.77	41.890	BN 1160		11.39	9.21	4.56	2.03	1.37	1.03
BRISBANE	1036.915	41.745	BN 1150		11.23	9.10	4.52	2.01	1.36	1.03
BRISBANE	1037.09	41.570	BN 1140		11.20	9.07	4.51	2.01	1.36	1.03
BRISBANE	1037.11	41.550	BN 1130	Indooroopilly Bridge						
BRISBANE	1037.175	41.485	BN 1120		11.10	9.00	4.35	1.95	1.34	1.02
BRISBANE	1037.285	41.375	BN 1110	Clarence Road Gauge	11.04	8.94	4.32	1.94	1.33	1.02
BRISBANE	1037.625	41.035	BN 1100		11.02	8.92	4.28	1.92	1.32	1.02
BRISBANE	1038.085	40.575	BN 1090		10.99	8.88	4.26	1.91	1.32	1.02
BRISBANE	1038.6	40.060	BN 1080		10.98	8.84	4.21	1.89	1.31	1.02
BRISBANE	1039.1	39.560	BN 1070		11.05	8.90	4.21	1.87	1.30	1.02
BRISBANE	1039.565	39.095	BN 1060	Oxley Creek Gauge	11.00	8.83	4.17	1.86	1.30	1.02
BRISBANE	1040.09	38.570	BN 1050	King Authur Terrace Gauge	10.93	8.79	4.17	1.86	1.30	1.02
BRISBANE	1040.49	38.170	BN 1040		10.80	8.68	4.11	1.85	1.29	1.01
BRISBANE	1041.01	37.650	BN 1030		10.86	8.70	4.11	1.85	1.29	1.01
BRISBANE	1041.23	37.430	BN 1020		10.80	8.65	4.08	1.83	1.29	1.01
BRISBANE	1041.46	37.200	BN 1010	Tennyson Power House Gauge	10.72	8.59	4.04	1.82	1.28	1.01
BRISBANE	1041.7	36.960	BN 1000		10.69	8.56	4.04	1.82	1.28	1.01
BRISBANE	1041.96	36.700	BN 990	Yeronga Street Gauge	10.58	8.43	3.97	1.80	1.27	1.01
BRISBANE	1042.235	36.425	BN 980		10.41	8.30	3.91	1.78	1.27	1.01
BRISBANE	1042.515	36.145	BN 970		10.40	8.29	3.90	1.78	1.26	1.01
BRISBANE	1042.91	35.750	BN 960		10.23	8.14	3.82	1.75	1.25	1.01
BRISBANE	1043.725	34.935	BN 950		9.98	7.91	3.67	1.69	1.23	1.00
BRISBANE	1044.06	34.600	BN 940	Sandy Creek Gauge	9.86	7.82	3.63	1.68	1.22	1.00
BRISBANE	1044.34	34.320	BN 930		9.69	7.68	3.56	1.65	1.21	1.00
BRISBANE	1044.605	34.055	BN 920		9.65	7.63	3.52	1.64	1.21	1.00
BRISBANE	1044.86	33.800	BN 910		9.59	7.57	3.49	1.63	1.20	1.00
BRISBANE	1045.4	33.260	BN 900		9.40	7.40	3.39	1.59	1.19	0.99
BRISBANE	1045.885	32.775	BN 890		9.23	7.21	3.28	1.56	1.17	0.99
BRISBANE	1046.18	32.480	BN 880		9.17	7.17	3.26	1.55	1.17	0.99
BRISBANE	1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	9.11	7.13	3.25	1.55	1.17	0.99
BRISBANE	1046.58	32.080	BN 860		9.08	7.08	3.22	1.54	1.17	0.99
BRISBANE	1046.9	31.760	BN 850		8.87	6.91	3.14	1.52	1.16	0.99
BRISBANE	1047.35	31.310	BN 840		8.47	6.60	2.99	1.47	1.14	0.98
BRISBANE	1047.915	30.745	BN 830	Highgate Hill Gauge	8.24	6.40	2.91	1.45	1.13	0.98
BRISBANE	1048.375	30.285	BN 820		8.29	6.43	2.91	1.45	1.13	0.98
BRISBANE	1048.89	29.770	BN 810	St Lucia Ferry Gauge	8.08	6.24	2.80	1.41	1.12	0.98
BRISBANE	1049.12	29.540	BN 800		8.03	6.20	2.78	1.40	1.12	0.98
BRISBANE	1049.37	29.290	BN 790		7.85	6.05	2.72	1.39	1.11	0.98
BRISBANE	1049.59	29.070	BN 780		7.82	6.03	2.71	1.39	1.11	0.98
BRISBANE	1049.87	28.790	BN 770		7.70	5.94	2.67	1.37	1.10	0.98
BRISBANE	1050.43	28.230	BN 760		7.66	5.89	2.62	1.36	1.10	0.97
BRISBANE	1050.86	27.800	BN 750		7.53	5.79	2.58	1.34	1.09	0.97
BRISBANE	1051.36	27.300	BN 740		7.54	5.78	2.58	1.35	1.09	0.97
BRISBANE	1051.895	26.765	BN 730		7.37	5.62	2.50	1.32	1.08	0.97
BRISBANE	1052.31	26.350	BN 720		7.51	5.71	2.52	1.33	1.09	0.97
BRISBANE	1052.37	26.290	BN 710	Merivale Bridge						
BRISBANE	1052.39	26.270	BN 700		7.31	5.57	2.47	1.31	1.08	0.97
BRISBANE	1052.595	26.065	BN 690		7.22	5.50	2.45	1.31	1.08	0.97
BRISBANE	1052.607	26.053	BN 680	William Jolly Bridge						
BRISBANE	1052.64	26.020	BN 670		6.69	5.13	2.37	1.29	1.07	0.96
BRISBANE	1052.865	25.795	BN 660	Montague Road Gauge	6.54	5.03	2.34	1.28	1.07	0.96
BRISBANE	1053.32	25.340	BN 650		6.47	4.95	2.29	1.27	1.06	0.96
BRISBANE	1053.356	25.304	BN 640	Victoria Bridge						
BRISBANE	1053.385	25.275	BN630		6.40	4.90	2.27	1.26	1.05	0.96
BRISBANE	1053.9	24.760	BN 620		5.98	4.54	2.11	1.21	1.03	0.95
BRISBANE	1054.64	24.020	BN 610		5.86	4.42	2.03	1.19	1.03	0.95
BRISBANE	1054.66	24.000	BN 600	Captain Cook Bridge						
BRISBANE	1054.68	23.980	BN 590		5.76	4.34	2.00	1.18	1.02	0.95
BRISBANE	1054.97	23.690	BN 560		5.52	4.15	1.93	1.16	1.01	0.95
BRISBANE	1055.28	23.380	BN 550		5.44	4.11	1.92	1.16	1.01	0.95
BRISBANE	1055.42	23.240	BN 540		5.43	4.09	1.91	1.16	1.01	0.95
BRISBANE	1055.96	22.700	BN 530	Port Office Gauge	5.38	4.05	1.89	1.15	1.01	0.95
BRISBANE	1056.4	22.260	BN 520		5.13	3.86	1.82	1.14	1.00	0.95
BRISBANE	1056.695	21.965	BN 510		5.06	3.81	1.80	1.13	1.00	0.95
BRISBANE	1056.865	21.795	BN 500		5.27	3.95	1.85	1.14	1.00	0.95
BRISBANE	1056.92	21.740	BN 495	Story Bridge						
BRISBANE	1056.95	21.710	BN 490		5.16	3.88	1.82	1.13	1.00	0.95
BRISBANE	1057.09	21.570	BN 480		5.01	3.77	1.79	1.12	0.99	0.95
BRISBANE	1057.53	21.130	BN 470		4.87	3.67	1.76	1.12	0.99	0.95
BRISBANE	1058.04	20.620	BN 460		4.61	3.47	1.68	1.10	0.98	0.95
BRISBANE	1058.23	20.430	BN 450		4.53	3.40	1.66	1.09	0.98	0.95
BRISBANE	1058.53	20.130	BN 440		4.39	3.31	1.63	1.09	0.98	0.94
BRISBANE	1058.735	19.925	BN 430		4.42	3.32	1.63	1.09	0.98	0.94
BRISBANE	1059.035	19.625	BN 420		4.15	3.13	1.57	1.07	0.97	0.94
BRISBANE	1059.54	19.120	BN 410		4.11	3.09	1.55	1.07	0.97	0.94
BRISBANE	1059.99	18.670	BN 400		3.90	2.92	1.49	1.05	0.97	0.94
BRISBANE	1060.345	18.315	BN 390		3.64	2.74	1.43	1.04	0.96	0.94
BRISBANE	1060.535	18.125	BN 380		3.50	2.65	1.41	1.03	0.96	0.94
BRISBANE	1061.015	17.645	BN 370		3.46	2.61	1.39	1.03	0.96	0.94
BRISBANE	1061.53	17.130	BN 360		3.24	2.46	1.35	1.02	0.96	0.94

TABLE J-1 - Flood Levels for the Regulation Lines & Revegetation Case for Flood Events 100 Year ARI to 2 Year ARI

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	REGULATION LINES & REVEGETATION IN PLACE 100 YEAR ARI WL (m AHD)	50 YEAR ARI WL (m AHD)	20 YEAR ARI WL (m AHD)	10 YEAR ARI WL (m AHD)	5 YEAR ARI WL (m AHD)	2 YEAR ARI WL (m AHD)
BRISBANE	1062.02	16.640	BN 350		3.16	2.40	1.32	1.01	0.95	0.94
BRISBANE	1062.535	16.125	BN 340		3.12	2.36	1.31	1.01	0.95	0.94
BRISBANE	1062.94	15.720	BN 330		3.11	2.35	1.30	1.01	0.95	0.94
BRISBANE	1063.31	15.350	BN 320	Newstead Park Gauge	2.99	2.26	1.28	1.00	0.95	0.94
BRISBANE	1063.645	15.015	BN 310	Cresent Road Gauge	2.70	2.06	1.22	0.99	0.95	0.94
BRISBANE	1064	14.660	BN 300		2.66	2.04	1.21	0.99	0.94	0.94
BRISBANE	1064.49	14.170	BN 290		2.53	1.95	1.19	0.98	0.94	0.94
BRISBANE	1065.01	13.650	BN 280		2.55	1.96	1.19	0.98	0.94	0.94
BRISBANE	1065.503	13.157	BN 270		2.51	1.93	1.18	0.98	0.94	0.94
BRISBANE	1065.99	12.670	BN 260	Cairncross Dock Gauge	2.54	1.95	1.19	0.98	0.94	0.94
BRISBANE	1066.505	12.155	BN 250		2.46	1.90	1.17	0.98	0.94	0.94
BRISBANE	1067.02	11.640	BN 240		2.41	1.86	1.16	0.97	0.94	0.94
BRISBANE	1067.485	11.175	BN 230		2.29	1.78	1.14	0.97	0.94	0.94
BRISBANE	1067.965	10.695	BN 220		2.18	1.71	1.12	0.96	0.94	0.94
BRISBANE	1068.66	10.000	BN 210		2.00	1.59	1.09	0.96	0.93	0.94
BRISBANE	1069.045	9.615	BN 200		1.93	1.55	1.08	0.95	0.93	0.94
BRISBANE	1069.535	9.125	BN 190	Bulimba Power House Gauge	1.87	1.51	1.06	0.95	0.93	0.93
BRISBANE	1070.025	8.635	BN 180		1.80	1.46	1.05	0.95	0.93	0.93
BRISBANE	1070.53	8.130	BN 170		1.70	1.40	1.04	0.95	0.93	0.93
BRISBANE	1071.04	7.620	BN 160		1.62	1.34	1.02	0.94	0.93	0.93
BRISBANE	1071.52	7.140	BN 150		1.66	1.37	1.03	0.94	0.93	0.93
BRISBANE	1072.015	6.645	BN 140		1.62	1.35	1.02	0.94	0.93	0.93
BRISBANE	1072.515	6.145	BN 130		1.50	1.27	1.00	0.94	0.93	0.93
BRISBANE	1072.995	5.665	BN 120		1.46	1.25	1.00	0.94	0.93	0.93
BRISBANE	1073.485	5.175	BN 110		1.36	1.18	0.98	0.93	0.93	0.93
BRISBANE	1074	4.660	BN 100		1.28	1.14	0.97	0.93	0.93	0.93
BRISBANE	1074.46	4.200	BN 90		1.23	1.10	0.96	0.93	0.93	0.93
BRISBANE	1074.985	3.675	BN 80		1.09	1.02	0.94	0.93	0.92	0.93
BRISBANE	1075.48	3.180	BN 70		1.05	1.00	0.94	0.92	0.92	0.92
BRISBANE	1076	2.660	BN 60		1.07	1.01	0.94	0.92	0.92	0.92
BRISBANE	1076.495	2.165	BN 50		0.95	0.94	0.92	0.92	0.92	0.92
BRISBANE	1077.01	1.650	BN 40		0.97	0.95	0.93	0.92	0.92	0.92
BRISBANE	1077.51	1.150	BN 30		0.97	0.95	0.93	0.92	0.92	0.92
BRISBANE	1078.04	0.620	BN 20		0.95	0.94	0.92	0.92	0.92	0.92
BRISBANE	1078.525	0.135	BN 10		0.92	0.92	0.92	0.92	0.92	0.92
BRISBANE	1078.66	0.000	-	Western Inner Bar Gauge	0.92	0.92	0.92	0.92	0.92	0.92
BREMER	599.4	-	-		19.76	16.93	10.29	5.31	3.24	1.44
BREMER	600	-	-		19.76	16.93	10.29	5.31	3.24	1.45
OXLEY	599.4	-	-		10.96	8.80	4.17	1.86	1.30	1.01
OXLEY	600	-	-		10.96	8.80	4.17	1.86	1.30	1.02
BREAKFAST	599.4	-	-		3.06	2.31	1.29	1.00	0.95	0.94
BREAKFAST	600	-	-		3.06	2.31	1.29	1.00	0.95	0.94
BULIMBA	599.4	-	-		1.62	1.35	1.02	0.94	0.93	0.93
BULIMBA	600	-	-		1.62	1.35	1.02	0.94	0.93	0.93
CENTWEIR	0	-	-		14.10	11.62	6.11	2.71	1.68	1.08
CENTWEIR	0.08	-	-		13.97	11.49	6.02	2.67	1.66	1.08
INDOORWEIR	0	-	-		11.20	9.07	4.51	2.01	1.36	1.03
INDOORWEIR	0.085	-	-		11.10	9.00	4.35	1.95	1.34	1.02
WILLIAMWEIR	0	-	-		7.22	5.50	2.45	1.31	1.08	0.97
WILLIAMWEIR	0.045	-	-		6.69	5.13	2.37	1.29	1.07	0.96
VICTORIAWEIR	0	-	-		6.47	4.95	2.29	1.27	1.06	0.96
VICTORIAWEIR	0.065	-	-		6.40	4.90	2.27	1.26	1.05	0.96
CAPTAINWEIR	0	-	-		5.86	4.42	2.03	1.19	1.03	0.95
CAPTAINWEIR	0.04	-	-		5.76	4.34	2.00	1.18	1.02	0.95
STORYWEIR	0	-	-		5.27	3.95	1.85	1.14	1.00	0.95
STORYWEIR	0.085	-	-		5.16	3.88	1.82	1.13	1.00	0.95
MERIVALEWEIR	0	-	-		7.51	5.71	2.52	1.33	1.09	0.97
MERIVALEWEIR	0.08	-	-		7.31	5.57	2.47	1.31	1.08	0.97
GOODNALINK1	0	-	-		18.16	15.43	9.05	4.47	2.69	1.30
GOODNALINK1	1	-	-		17.50	14.78	8.48	4.06	2.42	1.23
GOODNALINK2	0	-	-		18.08	15.34	8.98	4.41	2.65	1.29
GOODNALINK2	1.07	-	-		17.71	14.99	8.68	4.23	2.54	1.26
STLUCIALINK1	0	-	-		11.04	8.89	4.20	1.87	1.30	1.02
STLUCIALINK1	1.05	-	-		10.22	8.11	3.78	1.73	1.24	1.00
STLUCIALINK2	0	-	-		10.99	8.81	4.17	1.86	1.30	1.02
STLUCIALINK2	1.05	-	-		10.24	8.13	3.79	1.74	1.25	1.01
STLUCIALINK3	0	-	-		10.88	8.76	4.15	1.86	1.30	1.02
STLUCIALINK3	0.85	-	-		10.40	8.29	3.90	1.78	1.26	1.01

TABLE J-2 - Discharges for the Regulation Lines & Revegetation Case for the Flood Events 100 Year ARI to 2 Year ARI

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	DESIGN EVENTS (REG LINE & REVEG CASE)					
			100 YEAR ARI Q (m^3/s)	50 YEAR ARI Q (m^3/s)	20 YEAR ARI Q (m^3/s)	10 YEAR ARI Q (m^3/s)	5 YEAR ARI Q (m^3/s)	2 YEAR ARI Q (m^3/s)
BRISBANE	1000.14	78.52	9235	7185	4225	1627	930	284
BRISBANE	1000.53	78.13	9234	7184	4223	1627	930	283
BRISBANE	1001.05	77.62	9232	7182	4219	1626	929	283
BRISBANE	1001.59	77.07	9229	7179	4214	1624	928	283
BRISBANE	1002.11	76.55	9227	7177	4211	1623	928	283
BRISBANE	1002.57	76.09	9225	7175	4207	1623	927	283
BRISBANE	1003.03	75.63	9223	7172	4202	1622	927	283
BRISBANE	1003.53	75.14	9220	7170	4198	1621	926	283
BRISBANE	1004.04	74.62	9218	7167	4193	1619	926	283
BRISBANE	1004.56	74.11	9215	7165	4189	1618	925	283
BRISBANE	1005.07	73.59	9212	7161	4181	1617	924	283
BRISBANE	1005.60	73.06	9208	7157	4172	1615	923	283
BRISBANE	1006.04	72.63	9206	7154	4165	1614	923	283
BRISBANE	1006.25	72.41	9570	7354	3648	1598	952	365
BRISBANE	1006.61	72.06	9570	7353	3646	1598	952	365
BRISBANE	1007.16	71.50	9569	7351	3642	1597	951	365
BRISBANE	1007.67	71.00	9567	7349	3637	1597	951	365
BRISBANE	1008.18	70.48	9567	7347	3634	1596	951	365
BRISBANE	1008.69	69.98	9566	7346	3631	1596	951	365
BRISBANE	1009.16	69.50	9565	7344	3629	1596	951	365
BRISBANE	1009.56	69.10	9565	7343	3626	1595	950	365
BRISBANE	1010.11	68.56	9563	7341	3623	1595	950	365
BRISBANE	1010.61	68.05	9563	7340	3621	1594	950	365
BRISBANE	1010.85	67.81	9562	7339	3620	1594	950	365
BRISBANE	1011.25	67.42	9562	7338	3618	1594	950	365
BRISBANE	1011.75	66.92	9561	7335	3614	1594	949	365
BRISBANE	1012.23	66.43	9559	7332	3610	1593	949	365
BRISBANE	1012.71	65.96	9557	7328	3605	1593	949	365
BRISBANE	1013.06	65.60	9555	7326	3602	1593	949	365
BRISBANE	1013.32	65.34	9363	7324	3600	1592	949	365
BRISBANE	1013.56	65.10	9362	7323	3598	1592	949	365
BRISBANE	1013.80	64.87	9290	7322	3596	1592	949	365
BRISBANE	1014.11	64.55	9289	7321	3592	1591	948	365
BRISBANE	1014.46	64.20	9287	7319	3588	1591	948	365
BRISBANE	1014.85	63.81	9284	7317	3583	1590	948	365
BRISBANE	1015.33	63.34	9283	7317	3581	1590	948	365
BRISBANE	1015.71	62.96	9282	7316	3579	1590	948	366
BRISBANE	1016.00	62.67	9352	7316	3578	1590	948	366
BRISBANE	1016.39	62.27	9351	7315	3576	1590	947	366
BRISBANE	1016.77	61.90	9349	7314	3574	1589	947	366
BRISBANE	1017.01	61.65	9538	7313	3572	1589	947	366
BRISBANE	1017.37	61.29	9537	7313	3570	1589	947	366
BRISBANE	1017.77	60.90	9536	7312	3568	1589	947	366
BRISBANE	1018.06	60.60	9535	7311	3566	1589	947	366
BRISBANE	1018.46	60.20	9534	7310	3564	1589	947	366
BRISBANE	1018.91	59.75	9532	7309	3563	1588	947	366
BRISBANE	1019.29	59.37	9531	7308	3561	1588	947	366
BRISBANE	1019.68	58.98	9529	7307	3560	1588	947	366
BRISBANE	1019.99	58.67	9528	7307	3559	1588	947	366
BRISBANE	1020.32	58.34	9527	7306	3557	1588	947	366
BRISBANE	1020.68	57.98	9525	7304	3554	1587	947	366
BRISBANE	1020.96	57.70	9524	7304	3553	1587	947	366
BRISBANE	1021.32	57.34	9523	7303	3552	1587	946	366
BRISBANE	1021.63	57.03	9523	7302	3550	1587	946	366
BRISBANE	1021.81	56.86	9523	7302	3549	1587	946	366
BRISBANE	1022.00	56.66	9522	7301	3548	1587	946	367
BRISBANE	1022.34	56.32	9522	7301	3547	1587	946	367
BRISBANE	1022.81	55.85	9522	7301	3545	1586	946	367
BRISBANE	1023.31	55.36	9522	7300	3544	1586	946	367
BRISBANE	1023.83	54.84	9522	7300	3543	1586	946	367
BRISBANE	1024.32	54.34	9521	7300	3541	1586	946	367
BRISBANE	1024.82	53.84	9521	7301	3539	1586	946	367
BRISBANE	1025.22	53.45	9521	7301	3538	1586	946	367

TABLE J-2 - Discharges for the Regulation Lines & Revegetation Case for the Flood Events 100 Year ARI to 2 Year ARI

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	DESIGN EVENTS (REG LINE & REVEG CASE) 100 YEAR ARI Q (m^3/s)	50 YEAR ARI Q (m^3/s)	20 YEAR ARI Q (m^3/s)	10 YEAR ARI Q (m^3/s)	5 YEAR ARI Q (m^3/s)	2 YEAR ARI Q (m^3/s)
BRISBANE	1025.48	53.19	9521	7301	3537	1586	946	367
BRISBANE	1025.88	52.78	9521	7302	3536	1586	946	367
BRISBANE	1026.43	52.24	9522	7304	3534	1585	946	367
BRISBANE	1026.79	51.87	9523	7305	3533	1585	946	367
BRISBANE	1027.03	51.63	9524	7307	3532	1585	946	367
BRISBANE	1027.42	51.24	9525	7308	3531	1585	946	367
BRISBANE	1027.93	50.73	9526	7312	3529	1585	946	367
BRISBANE	1028.43	50.23	9526	7317	3526	1585	946	367
BRISBANE	1028.72	49.94	9258	7315	3525	1585	946	367
BRISBANE	1028.98	49.68	9527	7318	3524	1585	946	367
BRISBANE	1029.44	49.22	9527	7313	3523	1585	946	367
BRISBANE	1029.95	48.71	9526	7308	3521	1585	946	368
BRISBANE	1030.55	48.11	9524	7302	3519	1584	946	368
BRISBANE	1031.07	47.59	9522	7298	3517	1584	946	368
BRISBANE	1031.48	47.18	9520	7295	3516	1584	946	368
BRISBANE	1031.85	46.81	9519	7293	3515	1584	946	368
BRISBANE	1032.11	46.55	9518	7291	3514	1584	946	368
BRISBANE	1032.41	46.25	9516	7289	3513	1584	946	368
BRISBANE	1032.83	45.83	9514	7287	3512	1584	946	368
BRISBANE	1033.23	45.44	9512	7285	3511	1584	946	368
BRISBANE	1033.64	45.03	9510	7282	3509	1584	946	368
BRISBANE	1034.14	44.53	9508	7279	3508	1584	946	368
BRISBANE	1034.63	44.03	9506	7277	3507	1584	946	368
BRISBANE	1035.15	43.51	9503	7274	3505	1584	946	368
BRISBANE	1035.66	43.00	9501	7272	3503	1584	946	368
BRISBANE	1036.18	42.48	9498	7269	3502	1584	946	368
BRISBANE	1036.62	42.05	9497	7268	3500	1583	946	368
BRISBANE	1036.84	41.82	9495	7267	3500	1583	946	368
BRISBANE	1037.00	41.66	9495	7266	3499	1583	946	369
BRISBANE	1037.11	41.55	9494	7266	3499	1583	946	369
BRISBANE	1037.23	41.43	9494	7265	3498	1583	946	369
BRISBANE	1037.46	41.21	9493	7264	3498	1583	945	369
BRISBANE	1037.86	40.81	9491	7263	3496	1583	945	369
BRISBANE	1038.34	40.32	9489	7261	3494	1583	945	369
BRISBANE	1038.85	39.81	9486	7258	3491	1583	945	369
BRISBANE	1039.15	39.51	9482	7254	3488	1583	945	369
BRISBANE	1039.38	39.28	9286	7195	3486	1583	945	369
BRISBANE	1039.62	39.04	9281	7192	3485	1583	945	369
BRISBANE	1039.75	38.91	9086	7164	3484	1583	945	369
BRISBANE	1039.96	38.70	8723	6963	3412	1582	946	414
BRISBANE	1040.17	38.49	8723	6962	3412	1582	946	414
BRISBANE	1040.37	38.29	8595	6962	3411	1582	946	414
BRISBANE	1040.75	37.91	8595	6961	3411	1582	946	414
BRISBANE	1041.12	37.54	8594	6960	3411	1582	946	415
BRISBANE	1041.35	37.32	8594	6960	3410	1582	946	415
BRISBANE	1041.58	37.08	8594	6959	3410	1582	946	415
BRISBANE	1041.83	36.83	8593	6959	3410	1582	946	415
BRISBANE	1042.10	36.56	8593	6959	3410	1582	946	415
BRISBANE	1042.37	36.29	8592	6959	3410	1582	946	415
BRISBANE	1042.51	36.15	8719	6959	3410	1582	946	415
BRISBANE	1042.71	35.95	8718	6959	3410	1582	946	415
BRISBANE	1042.96	35.70	8717	6959	3410	1582	946	415
BRISBANE	1043.05	35.61	8975	6991	3410	1582	946	415
BRISBANE	1043.10	35.57	8975	6991	3410	1582	946	415
BRISBANE	1043.42	35.24	9200	7057	3409	1582	946	415
BRISBANE	1043.89	34.77	9201	7057	3409	1582	946	415
BRISBANE	1044.20	34.46	9202	7057	3409	1582	946	415
BRISBANE	1044.47	34.19	9203	7058	3409	1582	946	416
BRISBANE	1044.73	33.93	9204	7058	3409	1582	946	416
BRISBANE	1045.13	33.53	9206	7058	3409	1582	946	416
BRISBANE	1045.64	33.02	9210	7059	3409	1582	946	416
BRISBANE	1046.03	32.63	9215	7059	3408	1582	946	416
BRISBANE	1046.26	32.40	9217	7060	3408	1582	946	416

TABLE J-2 - Discharges for the Regulation Lines & Revegetation Case for the Flood Events 100 Year ARI to 2 Year ARI

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	DESIGN EVENTS (REG LINE & REVEG CASE) 100 YEAR ARI Q (m^3/s)	50 YEAR ARI Q (m^3/s)	20 YEAR ARI Q (m^3/s)	10 YEAR ARI Q (m^3/s)	5 YEAR ARI Q (m^3/s)	2 YEAR ARI Q (m^3/s)
BRISBANE	1046.46	32.20	9218	7060	3408	1582	946	416
BRISBANE	1046.74	31.92	9220	7060	3408	1582	946	416
BRISBANE	1047.13	31.54	9222	7060	3408	1582	946	416
BRISBANE	1047.63	31.03	9223	7060	3408	1582	946	417
BRISBANE	1048.15	30.52	9223	7060	3408	1582	946	417
BRISBANE	1048.63	30.03	9221	7060	3408	1582	946	417
BRISBANE	1049.01	29.65	9218	7061	3408	1582	946	417
BRISBANE	1049.25	29.42	9217	7062	3408	1582	946	417
BRISBANE	1049.48	29.18	9215	7063	3408	1582	946	417
BRISBANE	1049.73	28.93	9212	7064	3408	1582	946	417
BRISBANE	1050.15	28.51	9212	7066	3408	1582	946	417
BRISBANE	1050.65	28.02	9225	7075	3408	1582	946	417
BRISBANE	1051.11	27.55	9238	7083	3408	1582	946	418
BRISBANE	1051.63	27.03	9253	7093	3408	1582	946	418
BRISBANE	1052.10	26.56	9301	7102	3408	1582	946	418
BRISBANE	1052.35	26.31	9335	7110	3408	1582	946	418
BRISBANE	1052.49	26.17	9348	7113	3408	1582	946	418
BRISBANE	1052.63	26.04	9360	7119	3408	1582	946	418
BRISBANE	1052.75	25.91	9356	7111	3408	1582	946	418
BRISBANE	1053.09	25.57	9347	7104	3408	1582	946	418
BRISBANE	1053.36	25.31	9327	7098	3408	1582	946	418
BRISBANE	1053.64	25.02	9309	7090	3408	1582	946	418
BRISBANE	1054.27	24.39	9329	7086	3407	1582	946	418
BRISBANE	1054.66	24.00	9314	7084	3407	1582	946	419
BRISBANE	1054.83	23.84	9310	7084	3407	1582	946	419
BRISBANE	1055.13	23.54	9304	7084	3407	1582	946	419
BRISBANE	1055.35	23.31	9300	7083	3407	1582	946	419
BRISBANE	1055.69	22.97	9291	7082	3407	1582	946	419
BRISBANE	1056.18	22.48	9270	7080	3408	1582	946	419
BRISBANE	1056.55	22.11	9260	7078	3408	1582	946	419
BRISBANE	1056.78	21.88	9254	7077	3408	1582	946	419
BRISBANE	1056.92	21.74	9245	7075	3408	1582	946	419
BRISBANE	1057.02	21.64	9241	7074	3408	1582	946	419
BRISBANE	1057.31	21.35	9235	7073	3408	1582	946	419
BRISBANE	1057.79	20.87	9225	7070	3408	1582	946	419
BRISBANE	1058.14	20.53	9219	7068	3408	1582	946	420
BRISBANE	1058.38	20.28	9221	7067	3408	1582	946	420
BRISBANE	1058.63	20.03	9223	7066	3408	1582	946	420
BRISBANE	1058.89	19.78	9224	7064	3408	1582	946	420
BRISBANE	1059.29	19.37	9225	7063	3408	1582	946	420
BRISBANE	1059.77	18.89	9222	7064	3408	1582	946	420
BRISBANE	1060.17	18.49	9219	7066	3408	1582	946	420
BRISBANE	1060.44	18.22	9218	7066	3408	1582	946	420
BRISBANE	1060.78	17.88	9217	7066	3408	1582	946	420
BRISBANE	1061.27	17.39	9213	7067	3408	1582	946	420
BRISBANE	1061.78	16.88	9210	7067	3408	1582	946	420
BRISBANE	1062.28	16.38	9206	7067	3408	1582	946	420
BRISBANE	1062.74	15.92	9205	7066	3408	1582	946	421
BRISBANE	1063.03	15.63	9206	7065	3408	1582	946	421
BRISBANE	1063.22	15.44	9200	7055	3408	1582	946	428
BRISBANE	1063.48	15.18	9198	7054	3408	1582	946	428
BRISBANE	1063.82	14.84	9197	7054	3408	1582	946	428
BRISBANE	1064.25	14.42	9197	7053	3408	1582	946	428
BRISBANE	1064.75	13.91	9197	7053	3408	1582	946	429
BRISBANE	1065.26	13.40	9197	7053	3408	1582	946	429
BRISBANE	1065.75	12.91	9197	7053	3408	1582	946	429
BRISBANE	1066.25	12.41	9197	7053	3408	1582	946	429
BRISBANE	1066.76	11.90	9197	7053	3408	1582	946	429
BRISBANE	1067.25	11.41	9197	7052	3408	1582	946	429
BRISBANE	1067.73	10.94	9197	7052	3408	1582	946	429
BRISBANE	1068.31	10.35	9197	7052	3408	1582	946	430
BRISBANE	1068.85	9.81	9197	7053	3408	1582	946	430
BRISBANE	1069.29	9.37	9198	7053	3408	1582	946	430

TABLE J-2 - Discharges for the Regulation Lines & Revegetation Case for the Flood Events 100 Year ARI to 2 Year ARI

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	DESIGN EVENTS (REG LINE & REVEG CASE) 100 YEAR ARI Q (m³/s)	50 YEAR ARI Q (m³/s)	20 YEAR ARI Q (m³/s)	10 YEAR ARI Q (m³/s)	5 YEAR ARI Q (m³/s)	2 YEAR ARI Q (m³/s)
BRISBANE	1069.78	8.88	9198	7053	3408	1582	946	430
BRISBANE	1070.28	8.38	9198	7054	3408	1582	946	430
BRISBANE	1070.79	7.87	9198	7054	3408	1583	946	430
BRISBANE	1071.28	7.38	9199	7054	3408	1583	946	430
BRISBANE	1071.77	6.89	9199	7054	3408	1583	946	430
BRISBANE	1072.02	6.64	9199	7054	3409	1583	946	430
BRISBANE	1072.27	6.39	9191	7051	3409	1583	951	504
BRISBANE	1072.76	5.90	9191	7051	3409	1583	951	504
BRISBANE	1073.24	5.42	9191	7051	3409	1583	952	504
BRISBANE	1073.74	4.92	9191	7051	3409	1583	952	504
BRISBANE	1074.23	4.43	9191	7051	3409	1583	952	505
BRISBANE	1074.72	3.94	9191	7051	3409	1583	952	505
BRISBANE	1075.23	3.43	9191	7051	3409	1583	952	505
BRISBANE	1075.74	2.92	9191	7051	3409	1583	953	505
BRISBANE	1076.25	2.41	9191	7052	3409	1583	953	505
BRISBANE	1076.75	1.91	9192	7052	3409	1583	953	505
BRISBANE	1077.26	1.40	9192	7052	3409	1583	953	506
BRISBANE	1077.78	0.88	9192	7052	3409	1583	953	506
BRISBANE	1078.28	0.38	9192	7052	3409	1583	953	506
BRISBANE	1078.59	0.07	9192	7052	3409	1583	953	506
BREMER	599.70	-	2204	1890	951	862	628	230
OXLEY	599.70	-	1195	849	474	400	307	164
BREAKFAST	599.70	-	408	335	249	201	168	99
BULIMBA	599.70	-	651	538	368	301	249	162
CENTWEIR	0.04	-	582	11	0	0	0	0
INDOORWEIR	0.04	-	0	0	0	0	0	0
WILLIAMWEIR	0.02	-	0	0	0	0	0	0
VICTORIAWEIR	0.03	-	0	0	0	0	0	0
CAPTAINWEIR	0.02	-	0	0	0	0	0	0
STORYWEIR	0.04	-	0	0	0	0	0	0
MERIVALEWEIR	0.04	-	0	0	0	0	0	0
GOODNALINK1	0.50	-	201	0	0	0	0	0
GOODNALINK2	0.54	-	75	0	0	0	0	0
STLUCIALINK1	0.53	-	226	66	0	0	0	0
STLUCIALINK2	0.53	-	259	31	0	0	0	0
STLUCIALINK3	0.43	-	127	0	0	0	0	0

TABLE J-3 - Affluxes Due to Regulation Lines and Revegetation Combined Effects for the 100 Year ARI Flood

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI DESIGN WL (m AHD)	100 YEAR ARI REG LINES + REVEG WL (m AHD)	100 YEAR ARI REG LINES	100 YEAR ARI REVEGETATION	REVEGETATION AFFLUX (mm)	REG LINES AFFLUX (mm)	REG + REVEG AFLUX (mm)
BRISBANE	1000	78.66	BN 2020		22.76	22.79	22.78	22.77	10	20	30
BRISBANE	1000.285	78.375	BN 2010		22.57	22.57	22.56	22.58	10	-10	0
BRISBANE	1000.775	77.885	BN 2000		22.29	22.31	22.30	22.30	10	10	20
BRISBANE	1001.315	77.345	BN 1990		22.20	22.22	22.21	22.21	10	10	20
BRISBANE	1001.865	76.795	BN 1980		21.68	21.69	21.68	21.69	10	0	10
BRISBANE	1002.35	76.310	BN 1970		21.48	21.50	21.49	21.49	10	10	20
BRISBANE	1002.785	75.875	BN 1960		21.46	21.48	21.47	21.47	10	10	20
BRISBANE	1003.275	75.385	BN 1950		21.13	21.15	21.14	21.14	10	10	20
BRISBANE	1003.775	74.885	BN 1940		20.86	20.88	20.87	20.87	10	10	20
BRISBANE	1004.3	74.360	BN 1930		20.41	20.42	20.41	20.42	10	0	10
BRISBANE	1004.81	73.850	BN 1920		20.37	20.39	20.37	20.39	20	0	20
BRISBANE	1005.325	73.335	BN 1910		20.20	20.20	20.19	20.21	10	-10	0
BRISBANE	1005.87	72.790	BN 1900		19.89	19.88	19.87	19.90	10	-20	-10
BRISBANE	1006.3	72.360	BN 1890	Moggill Gauge	19.72	19.72	19.71	19.73	10	-10	0
BRISBANE	1006.91	71.750	BN 1880		19.51	19.52	19.50	19.53	20	-10	10
BRISBANE	1007.41	71.250	BN 1870		19.48	19.42	19.42	19.48	0	-60	-60
BRISBANE	1007.92	70.740	BN 1860		19.19	19.09	19.09	19.19	0	-100	-100
BRISBANE	1008.445	70.215	BN 1850		19.02	18.96	18.96	19.02	0	-60	-60
BRISBANE	1008.925	69.735	BN 1840		18.96	18.89	18.89	18.96	0	-70	-70
BRISBANE	1009.4	69.260	BN 1830		18.86	18.79	18.79	18.86	0	-70	-70
BRISBANE	1009.72	68.940	BN 1820		18.85	18.73	18.73	18.85	0	-120	-120
BRISBANE	1010.49	68.170	BN 1810		18.50	18.43	18.43	18.50	0	-70	-70
BRISBANE	1010.725	67.935	BN 1800		18.52	18.44	18.44	18.52	0	-80	-80
BRISBANE	1010.98	67.680	BN 1790		18.44	18.38	18.38	18.44	0	-60	-60
BRISBANE	1011.51	67.150	BN 1780		18.43	18.37	18.37	18.43	0	-60	-60
BRISBANE	1011.98	66.680	BN 1770		18.43	18.36	18.36	18.43	0	-70	-70
BRISBANE	1012.475	66.185	BN 1760		18.33	18.31	18.31	18.33	0	-20	-20
BRISBANE	1012.935	65.725	BN 1750		18.22	18.20	18.19	18.23	10	-30	-20
BRISBANE	1013.445	65.215	BN 1740		18.14	18.11	18.11	18.14	0	-30	-30
BRISBANE	1013.91	64.750	BN 1730		18.08	18.05	18.05	18.08	0	-30	-30
BRISBANE	1014.31	64.350	BN 1720		18.05	18.01	18.01	18.05	0	-40	-40
BRISBANE	1014.61	64.050	BN 1710	Goodna Hospital Gauge	18.08	18.05	18.04	18.09	10	-40	-30
BRISBANE	1015.09	63.570	BN 1700		17.94	17.91	17.90	17.95	10	-40	-30
BRISBANE	1015.56	63.100	BN 1690		17.81	17.75	17.75	17.81	0	-60	-60
BRISBANE	1016.14	62.520	BN 1680		17.71	17.67	17.66	17.72	10	-50	-40
BRISBANE	1016.64	62.020	BN 1670		17.62	17.60	17.60	17.62	0	-20	-20
BRISBANE	1017.13	61.530	BN 1660		17.39	17.37	17.37	17.39	0	-20	-20
BRISBANE	1017.61	61.050	BN 1650		17.26	17.26	17.25	17.27	10	-10	0
BRISBANE	1017.92	60.740	BN 1640		17.10	17.14	17.14	17.10	0	40	40
BRISBANE	1018.2	60.460	BN 1630		17.02	17.08	17.07	17.03	10	50	60
BRISBANE	1018.725	59.935	BN 1620		16.69	16.76	16.75	16.70	10	60	70
BRISBANE	1019.095	59.565	BN 1610		16.56	16.62	16.62	16.56	0	60	60
BRISBANE	1019.49	59.170	BN 1600		16.45	16.49	16.49	16.45	0	40	40
BRISBANE	1019.865	58.795	BN 1590		16.15	16.22	16.22	16.15	0	70	70
BRISBANE	1020.115	58.545	BN 1580		16.25	16.29	16.29	16.25	0	40	40
BRISBANE	1020.525	58.135	BN 1570		16.22	16.28	16.27	16.23	10	50	60
BRISBANE	1020.83	57.830	BN 1560		16.07	16.11	16.11	16.07	0	40	40
BRISBANE	1021.095	57.565	BN 1550		15.86	15.91	15.90	15.87	10	40	50
BRISBANE	1021.539	57.121	BN 1540		15.69	15.74	15.73	15.70	10	40	50
BRISBANE	1021.715	56.945	BN 1530		15.72	15.78	15.78	15.72	0	60	60
BRISBANE	1021.895	56.765	BN 1520		15.65	15.69	15.68	15.66	10	30	40
BRISBANE	1022.105	56.555	BN 1510		15.53	15.49	15.48	15.54	10	-50	-40
BRISBANE	1022.575	56.085	BN 1500		15.45	15.52	15.51	15.46	10	60	70
BRISBANE	1023.04	55.620	BN 1490		15.21	15.23	15.22	15.22	10	10	20
BRISBANE	1023.57	55.090	BN 1480		15.12	15.17	15.17	15.12	0	50	50
BRISBANE	1024.08	54.580	BN 1470		15.07	15.12	15.12	15.07	0	50	50
BRISBANE	1024.563	54.097	BN 1460		15.01	15.05	15.05	15.01	0	40	40
BRISBANE	1025.07	53.590	BN 1450		14.91	14.95	14.94	14.92	10	30	40
BRISBANE	1025.36	53.300	BN 1440		14.77	14.80	14.80	14.77	0	30	30
BRISBANE	1025.59	53.070	BN 1430		14.61	14.61	14.61	14.61	0	0	0
BRISBANE	1026.17	52.490	BN 1420		14.48	14.50	14.49	14.49	10	10	20
BRISBANE	1026.68	51.980	BN 1410	Mt Ommaney Gauge	14.38	14.38	14.38	14.38	0	0	0
BRISBANE	1026.9	51.760	BN 1400		14.25	14.21	14.20	14.26	10	-50	-40

TABLE J-3 - Affluxes Due to Regulation Lines and Revegetation Combined Effects for the 100 Year ARI Flood

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI DESIGN WL (m AHD)	100 YEAR ARI REG LINES + REVEG WL (m AHD)	100 YEAR ARI REG LINES	100 YEAR ARI REVEGETATION	REVEGETATION AFFLUX (mm)	REG LINES AFFLUX (mm)	REG + REVEG AFLUX (mm)
BRISBANE	1027.16	51.500	BN 1390		14.11	14.12	14.11	14.12	10	0	10
BRISBANE	1027.68	50.980	BN 1380		14.17	14.19	14.18	14.18	10	10	20
BRISBANE	1028.18	50.480	BN 1370		14.19	14.19	14.18	14.20	10	-10	0
BRISBANE	1028.68	49.980	BN 1360		14.06	14.10	14.09	14.07	10	30	40
BRISBANE	1028.72	49.940	BN1350	Centenary Bridge			0.00		0	0	0
BRISBANE	1028.76	49.900	BN 1340		13.91	13.97	13.96	13.92	10	50	60
BRISBANE	1029.2	49.460	BN 1330		13.80	13.80	13.80	13.80	0	0	0
BRISBANE	1029.68	48.980	BN 1320		13.82	13.80	13.80	13.82	0	-20	-20
BRISBANE	1030.22	48.440	BN 1310		13.82	13.85	13.85	13.82	0	30	30
BRISBANE	1030.87	47.790	BN 1300		13.75	13.81	13.81	13.75	0	60	60
BRISBANE	1031.26	47.400	BN 1290		13.59	13.69	13.68	13.60	10	90	100
BRISBANE	1031.7	46.960	BN 1280	Darra Wharf Gauge	13.21	13.33	13.33	13.21	0	120	120
BRISBANE	1031.995	46.665	BN 1270		13.31	13.41	13.41	13.31	0	100	100
BRISBANE	1032.23	46.430	BN 1260		13.18	13.28	13.28	13.18	0	100	100
BRISBANE	1032.585	46.075	BN 1250		12.94	13.03	13.03	12.94	0	90	90
BRISBANE	1033.08	45.580	BN 1240		12.79	12.90	12.90	12.79	0	110	110
BRISBANE	1033.37	45.290	BN 1230		12.68	12.83	12.83	12.68	0	150	150
BRISBANE	1033.9	44.760	BN 1220		12.45	12.57	12.58	12.44	-10	130	120
BRISBANE	1034.37	44.290	BN 1210		12.29	12.42	12.42	12.29	0	130	130
BRISBANE	1034.89	43.770	BN 1200	Sherwood Gauge	12.19	12.32	12.32	12.19	0	130	130
BRISBANE	1035.414	43.246	BN 1190		11.94	12.08	12.08	11.94	0	140	140
BRISBANE	1035.9	42.760	BN 1180		11.65	11.76	11.75	11.66	10	100	110
BRISBANE	1036.46	42.200	BN 1170		11.35	11.46	11.46	11.35	0	110	110
BRISBANE	1036.77	41.890	BN 1160		11.28	11.39	11.39	11.28	0	110	110
BRISBANE	1036.915	41.745	BN 1150		11.12	11.23	11.23	11.12	0	110	110
BRISBANE	1037.09	41.570	BN 1140		11.07	11.20	11.19	11.08	10	120	130
BRISBANE	1037.11	41.550	BN 1130	Indooroopilly Bridge			0.00		0	0	0
BRISBANE	1037.175	41.485	BN 1120		10.98	11.10	11.10	10.98	0	120	120
BRISBANE	1037.285	41.375	BN 1110	Clarence Road Gauge	10.93	11.04	11.04	10.93	0	110	110
BRISBANE	1037.625	41.035	BN 1100		10.91	11.02	11.01	10.92	10	100	110
BRISBANE	1038.085	40.575	BN 1090		10.93	10.99	10.98	10.94	10	50	60
BRISBANE	1038.6	40.060	BN 1080		10.91	10.98	10.98	10.91	0	70	70
BRISBANE	1039.1	39.560	BN 1070		10.90	11.05	11.04	10.91	10	140	150
BRISBANE	1039.565	39.095	BN 1060	Oxley Creek Gauge	10.92	11.00	11.00	10.92	0	80	80
BRISBANE	1040.09	38.570	BN 1050	King Authur Terrace Gauge	10.84	10.93	10.93	10.84	0	90	90
BRISBANE	1040.49	38.170	BN 1040		10.71	10.80	10.80	10.71	0	90	90
BRISBANE	1041.01	37.650	BN 1030		10.74	10.86	10.86	10.74	0	120	120
BRISBANE	1041.23	37.430	BN 1020		10.71	10.80	10.81	10.70	-10	100	90
BRISBANE	1041.46	37.200	BN 1010	Tennyson Power House Gauge	10.62	10.72	10.72	10.62	0	100	100
BRISBANE	1041.7	36.960	BN 1000		10.59	10.69	10.69	10.59	0	100	100
BRISBANE	1041.96	36.700	BN 990	Yeronga Street Gauge	10.45	10.58	10.58	10.45	0	130	130
BRISBANE	1042.235	36.425	BN 980		10.30	10.41	10.41	10.30	0	110	110
BRISBANE	1042.515	36.145	BN 970		10.29	10.40	10.39	10.30	10	100	110
BRISBANE	1042.91	35.750	BN 960		10.22	10.23	10.22	10.23	10	0	10
BRISBANE	1043.725	34.935	BN 950		9.91	9.98	9.98	9.91	0	70	70
BRISBANE	1044.06	34.600	BN 940	Sandy Creek Gauge	9.75	9.86	9.86	9.75	0	110	110
BRISBANE	1044.34	34.320	BN 930		9.58	9.69	9.68	9.59	10	100	110
BRISBANE	1044.605	34.055	BN 920		9.53	9.65	9.65	9.53	0	120	120
BRISBANE	1044.86	33.800	BN 910		9.49	9.59	9.58	9.50	10	90	100
BRISBANE	1045.4	33.260	BN 900		9.31	9.40	9.40	9.31	0	90	90
BRISBANE	1045.885	32.775	BN 890		9.17	9.23	9.23	9.17	0	60	60
BRISBANE	1046.18	32.480	BN 880		9.09	9.17	9.17	9.09	0	80	80
BRISBANE	1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	9.02	9.11	9.11	9.02	0	90	90
BRISBANE	1046.58	32.080	BN 860		8.97	9.08	9.08	8.97	0	110	110
BRISBANE	1046.9	31.760	BN 850		8.78	8.87	8.87	8.78	0	90	90
BRISBANE	1047.35	31.310	BN 840		8.41	8.47	8.47	8.41	0	60	60
BRISBANE	1047.915	30.745	BN 830	Highgate Hill Gauge	8.17	8.24	8.24	8.17	0	70	70
BRISBANE	1048.375	30.285	BN 820		8.23	8.29	8.28	8.24	10	50	60
BRISBANE	1048.89	29.770	BN 810	St Lucia Ferry Gauge	8.00	8.08	8.09	7.99	-10	90	80
BRISBANE	1049.12	29.540	BN 800		7.94	8.03	8.04	7.93	-10	100	90
BRISBANE	1049.37	29.290	BN 790		7.75	7.85	7.85	7.75	0	100	100
BRISBANE	1049.59	29.070	BN 780		7.74	7.82	7.82	7.74	0	80	80
BRISBANE	1049.87	28.790	BN 770		7.63	7.70	7.70	7.63	0	70	70

TABLE J-3 - Affluxes Due to Regulation Lines and Revegetation Combined Effects for the 100 Year ARI Flood

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI DESIGN WL (m AHD)	100 YEAR ARI REG LINES + REVEG WL (m AHD)	100 YEAR ARI REG LINES	100 YEAR ARI REVEGETATION	REVEGETATION AFFLUX (mm)	REG LINES AFFLUX (mm)	REG + REVEG AFLUX (mm)
BRISBANE	1050.43	28.230	BN 760		7.61	7.66	7.66	7.61	0	50	50
BRISBANE	1050.86	27.800	BN 750		7.46	7.53	7.53	7.46	0	70	70
BRISBANE	1051.36	27.300	BN 740		7.46	7.54	7.54	7.46	0	80	80
BRISBANE	1051.895	26.765	BN 730		7.30	7.37	7.37	7.30	0	70	70
BRISBANE	1052.31	26.350	BN 720		7.40	7.51	7.51	7.40	0	110	110
BRISBANE	1052.37	26.290	BN 710	Merivale Bridge			0.00		0	0	0
BRISBANE	1052.39	26.270	BN 700		7.23	7.31	7.31	7.23	0	80	80
BRISBANE	1052.595	26.065	BN 690		7.14	7.22	7.22	7.14	0	80	80
BRISBANE	1052.607	26.053	BN 680	William Jolly Bridge			0.00		0	0	0
BRISBANE	1052.64	26.020	BN 670		6.63	6.69	6.69	6.63	0	60	60
BRISBANE	1052.865	25.795	BN 660	Montague Road Gauge	6.49	6.54	6.54	6.49	0	50	50
BRISBANE	1053.32	25.340	BN 650		6.42	6.47	6.47	6.42	0	50	50
BRISBANE	1053.356	25.304	BN 640	Victoria Bridge			0.00		0	0	0
BRISBANE	1053.385	25.275	BN630		6.24	6.40	6.40	6.24	0	160	160
BRISBANE	1053.9	24.760	BN 620		5.85	5.98	5.98	5.85	0	130	130
BRISBANE	1054.64	24.020	BN 610		5.78	5.86	5.87	5.77	-10	90	80
BRISBANE	1054.66	24.000	BN 600	Captain Cook Bridge			0.00		0	0	0
BRISBANE	1054.68	23.980	BN 590		5.70	5.76	5.76	5.70	0	60	60
BRISBANE	1054.97	23.690	BN 560		5.45	5.52	5.52	5.45	0	70	70
BRISBANE	1055.28	23.380	BN 550		5.40	5.44	5.44	5.40	0	40	40
BRISBANE	1055.42	23.240	BN 540		5.40	5.43	5.43	5.40	0	30	30
BRISBANE	1055.96	22.700	BN 530	Port Office Gauge	5.34	5.38	5.38	5.34	0	40	40
BRISBANE	1056.4	22.260	BN 520		5.09	5.13	5.13	5.09	0	40	40
BRISBANE	1056.695	21.965	BN 510		5.03	5.06	5.07	5.02	-10	40	30
BRISBANE	1056.865	21.795	BN 500		5.22	5.27	5.27	5.22	0	50	50
BRISBANE	1056.92	21.740	BN 495	Story Bridge			0.00		0	0	0
BRISBANE	1056.95	21.710	BN 490		5.12	5.16	5.16	5.12	0	40	40
BRISBANE	1057.09	21.570	BN 480		4.97	5.01	5.01	4.97	0	40	40
BRISBANE	1057.53	21.130	BN 470		4.83	4.87	4.87	4.83	0	40	40
BRISBANE	1058.04	20.620	BN 460		4.58	4.61	4.61	4.58	0	30	30
BRISBANE	1058.23	20.430	BN 450		4.50	4.53	4.53	4.50	0	30	30
BRISBANE	1058.53	20.130	BN 440		4.37	4.39	4.39	4.37	0	20	20
BRISBANE	1058.735	19.925	BN 430		4.41	4.42	4.42	4.41	0	10	10
BRISBANE	1059.035	19.625	BN 420		4.13	4.15	4.15	4.13	0	20	20
BRISBANE	1059.54	19.120	BN 410		4.09	4.11	4.11	4.09	0	20	20
BRISBANE	1059.99	18.670	BN 400		3.88	3.90	3.90	3.88	0	20	20
BRISBANE	1060.345	18.315	BN 390		3.65	3.64	3.64	3.65	0	-10	-10
BRISBANE	1060.535	18.125	BN 380		3.50	3.50	3.50	3.50	0	0	0
BRISBANE	1061.015	17.645	BN 370		3.45	3.46	3.46	3.45	0	10	10
BRISBANE	1061.53	17.130	BN 360		3.24	3.24	3.24	3.24	0	0	0
BRISBANE	1062.02	16.640	BN 350		3.16	3.16	3.16	3.16	0	0	0
BRISBANE	1062.535	16.125	BN 340		3.12	3.12	3.12	3.12	0	0	0
BRISBANE	1062.94	15.720	BN 330		3.11	3.11	3.11	3.11	0	0	0
BRISBANE	1063.31	15.350	BN 320	Newstead Park Gauge	2.99	2.99	2.99	2.99	0	0	0
BRISBANE	1063.645	15.015	BN 310	Cresent Road Gauge	2.72	2.70	2.70	2.72	0	-20	-20
BRISBANE	1064	14.660	BN 300		2.68	2.66	2.66	2.68	0	-20	-20
BRISBANE	1064.49	14.170	BN 290		2.55	2.53	2.53	2.55	0	-20	-20
BRISBANE	1065.01	13.650	BN 280		2.57	2.55	2.55	2.57	0	-20	-20
BRISBANE	1065.503	13.157	BN 270		2.53	2.51	2.51	2.53	0	-20	-20
BRISBANE	1065.99	12.670	BN 260	Cairncross Dock Gauge	2.54	2.54	2.54	2.54	0	0	0
BRISBANE	1066.505	12.155	BN 250		2.46	2.46	2.46	2.46	0	0	0
BRISBANE	1067.02	11.640	BN 240		2.43	2.41	2.41	2.43	0	-20	-20
BRISBANE	1067.485	11.175	BN 230		2.32	2.29	2.29	2.32	0	-30	-30
BRISBANE	1067.965	10.695	BN 220		2.20	2.18	2.18	2.20	0	-20	-20
BRISBANE	1068.66	10.000	BN 210		2.02	2.00	2.00	2.02	0	-20	-20
BRISBANE	1069.045	9.615	BN 200		1.95	1.93	1.93	1.95	0	-20	-20
BRISBANE	1069.535	9.125	BN 190	Bulimba Power House Gauge	1.89	1.87	1.87	1.89	0	-20	-20
BRISBANE	1070.025	8.635	BN 180		1.82	1.80	1.80	1.82	0	-20	-20
BRISBANE	1070.53	8.130	BN 170		1.72	1.70	1.70	1.72	0	-20	-20
BRISBANE	1071.04	7.620	BN 160		1.64	1.62	1.62	1.64	0	-20	-20
BRISBANE	1071.52	7.140	BN 150		1.67	1.66	1.66	1.67	0	-10	-10
BRISBANE	1072.015	6.645	BN 140		1.56	1.62	1.62	1.56	0	60	60
BRISBANE	1072.515	6.145	BN 130		1.50	1.50	1.50	1.50	0	0	0

TABLE J-3 - Affluxes Due to Regulation Lines and Revegetation Combined Effects for the 100 Year ARI Flood

LOCATION	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	100 YEAR ARI DESIGN WL (m AHD)	100 YEAR ARI REG LINES + REVEG WL (m AHD)	100 YEAR ARI REG LINES	100 YEAR ARI REVEGETATION	REVEGETATION AFFLUX (mm)	REG LINES AFFLUX (mm)	REG + REVEG AFLUX (mm)
BRISBANE	1072.995	5.665	BN 120		1.46	1.46	1.46	1.46	0	0	0
BRISBANE	1073.485	5.175	BN 110		1.36	1.36	1.36	1.36	0	0	0
BRISBANE	1074	4.660	BN 100		1.29	1.28	1.28	1.29	0	-10	-10
BRISBANE	1074.46	4.200	BN 90		1.22	1.23	1.23	1.22	0	10	10
BRISBANE	1074.985	3.675	BN 80		1.09	1.09	1.09	1.09	0	0	0
BRISBANE	1075.48	3.180	BN 70		1.06	1.05	1.05	1.06	0	-10	-10
BRISBANE	1076	2.660	BN 60		1.07	1.07	1.07	1.07	0	0	0
BRISBANE	1076.495	2.165	BN 50		0.96	0.95	0.95	0.96	0	-10	-10
BRISBANE	1077.01	1.650	BN 40		0.96	0.97	0.97	0.96	0	10	10
BRISBANE	1077.51	1.150	BN 30		0.97	0.97	0.97	0.97	0	0	0
BRISBANE	1078.04	0.620	BN 20		0.95	0.95	0.95	0.95	0	0	0
BRISBANE	1078.525	0.135	BN 10		0.92	0.92	0.92	0.92	0	0	0
BRISBANE	1078.66	0.000	-	Western Inner Bar Gauge	0.92	0.92	0.92	0.92	0	0	0
BREMER	599.4	-	-		19.76	19.76	19.75	19.77	10	-10	0
BREMER	600	-	-		19.76	19.76	19.75	19.77	10	-10	0
OXLEY	599.4	-	-		10.87	10.96	10.95	10.88	10	80	90
OXLEY	600	-	-		10.87	10.96	10.95	10.88	10	80	90
BREAKFAST	599.4	-	-		3.09	3.06	3.07	3.08	-10	-20	-30
BREAKFAST	600	-	-		3.08	3.06	3.06	3.08	0	-20	-20
BULIMBA	599.4	-	-		1.56	1.62	1.62	1.56	0	60	60
BULIMBA	600	-	-		1.56	1.62	1.62	1.56	0	60	60
CENTWEIR	0	-	-		14.06	14.10	14.09	14.07	10	30	40
CENTWEIR	0.08	-	-		13.91	13.97	13.96	13.92	10	50	60
INDOORWEIR	0	-	-		11.07	11.20	11.19	11.08	10	120	130
INDOORWEIR	0.085	-	-		10.98	11.10	11.10	10.98	0	120	120
WILLIAMWEIR	0	-	-		7.14	7.22	7.22	7.14	0	80	80
WILLIAMWEIR	0.045	-	-		6.63	6.69	6.69	6.63	0	60	60
VICTORIAWEIR	0	-	-		6.42	6.47	6.47	6.42	0	50	50
VICTORIAWEIR	0.065	-	-		6.24	6.40	6.40	6.24	0	160	160
CAPTAINWEIR	0	-	-		5.78	5.86	5.87	5.77	-10	90	80
CAPTAINWEIR	0.04	-	-		5.70	5.76	5.76	5.70	0	60	60
STORYWEIR	0	-	-		5.22	5.27	5.27	5.22	0	50	50
STORYWEIR	0.085	-	-		5.12	5.16	5.16	5.12	0	40	40
MERIVALEWEIR	0	-	-		7.40	7.51	7.51	7.40	0	110	110
MERIVALEWEIR	0.08	-	-		7.23	7.31	7.31	7.23	0	80	80
GOODNALINK1	0	-	-		18.18	18.16	18.16	18.18	0	-20	-20
GOODNALINK1	1	-	-		17.53	17.50	17.50	17.53	0	-30	-30
GOODNALINK2	0	-	-		18.11	18.08	18.08	18.11	0	-30	-30
GOODNALINK2	1.07	-	-		17.77	17.71	17.71	17.77	0	-60	-60
STLUCIALINK1	0	-	-		10.91	11.04	11.04	10.91	0	130	130
STLUCIALINK1	1.05	-	-		10.15	10.22	10.22	10.15	0	70	70
STLUCIALINK2	0	-	-		10.90	10.99	10.99	10.90	0	90	90
STLUCIALINK2	1.05	-	-		10.18	10.24	10.24	10.18	0	60	60
STLUCIALINK3	0	-	-		10.79	10.88	10.88	10.79	0	90	90
STLUCIALINK3	0.85	-	-		10.29	10.40	10.39	10.30	10	100	110

Legend

In - Regulation Lines set at Extent of Inundation
A - Regulation Lines adjusted until Maximum Afflux Achieved
B - Regulation Lines Set at 15 m Buffer Zone
E - Regulation Lines set at Extent of Cross Section
W - Regulation Lines set at 30 m for Wharfs In Lieu of 15 m Buffer Zone

J-4 - Development Levels & Locationof Regulation Lines for the Brisbane River

WATER LEVEL Location	MIKE 11 Chainage (km)	AMTD Chainage (km)	Cross Section Number	Reach No. and Name	100 Year ARI Development Levels (m AHD)	Limiting Factor Left Bank	Regulation Line Chainage Left (m)	Regulation Line Chainage Right (m)	Limiting Factor Right Bank
BRISBANE	1000.00	78.66	BN 2020	Reach 1 - Upper Boundary	23.09	In	446.7	772.6	In
BRISBANE	1000.29	78.38	BN 2010		22.87	In	644.2	892.1	In
BRISBANE	1000.78	77.89	BN 2000		22.61	In	790	1009.7	In
BRISBANE	1001.32	77.35	BN 1990		22.52	In	782.7	1088.80	A
BRISBANE	1001.87	76.80	BN 1980		21.99	In	823	1067.1	In
BRISBANE	1002.35	76.31	BN 1970	Reach 2 - Barellan Point	21.80	A	745.5	1001.0	In
BRISBANE	1002.79	75.88	BN 1960		21.78	In	664.5	972.1	In
BRISBANE	1003.28	75.39	BN 1950		21.45	In	517.8	787.0	In
BRISBANE	1003.78	74.89	BN 1940		21.18	In	705.5	960.5	In
BRISBANE	1004.30	74.36	BN 1930		20.72	In	540.5	795.6	In
BRISBANE	1004.81	73.85	BN 1920		20.69	In	498.3	817.6	In
BRISBANE	1005.33	73.34	BN 1910		20.50	In	461.3	826.1	In
BRISBANE	1005.87	72.79	BN 1900	Reach 3 - Riverview	20.18	A	430.4	717.4	In
BRISBANE	1006.30	72.36	BN 1890		20.02	In	531.6	776.4	In
BRISBANE	1006.91	71.75	BN 1880		19.82	A	387.1	812.2	In
BRISBANE	1007.41	71.25	BN 1870		19.72	In	350.2	765.60	A
BRISBANE	1007.92	70.74	BN 1860	Reach 4 - Redbank	19.39	In	580.3	840.1	A
BRISBANE	1008.45	70.22	BN 1850		19.26	In	583.3	866.2	In
BRISBANE	1008.93	69.74	BN 1840		19.19	In	517.7	814.4	In
BRISBANE	1009.40	69.26	BN 1830		19.09	In	550.7	823.30	A
BRISBANE	1009.72	68.84	BN 1820		19.03	In	405.5	738.3	A
BRISBANE	1010.49	68.17	BN 1810		18.73	In	30.8	284.6	In
BRISBANE	1010.73	67.94	BN 1800		18.74	A	265.5	504.3	In
BRISBANE	1010.98	67.68	BN 1790		18.68	In	73.4	335.2	In
BRISBANE	1011.51	67.15	BN 1780		18.67	In	296.6	695.80	A
BRISBANE	1011.98	66.68	BN 1770		18.66	A	250.2	766.1	In
BRISBANE	1012.48	66.19	BN 1760	Reach 5 - Goodna	18.61	In	767.2	1528.3	In
BRISBANE	1012.94	65.73	BN 1750		18.50	In	327.1	898.90	A
BRISBANE	1013.45	65.22	BN 1740		18.41	In	159.6	1004.1	In
BRISBANE	1013.91	64.74	BN 1730		18.35	In	204.9	1135.0	In
BRISBANE	1014.31	64.55	BN 1720		18.31	In	0	896.7	In
BRISBANE	1014.61	64.05	BN 1710	Reach 6 - Wacol	18.35	In	0	923.7	In
BRISBANE	1015.09	63.57	BN 1700		18.21	In	239.6	643.6	In
BRISBANE	1015.56	63.10	BN 1690		18.05	In	249.8	508.20	A
BRISBANE	1016.14	62.52	BN 1680		17.97	A	405	803.9	In
BRISBANE	1016.64	62.02	BN 1670		17.90	A	352.5	959.2	In
BRISBANE	1017.13	61.53	BN 1660		17.67	A	463.2	870.7	In
BRISBANE	1017.61	61.05	BN 1650		17.56	A	398.9	851.9	A
BRISBANE	1017.92	60.74	BN 1640		17.44	A	502.6	905.20	A
BRISBANE	1018.20	60.46	BN 1630		17.38	A	407.3	809.0	A
BRISBANE	1018.73	59.94	BN 1620		17.06	In	768.7	1141.0	In
BRISBANE	1019.10	59.57	BN 1610		16.92	In	124.2	648.9	In
BRISBANE	1019.49	59.17	BN 1600	Reach 7 - Riverhills	16.79	A	435.5	836.0	In
BRISBANE	1019.87	58.80	BN 1590		16.52	In	131.8	441.90	A
BRISBANE	1020.12	58.55	BN 1580		16.59	In	62.9	613.10	A
BRISBANE	1020.53	58.14	BN 1570		16.58	In	136.5	656.0	A
BRISBANE	1020.83	57.83	BN 1560		16.41	In	103.8	395.80	B
BRISBANE	1021.10	57.57	BN 1550		16.21	B	297	548.9	In
BRISBANE	1021.54	57.12	BN 1540		16.04	A	685	998.3	In
BRISBANE	1021.72	56.95	BN 1530		16.08	B	676	1012.4	In
BRISBANE	1021.90	56.77	BN 1520	Reach 8 - Westlake	15.99	In	828.4	1178.70	B
BRISBANE	1022.11	56.56	BN 1510		15.79	B	371.4	905.60	In
BRISBANE	1022.58	56.09	BN 1500		15.82	B	292.9	603.5	A
BRISBANE	1023.04	55.62	BN 1490		15.53	In	258	618.10	B
BRISBANE	1023.57	55.09	BN 1480		15.47	A	353.9	565.00	B
BRISBANE	1024.08	54.58	BN 1470		15.42	B	212.5	444.30	B
BRISBANE	1024.56	54.10	BN 1460		15.35	B	295.7	591.9	In
BRISBANE	1025.07	53.59	BN 1450		15.25	A	380.5	680.4	In
BRISBANE	1025.36	53.30	BN 1440		15.10	B	480.6	810.6	In
BRISBANE	1025.59	53.07	BN 1430		14.91	B	271.4	606.50	B
BRISBANE	1026.17	52.49	BN 1420		14.80	B	373.1	669.70	B
BRISBANE	1026.68	51.98	BN 1410		14.68	B	155	491.70	A
BRISBANE	1026.90	51.76	BN 1400	Reach 9 - Mermaid Reach	14.51	A	200.6	462.30	B
BRISBANE	1027.16	51.50	BN 1390		14.42	B	599.6	853.20	B
BRISBANE	1027.68	50.98	BN 1380		14.49	B	561.4	901.8	B
BRISBANE	1028.18	50.48	BN 1370		14.49	B	445.1	905.60	B
BRISBANE	1028.68	49.98	BN 1360		14.40	In	350.6	613.7	A
BRISBANE	1028.76	49.90	BN 1340		14.27	B	350.6	613.7	B

Legend

In - Regulation Lines set at Extent of Inundation
A - Regulation Lines adjusted until Maximum Afflux Achieved
B - Regulation Lines Set at 15 m Buffer Zone
E - Regulation Lines set at Extent of Cross Section
W - Regulation Lines set at 30 m for Wharfs in Lieu of 15 m Buffer Zone

J-4 - Development Levels & Locationof Regulation Lines for the Brisbane River

WATER LEVEL Location	MIKE 11 Chainage (km)	AMTD Chainage (km)	Cross Section Number	Reach No. and Name	100 Year ARI Development Levels (m AHD)	Limiting Factor Left Bank	Regulation Line Chainage Left (m)	Regulation Line Chainage Right (m)	Limiting Factor Right Bank
BRISBANE	1029.20	49.46	BN 1330		14.10	A	735.9	1023.80	B
BRISBANE	1029.68	48.98	BN 1320		14.10	B	744.3	1030.80	B
BRISBANE	1030.22	48.44	BN 1310		14.15	B	746.3	1119.9	B
BRISBANE	1030.87	47.79	BN 1300		14.11	B	525.5	804.5	B
BRISBANE	1031.26	47.40	BN 1290		13.99	B	457.5	682.5	B
BRISBANE	1031.70	46.96	BN 1280		13.63	B	703.4	923.40	B
BRISBANE	1032.00	46.67	BN 1270		13.71	B	682.7	985.7	B
BRISBANE	1032.23	46.43	BN 1260	Reach 10 - Sherwood Reach	13.58	B	576.1	919.70	B
BRISBANE	1032.59	46.08	BN 1250		13.33	B	473.1	769.70	B
BRISBANE	1033.08	45.58	BN 1240		13.20	B	730.3	972.3	B
BRISBANE	1033.37	45.29	BN 1230		13.13	B	671.1	941.3	B
BRISBANE	1033.90	44.76	BN 1220		12.87	B	678.7	925.20	B
BRISBANE	1034.37	44.29	BN 1210		12.72	B	465	707.60	B
BRISBANE	1034.89	43.77	BN 1200		12.62	B	533.8	792.20	B
BRISBANE	1035.41	43.25	BN 1190	Reach 11 - Chelmer Reach	12.38	B	504.6	788.80	B
BRISBANE	1035.90	42.76	BN 1180		12.06	B	424.8	682.40	B
BRISBANE	1036.46	42.20	BN 1170		11.76	B	443.8	674.40	B
BRISBANE	1036.77	41.89	BN 1160		11.69	B	150.3	451.8	B
BRISBANE	1036.92	41.75	BN 1150		11.53	B	420.5	683.90	B
BRISBANE	1037.09	41.57	BN 1140	Reach 12 - Indooroopilly Reach	11.50	B	49.2	271.40	A
BRISBANE	1037.18	41.49	BN 1120		11.40	A	103.8	318.90	A
BRISBANE	1037.29	41.38	BN 1110		11.34	B	239	523.10	B
BRISBANE	1037.63	41.04	BN 1100		11.32	B	576.3	943.20	B
BRISBANE	1038.09	40.58	BN 1090		11.29	B	892.8	1178.80	B
BRISBANE	1038.60	40.06	BN 1080		11.28	B	867.6	1280.00	B
BRISBANE	1039.10	39.56	BN 1070		11.35	B	845.9	1729.3	E
BRISBANE	1039.57	39.05	BN 1060	Reach 13 - Canoe Reach	11.30	B	868	1622.5	E
BRISBANE	1040.09	38.57	BN 1050		11.23	B	634.7	1201.9	E
BRISBANE	1040.49	38.17	BN 1040		11.10	B	870	1369.50	E
BRISBANE	1041.01	37.56	BN 1030		11.16	B	810	1344.7	E
BRISBANE	1041.23	37.43	BN 1020		11.10	B	861.4	1434.8	E
BRISBANE	1041.46	37.20	BN 1010		11.02	B	728.3	1277.10	E
BRISBANE	1041.70	36.96	BN 1000		10.99	B	925.1	1401.20	E
BRISBANE	1041.96	36.70	BN 990		10.88	B	633.9	1077.30	E
BRISBANE	1042.24	36.43	BN 980	Reach 14 - Long Pocket Reach	10.71	B	404.8	813.90	E
BRISBANE	1042.52	36.15	BN 970		10.70	B	322.5	808.70	E
BRISBANE	1042.91	35.75	BN 960		10.53	B	346	871.00	E
BRISBANE	1043.73	34.94	BN 950		10.28	B	199.6	490.70	B
BRISBANE	1044.06	34.60	BN 940		10.16	B	428.4	703.00	B
BRISBANE	1044.34	34.32	BN 930		9.99	B	374.6	624.30	B
BRISBANE	1044.61	34.06	BN 920		9.95	B	333.2	652.8	B
BRISBANE	1044.86	33.80	BN 910		9.89	B	408	726.4	B
BRISBANE	1045.40	33.26	BN 900	Reach 15 - Cemetery Reach	9.70	B	362.3	1026.20	B
BRISBANE	1045.89	32.78	BN 890		9.53	B	507.6	1179.1	B
BRISBANE	1046.18	32.48	BN 880		9.47	B	584.6	1086.5	B
BRISBANE	1046.34	32.32	BN 870		9.41	B	621.7	939.5	B
BRISBANE	1046.58	32.08	BN 860		9.38	B	661.2	1154.9	A
BRISBANE	1046.90	31.76	BN 850		9.17	B	284.7	778.40	B
BRISBANE	1047.35	31.31	BN 840		8.77	B	257.3	518.30	B
BRISBANE	1047.92	30.75	BN 830		8.54	B	302.6	535.6	B
BRISBANE	1048.38	30.29	BN 820	Reach 16 - St Lucia Reach	8.59	B	394.9	737.90	B
BRISBANE	1048.89	29.77	BN 810		8.38	B	593.1	950.6	B
BRISBANE	1049.12	29.54	BN 800	Reach 17 - Toowong Reach	8.33	B	180.8	455.4	B
BRISBANE	1049.37	29.29	BN 790		8.15	B	177.6	415.0	B
BRISBANE	1049.59	29.07	BN 780		8.12	B	816.4	1145.8	B
BRISBANE	1049.87	28.79	BN 770		8.00	B	200.3	468.60	A
BRISBANE	1050.43	28.23	BN 760		7.96	A	571.8	880.70	A
BRISBANE	1050.86	27.80	BN 750		7.83	B	614.3	873.5	B
BRISBANE	1051.36	27.30	BN 740	Reach 18 - Milton Reach	7.84	B	747	990.6	B
BRISBANE	1051.90	26.77	BN 730		7.67	A	895.9	1160.5	A
BRISBANE	1052.31	26.35	BN 720		7.81	B	125.9	398.00	B
BRISBANE	1052.39	26.27	BN 700		7.61	B	41.7	330.0	B
BRISBANE	1052.60	26.07	BN 690	Reach 19 - South Brisbane Reach	7.52	B	10.7	245.80	B
BRISBANE	1052.64	26.02	BN 670		6.99	B	0	261.10	B
BRISBANE	1052.87	25.80	BN 660		6.84	A	153.5	378.80	A
BRISBANE	1053.32	25.34	BN 650		6.77	B	0	365.20	B
BRISBANE	1053.39	25.80	BN 630		6.70	B	252.4	616.00	B
BRISBANE	1053.90	24.76	BN 620		6.28	B	630.5	935.4	B

Legend

In - Regulation Lines set at Extent of Inundation
A - Regulation Lines adjusted until Maximum Afflux Achieved
B - Regulation Lines Set at 15 m Buffer Zone
E - Regulation Lines set at Extent of Cross Section
W - Regulation Lines set at 30 m for Wharfs in Lieu of 15 m Buffer Zone

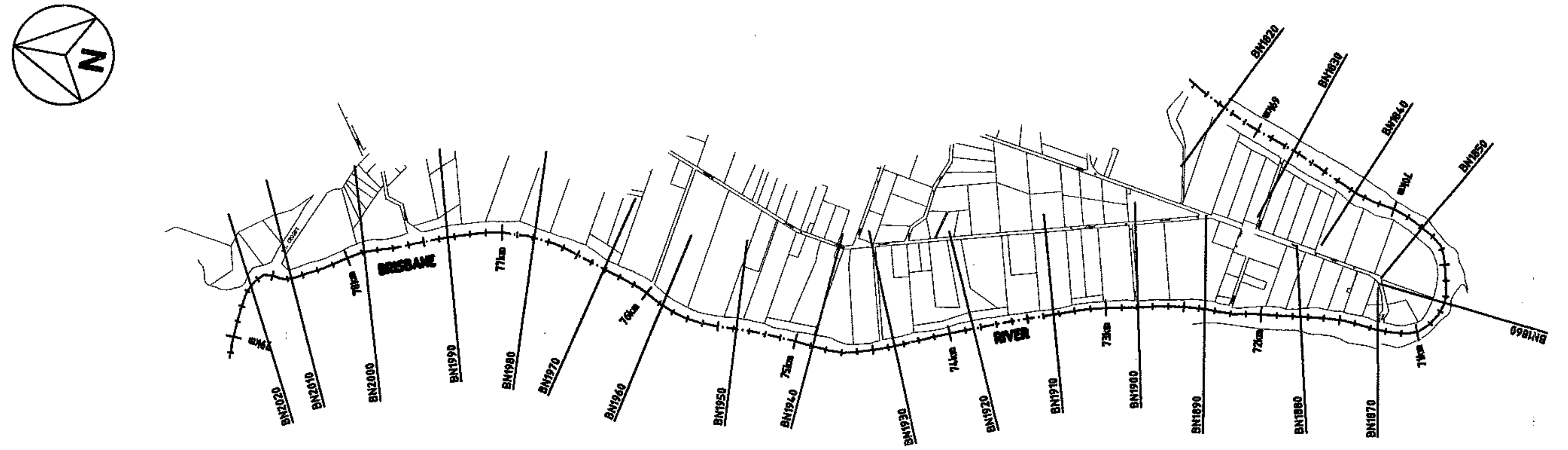
J-4 - Development Levels & Locationof Regulation Lines for the Brisbane River

WATER LEVEL Location	MIKE 11 Chainage (km)	AMTD Chainage (km)	Cross Section Number	Reach No. and Name	100 Year ARI Development Levels (m AHD)	Limiting Factor Left Bank	Regulation Line Chainage Left (m)	Regulation Line Chainage Right (m)	Limiting Factor Right Bank
BRISBANE	1054.64	24.02	BN 610		6.16	B	65.9	567.40	B
BRISBANE	1054.68	23.98	BN 590	Reach 20 - Town Reach	6.06	B	52.4	467.6	B
BRISBANE	1054.97	23.69	BN 560		5.82	B	269.4	588.8	B
BRISBANE	1055.28	23.38	BN 550		5.74	B	325.1	631.20	B
BRISBANE	1055.42	23.24	BN 540		5.73	B	271.6	615.60	B
BRISBANE	1055.96	22.70	BN 530		5.68	B	85.1	444.60	B
BRISBANE	1056.40	22.26	BN 520		5.43	B	109.9	414.10	B
BRISBANE	1056.70	21.97	BN 510		5.36	B	120	405.00	B
BRISBANE	1056.87	21.80	BN 500		5.57	B	1084.8	1345.00	B
BRISBANE	1056.95	21.71	BN 490	Reach 21 - Shaftston Reach	5.46	B	1058.7	1345.00	B
BRISBANE	1057.09	21.57	BN 480		5.31	B	100	407.80	B
BRISBANE	1057.53	21.13	BN 470		5.17	B	149.6	462.60	B
BRISBANE	1058.04	20.62	BN 460		4.91	B	271.4	613.00	B
BRISBANE	1058.23	20.43	BN 450		4.83	B	217	511.40	B
BRISBANE	1058.53	20.13	BN 440		4.69	B	273	519.70	B
BRISBANE	1058.74	19.93	BN 430	Reach 22 - Humbug Reach	4.72	B	184.8	474.90	B
BRISBANE	1059.04	19.63	BN 420		4.45	B	431.3	657.00	B
BRISBANE	1059.54	19.12	BN 410		4.41	B	455	805.00	B
BRISBANE	1059.99	18.67	BN 400		4.20	B	320	703.30	B
BRISBANE	1060.35	18.32	BN 390	Reach 23 - Bulimba Reach	3.94	B	386.2	676.70	B
BRISBANE	1060.54	18.13	BN 380		3.80	B	308.7	577.20	B
BRISBANE	1061.02	17.65	BN 370		3.76	B	634	955.00	B
BRISBANE	1061.53	17.13	BN 360		3.54	B	442	743.00	B
BRISBANE	1062.02	16.64	BN 350		3.46	B	315	673.10	B
BRISBANE	1062.54	16.13	BN 340		3.42	B	240.4	732.50	B
BRISBANE	1062.94	15.72	BN 330		3.41	B	326.6	868.00	B
BRISBANE	1063.31	15.35	BN 320	Reach 24 - Hamilton Reach	3.29	B	529.6	1001.00	B
BRISBANE	1063.65	15.02	BN 310		3.00	B	538	885.10	B
BRISBANE	1064.00	14.66	BN 300		2.96	B	483.2	845.60	B
BRISBANE	1064.49	14.17	BN 290		2.83	B	479.7	827.70	B
BRISBANE	1065.01	13.65	BN 280		2.85	B	722.2	1101.80	B
BRISBANE	1065.50	13.16	BN 270		2.81	W	671.9	1071.90	W
BRISBANE	1065.99	12.67	BN 260		2.84	W	590	1101.80	W
BRISBANE	1066.51	12.16	BN 250	Reach 25 - Quarries Reach	2.76	W	565.8	1051.70	W
BRISBANE	1067.02	11.64	BN 240		2.71	W	739.7	1169.10	W
BRISBANE	1067.49	11.18	BN 230		2.59	W	399.8	829.3	W
BRISBANE	1067.97	10.70	BN 220		2.50	W	462.5	906.80	W
BRISBANE	1068.66	10.00	BN 210	Reach 26 - Lytton Reach	2.50	W	1062.9	1520.30	W
BRISBANE	1069.05	9.62	BN 200		2.50	W	591.4	1015.70	W
BRISBANE	1069.54	9.13	BN 190		2.50	W	526.9	984.30	W
BRISBANE	1070.03	8.64	BN 180		2.50	W	206.3	656.20	W
BRISBANE	1070.53	8.13	BN 170		2.50	W	417	874.9	W
BRISBANE	1071.04	7.62	BN 160		2.50	W	608	1081.9	W
BRISBANE	1071.52	7.14	BN 150		2.50	W	451.4	938.70	W
BRISBANE	1072.02	6.65	BN 140		2.50	W	171.7	1074.10	W
BRISBANE	1072.52	6.15	BN 130		2.50	W	435.8	893.30	W
BRISBANE	1073.00	5.67	BN 120		2.50	W	571.9	1063.20	W
BRISBANE	1073.49	5.18	BN 110		2.50	W	494	991.40	W
BRISBANE	1074.00	4.66	BN 100	Reach 27 - Lytton Rocks Reach	2.50	W	658.7	1127.40	W
BRISBANE	1074.46	4.20	BN 90		2.50	W	667.4	1183.00	W
BRISBANE	1074.99	3.68	BN 80		2.50	W	825.4	1338.30	W
BRISBANE	1075.48	3.18	BN 70		2.50	W	994.7	1796.30	W
BRISBANE	1076.00	2.66	BN 60	Reach 28 - Pelican Banks Reach	2.50	W	927.8	2006.00	W
BRISBANE	1076.50	2.17	BN 50		2.50	W	748.5	1641.70	W
BRISBANE	1077.01	1.65	BN 40		2.50	W	418.7	2026.30	W
BRISBANE	1077.51	1.15	BN 30	Reach 29 - Lower Reach	2.50	W	621.6	1598.40	W
BRISBANE	1078.04	0.62	BN 20		2.50	W	618.9	1399.70	W
BRISBANE	1078.53	0.14	BN 10		2.50	W	691.5	1218.70	W
BRISBANE	1078.66	-	-		2.50		0	644.2	

FIGURE J-1a

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE



LEGEND

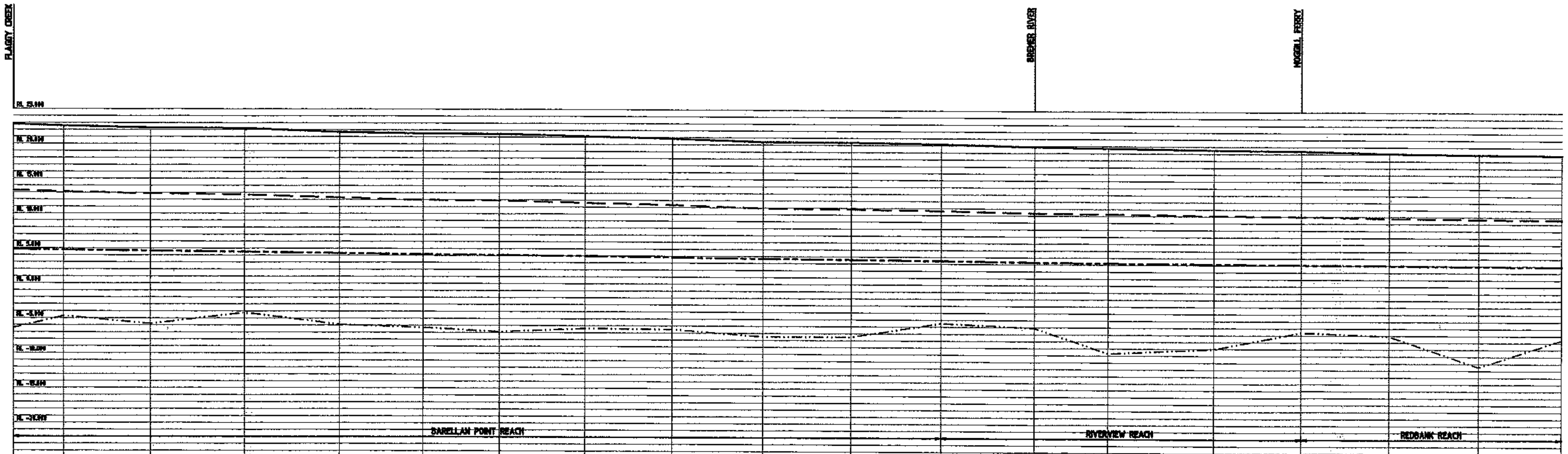
AMTD LINE

BN 1250 SURVEYED CROSS SECTION

LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	4.830	4.760	4.430	4.580	4.320	4.170	4.090	3.960	3.820	3.680	3.580	3.440	3.380	3.290	3.150	3.080	3.000	2.950	2.920
20 YEAR ARI DESIGN FLOOD LEVEL	13.380	13.120	12.870	12.710	12.290	11.980	11.920	11.680	11.340	10.910	10.790	10.430	10.370	10.270	10.080	9.990	9.770	9.700	9.630
100 YEAR ARI DESIGN FLOOD LEVEL	22.790	22.570	22.310	22.220	21.690	21.500	21.480	21.150	20.880	20.420	20.390	20.200	19.860	19.770	19.520	19.420	19.030	18.960	18.890
BED LEVEL (m AHD)	-4.400	-4.700	-5.800	-4.280	-5.900	-6.390	-6.900	-6.460	-6.550	-7.500	-7.500	-5.500	-6.500	-9.700	-9.800	-6.600	-7.900	-11.500	-7.600
CROSS SECTION NUMBER	BN 2020	BN 2010	BN 2000	BN 1990	BN 1980	BN 1970	BN 1960	BN 1950	BN 1940	BN 1930	BN 1920	BN 1910	BN 1900	BN 1890	BN 1880	BN 1870	BN 1860	BN 1850	BN 1840
MIKE 11 CHAINAGE (km)	1000.000	1000.285	1000.775	1001.315	1001.845	1002.350	1002.785	1003.275	1003.775	1004.300	1004.810	1005.325	1005.870	1006.300	1006.910	1007.410	1007.920	1008.445	1008.925
AMTD CHAINAGE (km)	78.660	78.375	77.885	77.345	76.795	76.310	75.875	75.385	74.885	74.360	73.850	73.335	72.790	72.340	71.750	71.250	70.740	70.215	69.735

LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE

5 YEAR ARI DESIGN FLOOD

20 YEAR ARI DESIGN FLOOD

100 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

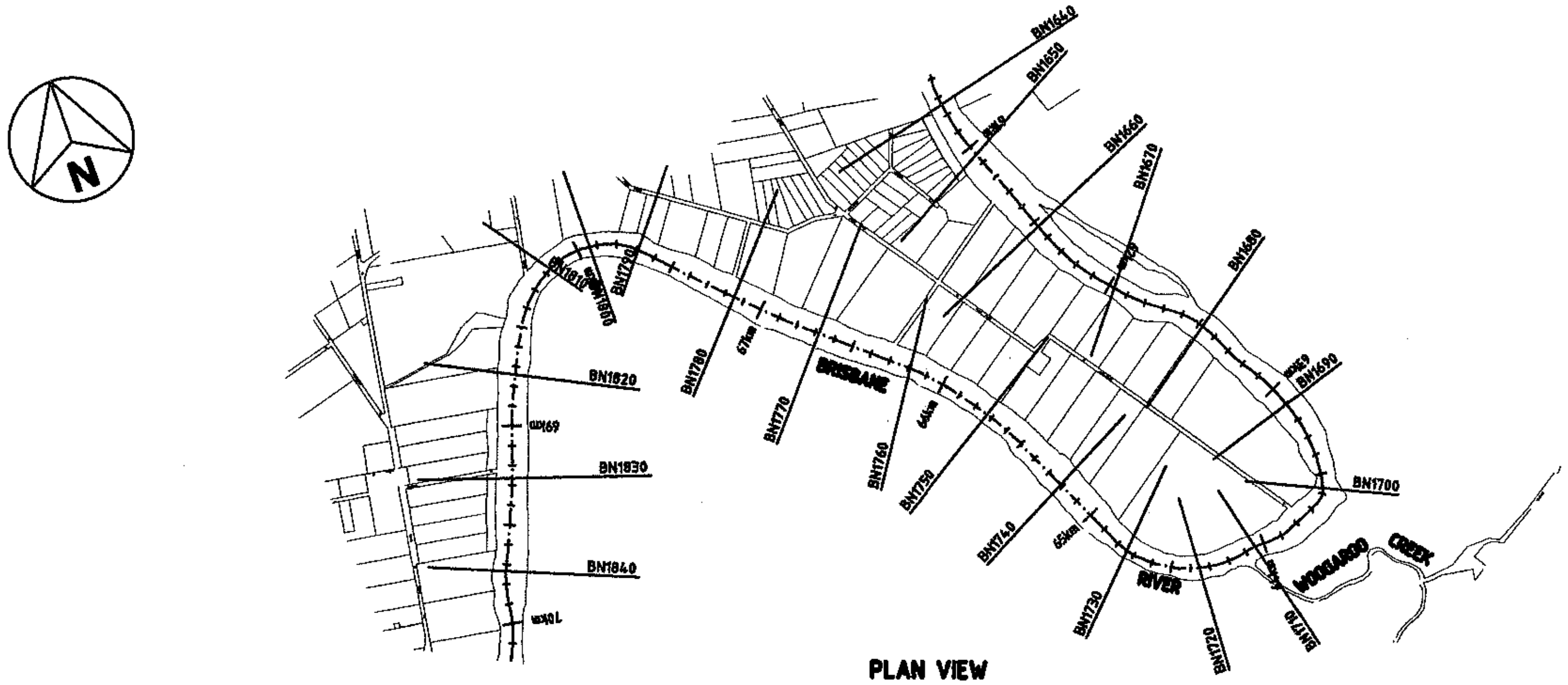
BRISBANE RIVER - BN 2020 TO BN 1840

SINCLAIR KNIGHT MERZ

FIGURE J-1b

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE



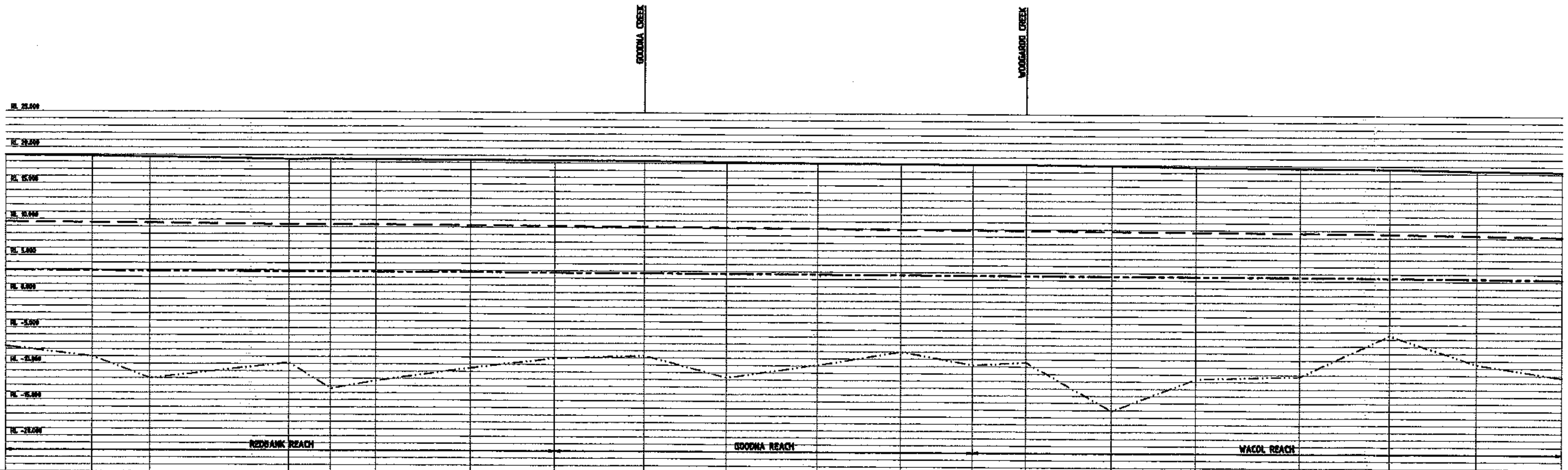
PLAN VIEW

LEGEND

AMTD LINE

SURVEYED CROSS SECTION

LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	2.920	2.890	2.880	2.830	2.820	2.810	2.790	2.760	2.730	2.700	2.670	2.630	2.600	2.580	2.570	2.550	2.530	2.470	2.370	2.300
20 YEAR ARI DESIGN FLOOD LEVEL	9.630	9.560	9.530	9.360	9.370	9.330	9.280	9.230	9.160	9.080	9.010	8.940	8.880	8.830	8.800	8.710	8.650	8.560	8.380	8.210
100 YEAR ARI DESIGN FLOOD LEVEL	18.890	18.790	18.730	18.430	18.440	18.340	18.370	18.340	18.310	18.200	18.110	18.050	18.010	18.050	17.910	17.750	17.670	17.600	17.370	17.260
BED LEVEL (m AHD)	-7.600	-5.000	-12.000	-9.800	-13.400	-12.300	-10.500	-9.100	-8.700	-11.700	-9.900	-8.000	-9.800	-5.400	-16.100	-11.600	-11.700	-5.500	-3.500	-11.300
CROSS SECTION NUMBER	BN 1840	BN 1830	BN 1820	BN 1810	BN 1800	BN 1790	BN 1780	BN 1770	BN 1760	BN 1750	BN 1740	BN 1730	BN 1720	BN 1710	BN 1700	BN 1690	BN 1680	BN 1670	BN 1660	BN 1650
MIKE 11 CHAINAGE (km)	1008.925	1009.400	1009.720	1010.490	1010.725	1010.980	1011.510	1011.980	1012.475	1012.935	1013.445	1013.910	1014.310	1014.610	1015.090	1015.560	1016.140	1016.240	1017.130	1017.610
AMTD CHAINAGE (km)	69.735	69.260	68.660	68.370	67.935	67.680	67.150	66.680	66.185	65.725	65.215	64.740	64.350	64.050	63.570	63.100	62.520	62.420	61.530	61.050

BRISBANE RIVER - BN 1840 TO BN 1650

LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE

5 YEAR ARI DESIGN FLOOD

20 YEAR ARI DESIGN FLOOD

100 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

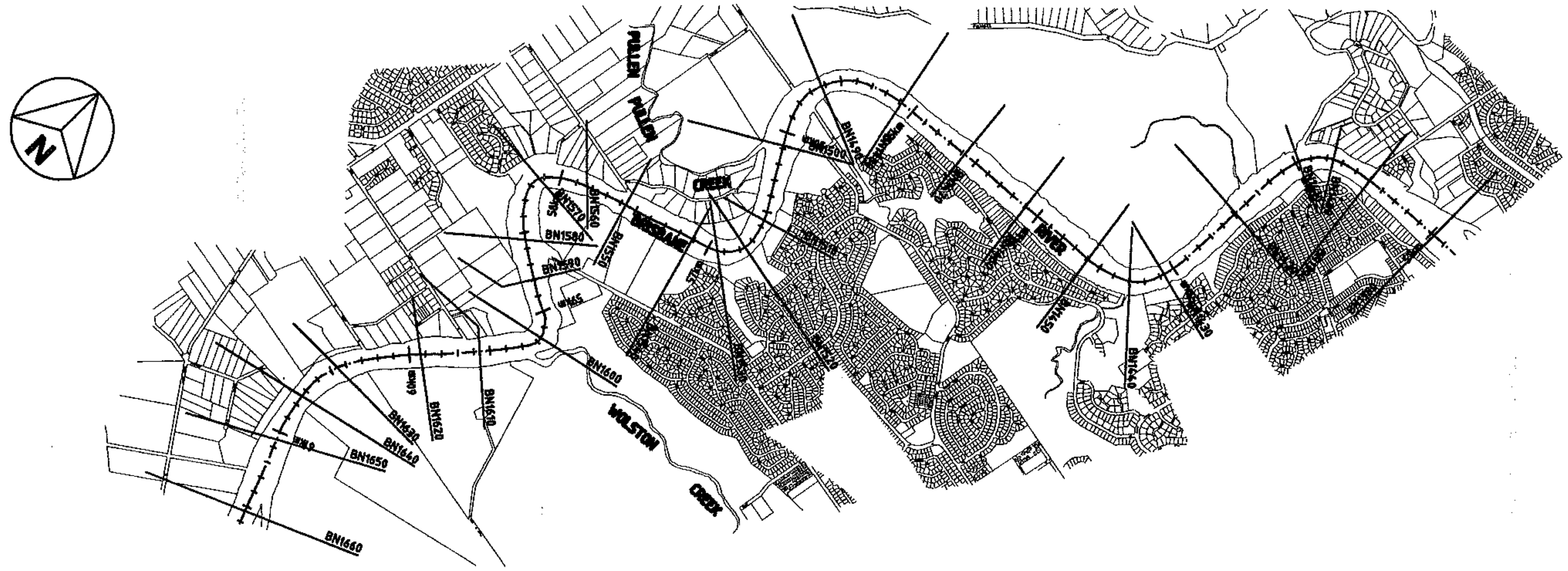
FILE NAME: 4157-157 DISK N°: C:\DWG JOB N°: T00415? DATE: 23/3/97 PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE J-1c

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 5, 10, AND 20 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE



PLAN VIEW

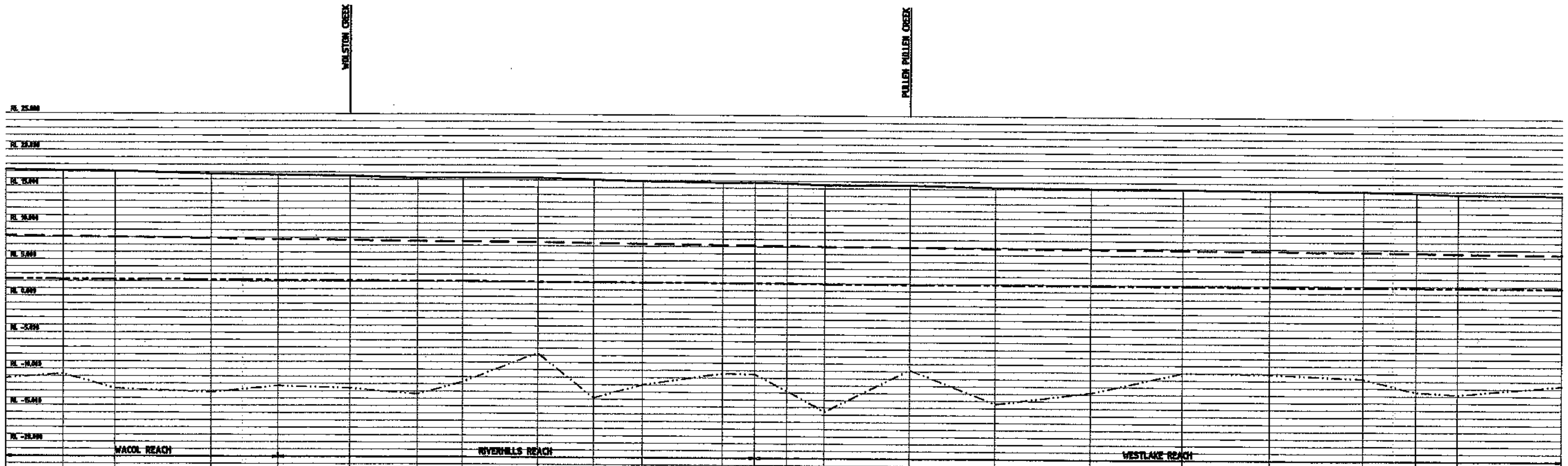
0 0.25 0.5 0.75 1.0 1.25 KILOMETRES

LEGEND

3000 AMTD LINE

BN 1250 SURVEYED CROSS SECTION

(S16) LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

CROSS SECTION NUMBER	5 YEAR ARI DESIGN FLOOD LEVEL	20 YEAR ARI DESIGN FLOOD LEVEL	100 YEAR ARI DESIGN FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 1650	2.300	8.270	17.260	-11.300	1017.610	61.050
BN 1640	2.260	8.090	17.140	-18.700	1017.920	60.740
BN 1630	2.250	8.050	17.080	-12.700	1018.200	60.460
BN 1620	2.200	7.880	16.760	-13.200	1018.725	59.935
BN 1610	2.170	7.770	16.620	-12.300	1019.095	59.565
BN 1600	2.140	7.680	16.490	-12.600	1019.490	59.170
BN 1590	2.100	7.540	16.220	-13.400	1019.865	58.795
BN 1580	2.090	7.530	16.290	-11.700	1020.115	58.545
BN 1570	2.060	7.490	16.280	-7.700	1020.525	58.135
BN 1560	2.040	7.410	16.110	-13.000	1020.830	57.830
BN 1550	2.020	7.310	15.910	-12.000	1021.095	57.565
BN 1540	1.980	7.190	15.740	-10.600	1021.539	57.121
BN 1530	1.970	7.170	15.780	-10.500	1021.715	56.945
BN 1520	1.950	7.130	15.690	-12.800	1021.895	56.765
BN 1510	1.950	7.020	15.490	-15.600	1022.105	56.555
BN 1500	1.920	7.010	15.520	-9.800	1022.575	56.085
BN 1490	1.900	6.890	15.230	-16.400	1023.040	55.620
BN 1480	1.880	6.850	15.170	-12.800	1023.570	55.090
BN 1470	1.870	6.790	15.120	-16.000	1024.080	54.580
BN 1460	1.840	6.720	15.050	-10.100	1024.563	54.097
BN 1450	1.810	6.650	14.950	-14.700	1025.070	53.590
BN 1440	1.800	6.570	14.800	-12.500	1025.360	53.300
BN 1430	1.780	6.480	14.650	-12.800	1025.590	53.070
BN 1420	1.750	6.400	14.500	-11.600	1026.170	52.490

BRISBANE RIVER - BN 1650 TO BN 1420

LEGEND

(S16) LOCATION AND IDENTIFICATION OF STRUCTURE

5 YEAR ARI DESIGN FLOOD

20 YEAR ARI DESIGN FLOOD

100 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

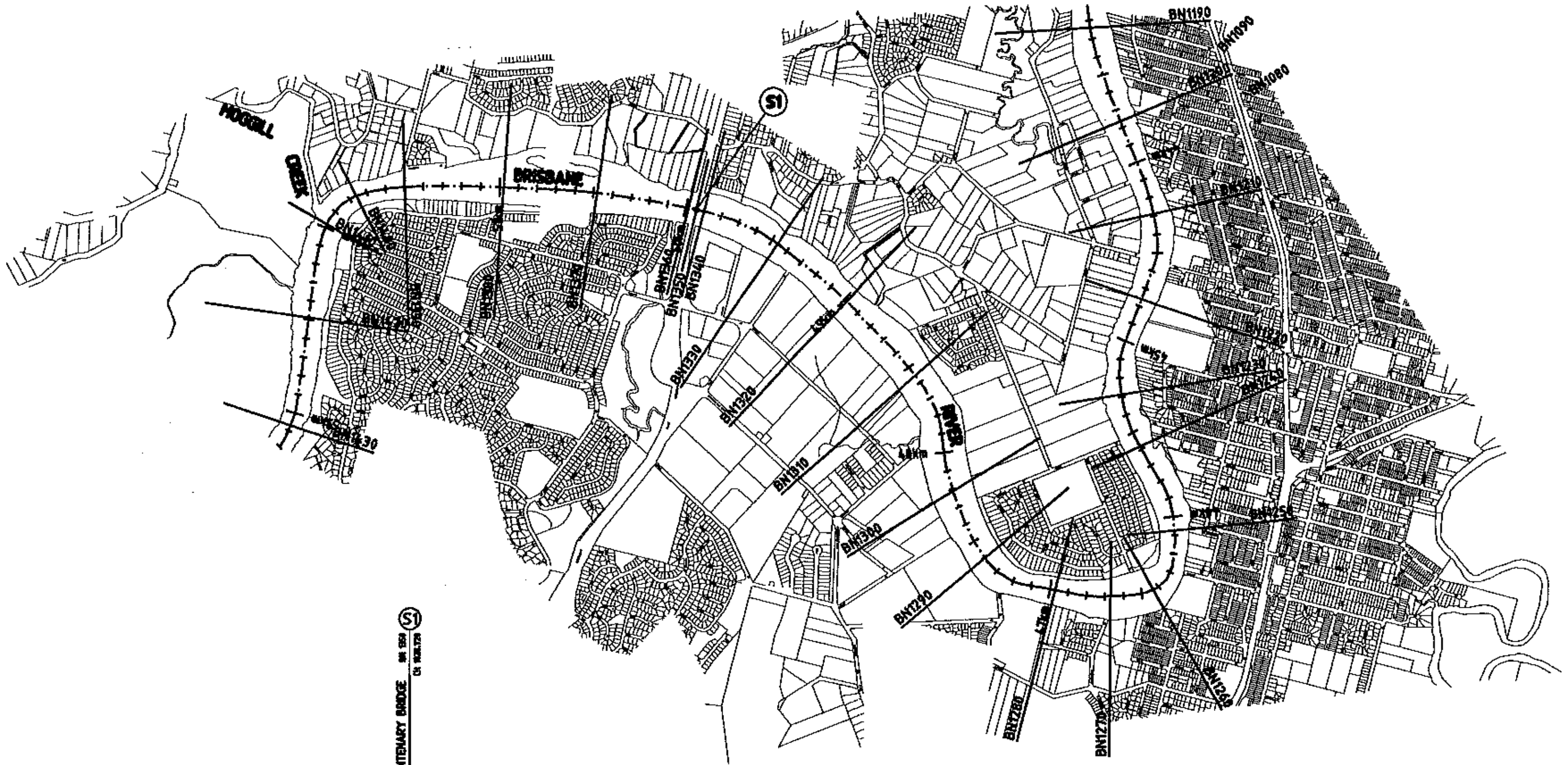
FILE NAME: 4157-158 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T004157 DATE: 23/3/97

FIGURE J-1d

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE

SINCLAIR KNIGHT MERZ



PLAN VIEW

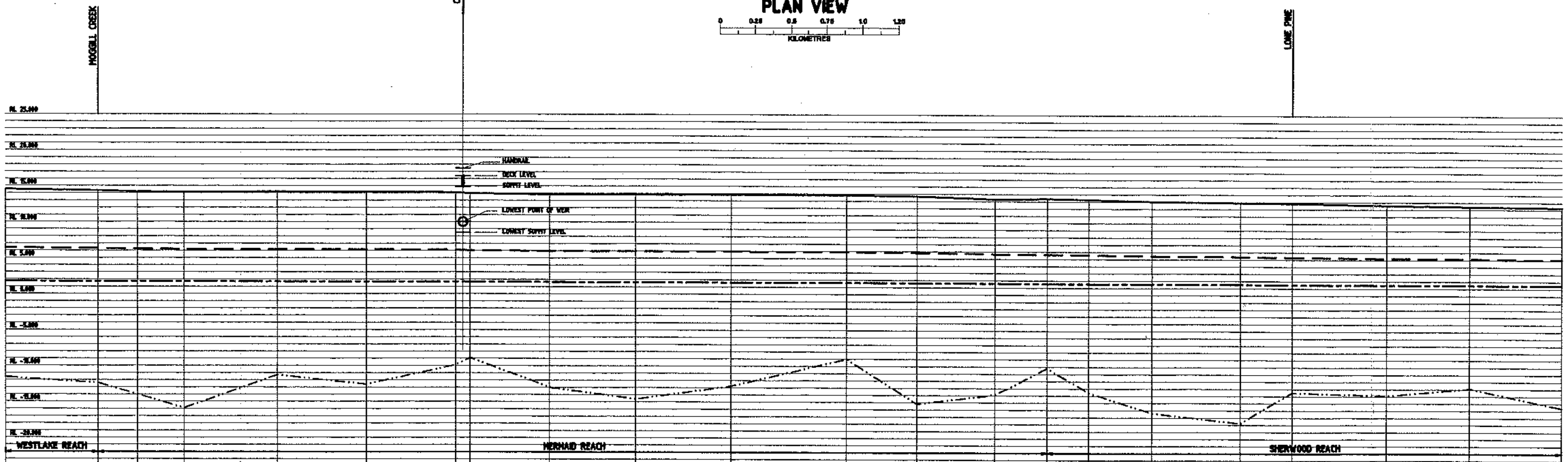
0 0.25 0.5 0.75 1.0 1.25 KILOMETRES

LEGEND

AMTD LINE

BN 1250 SURVEYED CROSS SECTION

S14 LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	1.750	1.730	1.720	1.710	1.700	1.690	1.660	1.660	1.650	1.640	1.640	1.630	1.610	1.580	1.570	1.550	1.540	1.520	1.510	1.490	1.480	1.460
20 YEAR ARI DESIGN FLOOD LEVEL	6.400	6.360	6.240	6.200	6.180	6.170	6.110	6.020	5.950	5.950	5.930	5.890	5.830	5.680	5.630	5.570	5.470	5.380	5.320	5.220	5.140	5.070
100 YEAR ARI DESIGN FLOOD LEVEL	14.500	14.380	14.210	14.120	14.190	14.150	14.100	13.970	13.800	13.800	13.850	13.810	13.690	13.330	13.410	13.280	13.030	12.900	12.830	12.570	12.420	12.320
BED LEVEL (m AHD)	-11.600	-12.400	-14.000	-15.900	-11.300	-12.600	-9.900	-8.900	-13.000	-14.600	-12.800	-9.600	-15.200	-13.900	-10.200	-13.600	-16.400	-17.600	-13.500	-13.900	-12.900	-15.600
CROSS SECTION NUMBER	BN 1420	BN 1410	BN 1400	BN 1390	BN 1380	BN 1370	BN 1360	BN 1340	BN 1330	BN 1320	BN 1310	BN 1300	BN 1290	BN 1280	BN 1270	BN 1260	BN 1250	BN 1240	BN 1230	BN 1220	BN 1210	BN 1200
MIKE 11 CHAINAGE (km)	1026.170	1026.680	1026.980	1027.160	1027.680	1028.180	1028.680	1028.760	1029.200	1029.680	1030.220	1030.870	1031.260	1031.700	1031.995	1032.230	1032.585	1033.080	1033.370	1033.900	1034.370	1034.890
AMTD CHAINAGE (km)	52.490	51.980	51.760	51.500	50.980	50.480	49.980	49.900	49.460	48.980	48.440	47.790	47.400	46.960	46.665	46.430	46.075	45.580	45.290	44.760	44.290	43.770

LEGEND

S14 LOCATION AND IDENTIFICATION OF STRUCTURE

5 YEAR ARI DESIGN FLOOD

20 YEAR ARI DESIGN FLOOD

100 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1420 TO BN 1200

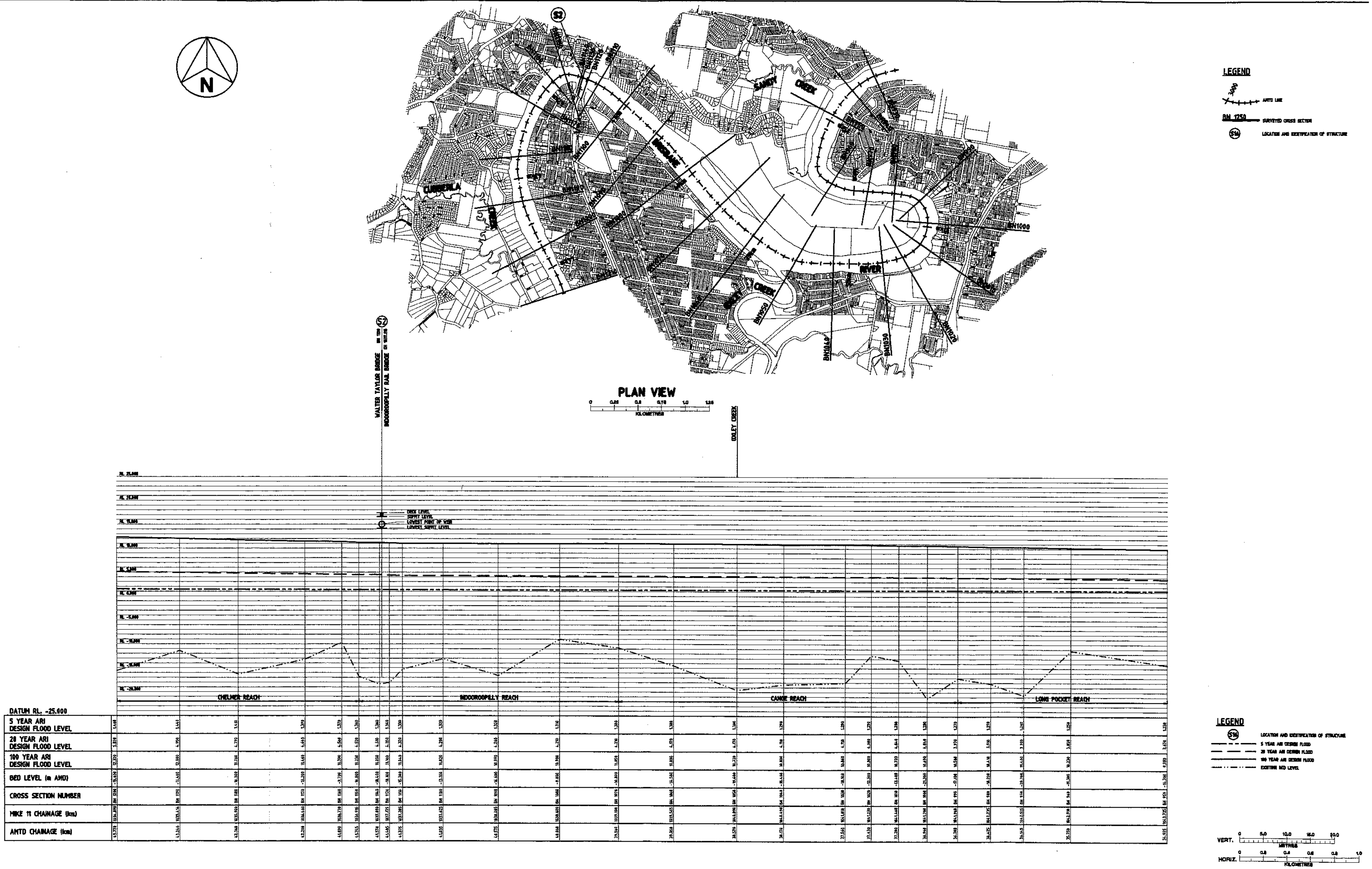
FILE NAME: 4157-303 PLOT SCALE: 1=30 DISK N: C:\DWG JOB N: T00457 DATE: 23/3/97

SINCLAIR KNIGHT MERZ

FIGURE J-1e

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE



BRISBANE RIVER - BN 1200 TO BN 950

FILE NAME: 4157-160
PLOT SCALE: 1=30
DISK N°: CADWG
JOB N°: T004157
DATE: 23/3/97

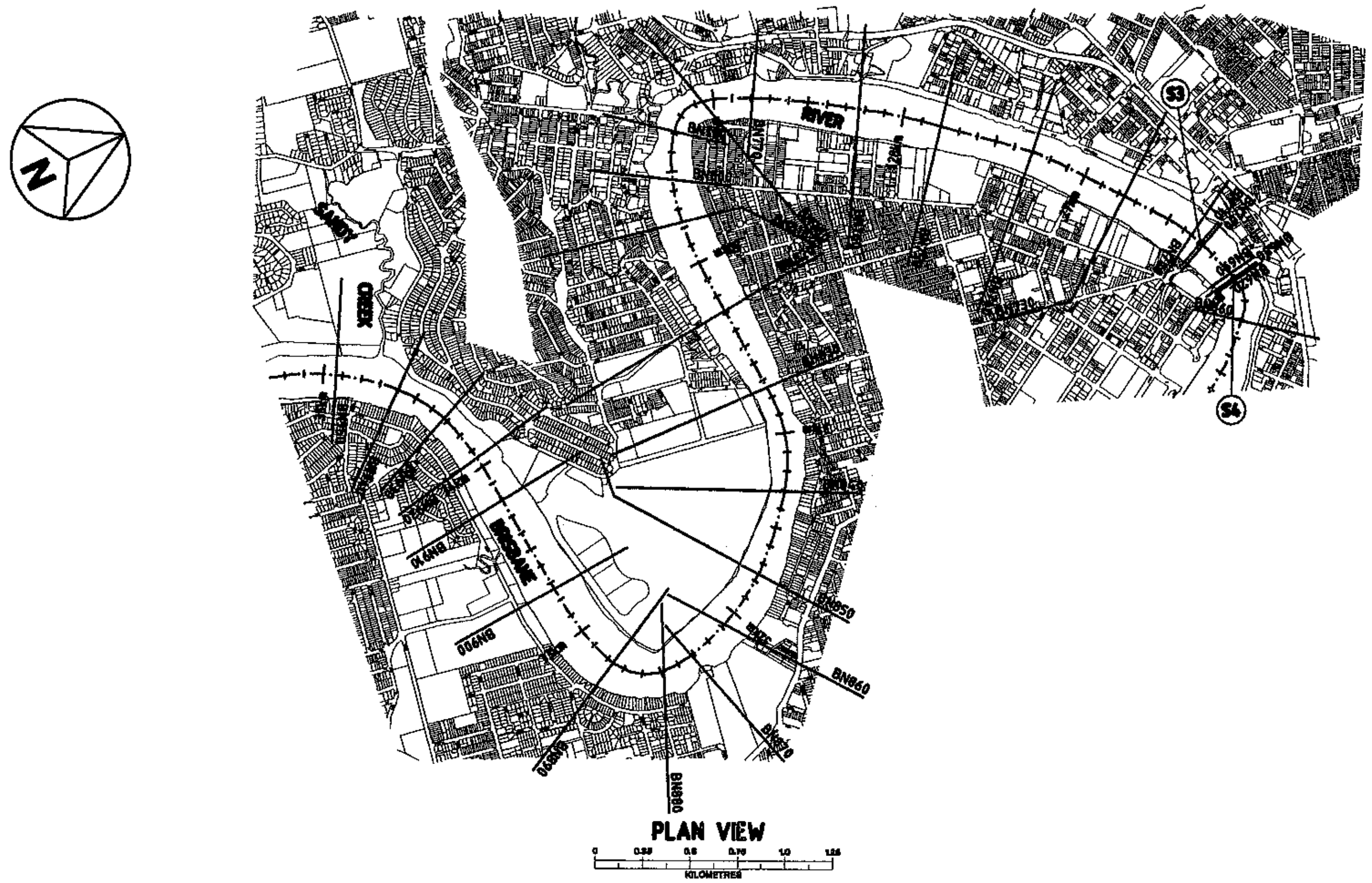
BCC.121.0323

SINCLAIR KNIGHT MERZ

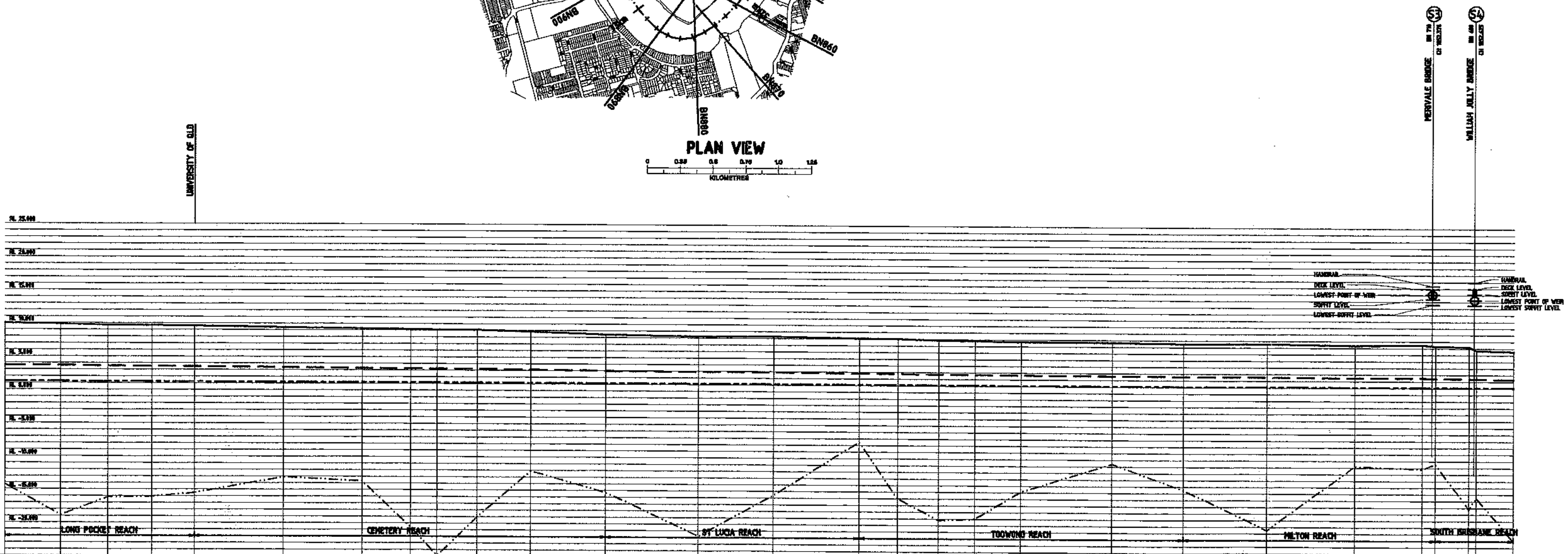
FIGURE J-1f

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE



PLAN VIEW



DATUM RL. -25.000

CROSS SECTION NUMBER	5 YEAR ARI DESIGN FLOOD LEVEL	20 YEAR ARI DESIGN FLOOD LEVEL	100 YEAR ARI DESIGN FLOOD LEVEL	BED LEVEL (m AHD)	MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)
BN 950	1.230	3.670	9.980	-14.500	1043.725	34.935
BN 940	1.220	3.630	9.860	-18.900	1044.060	34.600
BN 930	1.210	3.540	9.690	-14.200	1044.340	34.320
BN 920	1.210	3.520	9.450	-14.100	1044.405	34.055
BN 910	1.200	3.490	9.590	-15.500	1044.840	33.800
BN 900	1.190	3.390	9.400	-13.100	1045.400	33.260
BN 890	1.170	3.290	9.230	-13.700	1045.885	32.775
BN 880	1.170	3.240	9.170	-20.600	1046.180	32.480
BN 870	1.170	3.250	9.110	-24.900	1046.340	32.320
BN 860	1.170	3.120	9.080	-19.900	1046.580	32.080
BN 850	1.160	3.140	8.870	-12.100	1046.900	31.760
BN 840	1.140	2.990	8.670	-15.300	1047.350	31.310
BN 830	1.130	2.910	8.240	-21.800	1047.915	30.745
BN 820	1.130	2.910	8.390	-15.600	1048.375	30.285
BN 810	1.120	2.800	8.080	-7.500	1048.890	29.770
BN 800	1.120	2.780	8.030	-16.000	1049.120	29.540
BN 790	1.110	2.720	7.850	-19.200	1049.370	29.290
BN 780	1.110	2.710	7.820	-19.000	1049.590	29.070
BN 770	1.100	2.670	7.700	-16.900	1049.870	28.790
BN 760	1.100	2.630	7.640	-10.600	1050.430	28.230
BN 750	1.090	2.580	7.530	-14.500	1050.860	27.800
BN 740	1.090	2.580	7.560	-20.500	1051.360	27.300
BN 730	1.080	2.580	7.570	-10.800	1051.895	26.765
BN 720	1.070	2.520	7.510	-11.200	1052.310	26.350
BN 700	1.080	2.470	7.370	-10.400	1052.380	26.270
BN 690	1.080	2.454	7.220	-17.200	1052.595	26.045
BN 679	1.070	2.370	6.690	-15.900	1052.640	26.020
BN 660	1.070	2.340	6.540	-22.000	1052.865	25.795

LEGEND

- S16 LOCATION AND IDENTIFICATION OF STRUCTURE
- 5 YEAR ARI DESIGN FLOOD
- 20 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

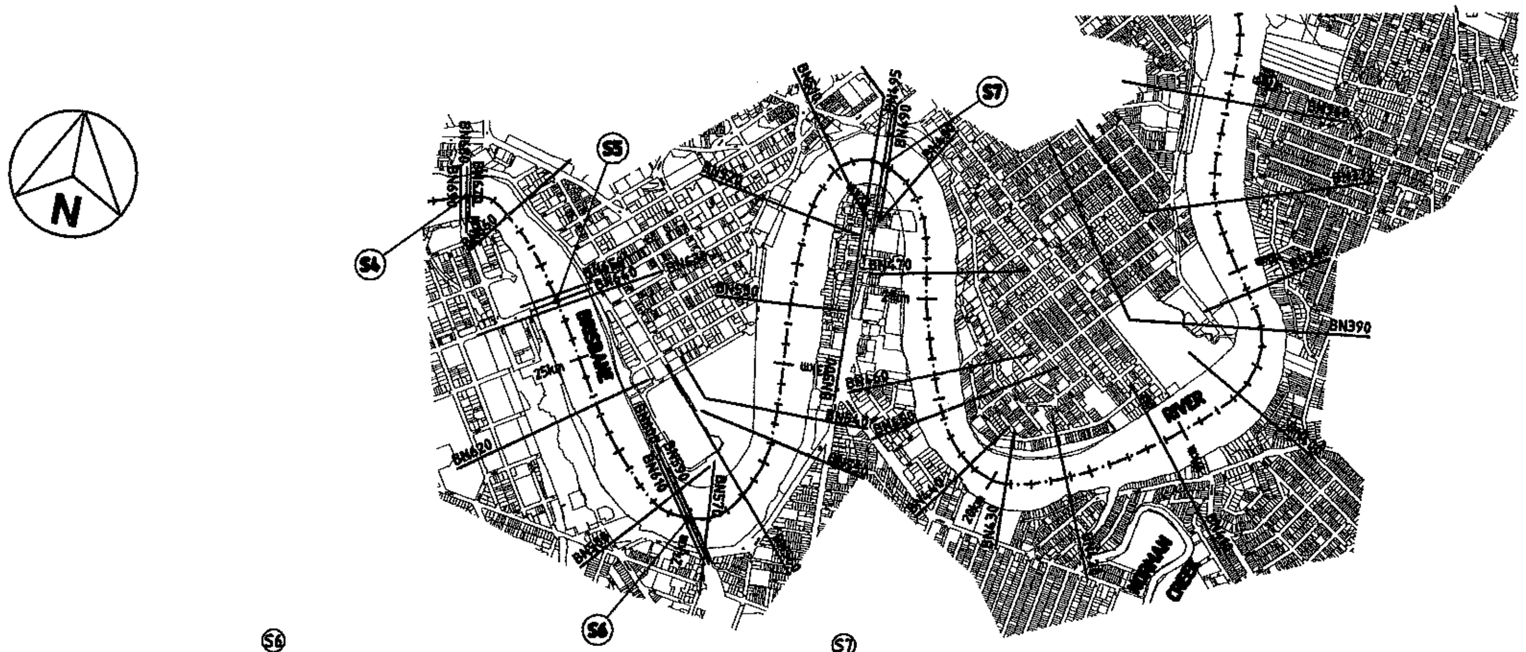
BRISBANE RIVER - BN 950 TO BN 660

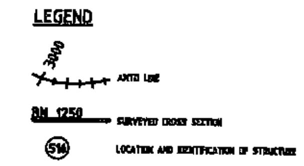
FILE NAME: 415, ... PLOT SCALE: 1=30

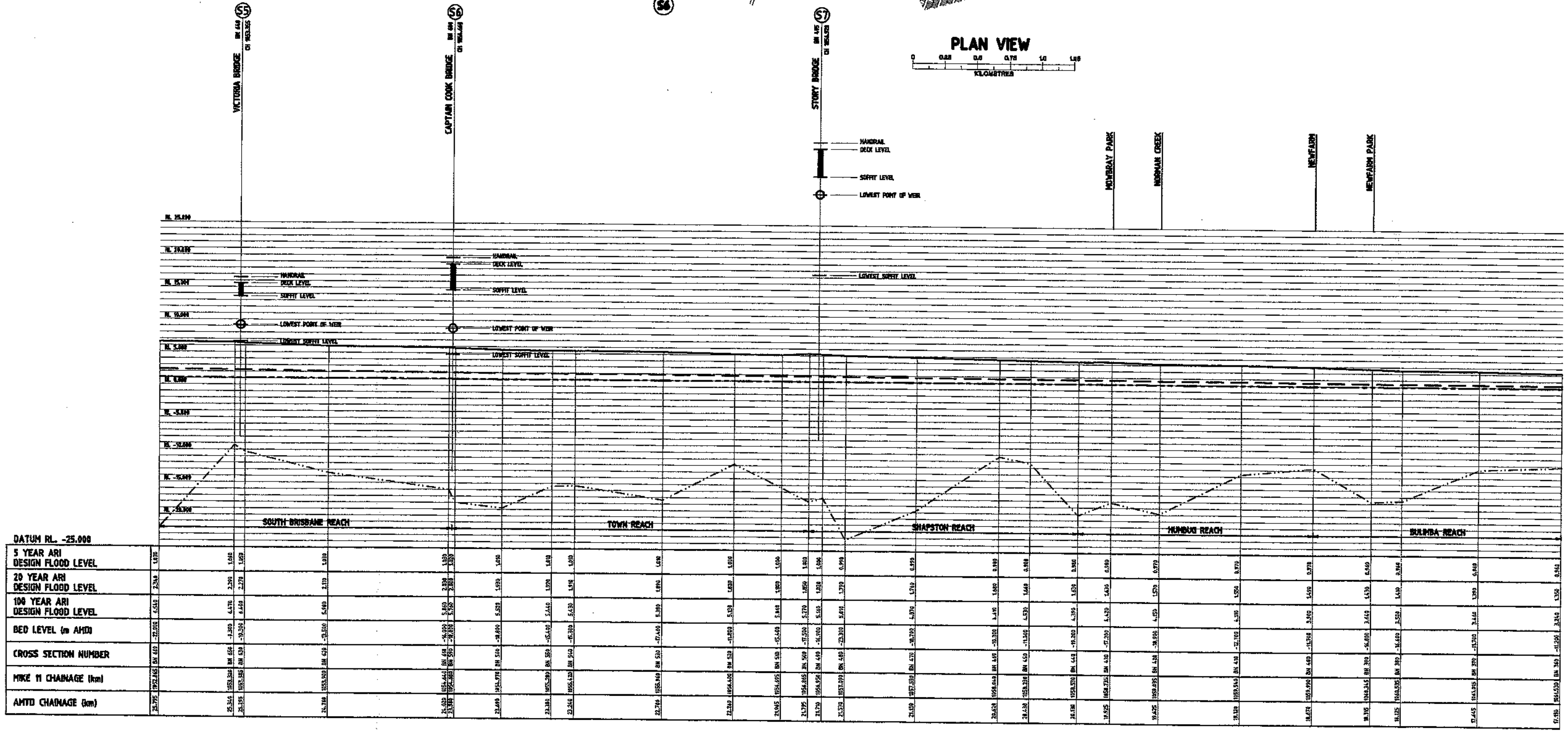
SINCLAIR KNIGHT MERZ

FIGURE J-1g

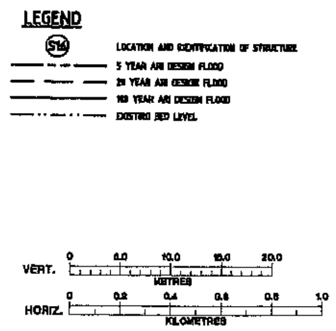
BRISBANE RIVER FLOOD STUDY
MIKE 11 DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE







BRISBANE RIVER - BN 660 TO BN 360

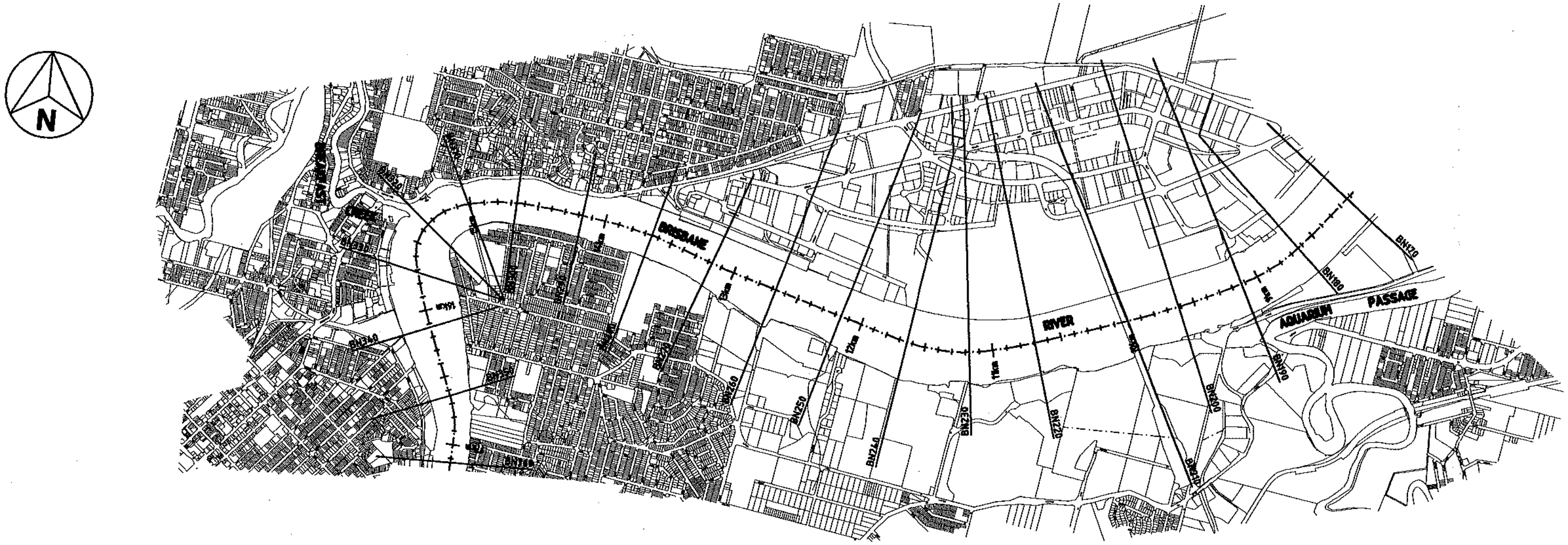


PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

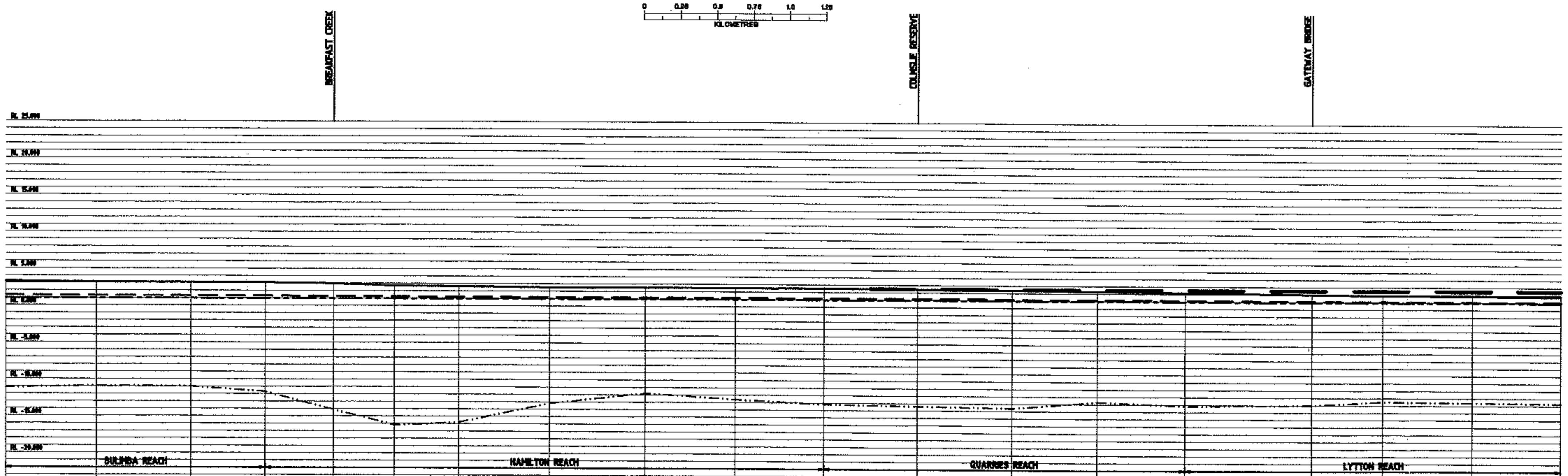
FIGURE J-1h

BRISBANE RIVER FLOOD STUDY
MIKE 11 DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI
FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS
- REGULATION LINES AND REVEGETATION STRATEGY CASE



PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25
KILOMETRES



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	0.960	0.959	0.958	0.959	0.958	0.958	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.930	0.930	0.930	0.930
20 YEAR ARI DESIGN FLOOD LEVEL	1.350	1.320	1.310	1.300	1.280	1.220	1.210	1.190	1.190	1.180	1.170	1.170	1.160	1.140	1.120	1.090	1.080	1.060	1.050
100 YEAR ARI DESIGN FLOOD LEVEL	3.240	3.160	3.120	3.110	2.990	2.710	2.640	2.530	2.550	2.530	2.540	2.440	2.410	2.290	2.180	2.000	1.930	1.870	1.840
BED LEVEL (m AHD)	-11.200	-10.900	-11.000	-11.700	-14.100	-16.200	-15.600	-13.200	-11.800	-12.600	-13.200	-13.400	-13.600	-12.700	-13.200	-13.000	-12.500	-12.600	-12.700
CROSS SECTION NUMBER	BN 360	BN 350	BN 340	BN 330	BN 320	BN 310	BN 300	BN 290	BN 280	BN 270	BN 260	BN 250	BN 240	BN 230	BN 220	BN 210	BN 200	BN 190	BN 180
MIKE 11 CHAINAGE (km)	1061.530	1062.020	1062.535	1062.940	1063.310	1063.445	1064.000	1064.478	1065.010	1065.503	1065.990	1066.505	1067.020	1067.485	1067.985	1068.660	1069.465	1069.535	1070.025
AMTD CHAINAGE (km)	17.130	16.444	16.125	15.720	15.350	15.035	14.660	14.170	13.650	13.157	12.678	12.155	11.640	11.175	10.695	10.060	9.415	9.125	8.635

BRISBANE RIVER - BN 360 TO BN 180

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 5 YEAR ARI DESIGN FLOOD
- 20 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI MORETON BAY STORM SURGE LEVEL (RL 2.3m AHD, INCLUDING 300mm ALLOWANCE FOR GREENHOUSE EFFECT)
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

PLOT SCALE: 1=30

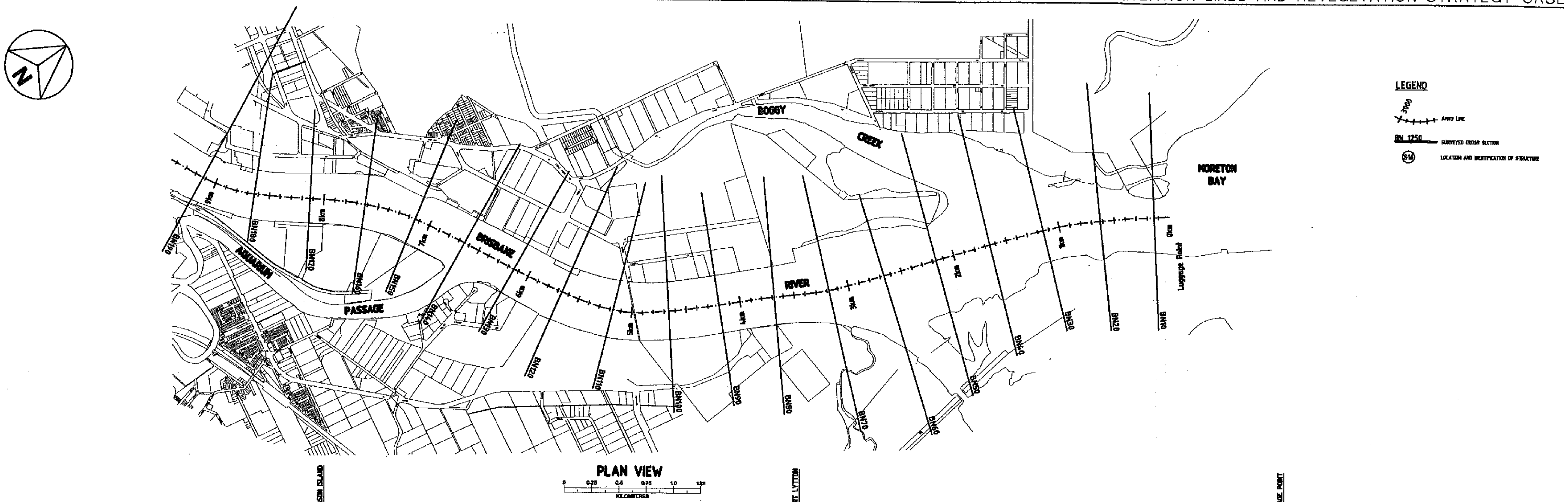
BCC.121.0326

SINCLAIR KNIGHT MERZ

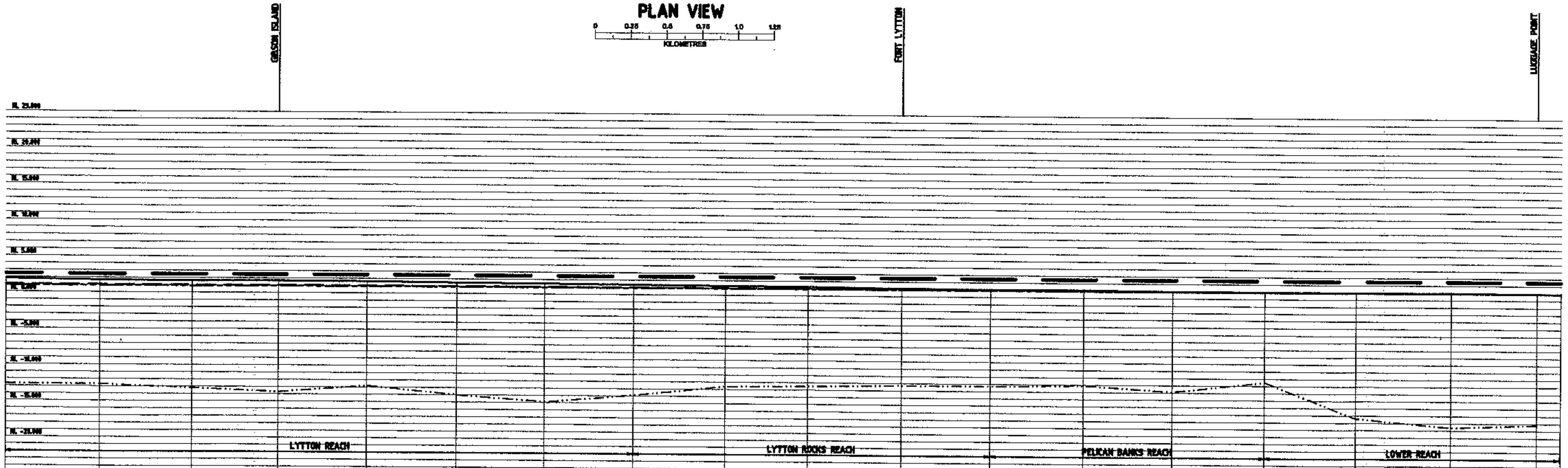
FIGURE J-1i

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 5, 20, AND 100 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE



PLAN VIEW



DATUM RL. -25.000

5 YEAR ARI DESIGN FLOOD LEVEL	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
20 YEAR ARI DESIGN FLOOD LEVEL	1.050	1.040	1.020	1.030	1.020	1.000	1.000	0.980	0.970	0.960	0.940	0.940	0.940	0.920	0.930	0.930	0.920	0.920	0.920
100 YEAR ARI DESIGN FLOOD LEVEL	1.800	1.700	1.620	1.640	1.620	1.500	1.440	1.340	1.280	1.230	1.090	1.050	1.070	0.950	0.970	0.970	0.950	0.920	0.920
BED LEVEL (m AHD)	-12.700	-12.700	-13.200	-13.140	-12.800	-14.900	-14.900	-13.900	-12.600	-12.500	-12.300	-12.300	-12.100	-12.900	-11.500	-16.400	-17.600	-17.200	
CROSS SECTION NUMBER	BN 180	BN 170	BN 160	BN 150	BN 140	BN 130	BN 120	BN 110	BN 100	BN 90	BN 80	BN 70	BN 60	BN 50	BN 40	BN 30	BN 20	BN 10	
MIKE 11 CHAINAGE (km)	1070.025	1070.534	1071.049	1071.520	1072.015	1072.515	1072.995	1073.485	1074.000	1074.440	1074.985	1075.480	1076.000	1076.475	1077.010	1077.510	1078.040	1078.525	1078.660
AMTD CHAINAGE (km)	8.635	8.130	7.620	7.140	6.645	6.145	5.665	5.175	4.660	4.220	3.675	3.180	2.660	2.165	1.650	1.150	0.620	0.135	0

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 5 YEAR ARI DESIGN FLOOD
- 20 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI DESIGN FLOOD
- 100 YEAR ARI MORETON BAY STORM SURGE LEVEL (RL 2.5m AHD, INCLUDING 300mm ALLOWANCE FOR GREENHOUSE EFFECT)
- EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

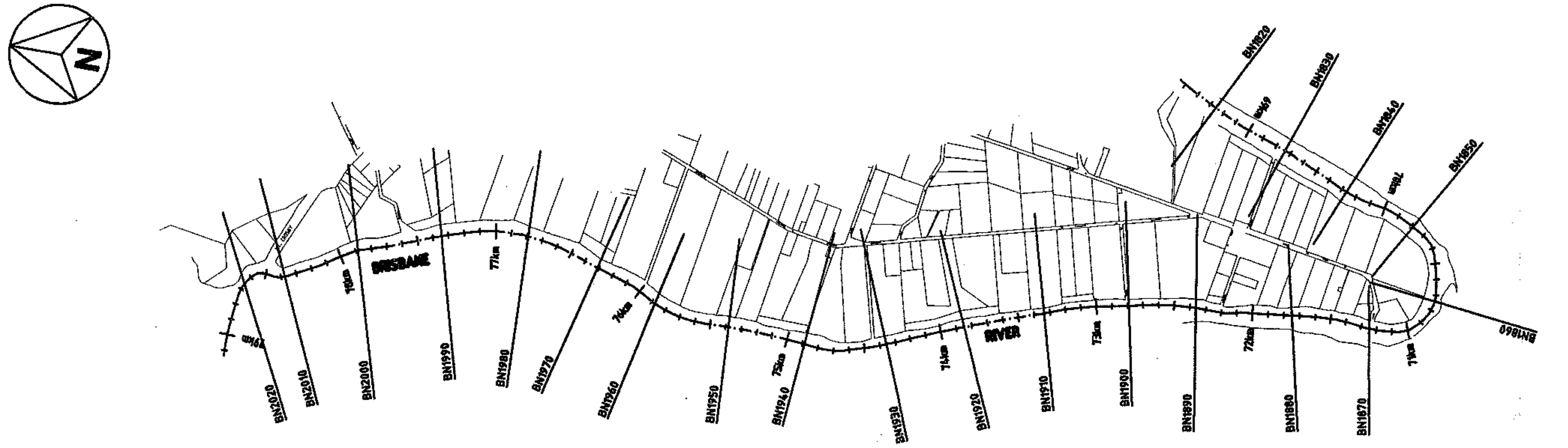
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 180 TO BN 10

FILE NAME: 4157-308 PLOT SCALE: 1=30 DISK N: C:\DWG JOB N: T00415? DATE: 23/3/97

FIGURE J-2a

BRISBANE RIVER FLOOD STUDY
MIKE 11 DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE

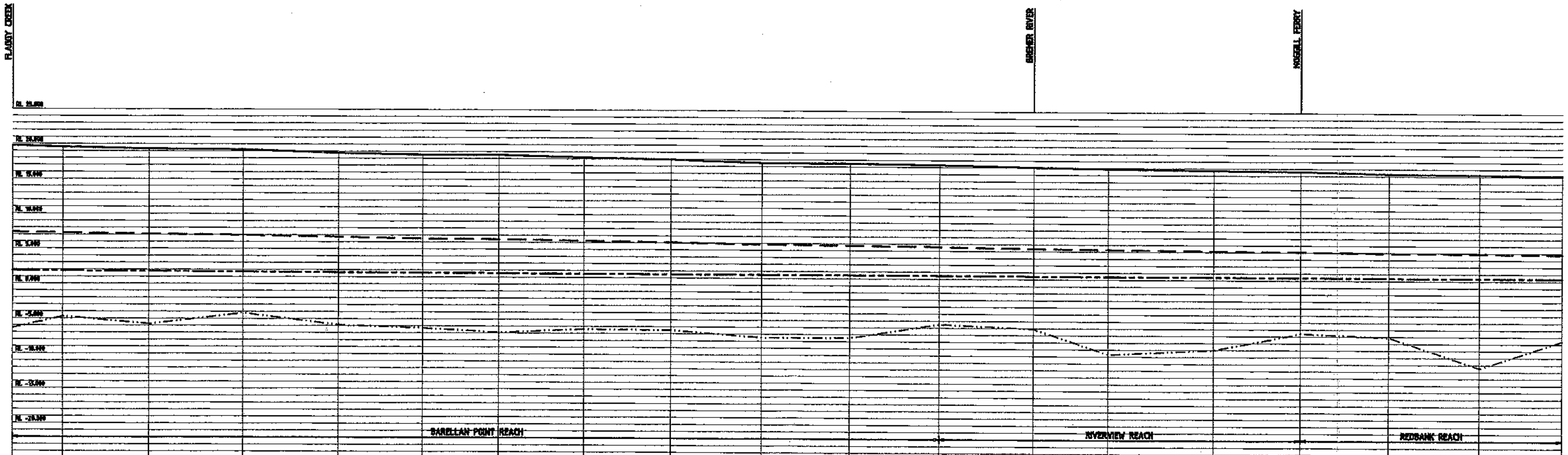


LEGEND

- AMTD LINE
- BN 1250 SURVEYED CROSS SECTION
- LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW

KILOMETRES



DATUM RL. -25.000

2 YEAR ARI DESIGN FLOOD LEVEL	1.850	1.800	1.760	1.700	1.650	1.590	1.560	1.520	1.500	1.490	1.440	1.470	1.450	1.440	1.420	1.400	1.380	1.360	1.350
10 YEAR ARI DESIGN FLOOD LEVEL	7.340	7.240	7.080	6.940	6.730	6.690	6.620	6.340	6.050	5.840	5.720	5.580	5.390	5.290	5.160	5.080	4.940	4.850	4.830
50 YEAR ARI DESIGN FLOOD LEVEL	19.750	19.540	19.320	19.230	18.740	18.530	18.510	18.190	17.950	17.540	17.490	17.320	17.040	16.980	16.690	16.600	16.330	16.230	16.140
BED LEVEL (m AHD)	-6.400	-4.700	-5.090	-4.200	-5.990	-6.300	-6.500	-6.400	-6.500	-7.500	-7.500	-5.500	-6.100	-9.700	-9.000	-6.600	-7.300	-11.500	-7.600
CROSS SECTION NUMBER	BN 2020	BN 2010	BN 2000	BN 1990	BN 1980	BN 1970	BN 1960	BN 1950	BN 1940	BN 1930	BN 1920	BN 1910	BN 1900	BN 1890	BN 1880	BN 1870	BN 1860	BN 1850	BN 1840
MIKE 11 CHAINAGE (km)	1000.080	1000.285	1000.775	1001.315	1001.845	1002.550	1002.785	1003.275	1003.775	1004.380	1004.810	1005.325	1005.870	1006.500	1006.910	1007.410	1007.920	1008.445	1008.925
AMTD CHAINAGE (km)	78.660	78.375	77.885	77.345	76.795	76.310	75.875	75.385	74.885	74.340	73.850	73.335	72.790	72.360	71.750	71.250	70.740	70.245	69.735

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 2 YEAR ARI DESIGN FLOOD
- 10 YEAR ARI DESIGN FLOOD
- 50 YEAR ARI DESIGN FLOOD
- EXISTING BED LEVEL

VERT. METRES
HORIZ. KILOMETRES

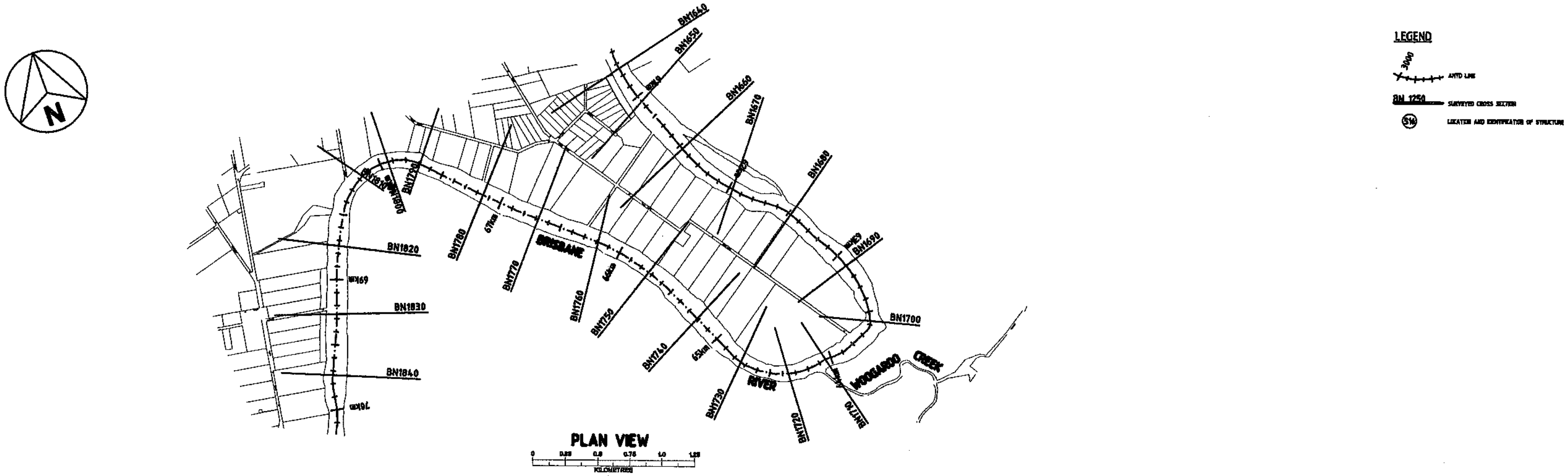
BRISBANE RIVER - BN 2020 TO BN 1840

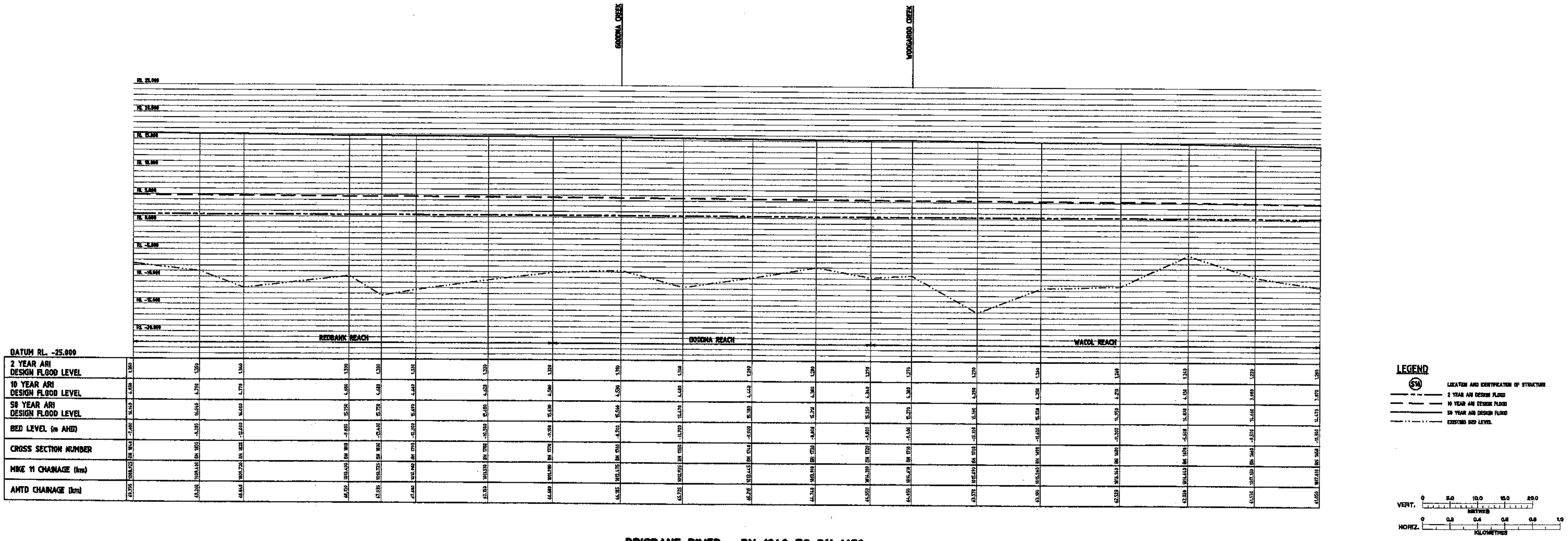
SINCLAIR KNIGHT MERZ

FIGURE J-2b

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE





BRISBANE RIVER - BN 1840 TO BN 1650

FILE NAME: 4157-188 PLOT SCALE: 1=30 DISK N: C:\DWG JOB N: T00415? DATE: 23/?/??

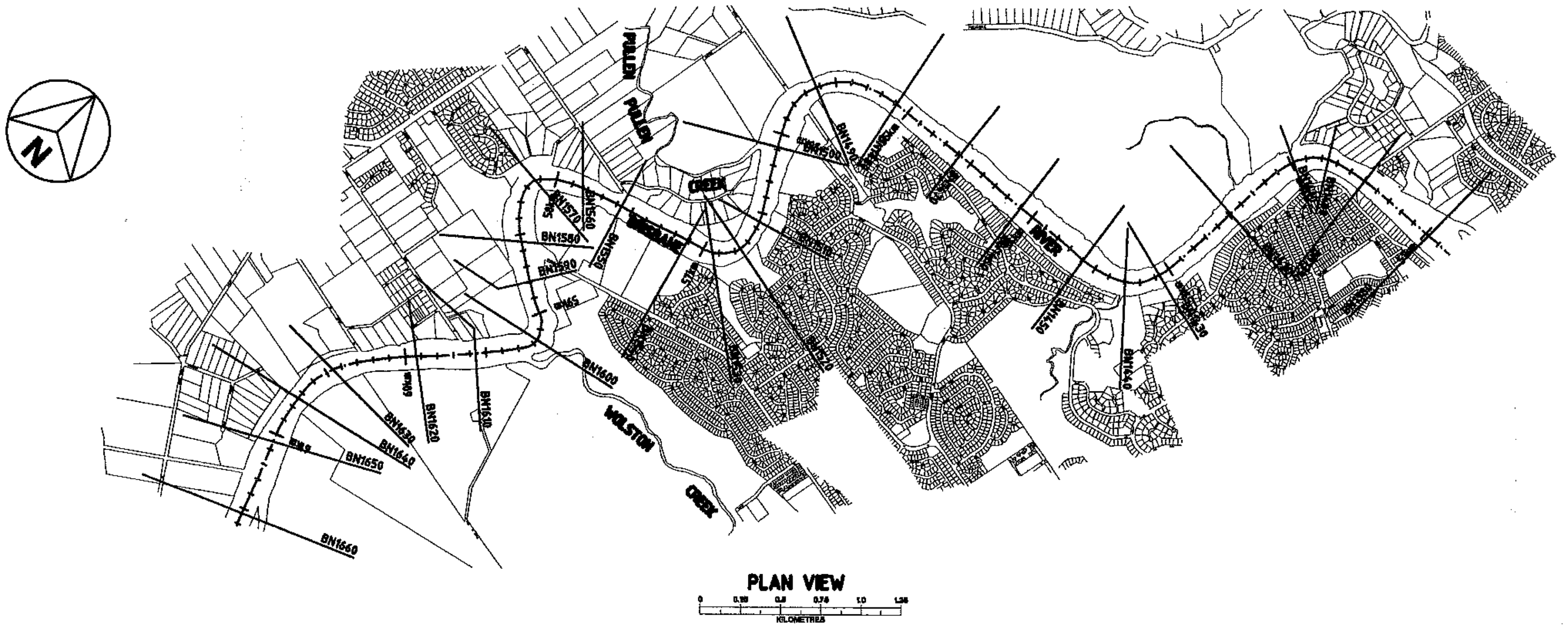
BCC.121.0329

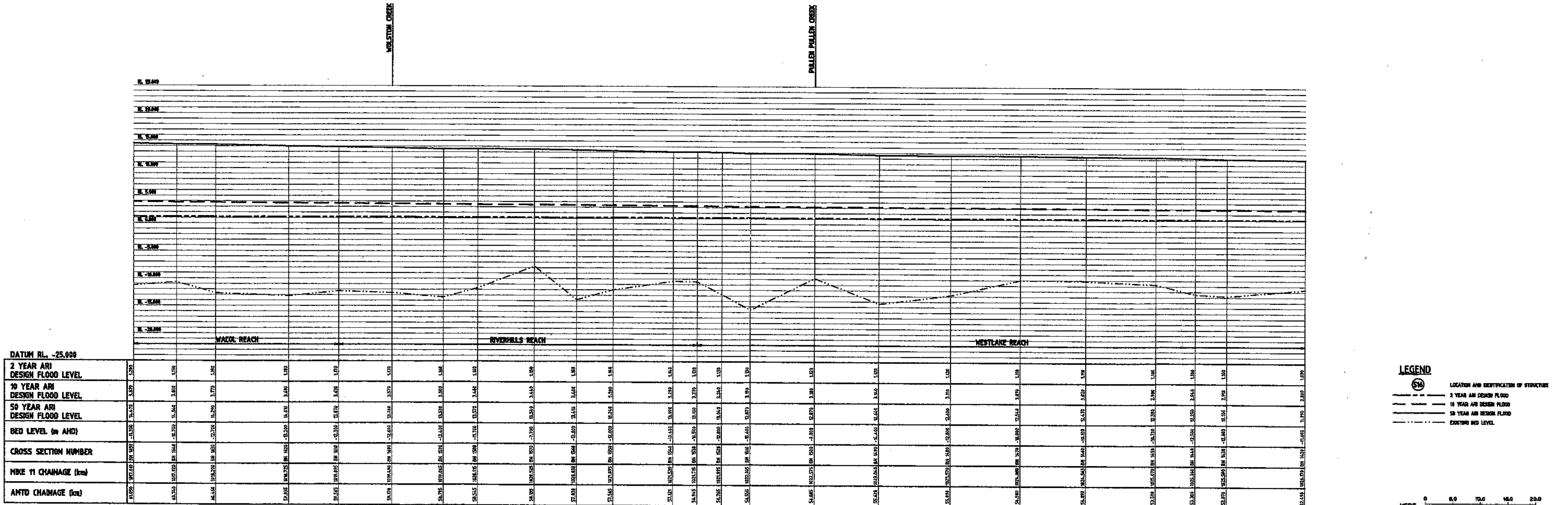
SINCLAIR KNIGHT MERZ

FIGURE J-2c

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE





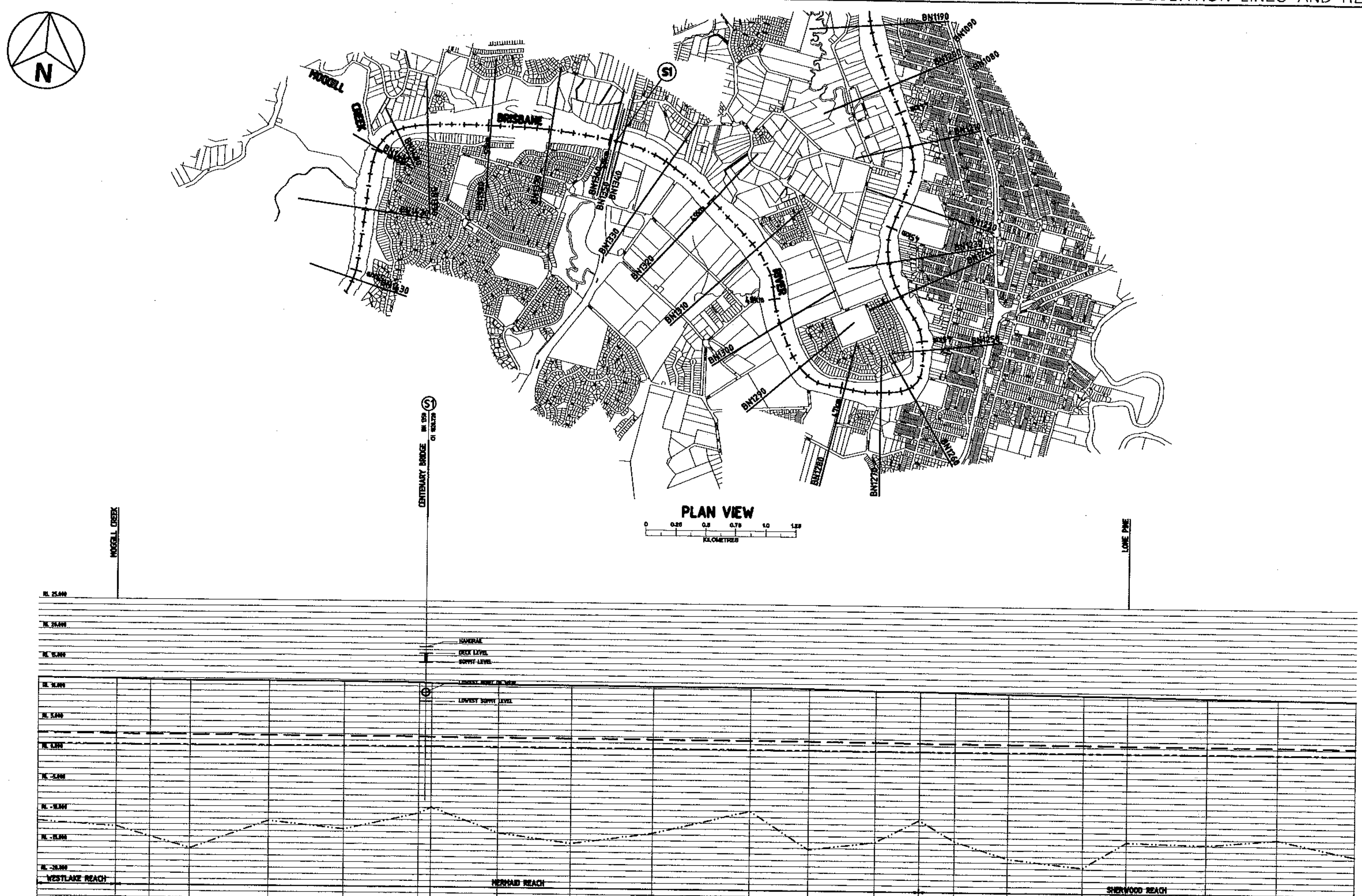
BRISBANE RIVER - BN 1650 TO BN 1420

FILE NAME: 415,-40/ PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE J-2d

BRISBANE RIVER FLOOD STUDY
MIKE 11 DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE



LEGEND
AMTD LINE
SURVEYED CROSS SECTION
LOCATION AND IDENTIFICATION OF STRUCTURE

DATUM RL. -25.000

2 YEAR ARI DESIGN FLOOD LEVEL	1.090	1.090	1.090	1.090	1.080	1.080	1.080	1.080	1.070
10 YEAR ARI DESIGN FLOOD LEVEL	2.860	2.810	2.790	2.770	2.750	2.740	2.710	2.670	2.640
50 YEAR ARI DESIGN FLOOD LEVEL	11.990	11.870	11.750	11.680	11.720	11.700	11.620	11.490	11.370
BED LEVEL (m AHD)	-11.600	-12.400	-14.000	-15.900	-11.300	-12.690	-9.900	-8.800	-13.000
CROSS SECTION NUMBER	BN 1420	BN 1410	BN 1400	BN 1390	BN 1380	BN 1370	BN 1360	BN 1340	BN 1330
MIKE 11 CHAINAGE (km)	1024.170	1026.680	1026.980	1027.160	1027.440	1028.180	1028.680	1028.740	1029.280
AMTD CHAINAGE (km)	52.690	51.980	51.740	51.500	50.990	50.440	49.980	49.900	49.440

2 YEAR ARI DESIGN FLOOD LEVEL	1.070	1.070	1.070	1.070	1.060	1.060	1.060
10 YEAR ARI DESIGN FLOOD LEVEL	2.640	2.620	2.600	2.570	2.510	2.470	2.440
50 YEAR ARI DESIGN FLOOD LEVEL	11.370	11.350	11.330	11.240	10.950	10.940	10.860
BED LEVEL (m AHD)	-14.400	-12.800	-9.800	-15.200	-13.900	-10.200	-13.400
CROSS SECTION NUMBER	BN 1320	BN 1310	BN 1300	BN 1290	BN 1280	BN 1270	BN 1260
MIKE 11 CHAINAGE (km)	1029.400	1030.220	1030.870	1031.260	1031.780	1031.995	1032.230
AMTD CHAINAGE (km)	48.980	48.444	47.790	47.480	46.944	46.445	46.430

2 YEAR ARI DESIGN FLOOD LEVEL	1.050	1.050	1.050	1.050	1.050	1.040
10 YEAR ARI DESIGN FLOOD LEVEL	2.410	2.370	2.340	2.300	2.270	2.240
50 YEAR ARI DESIGN FLOOD LEVEL	10.670	10.530	10.450	10.250	10.130	10.020
BED LEVEL (m AHD)	-16.600	-17.800	-13.500	-13.900	-12.900	-15.400
CROSS SECTION NUMBER	BN 1250	BN 1244	BN 1238	BN 1228	BN 1218	BN 1208
MIKE 11 CHAINAGE (km)	1032.545	1033.080	1033.370	1033.900	1034.370	1034.850
AMTD CHAINAGE (km)	46.075	45.580	45.290	44.740	44.290	43.770

LEGEND
LOCATION AND IDENTIFICATION OF STRUCTURE
2 YEAR ARI DESIGN FLOOD
10 YEAR ARI DESIGN FLOOD
50 YEAR ARI DESIGN FLOOD
EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 1420 TO BN 1200

FIL... 1E: 41
PLOT SCALE: 1=30

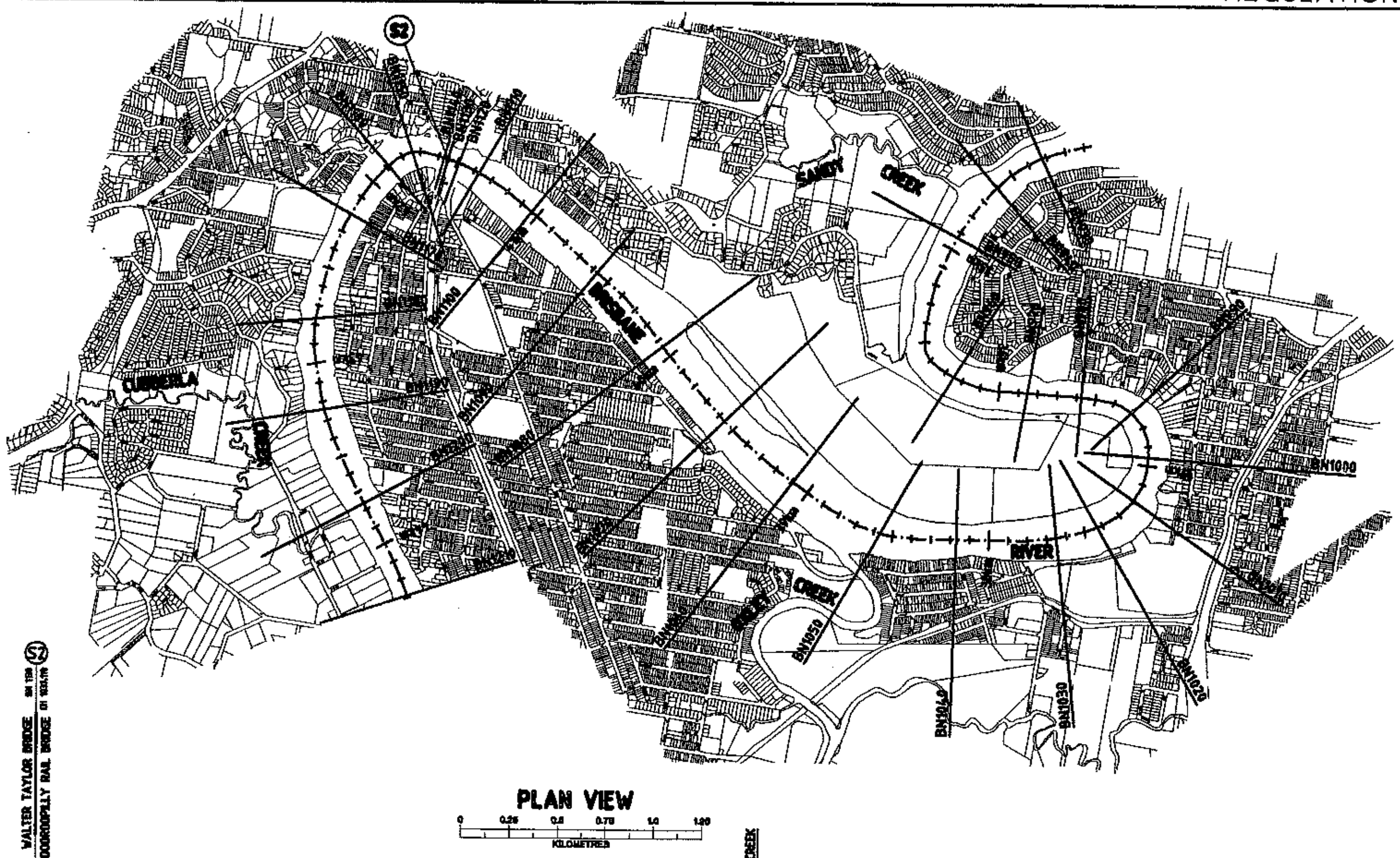
BCC.121.0331

SINCLAIR KNIGHT MERZ

FIGURE J-2e

BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE

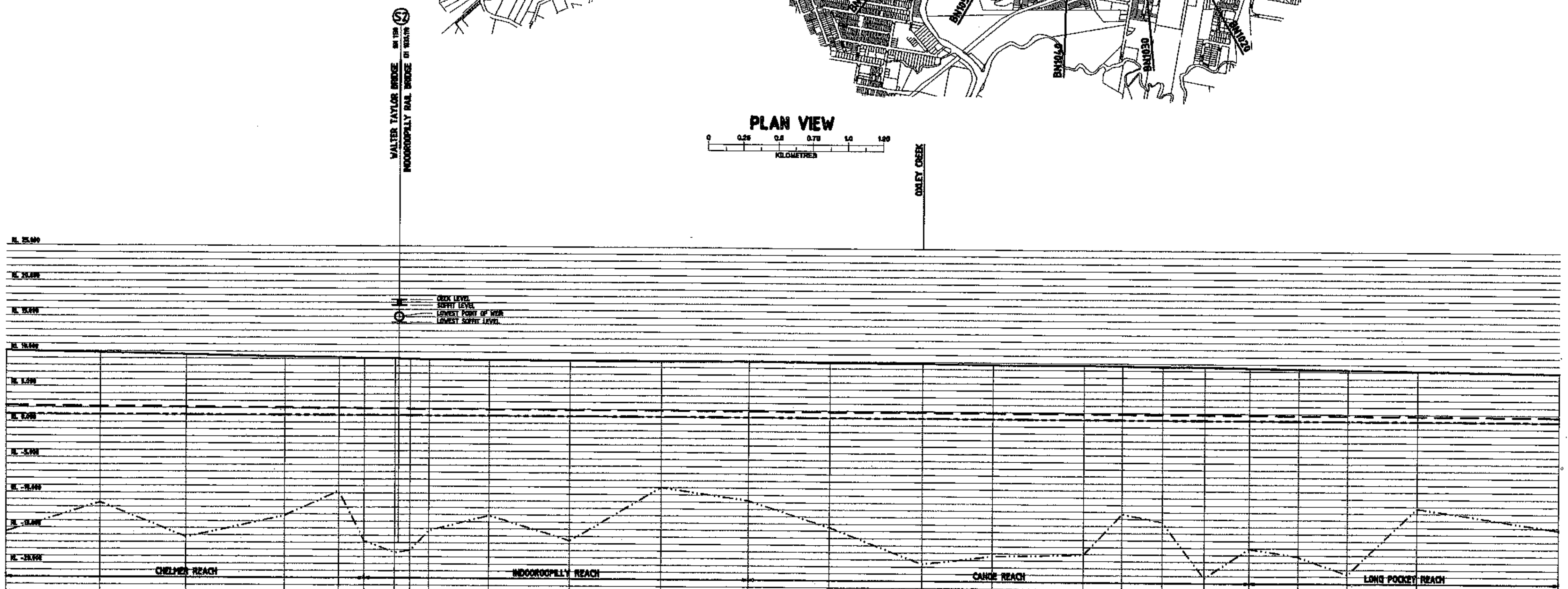


LEGEND

AMTD LINE

BN 1250 SURVEYED CROSS SECTION

LOCATION AND IDENTIFICATION OF STRUCTURE



DATUM RL. -25.000

	BN 1200	BN 1190	BN 1180	BN 1170	BN 1160	BN 1150	BN 1140	BN 1120	BN 1110
2 YEAR ARI DESIGN FLOOD LEVEL	1.040	1.040	1.040	1.038	1.030	1.030	1.030	1.026	1.020
10 YEAR ARI DESIGN FLOOD LEVEL	2.340	2.190	2.130	2.070	2.030	2.010	2.010	1.950	1.940
50 YEAR ARI DESIGN FLOOD LEVEL	10.020	9.820	9.550	9.380	9.290	9.100	9.070	9.040	8.940
BED LEVEL (m AHD)	-15.600	-11.400	-16.300	-13.200	-9.700	-16.800	-18.400	-18.100	-15.300
CROSS SECTION NUMBER	BN 1200	BN 1190	BN 1180	BN 1170	BN 1160	BN 1150	BN 1140	BN 1120	BN 1110
MIKE 11 CHAINAGE (km)	1034.891	1035.414	1035.900	1036.448	1036.778	1036.915	1037.068	1037.175	1037.285
AMTD CHAINAGE (km)	43.770	43.264	42.740	42.280	41.990	41.765	41.570	41.465	41.375

	BN 1100	BN 1090	BN 1080	BN 1070	BN 1060	BN 1050	BN 1040	BN 1030
2 YEAR ARI DESIGN FLOOD LEVEL	1.028	1.020	1.020	1.020	1.020	1.020	1.010	1.010
10 YEAR ARI DESIGN FLOOD LEVEL	1.920	1.910	1.890	1.870	1.860	1.860	1.850	1.850
50 YEAR ARI DESIGN FLOOD LEVEL	8.920	8.900	8.860	8.900	8.830	8.790	8.640	8.750
BED LEVEL (m AHD)	-13.100	-16.600	-9.000	-10.800	-14.500	-19.600	-18.400	-16.100
CROSS SECTION NUMBER	BN 1100	BN 1090	BN 1080	BN 1070	BN 1060	BN 1050	BN 1040	BN 1030
MIKE 11 CHAINAGE (km)	1037.625	1038.085	1038.600	1039.160	1039.565	1040.080	1040.490	1041.010
AMTD CHAINAGE (km)	41.035	40.575	40.060	39.560	39.050	38.570	38.170	37.560

	BN 1020	BN 1010	BN 1000	BN 990	BN 980	BN 970	BN 960	BN 950
2 YEAR ARI DESIGN FLOOD LEVEL	1.010	1.010	1.010	1.010	1.010	1.010	1.010	1.080
10 YEAR ARI DESIGN FLOOD LEVEL	1.830	1.820	1.820	1.800	1.780	1.780	1.750	1.690
50 YEAR ARI DESIGN FLOOD LEVEL	8.650	8.590	8.560	8.430	8.390	8.290	8.140	7.910
BED LEVEL (m AHD)	-12.300	-13.400	-21.300	-17.100	-18.200	-20.700	-11.300	-14.300
CROSS SECTION NUMBER	BN 1020	BN 1010	BN 1000	BN 990	BN 980	BN 970	BN 960	BN 950
MIKE 11 CHAINAGE (km)	1041.230	1041.460	1041.708	1041.940	1042.235	1042.515	1042.910	1043.725
AMTD CHAINAGE (km)	37.430	37.200	36.960	36.700	36.425	36.165	35.750	34.935

LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE

2 YEAR ARI DESIGN FLOOD

10 YEAR ARI DESIGN FLOOD

50 YEAR ARI DESIGN FLOOD

EXISTING BED LEVEL

VERT. METRES

HORIZ. KILOMETRES

BRISBANE RIVER - BN 1200 TO BN 950

FILE NAME: 4157-187 DISK Nº: CNDWG JOB Nº: T004157 DATE: 23/3/97
PLOT SCALE: 1=30

FIGURE J-2f

BRISBANE RIVER FLOOD STUDY
MIKE 11 DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI
FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS
- REGULATION LINES AND REVEGETATION STRATEGY CASE

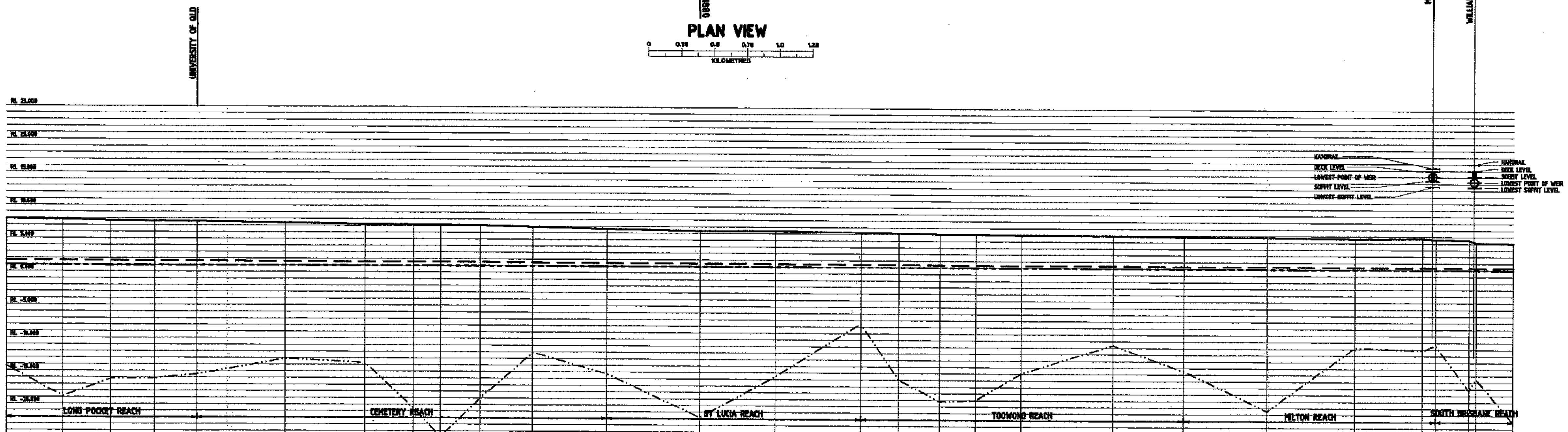
SINCLAIR KNIGHT MERZ

LEGEND

AMTD LINE
BN 1250 SURVEYED CROSS SECTION
(S16) LOCATION AND IDENTIFICATION OF STRUCTURE

PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25
KILOMETRES



DATUM RL. -25.000

2 YEAR ARI DESIGN FLOOD LEVEL	1.000	1.000	1.000	1.000	1.000	0.990	0.990
10 YEAR ARI DESIGN FLOOD LEVEL	1.690	1.680	1.650	1.660	1.650	1.590	1.540
50 YEAR ARI DESIGN FLOOD LEVEL	7.910	7.820	7.680	7.630	7.570	7.400	7.210
BED LEVEL (m AHD)	-16.300	-18.900	-16.200	-16.100	-15.500	-13.100	-13.700
CROSS SECTION NUMBER	BN 950	BN 940	BN 930	BN 920	BN 910	BN 900	BN 890
MIKE 11 CHAINAGE (km)	1043.725	1044.060	1044.340	1044.605	1044.860	1045.400	1045.885
AMTD CHAINAGE (km)	34.935	34.600	34.320	34.055	33.800	33.260	32.775

2 YEAR ARI DESIGN FLOOD LEVEL	0.990	0.990	0.990	0.990	0.980	0.980	0.980
10 YEAR ARI DESIGN FLOOD LEVEL	1.550	1.550	1.540	1.520	1.470	1.450	1.450
50 YEAR ARI DESIGN FLOOD LEVEL	7.570	7.530	7.060	6.910	6.680	6.440	6.430
BED LEVEL (m AHD)	-20.600	-24.900	-19.000	-12.100	-15.300	-21.800	-15.600
CROSS SECTION NUMBER	BN 880	BN 870	BN 860	BN 850	BN 840	BN 830	BN 820
MIKE 11 CHAINAGE (km)	1046.180	1046.340	1046.580	1046.900	1047.350	1047.915	1048.375
AMTD CHAINAGE (km)	32.480	32.320	32.080	31.760	31.310	30.745	30.285

2 YEAR ARI DESIGN FLOOD LEVEL	0.980	0.980	0.980	0.980	0.980	0.970	0.970
10 YEAR ARI DESIGN FLOOD LEVEL	1.410	1.400	1.390	1.390	1.370	1.360	1.340
50 YEAR ARI DESIGN FLOOD LEVEL	6.240	6.200	6.050	6.030	5.940	5.850	5.790
BED LEVEL (m AHD)	-7.500	-16.000	-18.200	-19.000	-16.900	-10.600	-14.500
CROSS SECTION NUMBER	BN 810	BN 800	BN 790	BN 780	BN 770	BN 760	BN 750
MIKE 11 CHAINAGE (km)	1048.890	1049.120	1049.370	1049.590	1049.870	1050.430	1050.860
AMTD CHAINAGE (km)	29.770	29.540	29.290	29.070	28.790	28.234	27.800

2 YEAR ARI DESIGN FLOOD LEVEL	0.970	0.970	0.970	0.970	0.970	0.960	0.960
10 YEAR ARI DESIGN FLOOD LEVEL	1.350	1.320	1.330	1.310	1.310	1.290	1.280
50 YEAR ARI DESIGN FLOOD LEVEL	5.780	5.620	5.710	5.570	5.500	5.530	5.030
BED LEVEL (m AHD)	-20.500	-10.800	-11.200	-10.400	-17.200	-15.500	-22.000
CROSS SECTION NUMBER	BN 740	BN 730	BN 720	BN 700	BN 690	BN 670	BN 660
MIKE 11 CHAINAGE (km)	1051.360	1051.895	1052.310	1052.390	1052.595	1052.640	1053.265
AMTD CHAINAGE (km)	27.300	26.765	26.350	26.270	26.065	26.020	25.395

LEGEND

(S16) LOCATION AND IDENTIFICATION OF STRUCTURE
2 YEAR ARI DESIGN FLOOD
10 YEAR ARI DESIGN FLOOD
50 YEAR ARI DESIGN FLOOD
EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

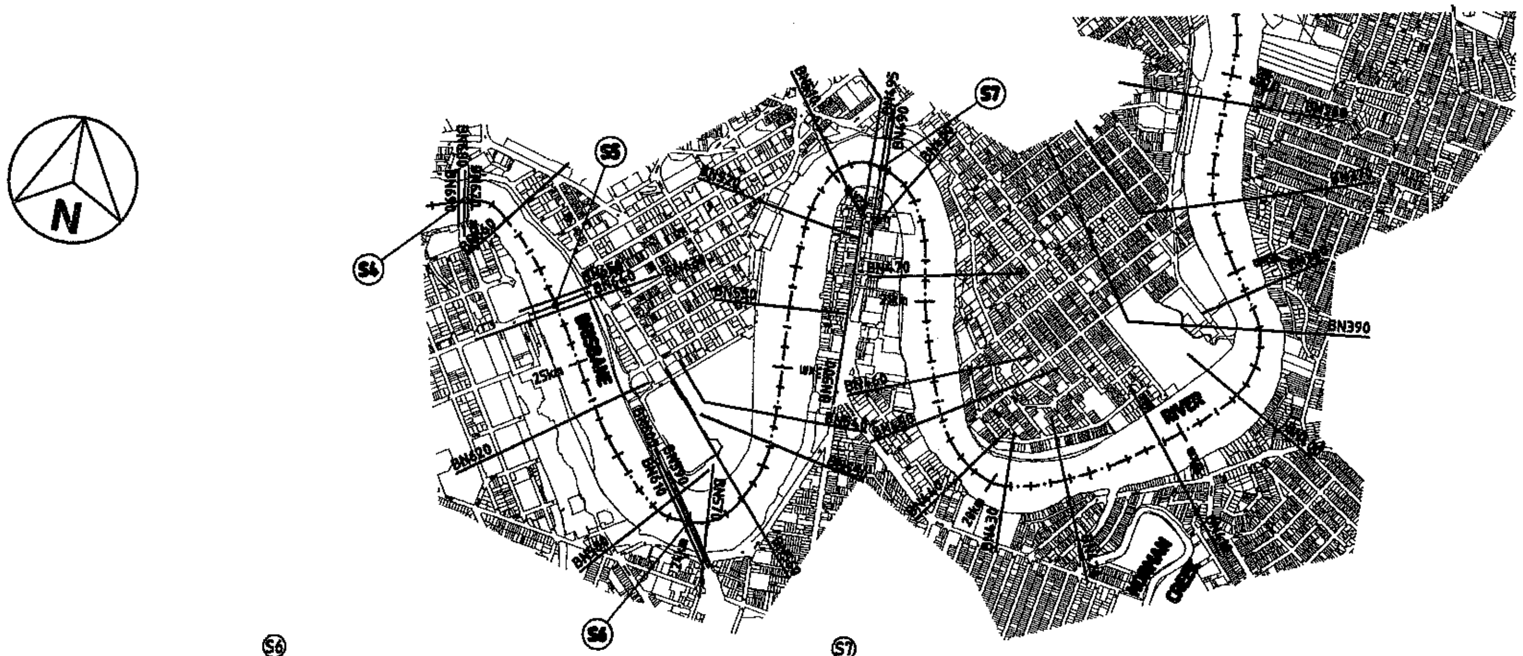
BRISBANE RIVER - BN 950 TO BN 660

FILE NAME: 415-[illegible] PLOT SCALE: 1=30 DRGN: CNDWG JOB N: T004[illegible] DATE: 23/5/[illegible]

SINCLAIR KNIGHT MERZ

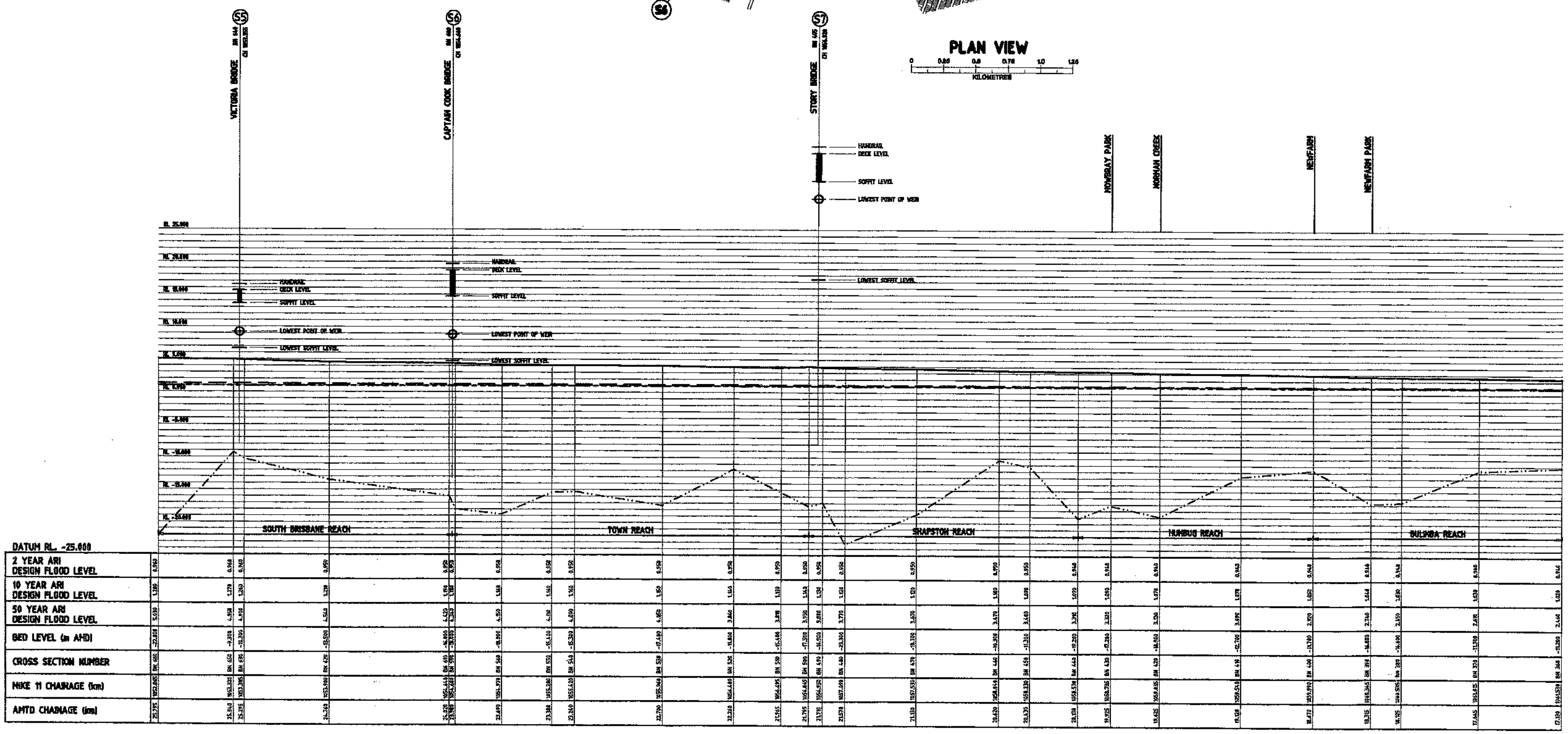
FIGURE J-2g

BRISBANE RIVER FLOOD STUDY
MIKE 11 DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE



PLAN VIEW

LEGEND
AMTD LINE
BN 1250 SURVEYED CROSS SECTION
LOCATION AND IDENTIFICATION OF STRUCTURE



LEGEND
LOCATION AND IDENTIFICATION OF STRUCTURE
2 YEAR ARI DESIGN FLOOD
10 YEAR ARI DESIGN FLOOD
50 YEAR ARI DESIGN FLOOD
EXISTING BED LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 660 TO BN 360

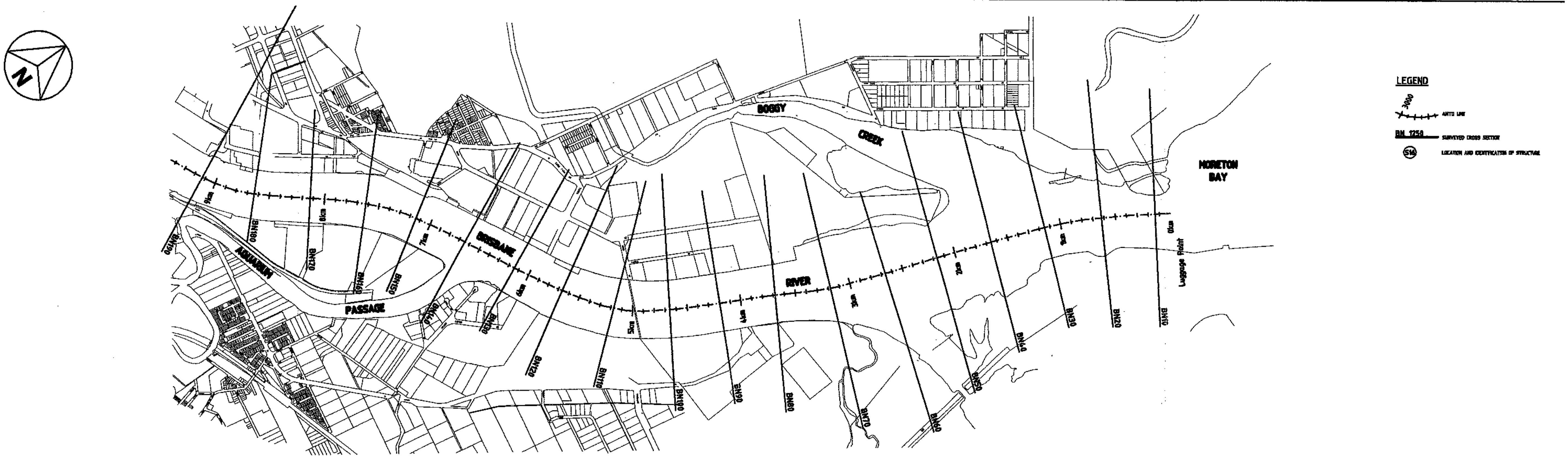
FILE NAME: 4157-171 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T00415? DATE: 23/3/97

SINCLAIR KNIGHT MERZ

FIGURE J-2i

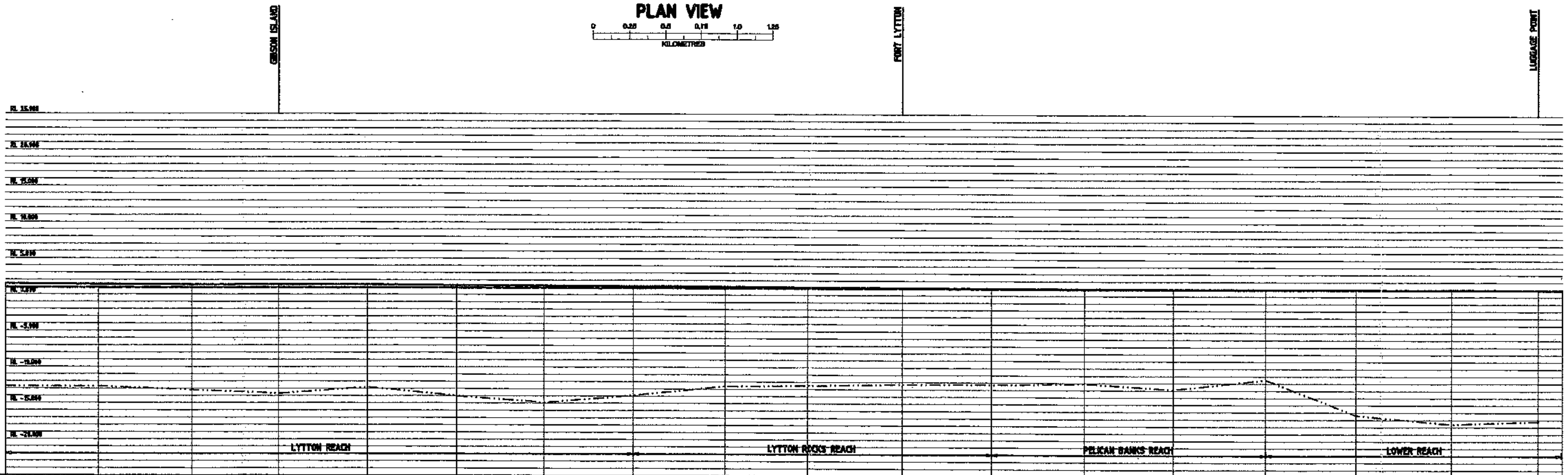
BRISBANE RIVER FLOOD STUDY

MIKE 11 DESIGN FLOOD PROFILES FOR THE 2, 10, AND 50 YEAR ARI FLOOD EVENTS (MHWS) COMBINED TAILWATER AND RIVER FLOODING CONDITIONS - REGULATION LINES AND REVEGETATION STRATEGY CASE



PLAN VIEW

0 0.25 0.5 0.75 1.0 1.25 KILOMETRES



DATUM RL. -25.000

2 YEAR ARI DESIGN FLOOD LEVEL	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
10 YEAR ARI DESIGN FLOOD LEVEL	0.950	0.950	0.940	0.940	0.940	0.940	0.940	0.930	0.930	0.930	0.930	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
50 YEAR ARI DESIGN FLOOD LEVEL	1.660	1.400	1.340	1.370	1.350	1.270	1.250	1.180	1.140	1.100	1.020	1.000	1.010	0.940	0.950	0.950	0.940	0.920	0.920
BED LEVEL (m AHD)	-12.700	-12.700	-13.200	-13.700	-12.800	-14.000	-14.900	-13.900	-12.680	-12.500	-12.300	-12.300	-12.100	-12.900	-11.500	-15.400	-17.600	-17.200	
CROSS SECTION NUMBER	BN 180	BN 170	BN 160	BN 150	BN 140	BN 130	BN 120	BN 110	BN 100	BN 90	BN 80	BN 70	BN 60	BN 50	BN 40	BN 30	BN 20	BN 10	
MIKE 11 CHAINAGE (km)	1070.025	1070.530	1071.040	1071.520	1072.015	1072.515	1073.195	1073.485	1074.000	1074.440	1074.985	1075.480	1076.000	1076.475	1077.010	1077.510	1078.040	1078.525	1078.660
AMTD CHAINAGE (km)	8.635	8.130	7.620	7.140	6.645	6.145	5.465	5.175	4.660	4.220	3.675	3.180	2.660	2.185	1.650	1.150	0.620	0.135	0

BRISBANE RIVER - BN 180 TO BN 10

LEGEND

LOCATION AND IDENTIFICATION OF STRUCTURE
2 YEAR ARI DESIGN FLOOD
10 YEAR ARI DESIGN FLOOD
50 YEAR ARI DESIGN FLOOD
EXISTING BED LEVEL

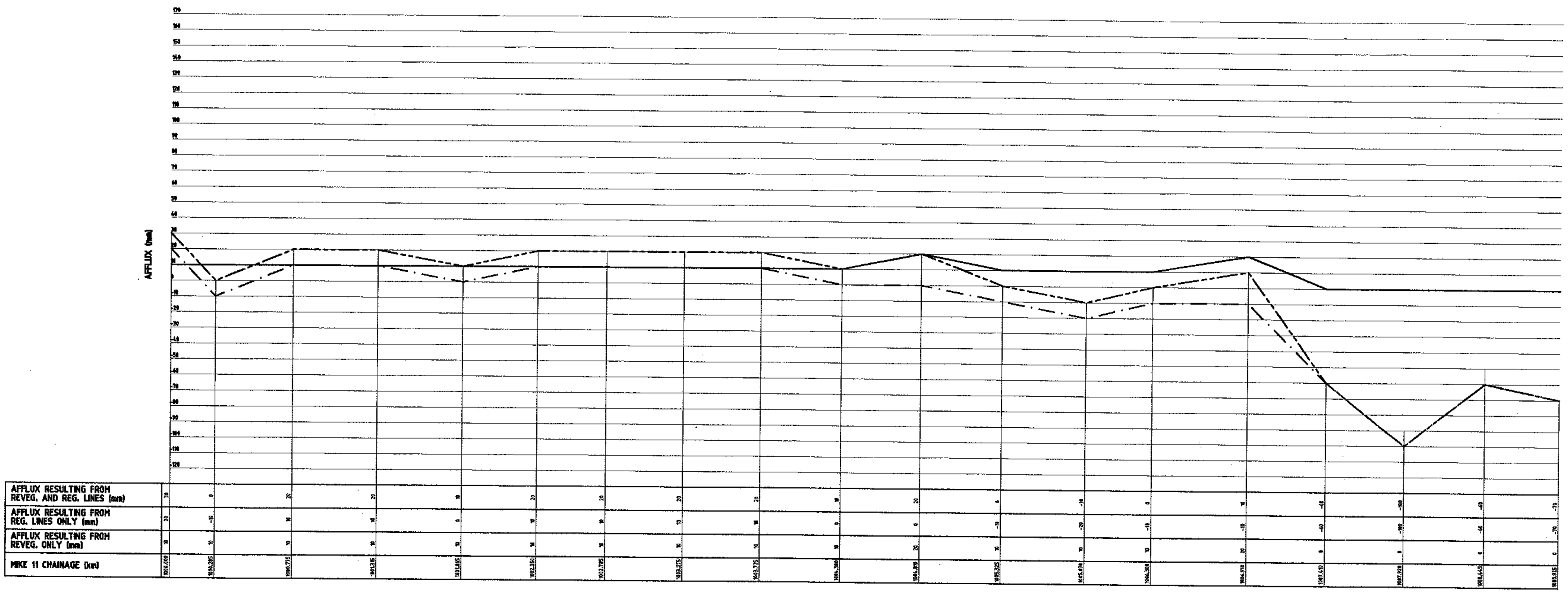
VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

FILE NAME: 415/-173 PLOT SCALE: 1=30 DISK N°: C:\DWG JOB N°: T004157 DATE: 23/3/97

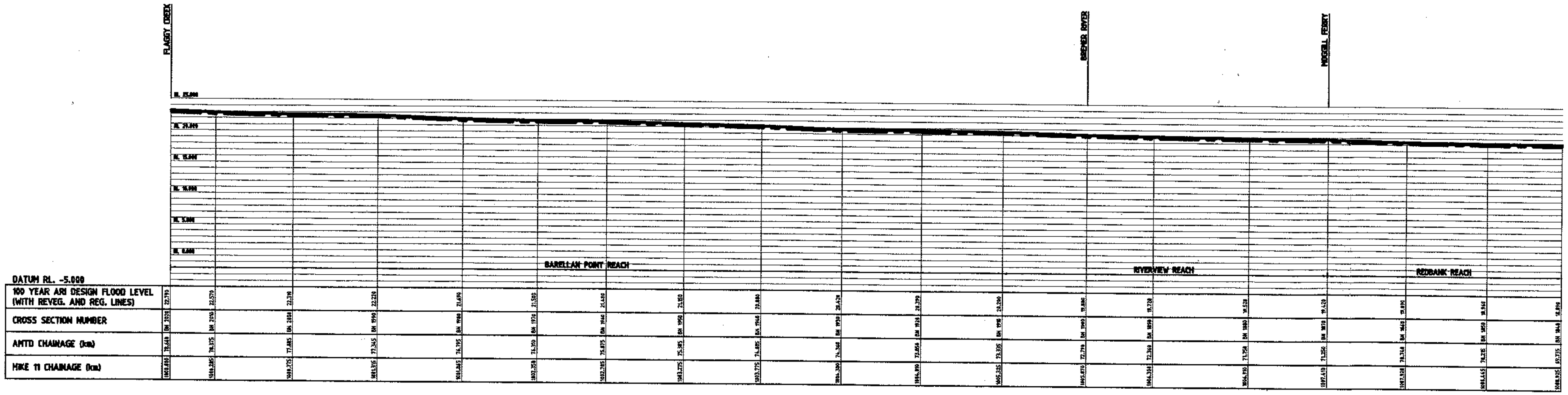
FIGURE J-3a

BRISBANE RIVER FLOOD STUDY
AFFLUX FOR THE 100 YEAR ARI DESIGN FLOODS
- REGULATION LINES AND REVEGETATION STRATEGY CASE



LEGEND

NOTE:
AFFLUX PLOTTED AGAINST EXISTING 100 YEAR ARI DESIGN CASE



LEGEND

VERT. METRES

HORIZ. KILOMETRES

BRISBANE RIVER - BN 2020 TO BN 1840

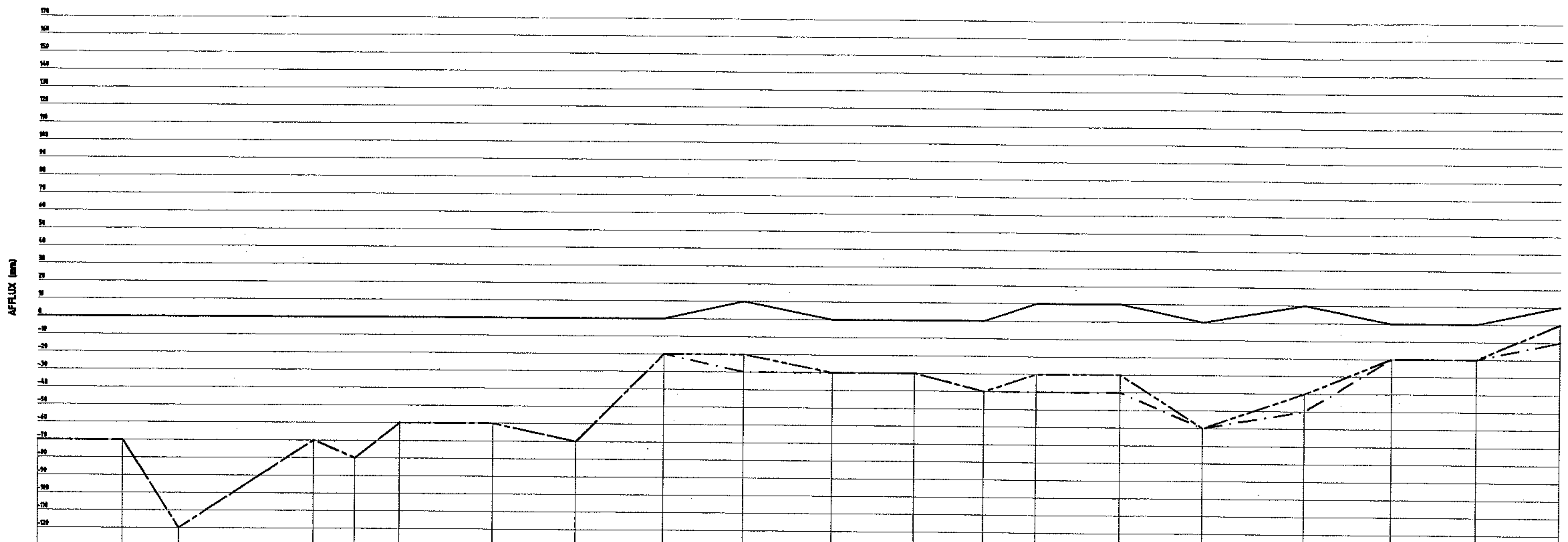
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE J-3b

BRISBANE RIVER FLOOD STUDY

AFFLUX FOR THE 100 YEAR ARI DESIGN FLOOD - REGULATION LINES AND REVEGETATION STRATEGY CASE

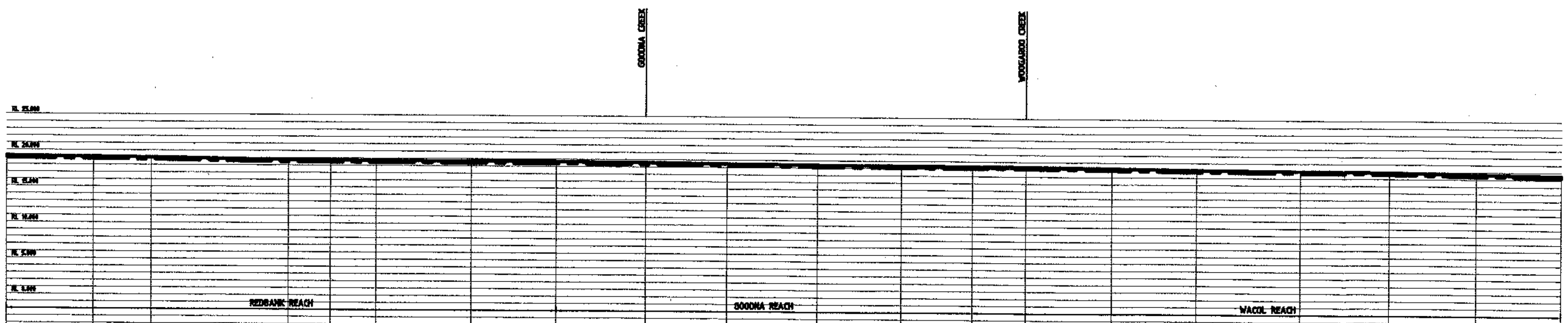


AFFLUX RESULTING FROM REVEG. AND REG. LINES (mm)	-70	-70	-120	-70	-80	-60	-60	-70	-20	-20	-30	-30	-40	-30	-30	-60	-40	-20	-20	0
AFFLUX RESULTING FROM REG. LINES ONLY (mm)	-70	-70	-120	-70	-80	-60	-60	-70	-20	-30	-30	-30	-40	-40	-40	-60	-50	-20	-20	-10
AFFLUX RESULTING FROM REVEG. ONLY (mm)	0	0	0	0	0	0	0	0	0	10	0	0	0	10	10	0	10	0	0	10
MIKE 11 CHAINAGE (km)	1008.925	1009.400	1009.720	1010.490	1010.725	1010.980	1011.510	1011.980	1012.475	1012.935	1013.445	1013.910	1014.310	1014.610	1015.090	1015.560	1016.140	1016.640	1017.130	1017.610

LEGEND

- (long dash – short dash line) AFFLUX RESULTING FROM REGULATION LINES AND REVEGETATION STRATEGIES
- (dash – dot line) AFFLUX RESULTING FROM REGULATION LINES ONLY
- (solid line) AFFLUX RESULTING FROM UNCONSTRAINED REVEGETATION ONLY

NOTE:
AFFLUX PLOTTED AGAINST EXISTING 100 YEAR ARI DESIGN CASE



DATUM RL. -5.000

100 YEAR ARI DESIGN FLOOD LEVEL (WITH REVEG. AND REG. LINES)	18.890	18.750	18.730	18.430	18.440	18.384	18.378	18.360	18.314	18.280	18.110	18.058	18.019	18.050	17.910	17.350	17.474	17.448	17.374	17.248
CROSS SECTION NUMBER	BN 1840	BN 1830	BN 1820	BN 1810	BN 1800	BN 1790	BN 1780	BN 1770	BN 1760	BN 1750	BN 1740	BN 1730	BN 1720	BN 1710	BN 1700	BN 1690	BN 1680	BN 1670	BN 1660	BN 1650
AMTD CHAINAGE (km)	69.735	69.260	68.840	68.170	67.935	67.680	67.150	66.680	66.185	65.725	65.215	64.740	64.350	64.050	63.570	63.100	62.520	62.020	61.530	61.050
MIKE 11 CHAINAGE (km)	1008.925	1009.400	1009.720	1010.490	1010.725	1010.980	1011.510	1011.980	1012.475	1012.935	1013.445	1013.910	1014.310	1014.610	1015.090	1015.560	1016.140	1016.640	1017.130	1017.610

BRISBANE RIVER - BN 1840 TO BN 1650

LEGEND

- (circled symbol) LOCATION AND IDENTIFICATION OF STRUCTURE
- (dashed line) 100 YEAR ARI DESIGN FLOOD
- (solid line) MINIMUM DEVELOPMENT LEVEL

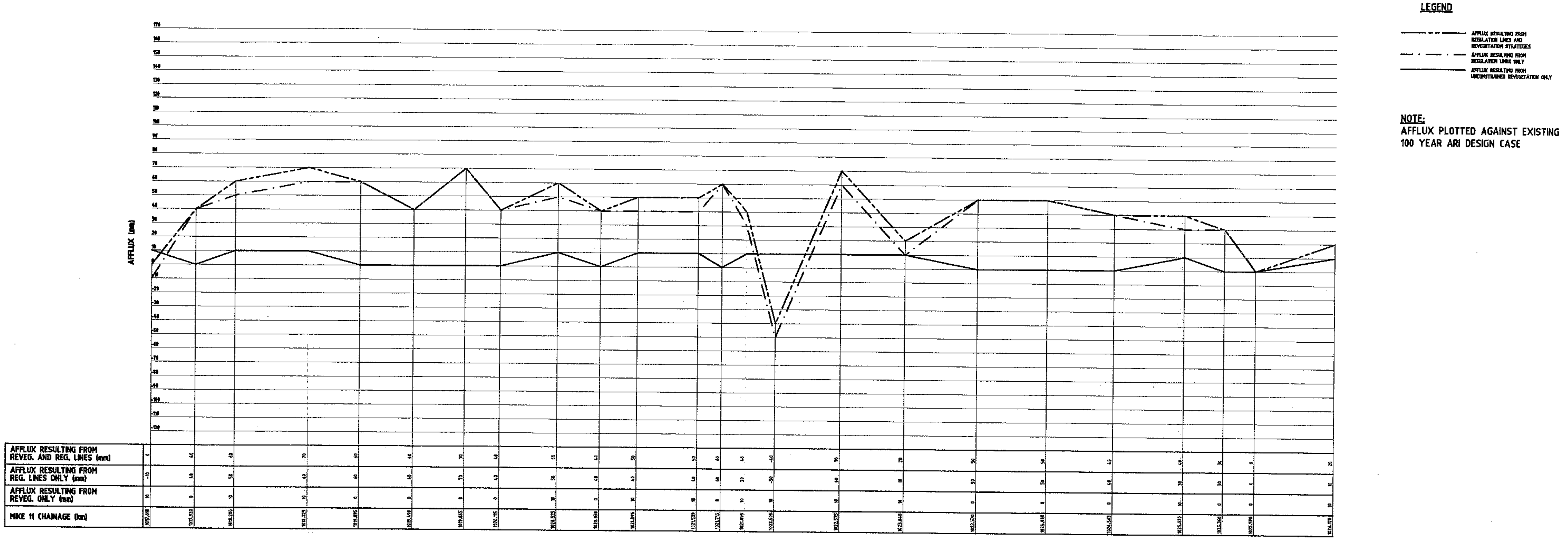
VERT. 0 – 5.0 – 10.0 – 15.0 – 20.0 METRES

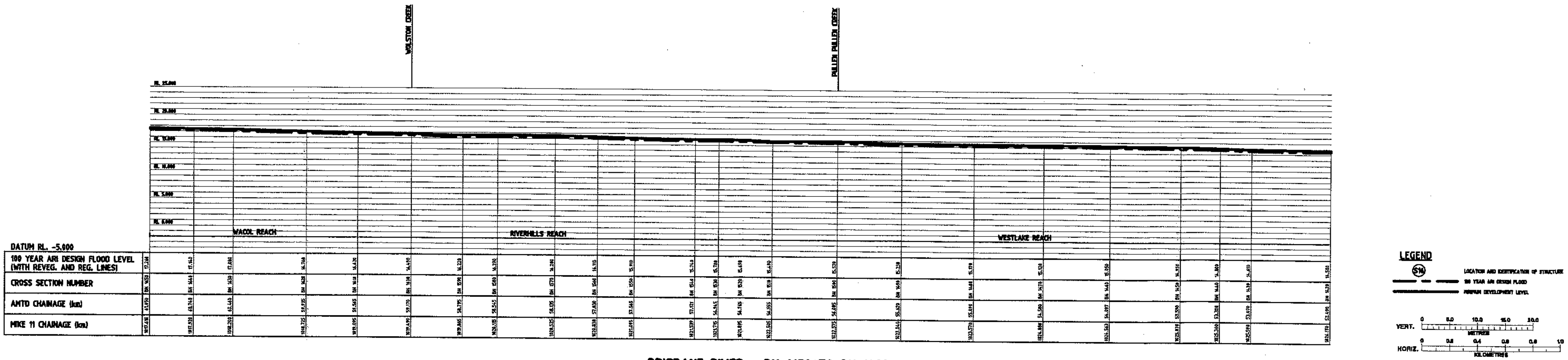
HORIZ. 0 – 0.2 – 0.4 – 0.6 – 0.8 – 1.0 KILOMETRES

PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE J-3c
BRISBANE RIVER FLOOD STUDY
AFFLUX FOR THE 100 YEAR ARI DESIGN FLOOD - REGULATION LINES AND REVEGETATION STRATEGY CASE





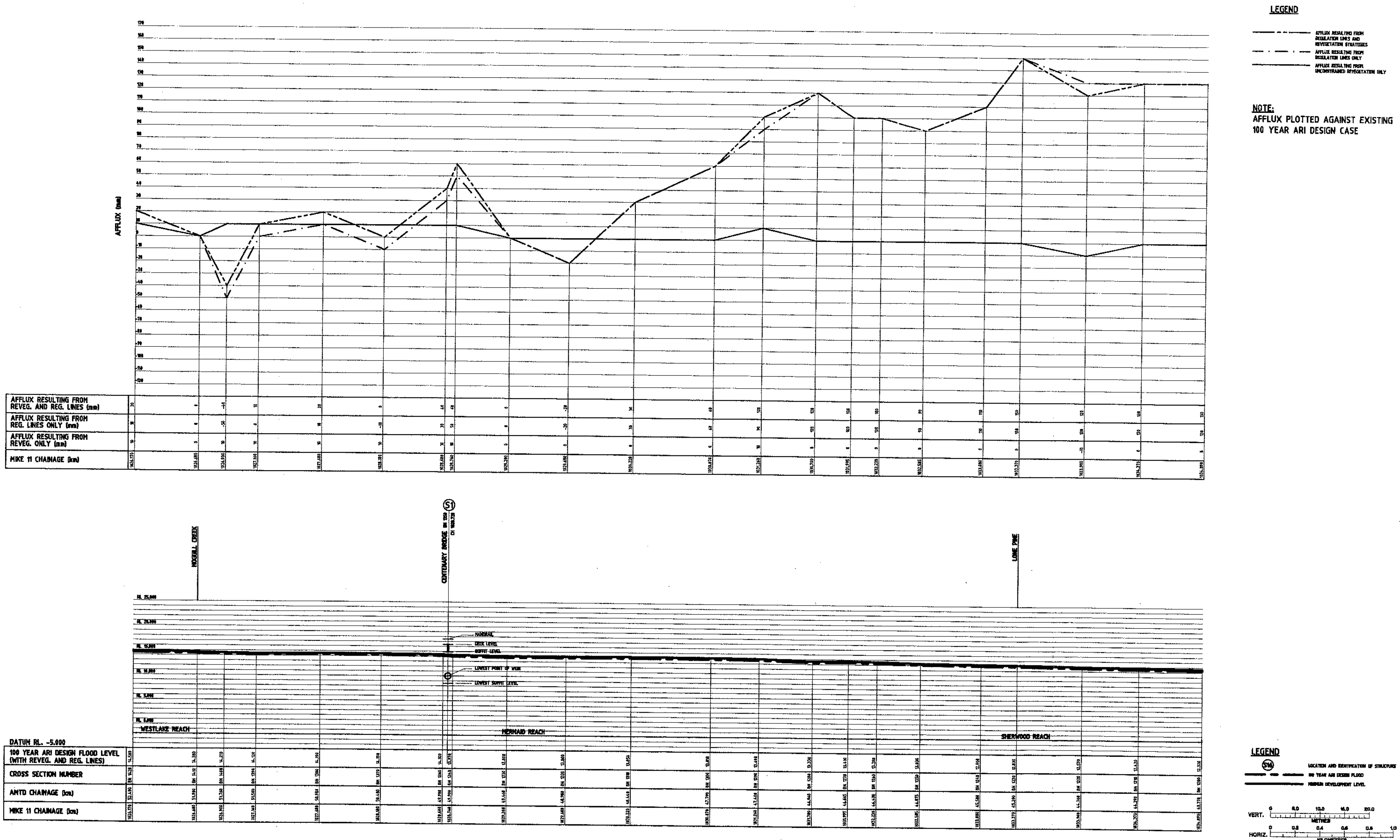
BRISBANE RIVER - BN 1650 TO BN 1420

PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE J-3d

BRISBANE RIVER FLOOD STUDY
AFFLUX FOR THE 100 YEAR ARI DESIGN FLOOD
- REGULATION LINES AND REVEGETATION STRATEGY CASE



BRISBANE RIVER - BN 1420 TO BN 1200

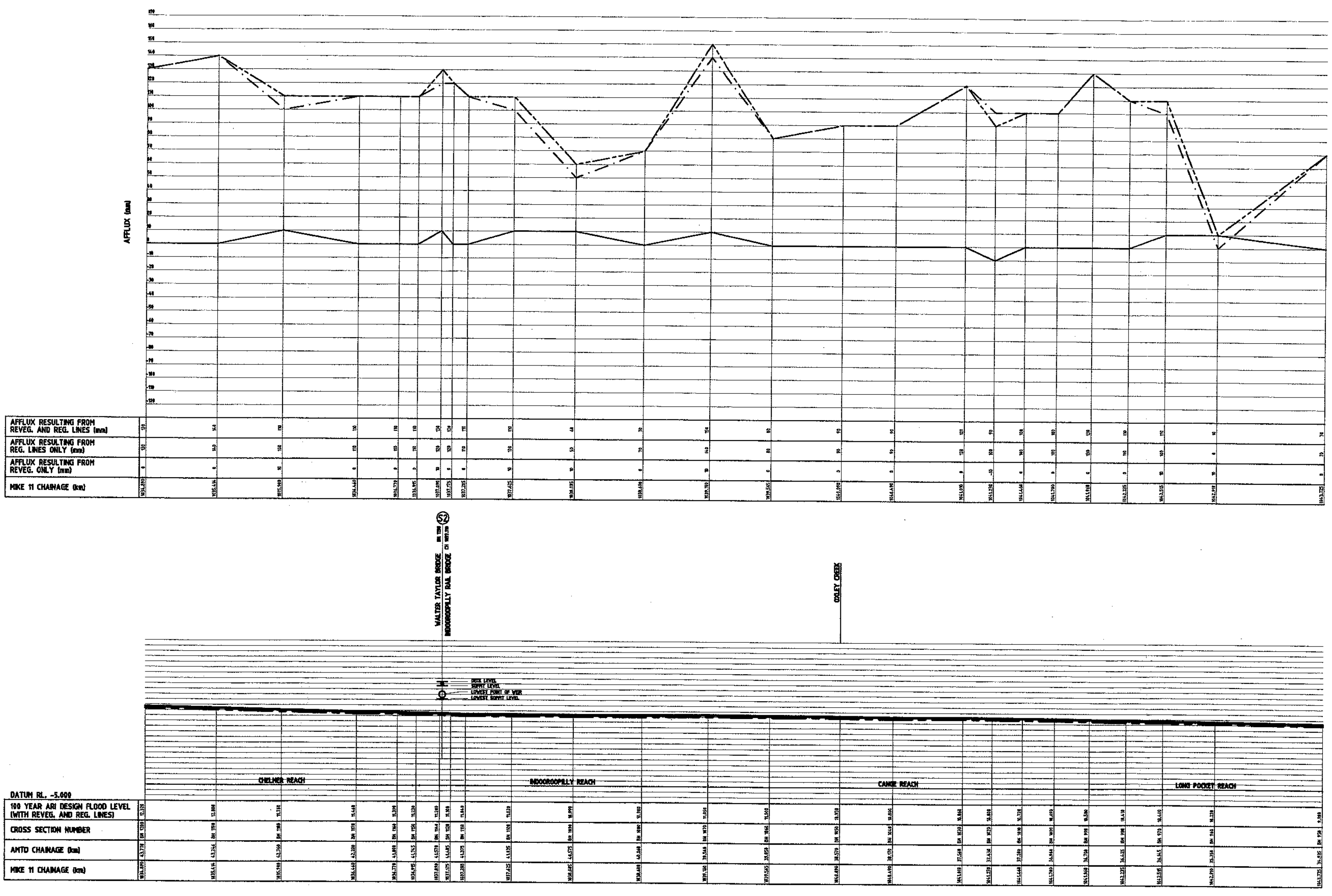
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE J-3e

BRISBANE RIVER FLOOD STUDY

AFFLUX FOR THE 100 YEAR ARI DESIGN FLOOD - REGULATION LINES AND REVEGETATION STRATEGY CASE



BRISBANE RIVER - BN 1200 TO BN 950

LEGEND

- AFFLUX RESULTING FROM REGULATION LINES AND REVEGETATION STRATEGIES
- AFFLUX RESULTING FROM REGULATION LINES ONLY
- AFFLUX RESULTING FROM UNCONSTRAINED REVEGETATION ONLY

NOTE:
AFFLUX PLOTTED AGAINST EXISTING 100 YEAR ARI DESIGN CASE

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 100 YEAR ARI DESIGN FLOOD
- MINIMUM DEVELOPMENT LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

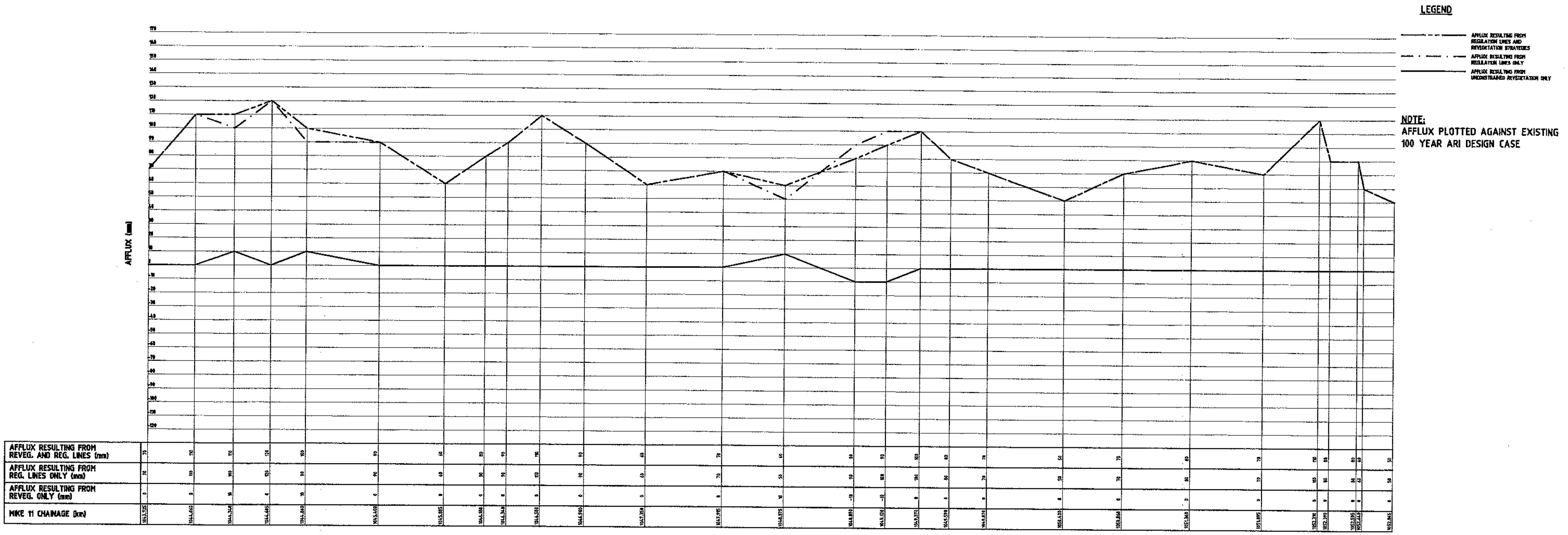
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

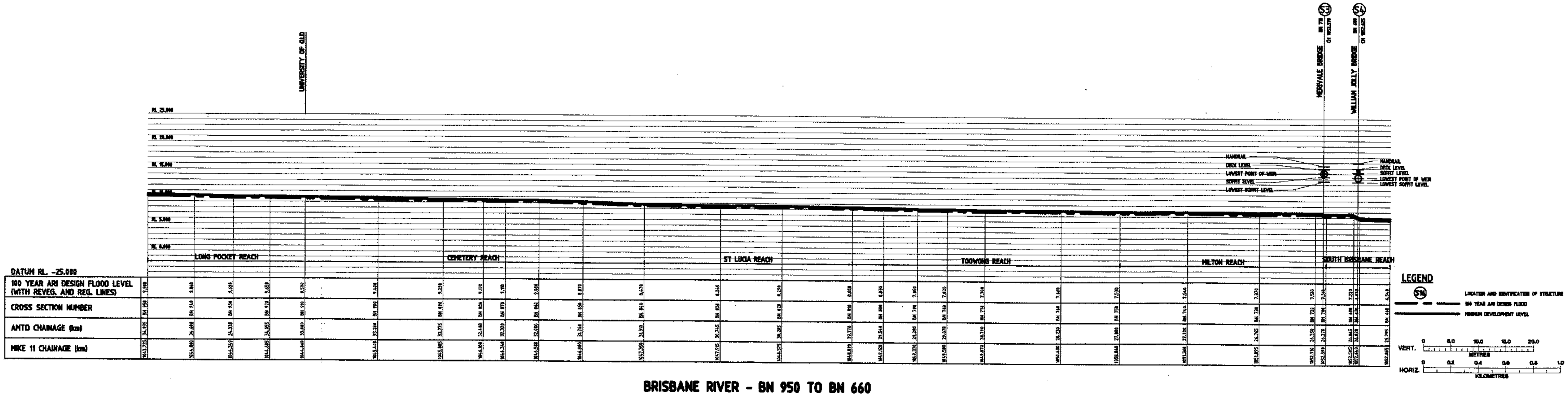
FILE NAME: 415/-322
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE J-3f

BRISBANE RIVER FLOOD STUDY
AFFLUX FOR THE 100 YEAR ARI DESIGN FLOOD
- REGULATION LINES AND REVEGETATION STRATEGY CASE





BRISBANE RIVER - BN 950 TO BN 660

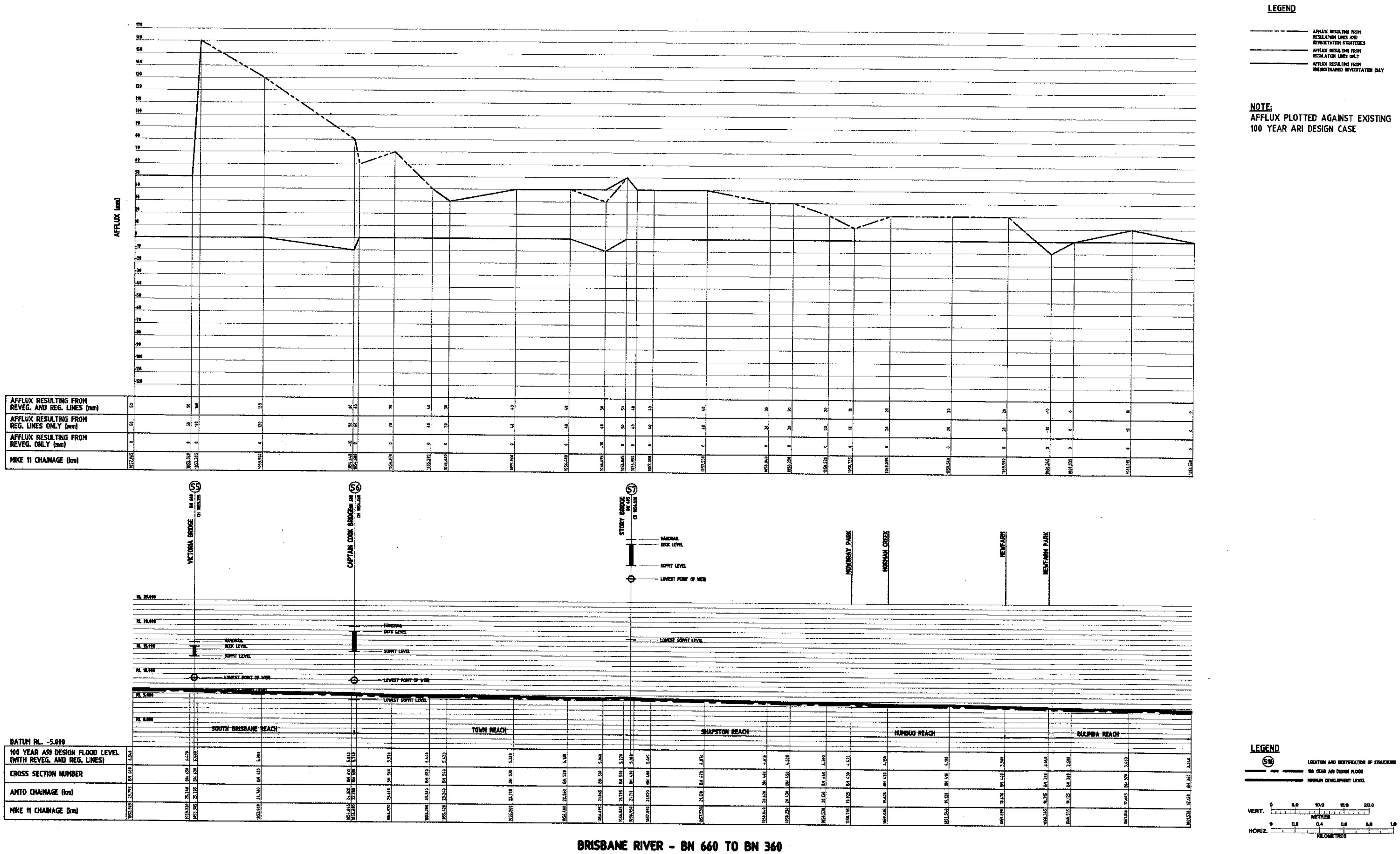
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

FIGURE J-3g

BRISBANE RIVER FLOOD STUDY

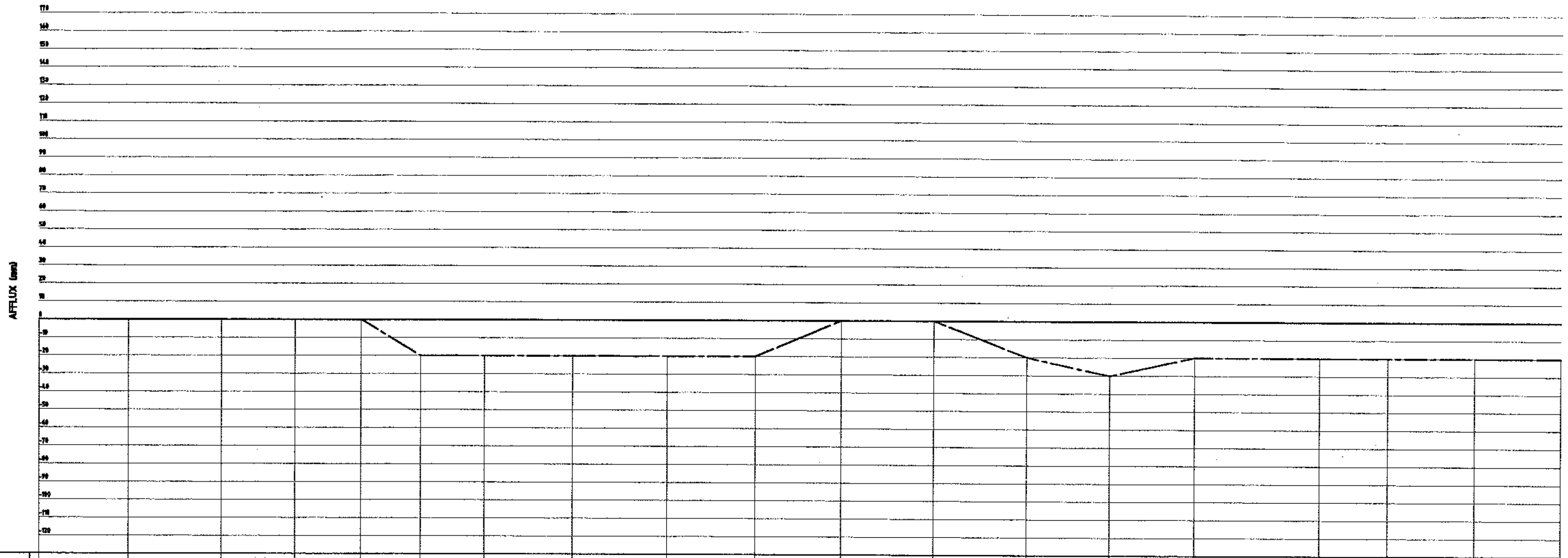
AFFLUX FOR THE 100 YEAR ARI DESIGN FLOOD - REGULATION LINES AND REVEGETATION STRATEGY CASE



FILE NAME: 415-324 DISK N: C:\DWG JOB N: T00415 DATE: 23/3/??
PLOT SCALE: 1=30

FIGURE J-3h

BRISBANE RIVER FLOOD STUDY
AFFLUX FOR THE 100 YEAR ARI DESIGN FLOOD - REGULATION LINES AND REVEGETATION STRATEGY CASE

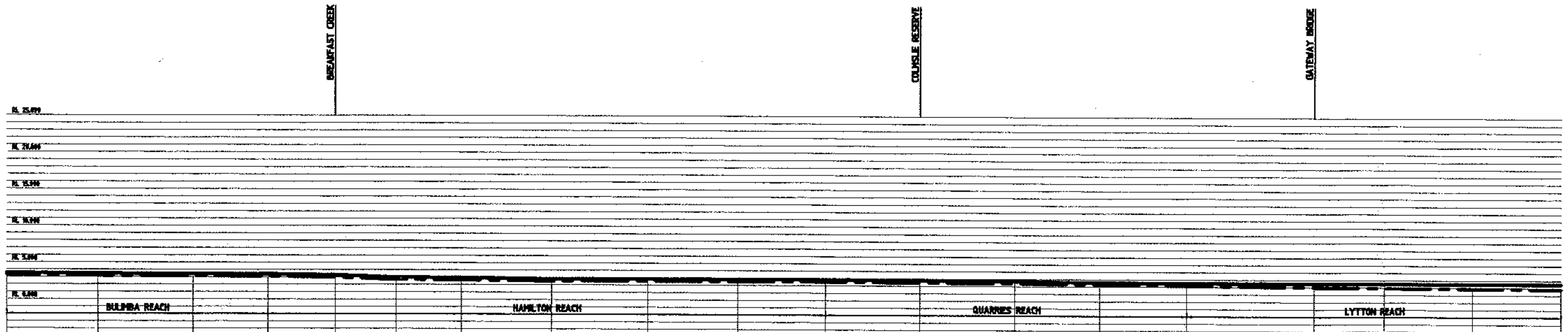


AFFLUX RESULTING FROM REVEG. AND REG. LINES (mm)	0	0	0	0	0	-20	-20	-20	-20	-20	0	0	-20	-30	-20	-20	-20	-20	-20
AFFLUX RESULTING FROM REG. LINES ONLY (mm)	0	0	0	0	0	-20	-20	-20	-20	-20	0	0	-20	-30	-20	-20	-20	-20	-20
AFFLUX RESULTING FROM REVEG. ONLY (mm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MIKE 11 CHAINAGE (km)	1061.530	1062.020	1062.535	1062.940	1063.310	1063.645	1064.080	1064.490	1065.010	1065.503	1065.998	1066.505	1067.020	1067.485	1067.965	1068.668	1069.045	1069.535	1070.025

LEGEND

- AFFLUX RESULTING FROM REGULATION LINES AND REVEGETATION STRATEGIES
- AFFLUX RESULTING FROM REGULATION LINES ONLY
- AFFLUX RESULTING FROM UNCONSTRAINED REVEGETATION ONLY

NOTE:
AFFLUX PLOTTED AGAINST EXISTING 100 YEAR ARI DESIGN CASE



DATUM RL. -5.000

100 YEAR ARI DESIGN FLOOD LEVEL (WITH REVEG. AND REG. LINES)	3.246	3.160	3.120	3.110	2.990	2.790	2.640	2.530	2.550	2.510	2.540	2.460	2.410	2.290	2.180	2.000	1.930	1.810	1.800
CROSS SECTION NUMBER	BN 360	BN 350	BN 340	BN 330	BN 320	BN 310	BN 300	BN 290	BN 280	BN 270	BN 260	BN 250	BN 240	BN 230	BN 220	BN 210	BN 200	BN 190	BN 180
AMTD CHAINAGE (km)	17.138	16.640	16.135	15.720	15.350	15.015	14.660	14.170	13.650	13.157	12.670	12.155	11.640	11.175	10.695	10.000	9.415	9.125	8.635
MIKE 11 CHAINAGE (km)	1061.530	1062.020	1062.535	1062.940	1063.310	1063.645	1064.080	1064.490	1065.010	1065.503	1065.998	1066.505	1067.020	1067.485	1067.965	1068.668	1069.045	1069.535	1070.025

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 100 YEAR ARI DESIGN FLOOD
- MINIMUM DEVELOPMENT LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES

HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

BRISBANE RIVER - BN 360 TO BN 180

FILE ...415
PLOT SCALE: 1=30

SINCLAIR KNIGHT MERZ

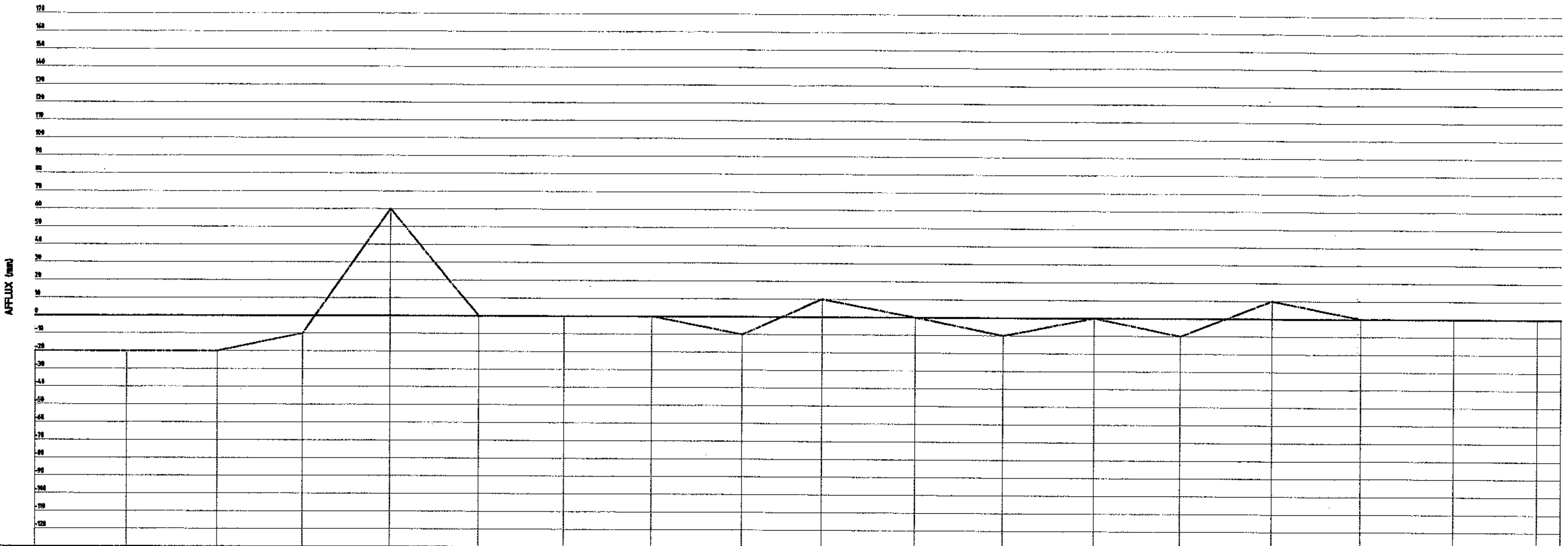
FIGURE J-3i

BRISBANE RIVER FLOOD STUDY
AFFLUX FOR THE 100 YEAR ARI DESIGN FLOOD
- REGULATION LINES AND REVEGETATION STRATEGY CASE

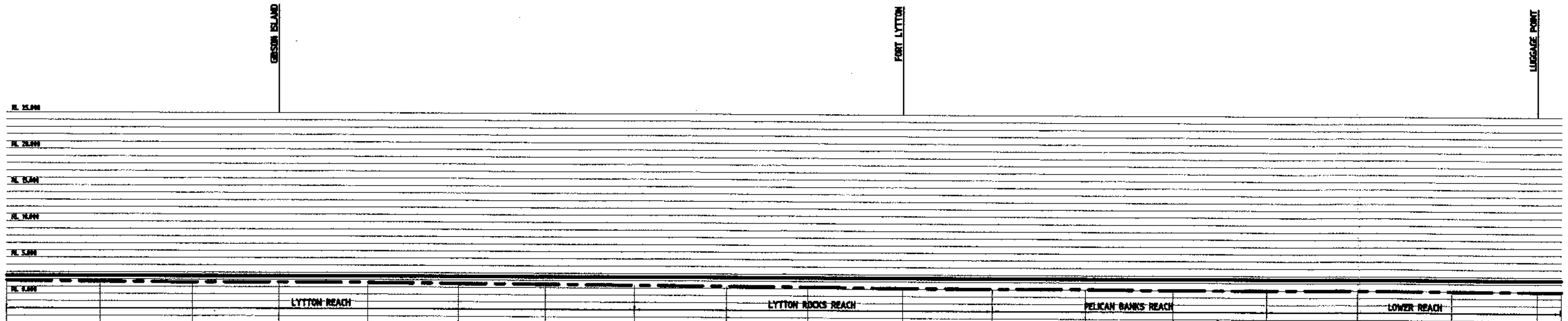
LEGEND

- AFFLUX RESULTING FROM REGULATION LINES AND REVEGETATION STRATEGIES (dashed line)
- AFFLUX RESULTING FROM REGULATION LINES ONLY (dash-dot line)
- AFFLUX RESULTING FROM UNCONSTRAINED REVEGETATION ONLY (solid line)

NOTE:
AFFLUX PLOTTED AGAINST EXISTING 100 YEAR ARI DESIGN CASE



AFFLUX RESULTING FROM REVEG. AND REG. LINES (mm)	-20	-20	-20	-10	60	0	0	0	-10	10	0	-10	0	-10	10	0	0	0	0
AFFLUX RESULTING FROM REG. LINES ONLY (mm)	-20	-20	-20	-10	60	0	0	0	-10	10	0	-10	0	-10	10	0	0	0	0
AFFLUX RESULTING FROM REVEG. ONLY (mm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MIKE 11 CHAINAGE (km)	1070.025	1070.530	1071.040	1071.520	1072.015	1072.515	1072.995	1073.485	1074.000	1074.440	1074.985	1075.480	1076.000	1076.495	1077.010	1077.510	1078.040	1078.525	1078.660



DATUM RL. -5.000

100 YEAR ARI DESIGN FLOOD LEVEL (WITH REVEG. AND REG. LINES)	1.800	1.700	1.620	1.640	1.630	1.580	1.440	1.340	1.280	1.230	1.090	1.050	1.070	0.950	0.930	0.970	0.950	0.920	0.920
CROSS SECTION NUMBER	BN 180	BN 170	BN 160	BN 150	BN 140	BN 130	BN 120	BN 110	BN 100	BN 90	BN 80	BN 70	BN 60	BN 50	BN 40	BN 30	BN 20	BN 10	
AMTD CHAINAGE (km)	8.635	8.130	7.620	7.140	6.645	6.145	5.665	5.175	4.660	4.200	3.675	3.180	2.660	2.165	1.650	1.150	0.620	0.135	0
MIKE 11 CHAINAGE (km)	1070.025	1070.530	1071.040	1071.520	1072.015	1072.515	1072.995	1073.485	1074.000	1074.440	1074.985	1075.480	1076.000	1076.495	1077.010	1077.510	1078.040	1078.525	1078.660

BRISBANE RIVER - BN 180 TO BN 10

LEGEND

- LOCATION AND IDENTIFICATION OF STRUCTURE
- 100 YEAR ARI DESIGN FLOOD
- MINIMUM DEVELOPMENT LEVEL

VERT. 0 5.0 10.0 15.0 20.0 METRES
HORIZ. 0 0.2 0.4 0.6 0.8 1.0 KILOMETRES

FILE ... 415 ... PLOT SCALE: 1=30 ... 23/3 ...

Appendix K - Hydraulic Structure Reference Sheets

SINCLAIR KNIGHT MERZ

CENTENARY BRIDGE

HYDRAULIC STRUCTURE REFERENCE SHEET - VERS 3.1

CREEK: Brisbane River		DATE OF SURVEY:	Mar-95
LOCATION: Centenary Highway		UBD REF:	177 Q17
AERIAL PHOTO No: Film BCC100, Sheet 5		STRUCTURE ID	S1
BCC XS No: BN 1350		AMTD(m):	49 940

STRUCTURE DESCRIPTION: Bridge; Concrete Piers and Superstructure

STRUCTURE SIZE: 4 Spans @ 42.3m; 1 Span @ 48.3m.
For Culverts: Number of cells/pipes & sizes For Bridges: Number of Spans & their lengths.

UPSTREAM INVERT LEVEL: -15.9 UPSTREAM OBVERT LEVEL: 8.5

DOWNSTREAM INVERT LEVEL: -15.9 DOWNSTREAM OBVERT LEVEL: 8.5
For culverts give floor level. For bridges give bed level.

For Culverts
LENGTH OF CULVERT BARREL AT INVERT (m):

LENGTH OF CULVERT BARREL AT OBVERT (m):

TYPE OF LINING:
(e.g. concrete, stones, brick, corrugated iron)

IS THERE A SURVEYED WEIR PROFILE? YES - XSECTION BN1350
If yes give details ie. plan number and/or survey book number.
Note This Section should be the highest part of the road eg crown, kerb, hand rails guard rails whichever is higher.

WEIR WIDTH (m): 10.6m LOWEST POINT OF WEIR (m AHD): 10.0m PIER WIDTH: 0.76m
(In the direction of flow, ie. distance from u/s face to d/s face)

HEIGHT OF GUARD RAILS: 1067mm

DESCRIPTION OF ALL HAND AND GAURD RAILS AND HEIGHTS TO TOP AND UNDERSIDE OF GUARD RAILS.

Posts:	102mm x 102mm
Verticals:	16mm dia
Handrails:	102 x 52 TFC

The following should also be provided.
Wingwall and Headwall details, entrance details eg pipe flush with embankment or projecting, socket or square end, details of entrance rounding, levels.
For Bridges, details of piers and section under bridge including abutment details.
Specify Survey Book No.

CONSTRUCTION DATE OF CURRENT STRUCTURE: 1963 PLAN NUMBER:

HAS THE STRUCTURE BEEN UPGRADED? No
If yes, explain type and date of upgrade. Include plan number and location if applicable.

ADDITIONAL COMMENTS: Structure has approximately 41 year ARI flood Immunity

SUMMARY OF STRUCTURE CHARACTERISTICS

ARI (years)	DISCHARGE QWEIR (m^3/s)	DISCHARGE QSTRUCTURE (m^3/s)	WATER SURFACE ELEVATION (m AHD)	MAX AFFLUX (mm)	AREA WEIR (m^2)	AREA STRUCTURE (m^2)	VELOCITY WEIR (m/s)	VELOCITY STRUCTURE (m/s)
PMF	26640	14317	33.23	570	8904	3389	2.95	4.3
10 000	18626	14090	28.11	610	6597	3316	2.8	4.3
2 000	10963	13424	23.48	560	4006	3306	2.65	4.08
1 000	5690	12881	21.43	250	3193	3289	1.7	3.9
500	3054	11483	18.55	230	1908	3265	1.6	3.45
200	1380	10400	16.36	220	999	3256	1.48	3.1
100	377	9085	14.06	150	418	3301	1	2.7
50	9	9294	11.54	90	17	2866	1.4	2.5
20	-	3516	6.05	80	-	1812	-	1.9
10	-	1589	2.67	40	-	1307	-	1.2
5	-	949	1.66	20	-	1140	-	0.82
2	-	371	1.08	10	-	1058	-	0.5

Note: Qweir & Qstructure are the maximum discharges through the structure and maynot occur at the same time.

STRUCTURE 1-CENTENARY BRIDGE (LOOKING UPSTREAM)

INDOOROOPILLY - WALTER TAYLOR BRIDGE

HYDRAULIC STRUCTURE REFERENCE SHEET - VERS 3.1

CREEK:	Brisbane River	DATE OF SURVEY	Mar-95
LOCATION:	Honour Avenue	UBD REF:	178 K7
AERIAL PHOTO No:	Film BCC100, Sheet 4	STRUCTURE ID	S2
BCC XS No:	BN 1130	AMTD(m):	41 550

STRUCTURE DESCRIPTION: Single span suspension bridge; concrete towers; steel girders; timber decking.

STRUCTURE SIZE: Span: 152.4m
For Culverts: Number of cells/pipes & sizes For Bridges: Number of Spans & their lengths.

UPSTREAM INVERT LEVEL: -15.9 UPSTREAM OBVERT LEVEL: 14.2

DOWNSTREAM INVERT LEVEL: -15.7 DOWNSTREAM OBVERT LEVEL: 14.2
For culverts give floor level. For bridges give bed level.

For Culverts
LENGTH OF CULVERT BARREL AT INVERT (m):

LENGTH OF CULVERT BARREL AT OBVERT (m):

TYPE OF LINING:
(e.g. concrete, stones, brick, corrugated iron)

IS THERE A SURVEYED WEIR PROFILE? YES - XSECTION BN1130
If yes give details ie. plan number and/or survey book number.
Note This Section should be the highest part of the road eg crown, kerb, hand rails guard rails whichever is higher.

WEIR WIDTH (m): 10.3m LOWEST POINT OF WEIR (m AHD): 15.0m PIER WIDTH: 10.1m
(In the direction of flow, ie. distance from u/s face to d/s face) (Base of tower)

HEIGHT OF GUARD RAILS: 1067 mm

DESCRIPTION OF ALL HAND AND GAURD RAILS AND HEIGHTS TO TOP AND UNDERSIDE OF GUARD RAILS.

Galv. steel chain fencing

The following should also be provided.
Wingwall and Headwall details, entrance details eg pipe flush with embankment or projecting, socket or square end, details of entrance rounding, levels.
For Bridges, details of piers and section under bridge including abutment details.
Specify Survey Book No.

CONSTRUCTION DATE OF CURRENT STRUCTURE: 1936 PLAN NUMBER:

HAS THE STRUCTURE BEEN UPGRADED? No
If yes, explain type and date of upgrade. Include plan number and location if applicable.

ADDITIONAL COMMENTS: Greater than 100 year ARI flood immunity

NB Walter Taylor Bridge & Albert Bridge modelled as a single bridge

SUMMARY OF STRUCTURE CHARACTERISTICS

ARI	DISCHARGE		WATER SURFACE ELEVATION	MAX AFFLUX	AREA		VELOCITY	
(years)	QWEIR (m^3/s)	QSTRUCTURE (m^3/s)	(m AHD)	(mm)	WEIR (m^2)	STRUCTURE (m^2)	WEIR (m/s)	STRUCTURE (m/s)
PMF	7487	29071	28.88	2055	1249	4170	6.5	6.6
10 000	2211	26236	23.12	190	809	4088	5.25	5.9
2 000	725	20782	19.1	380	219	4065	2	4.9
1 000	10	18392	17.35	250	19	4046	1.7	4.4
500	-	14461	14.73	190	-	3892	-	3.6
200	-	11706	12.92	150	-	3700	-	3.1
100	-	9392	11.07	90	-	3181	-	2.9
50	-	7227	8.98	80	-	2833	-	2.5
20	-	3487	4.47	150	-	2041	-	1.67
10	-	1587	2	60	-	1741	-	0.9
5	-	949	1.35	20	-	1583	-	0.59
2	-	372	1.03	10	-	1511	-	0.35

Note: Qweir & Qstructure are the maximum discharges through the structure and maynot occur at the same time.

INDOOROOPILLY - RAIL BRIDGE

HYDRAULIC STRUCTURE REFERENCE SHEET - VERS 3.1

CREEK: Brisbane River		DATE OF SURVEY	NA
LOCATION: Railway crossing, Indooroopilly		UBD REF:	178 K7
AERIAL PHOTO No: Film BCC100, Sheet 4		STRUCTURE ID	S2
BCC XS No: BN 1130		AMTD(m):	41 550

STRUCTURE DESCRIPTION: Truss bridge; Steel superstructure; Concrete piers.

STRUCTURE SIZE: 2 Spans @ 104.2m
For Culverts: Number of cells/pipes & sizes For Bridges: Number of Spans & their lengths.

UPSTREAM INVERT LEVEL: -15.9 UPSTREAM OBVERT LEVEL:

DOWNSTREAM INVERT LEVEL: -15.7 DOWNSTREAM OBVERT LEVEL:
For culverts give floor level. For bridges give bed level.

For Culverts
LENGTH OF CULVERT BARREL AT INVERT (m):

LENGTH OF CULVERT BARREL AT OBVERT (m):

TYPE OF LINING:
(e.g. concrete, stones, brick, corrugated iron)

IS THERE A SURVEYED WEIR PROFILE? NO
If yes give details ie. plan number and/or survey book number.
Note This Section should be the highest part of the road eg crown, kerb, hand rails guard rails whichever is higher.

WEIR WIDTH (m): 8.4m LOWEST POINT OF WEIR (m AHD): 15.0m PIER WIDTH:
(In the direction of flow, ie. distance from u/s face to d/s face)

HEIGHT OF GUARD RAILS: 1067 mm

DESCRIPTION OF ALL HAND AND GAURD RAILS AND HEIGHTS TO TOP AND UNDERSIDE OF GUARD RAILS.

The following should also be provided.
Wingwall and Headwall details, entrance details eg pipe flush with embankment or projecting, socket or square end, details of entrance rounding, levels.
For Bridges, details of piers and section under bridge including abutment details.
Specify Survey Book No.

CONSTRUCTION DATE OF CURRENT STRUCTURE: 1952 PLAN NUMBER:

HAS THE STRUCTURE BEEN UPGRADED? No
If yes, explain type and date of upgrade. Include plan number and location if applicable.

ADDITIONAL COMMENTS: Greater than 100 year ARI immunity

NB Walter Taylor Bridge & Albert Bridge modelled as a single bridge

STRUCTURE 2-INDOOROOPILLY BRIDGES (LOOKING UPSTREAM)

STRUCTURE 2-INDOOROOPILLY BRIDGES (LOOKING DOWNSTREAM)

MERIVAL BRIDGE

HYDRAULIC STRUCTURE REFERENCE SHEET - VERS 3.1

CREEK:	Brisbane River	DATE OF SURVEY	Mar-95
LOCATION:	Railway Link: South Brisbane - Roma Street	UBD REF:	159 J11
AERIAL PHOTO No:	Film BCC100, Sheet 3	STRUCTURE ID	S3
BCC XS No:	BN 710	AMTD(m):	26 290

STRUCTURE DESCRIPTION: Single span arch bridge and approaches; Concrete deck & piers.

STRUCTURE SIZE: Centre span: 132.9m; Approach spans either side: 33.45m.
For Culverts: Number of cells/pipes & sizes For Bridges: Number of Spans & their lengths.

UPSTREAM INVERT LEVEL: -15.9 UPSTREAM OBVERT LEVEL: 14.1

DOWNSTREAM INVERT LEVEL: -15.4 DOWNSTREAM OBVERT LEVEL: 14.1
For culverts give floor level. For bridges give bed level.

For Culverts
LENGTH OF CULVERT BARREL AT INVERT (m):

LENGTH OF CULVERT BARREL AT OBVERT (m):

TYPE OF LINING:
(e.g. concrete, stones, brick, corrugated iron)

IS THERE A SURVEYED WEIR PROFILE? YES - XSECTION BN710
If yes give details ie. plan number and/or survey book number.
Note This Section should be the highest part of the road eg crown, kerb, hand rails guard rails whichever is higher.

WEIR WIDTH (m): 13.4m LOWEST POINT OF WEIR (m AHD): 15.1m PIER WIDTH: Varies
(In the direction of flow, ie. distance from u/s face to d/s face)

HEIGHT OF GUARD RAILS: 1067 mm

DESCRIPTION OF ALL HAND AND GAURD RAILS AND HEIGHTS TO TOP AND UNDERSIDE OF GUARD RAILS.

The following should also be provided.
Wingwall and Headwall details, entrance details eg pipe flush with embankment or projecting, socket or square end, details of entrance rounding, levels.
For Bridges, details of piers and section under bridge including abutment details.
Specify Survey Book No.

CONSTRUCTION DATE OF CURRENT STRUCTURE: 1981 PLAN NUMBER:

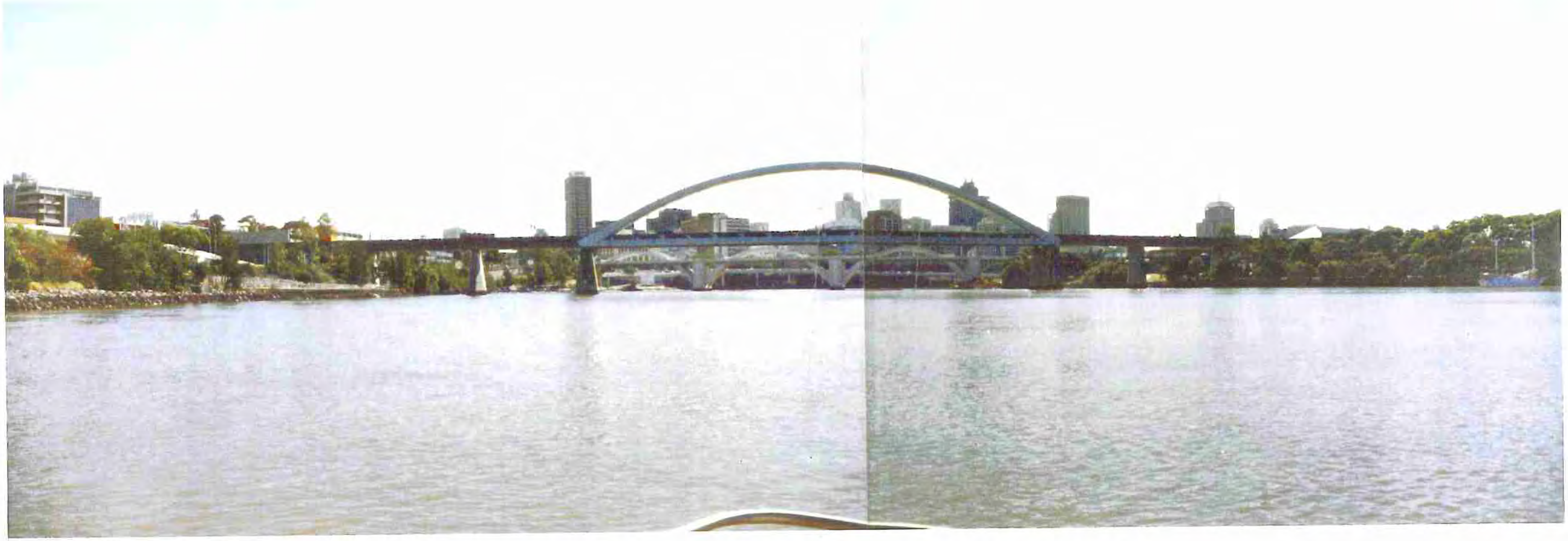
HAS THE STRUCTURE BEEN UPGRADED? No
If yes, explain type and date of upgrade. Include plan number and location if applicable.

ADDITIONAL COMMENTS: Greater than 100 year ARI immunity

SUMMARY OF STRUCTURE CHARACTERISTICS

ARI	DISCHARGE		WATER		AREA		VELOCITY	
	QWEIR	QSTRUCTURE	SURFACE ELEVATION	MAX AFFLUX	WEIR	STRUCTURE	WEIR	STRUCTURE
(years)	(m^3/s)	(m^3/s)	(m AHD)	(mm)	(m^2)	(m^2)	(m/s)	(m/s)
PMF	2909	32954	22.98	1050	648	4414	5.2	7.2
10 000	1555	27406	19.72	630	415	4412	4.1	6
2 000	8	19989	15.59	410	62	3525	2	5.6
1 000	-	17416	13.92	320	-	3132	-	5.5
500	-	13779	11.06	240	-	2456	-	5
200	-	11386	9.16	200	-	2366	-	4.7
100	-	9250	7.4	270	-	2023	-	4.45
50	-	7079	5.65	160	-	1761	-	3.9
20	-	3397	2.49	50	-	1508	-	2.2
10	-	1586	1.32	20	-	1491	-	1.05
5	-	949	1.08	10	-	1444	-	0.68
2	-	423	0.97	0	-	1425	-	0.4

Note: Qweir & Qstructure are the maximum discharges through the structure and maynot occur at the same time.



STRUCTURE 3-MERIVALE BRIDGE (LOOKING DOWNSTREAM)

WILLIAM JOLLY BRIDGE

HYDRAULIC STRUCTURE REFERENCE SHEET - VERS 3.1

CREEK: Brisbane River		DATE OF SURVEY	Mar-95
LOCATION: Grey Street		UBD REF:	159 K11
AERIAL PHOTO No:	Film BCC100, Sheet 3	STRUCTURE ID	S4
BCC XS No:	BN 680	AMTD(m):	26 035

STRUCTURE DESCRIPTION: Arch bridge with approaches; Concrete and granite piers, steel girders, concrete deck.

STRUCTURE SIZE: 3 spans @ 72.5m.
For Culverts: Number of cells/pipes & sizes For Bridges: Number of Spans & their lengths.

UPSTREAM INVERT LEVEL: -15.9 UPSTREAM OBVERT LEVEL: 13.5

DOWNSTREAM INVERT LEVEL: -15.4 DOWNSTREAM OBVERT LEVEL: 13.5
For culverts give floor level. For bridges give bed level.

For Culverts
LENGTH OF CULVERT BARREL AT INVERT (m):

LENGTH OF CULVERT BARREL AT OBVERT (m):

TYPE OF LINING:
(e.g. concrete, stones, brick, corrugated iron)

IS THERE A SURVEYED WEIR PROFILE? YES - XSECTION BN680
If yes give details ie. plan number and/or survey book number.
Note This Section should be the highest part of the road eg crown, kerb, hand rails guard rails whichever is higher.

WEIR WIDTH (m): 20.1m LOWEST POINT OF WEIR (m AHD): 14.3m PIER WIDTH: 6.6m
(In the direction of flow, ie. distance from u/s face to d/s face)

HEIGHT OF GUARD RAILS: 1067 mm

DESCRIPTION OF ALL HAND AND GAURD RAILS AND HEIGHTS TO TOP AND UNDERSIDE OF GUARD RAILS.

Concrete balustrade

The following should also be provided.
Wingwall and Headwall details, entrance details eg pipe flush with embankment or projecting, socket or square end, details of entrance rounding, levels.
For Bridges, details of piers and section under bridge including abutment details.
Specify Survey Book No.

CONSTRUCTION DATE OF CURRENT STRUCTURE: 1927 PLAN NUMBER:

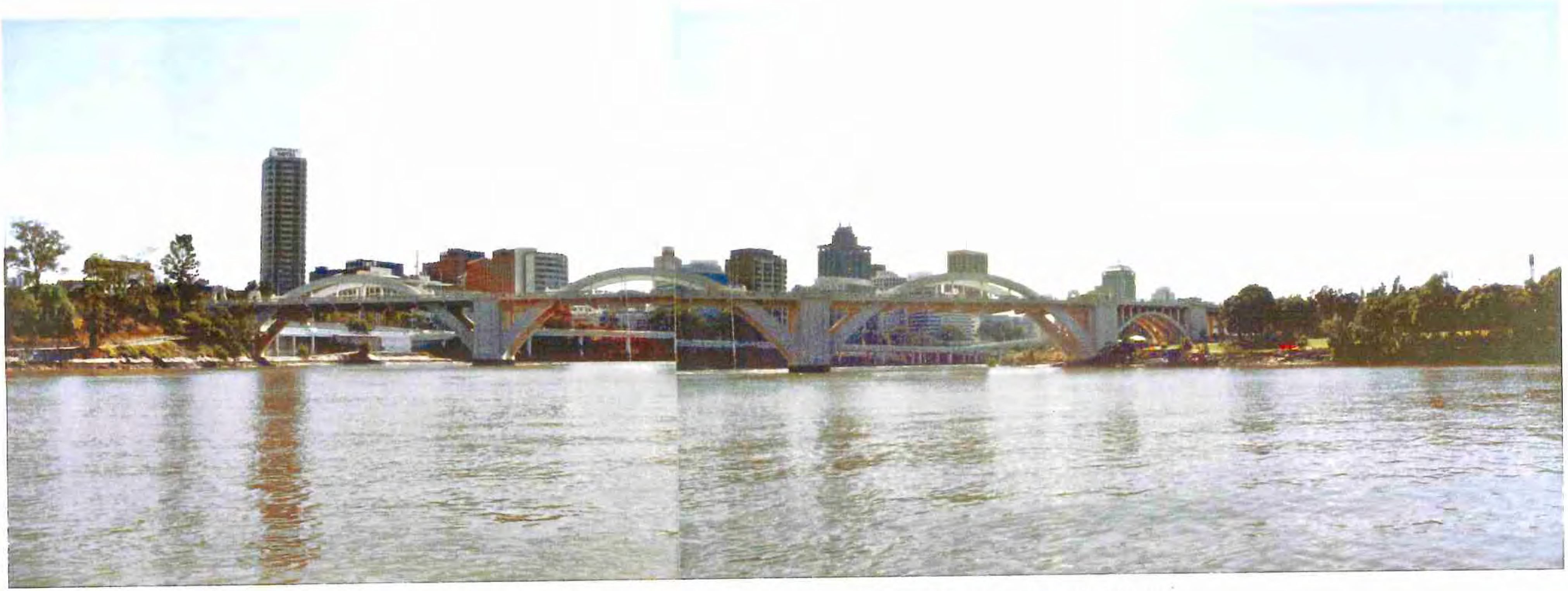
HAS THE STRUCTURE BEEN UPGRADED? No
If yes, explain type and date of upgrade. Include plan number and location if applicable.

ADDITIONAL COMMENTS: Greater than 100 year ARI immunity

SUMMARY OF STRUCTURE CHARACTERISTICS

ARI	DISCHARGE		WATER		AREA		VELOCITY	
			SURFACE	MAX				
	QWEIR	QSTRUCTURE	ELEVATION	AFFLUX	WEIR	STRUCTURE	WEIR	STRUCTURE
(years)	(m^3/s)	(m^3/s)	(m AHD)	(mm)	(m^2)	(m^2)	(m/s)	(m/s)
PMF	2909	32954	22.98	1050	648	4414	5.2	7.2
10 000	1555	27406	19.72	630	415	4412	4.1	6
2 000	8	19989	15.59	410	62	3525	2	5.6
1 000	-	17416	13.92	320	-	3132	-	5.5
500	-	13779	11.06	240	-	2456	-	5
200	-	11386	9.16	200	-	2366	-	4.7
100	-	9250	7.4	270	-	2023	-	4.45
50	-	7079	5.65	160	-	1761	-	3.9
20	-	3397	2.49	50	-	1508	-	2.2
10	-	1586	1.32	20	-	1491	-	1.05
5	-	949	1.08	10	-	1444	-	0.68
2	-	423	0.97	0	-	1425	-	0.4

Note: Qweir & Qstructure are the maximum discharges through the structure and maynot occur at the same time.



STRUCTURE 4-WILLIAM JOLLY BRIDGE (LOOKING DOWNSTREAM)

VICTORIA BRIDGE

HYDRAULIC STRUCTURE REFERENCE SHEET - VERS 3.1

CREEK: Brisbane River		DATE OF SURVEY	Mar-95
LOCATION: Melbourne Street		UBD REF:	159 M12
AERIAL PHOTO No:	Film BCC100, Sheet 3	STRUCTURE ID	S5
BCC XS No:	BN 640	AMTD(m):	25 305

STRUCTURE DESCRIPTION: Concrete bridge; Single span with cantilever ends resting on abutments.

STRUCTURE SIZE: Centre span: 136.1m; End contilevers: 85.3m.
For Culverts: Number of cells/pipes & sizes For Bridges: Number of Spans & their lengths.

UPSTREAM INVERT LEVEL: -15.9 UPSTREAM OBVERT LEVEL: 6.76

DOWNSTREAM INVERT LEVEL: -15.4 DOWNSTREAM OBVERT LEVEL: 6.76
For culverts give floor level. For bridges give bed level.

For Culverts
LENGTH OF CULVERT BARREL AT INVERT (m):

LENGTH OF CULVERT BARREL AT OBVERT (m):

TYPE OF LINING:
(e.g. concrete, stones, brick, corrugated iron)

IS THERE A SURVEYED WEIR PROFILE? YES - XSECTION BN640
If yes give details ie. plan number and/or survey book number.
Note This Section should be the highest part of the road eg crown, kerb, hand rails guard rails whichever is higher.

WEIR WIDTH (m): 21.9m LOWEST POINT OF WEIR (m AHD): 9.2m PIER WIDTH: 4.0m (Base)
(In the direction of flow, ie. distance from u/s face to d/s face)

HEIGHT OF GUARD RAILS: 1067 mm

DESCRIPTION OF ALL HAND AND GAURD RAILS AND HEIGHTS TO TOP AND UNDERSIDE OF GUARD RAILS.

The following should also be provided.
Wingwall and Headwall details, entrance details eg pipe flush with embankment or projecting, socket or square end, details of entrance rounding, levels.
For Bridges, details of piers and section under bridge including abutment details.
Specify Survey Book No.

CONSTRUCTION DATE OF CURRENT STRUCTURE: 1960 PLAN NUMBER:

HAS THE STRUCTURE BEEN UPGRADED? No
If yes, explain type and date of upgrade. Include plan number and location if applicable.

ADDITIONAL COMMENTS: Greater than 100 year ARI immunity

SUMMARY OF STRUCTURE CHARACTERISTICS

ARI	DISCHARGE		WATER		AREA		VELOCITY	
(years)	QWEIR (m^3/s)	QSTRUCTURE (m^3/s)	SURFACE ELEVATION (m AHD)	MAX AFFLUX (mm)	WEIR (m^2)	STRUCTURE (m^2)	WEIR (m/s)	STRUCTURE (m/s)
PMF	3523	32348	20.07	1920	931	4217	5.6	7.1
10 000	961	27920	16.61	110	271	4174	5.5	6.4
2 000	95	19900	12.55	300	93	4148	1.8	4.7
1 000	60	17389	11.42	380	42	4072	1.2	4.2
500	-	13786	9.36	270	-	3688	-	3.6
200	-	11363	7.88	210	-	3497	-	3.15
100	-	9223	6.42	180	-	3335	-	2.7
50	-	7066	4.92	150	-	2985	-	2.3
20	-	3397	2.28	80	-	2288	-	1.45
10	-	1586	1.26	20	-	2061	-	0.76
5	-	949	1.06	10	-	1964	-	0.5
2	-	423	0.96	10	-	1966	-	0.29

Note: Qweir & Qstructure are the maximum discharges through the structure and maynot occur at the same time.

STRUCTURE 5-VICTORIA BRIDGE (LOOKING UPSTREAM)

CAPTAIN COOK BRIDGE

HYDRAULIC STRUCTURE REFERENCE SHEET - VERS 3.1

CREEK:	Brisbane River	DATE OF SURVEY	Mar-95
LOCATION:	Riverside Expressway	UBD REF:	159 R16
AERIAL PHOTO No:	Film BCC100, Sheet 3	STRUCTURE ID	S6
BCC XS No:	BN 600	AMTD(m):	24 000

STRUCTURE DESCRIPTION: Bridge; Concrete piers, girders and deck.

STRUCTURE SIZE: 1 @ 42.7m; 1 @ 182.9m; 1 @ 146.3m; 1 @ 109.7m; 1 @ 73.2m.
For Culverts: Number of cells/pipes & sizes For Bridges: Number of Spans & their lengths.

UPSTREAM INVERT LEVEL: -15.9 UPSTREAM OBVERT LEVEL: 4.8

DOWNSTREAM INVERT LEVEL: -15.4 DOWNSTREAM OBVERT LEVEL: 4.8
For culverts give floor level. For bridges give bed level.

For Culverts
LENGTH OF CULVERT BARREL AT INVERT (m):

LENGTH OF CULVERT BARREL AT OBVERT (m):

TYPE OF LINING:
(e.g. concrete, stones, brick, corrugated iron)

IS THERE A SURVEYED WEIR PROFILE? YES - XSECTION BN600
If yes give details ie. plan number and/or survey book number.
Note This Section should be the highest part of the road eg crown, kerb, hand rails guard rails whichever is higher.

WEIR WIDTH (m): 27.1m LOWEST POINT OF WEIR (m AHD): 8.8m PIER WIDTH: 5.6m (Base)
(In the direction of flow, ie. distance from u/s face to d/s face)

HEIGHT OF GUARD RAILS: 1067 mm

DESCRIPTION OF ALL HAND AND GAURD RAILS AND HEIGHTS TO TOP AND UNDERSIDE OF GUARD RAILS.

The following should also be provided.
Wingwall and Headwall details, entrance details eg pipe flush with embankment or projecting, socket or square end, details of entrance rounding, levels.
For Bridges, details of piers and section under bridge including abutment details.
Specify Survey Book No.

CONSTRUCTION DATE OF CURRENT STRUCTURE: 1968 PLAN NUMBER:

HAS THE STRUCTURE BEEN UPGRADED? No
If yes, explain type and date of upgrade. Include plan number and location if applicable.

ADDITIONAL COMMENTS: Greater than 100 year ARI immunity

SUMMARY OF STRUCTURE CHARACTERISTICS

ARI (years)	DISCHARGE		WATER SURFACE ELEVATION (m AHD)	MAX AFFLUX (mm)	AREA		VELOCITY	
	QWEIR (m^3/s)	QSTRUCTURE (m^3/s)			WEIR (m^2)	STRUCTURE (m^2)	WEIR (m/s)	STRUCTURE (m/s)
PMF	2921	33049	17.86	500	1450	7332	2.5	4.3
10 000	1085	27618	15.15	260	794	7277	1.9	3.65
2 000	124	19869	11.69	150	117	6680	1.8	2.9
1 000	15	17399	10.48	120	56	6385	1.1	2.65
500	-	13739	8.54	100	-	5530	-	2.4
200	-	11360	7.14	90	-	5137	-	2.15
100	-	9229	5.78	80	-	4494	-	2
50	-	7033	4.36	60	-	3913	-	1.75
20	-	3397	2.01	30	-	3015	-	1.1
10	-	1586	1.19	10	-	2747	-	0.57
5	-	949	1.03	10	-	2654	-	0.37
2	-	424	0.95	0	-	2719	-	0.21

Note: Qweir & Qstructure are the maximum discharges through the structure and maynot occur at the same time.

STRUCTURE 6-CAPTAIN COOK BRIDGE (LOOKING UPSTREAM)

STORY BRIDGE

HYDRAULIC STRUCTURE REFERENCE SHEET - VERS 3.1

CREEK:	Brisbane River	DATE OF SURVEY	Mar-95
LOCATION:	Bradfield Highway	UBD REF:	160 B9
AERIAL PHOTO No:	Film BCC100, Sheet 3	STRUCTURE ID	S7
BCC XS No:	BN 495	AMTD(m):	21 740

STRUCTURE DESCRIPTION: Suspension bridge; Steel superstructure, concrete piers.
Single span with cantilever ends and an extensive southern approach.

STRUCTURE SIZE: Centre span: 281.6m; Cantilever ends: 82.1m.
For Culverts: Number of cells/pipes & sizes For Bridges: Number of Spans & their lengths.

UPSTREAM INVERT LEVEL: -15.9 UPSTREAM OBVERT LEVEL: 17.4

DOWNSTREAM INVERT LEVEL: -15.5 DOWNSTREAM OBVERT LEVEL: 17.4
For culverts give floor level. For bridges give bed level.

For Culverts
LENGTH OF CULVERT BARREL AT INVERT (m):

LENGTH OF CULVERT BARREL AT OBVERT (m):

TYPE OF LINING:
(e.g. concrete, stones, brick, corrugated iron)

IS THERE A SURVEYED WEIR PROFILE? YES - XSECTION BN495
If yes give details ie. plan number and/or survey book number.
Note This Section should be the highest part of the road eg crown, kerb, hand rails guard rails whichever is higher.

WEIR WIDTH (m): 28.2m LOWEST POINT OF WEIR (m AHD): 29.8m PIER WIDTH: 9.6m (Base)
(In the direction of flow, ie. distance from u/s face to d/s face)

HEIGHT OF GUARD RAILS: 1067 mm

DESCRIPTION OF ALL HAND AND GAURD RAILS AND HEIGHTS TO TOP AND UNDERSIDE OF GUARD RAILS.

The following should also be provided.
Wingwall and Headwall details, entrance details eg pipe flush with embankment or projecting, socket or square end, details of entrance rounding, levels.
For Bridges, details of piers and section under bridge including abutment details.
Specify Survey Book No.

CONSTRUCTION DATE OF CURRENT STRUCTURE: 1935 PLAN NUMBER:

HAS THE STRUCTURE BEEN UPGRADED? No
If yes, explain type and date of upgrade. Include plan number and location if applicable.

ADDITIONAL COMMENTS: Greater than 100 year ARI immunity

SUMMARY OF STRUCTURE CHARACTERISTICS

ARI	DISCHARGE		WATER		AREA		VELOCITY	
			SURFACE	MAX				
	QWEIR	QSTRUCTURE	ELEVATION	AFFLUX	WEIR	STRUCTURE	WEIR	STRUCTURE
(years)	(m^3/s)	(m^3/s)	(m AHD)	(mm)	(m^2)	(m^2)	(m/s)	(m/s)
PMF	-	35862	16.59	270	-	7479	-	4.7
10 000	-	28658	14.19	240	-	6472	-	4.3
2 000	-	19991	10.9	180	-	5128	-	3.8
1 000	-	17413	9.74	170	-	4585	-	3.7
500	-	13737	7.88	150	-	4021	-	3.3
200	-	11330	6.53	120	-	3550	-	3.1
100	-	9143	5.22	100	-	3179	-	2.8
50	-	7028	3.93	80	-	2851	-	2.4
20	-	3397	1.84	30	-	2369	-	1.4
10	-	1586	1.14	10	-	2175	-	0.72
5	-	950	1	0	-	2137	-	0.46
2	-	424	0.95	10	-	2119	-	0.27

Note: Qweir & Qstructure are the maximum discharges through the structure and maynot occur at the same time.

STRUCTURE 7-STORY BRIDGE (LOOKING UPSTREAM)

GATEWAY BRIDGE

HYDRAULIC STRUCTURE REFERENCE SHEET - VERS 3.1

CREEK: Brisbane River

DATE OF SURVEY NA

LOCATION: Gateway Motorway

UBD REF: 141 M20

AERIAL PHOTO No: Film BCC100, Sheet 2

STRUCTURE ID

BCC XS No: BN210

AMTD(m): 10 000

STRUCTURE DESCRIPTION: Bridge; Concrete piers, girders and deck.
Single span with cantilever ends and extensive north and south approachs.

STRUCTURE SIZE: Centre span: 260m; Contilever ends: 130m.
For Culverts: Number of cells/pipes & sizes For Bridges: Number of Spans & their lengths.

UPSTREAM INVERT LEVEL: UPSTREAM OBVERT LEVEL:

DOWNSTREAM INVERT LEVEL: DOWNSTREAM OBVERT LEVEL:
For culverts give floor level. For bridges give bed level.

For Culverts
LENGTH OF CULVERT BARREL AT INVERT (m):

LENGTH OF CULVERT BARREL AT OBVERT (m):

TYPE OF LINING:
(e.g. concrete, stones, brick, corrugated iron)

IS THERE A SURVEYED WEIR PROFILE? NO
If yes give details ie. plan number and/or survey book number.
Note This Section should be the highest part of the road eg crown, kerb, hand rails guard rails whichever is higher.

WEIR WIDTH (m): 21.9m LOWEST POINT OF WEIR (m AHD): >PMF Flood Level PIER WIDTH: 13.5m
(In the direction of flow, ie. distance from u/s face to d/s face)

HEIGHT OF GUARD RAILS: 1067 mm

DESCRIPTION OF ALL HAND AND GAURD RAILS AND HEIGHTS TO TOP AND UNDERSIDE OF GUARD RAILS.

The following should also be provided.
Wingwall and Headwall details, entrance details eg pipe flush with embankment or projecting, socket or square end, details of entrance rounding, levels.
For Bridges, details of piers and section under bridge including abutment details.
Specify Survey Book No.

CONSTRUCTION DATE OF CURRENT STRUCTURE: 1981 PLAN NUMBER: .

HAS THE STRUCTURE BEEN UPGRADED? No
If yes, explain type and date of upgrade. Include plan number and location if applicable.

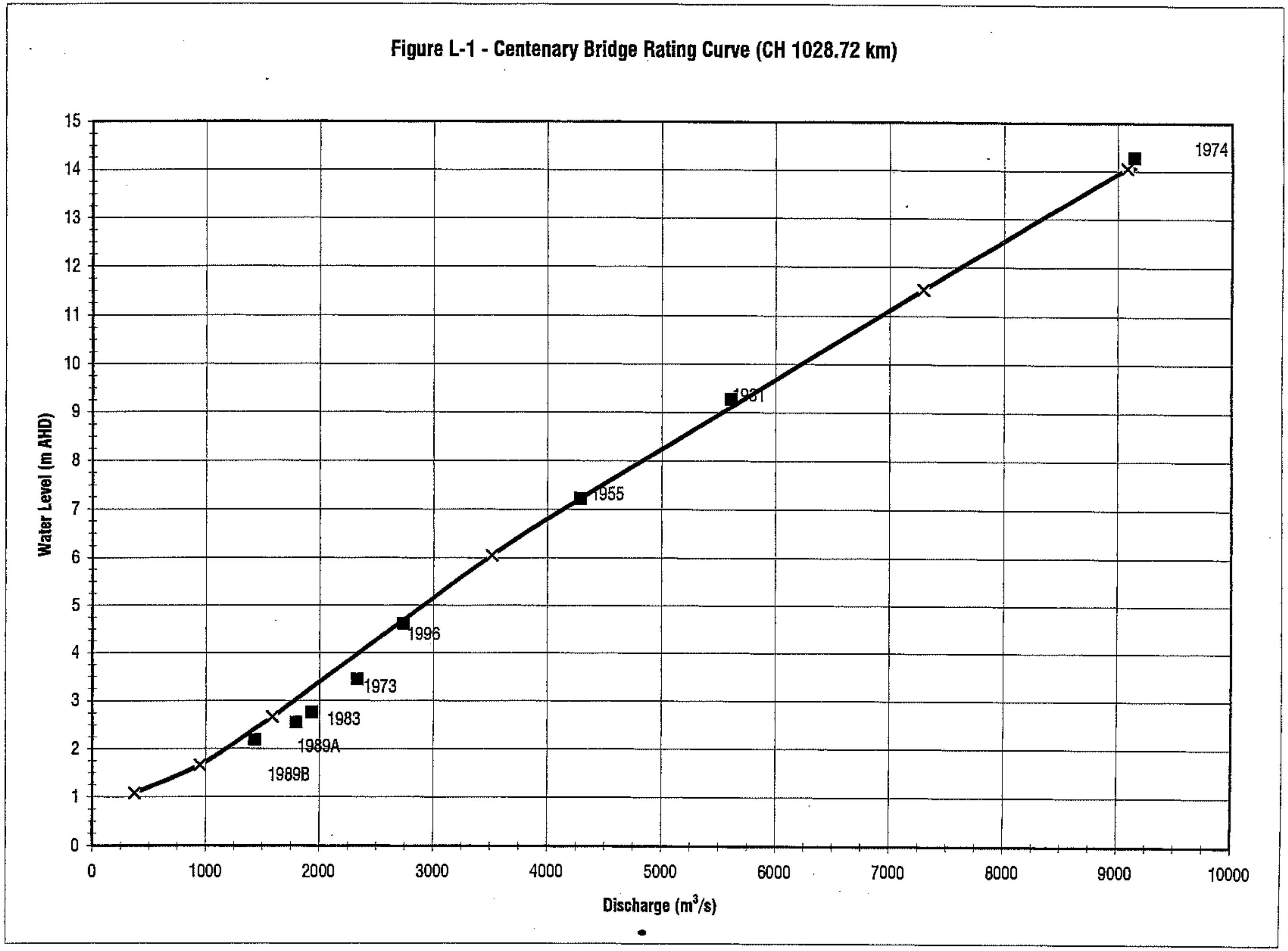
ADDITIONAL COMMENTS: Greater than 100 year ARI immunity

STRUCTURE 8-GATEWAY BRIDGE (LOOKING UPSTREAM)

Appendix L - Rating Curves at Structures

Centenary Bridge
CH 1028.72

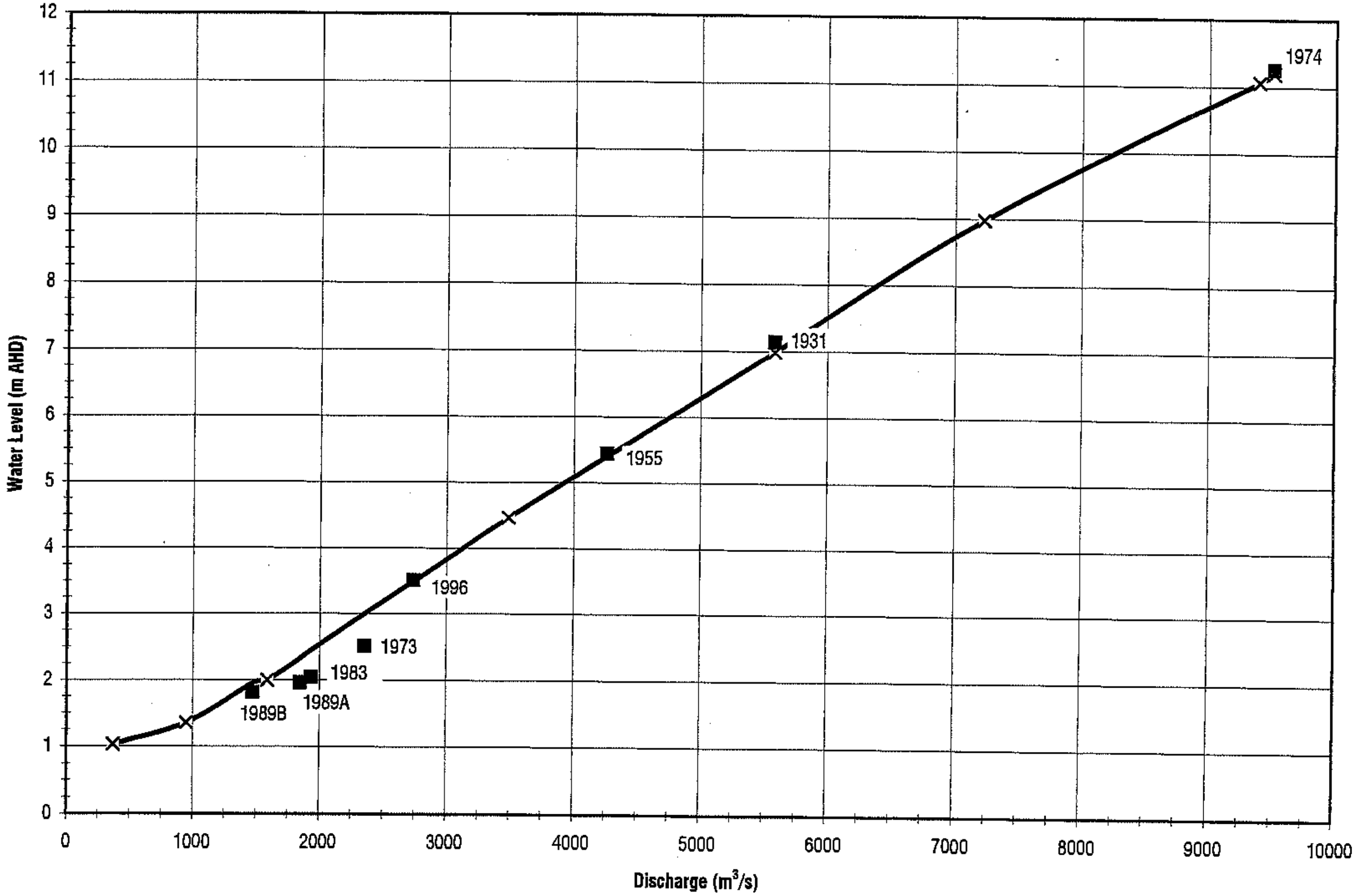
Q (m^3/s)	Design WL (m AHD)
371	1.08
949	1.66
1587	2.67
3516	6.05
7294	11.54
9085	14.06



Indooroopilly Bridge
1037.11

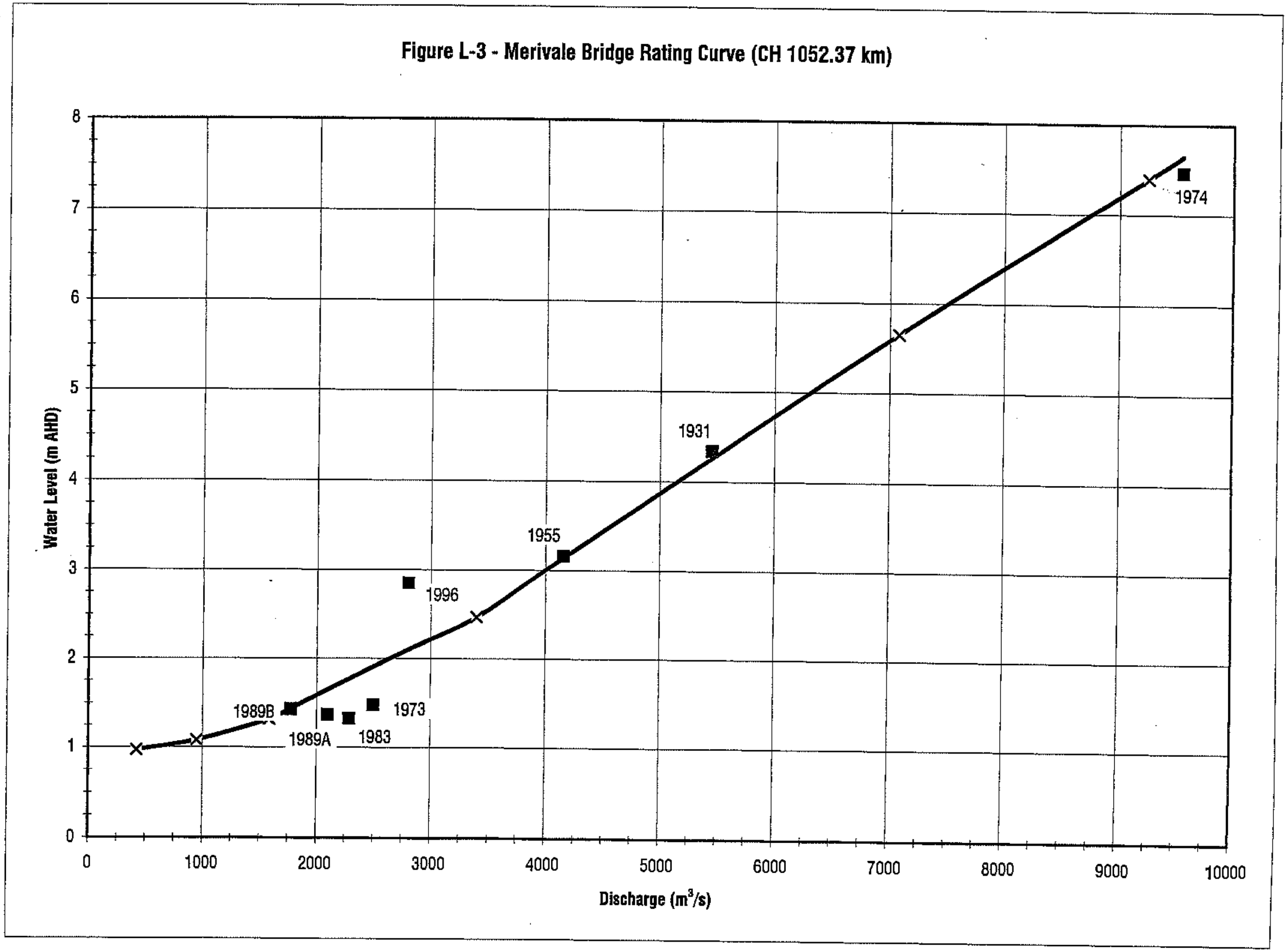
Q (m³/s)	Design WL (m AHD)
372	1.03
949	1.35
1587	2
3487	4.47
7227	8.98
9392	11.07

Figure L-2 - Indooroopilly Bridge Rating Curve (CH 1037.11 km)



Merivale Bridge
1052.37

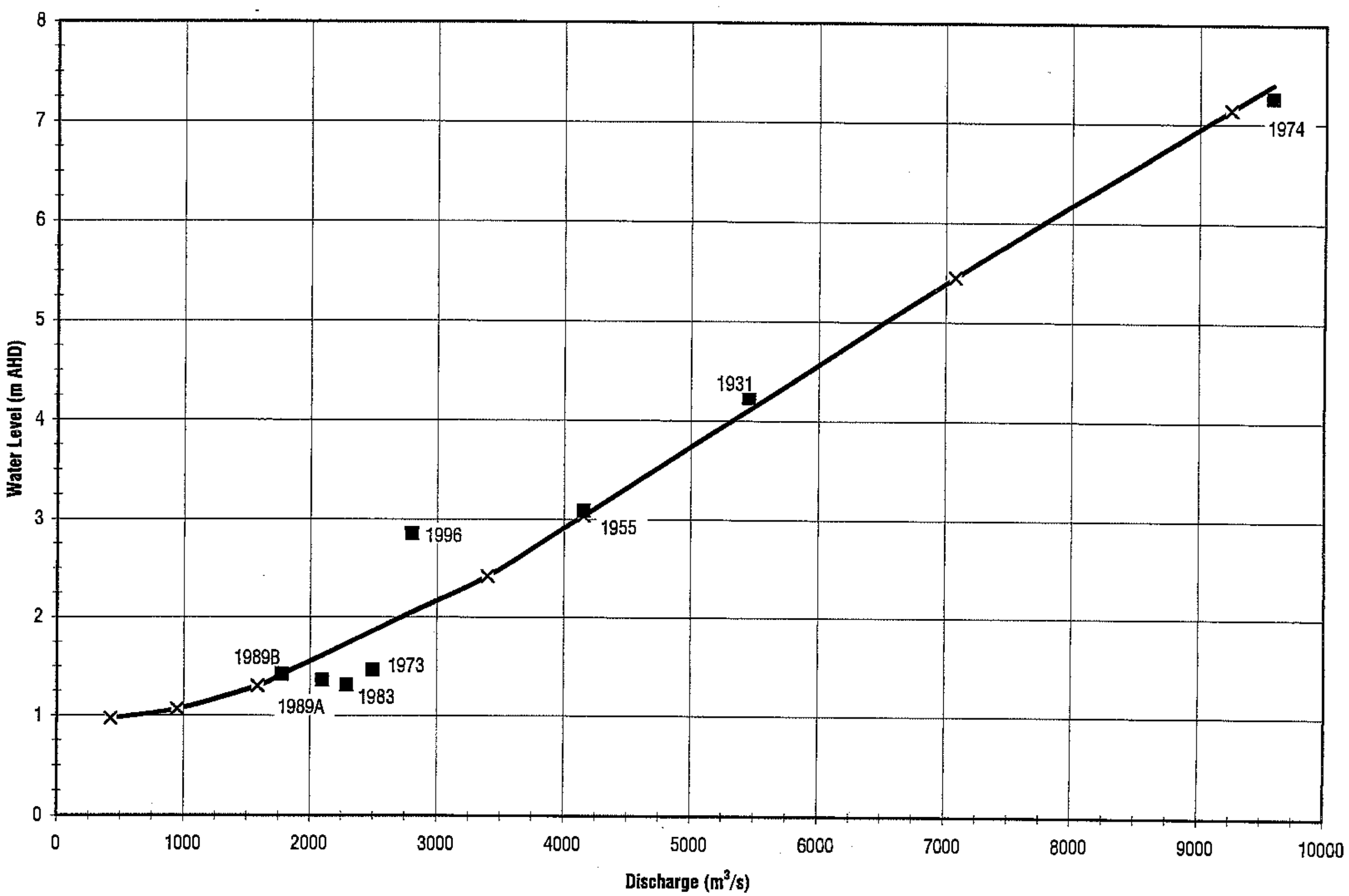
Q (m³/s)	Design WL (m AHD)
423	0.97
949	1.08
1586	1.32
3397	2.49
7079	5.65
9250	7.40



William Jolly Bridge
1052.625

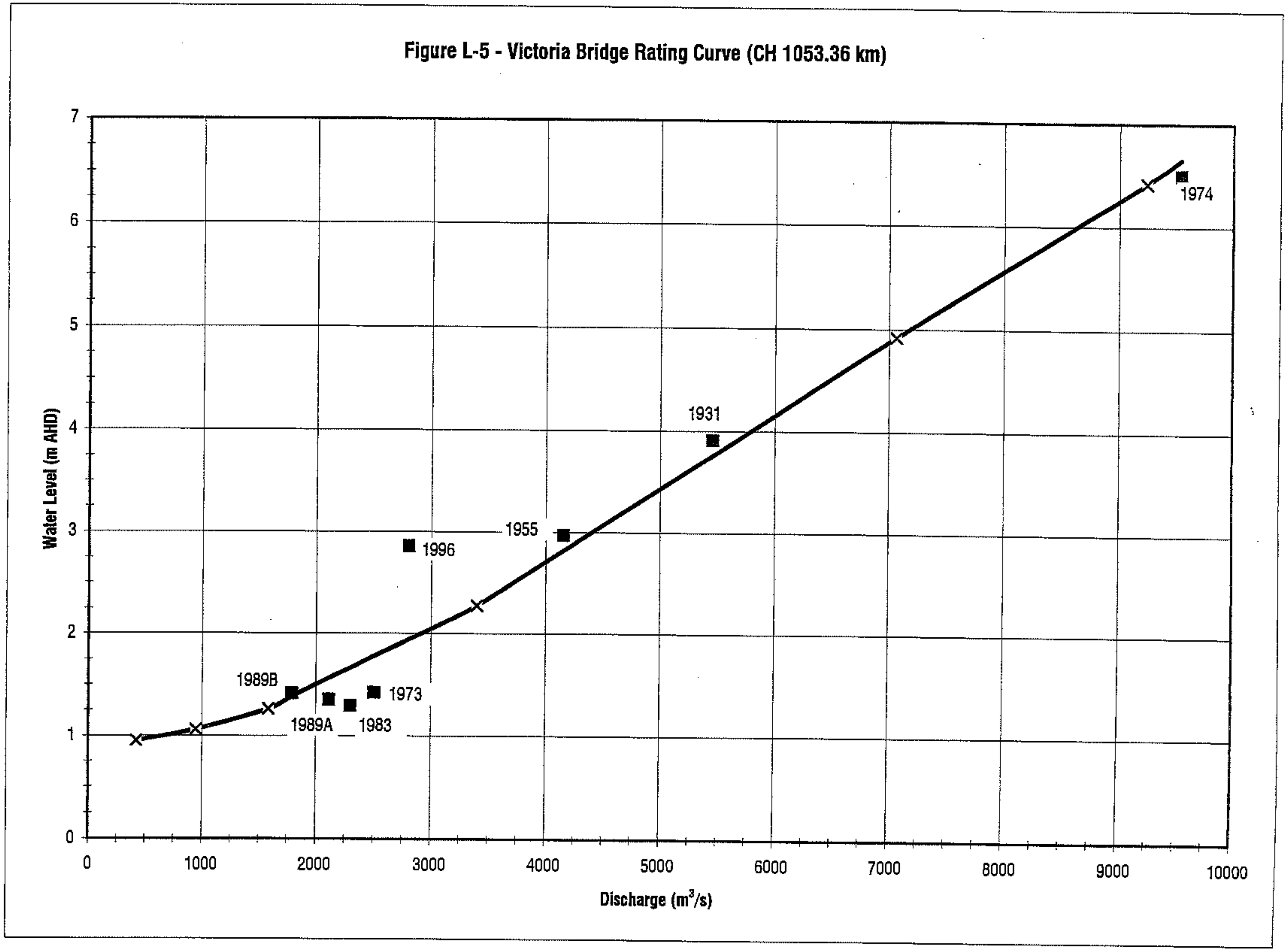
Q (m^3/s)	Design WL (m AHD)
423	0.97
949	1.07
1586	1.30
3397	2.42
7074	5.45
9248	7.14

Figure L-4 - William Jolly Bridge Rating Curve (CH 1052.63 km)



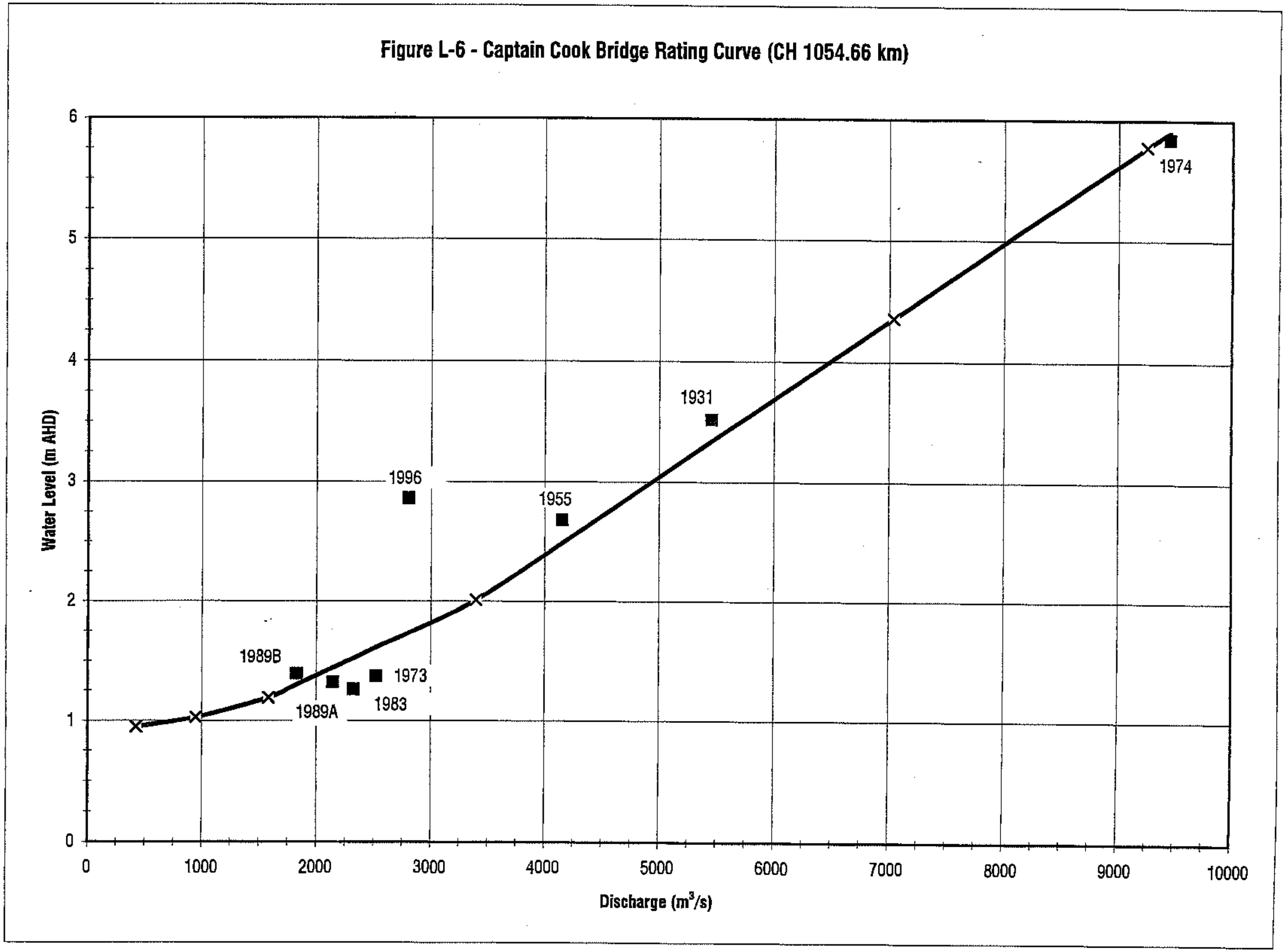
Victoria Bridge
1053.355

Q (m^3/s)	Design WL (m AHD)
423	0.95
949	1.06
1586	1.26
3397	2.28
7066	4.92
9240	6.42



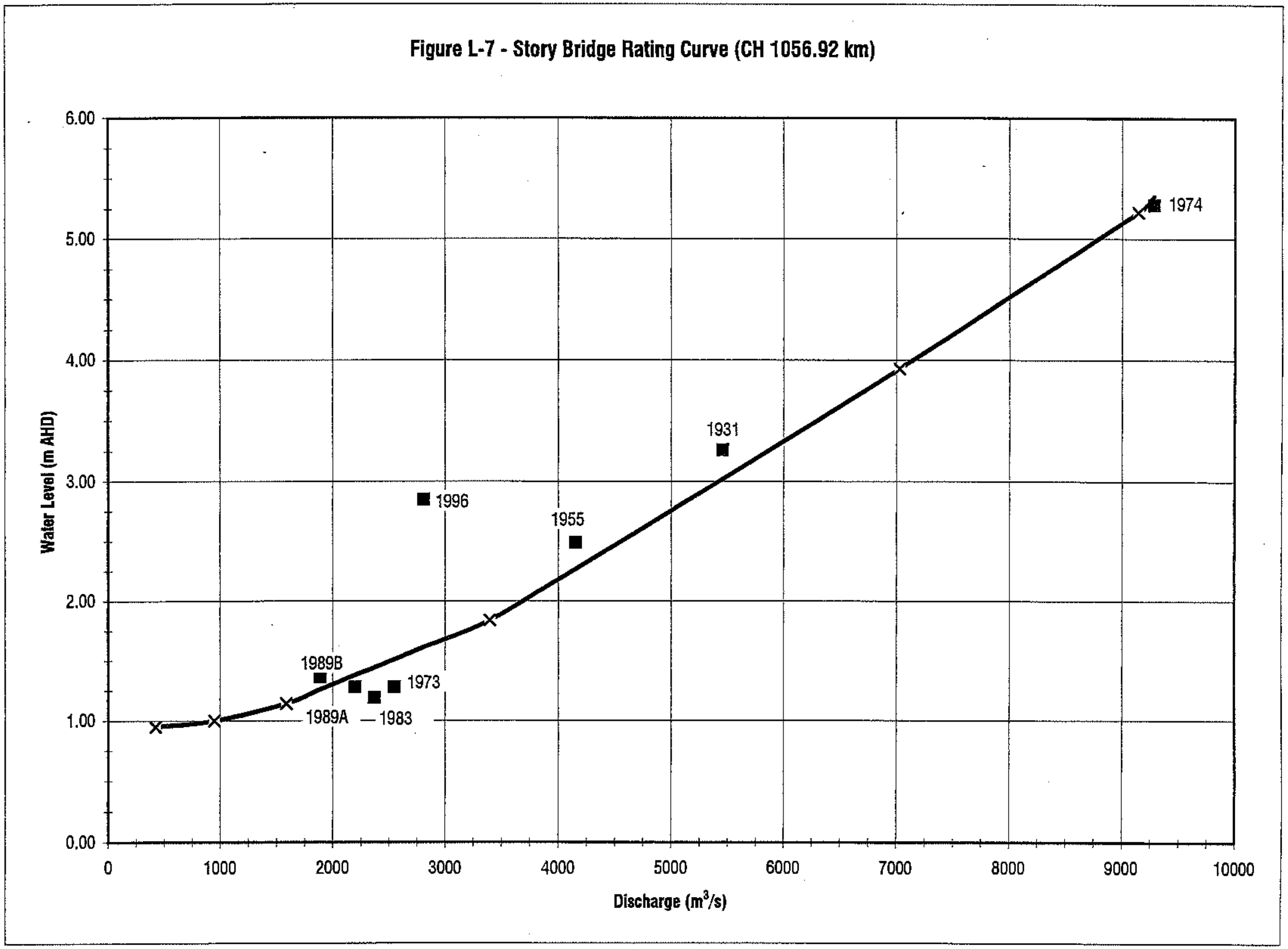
Captain Cook Bridge
1054.66

Q (m^3/s)	Design WL (m AHD)
424	0.95
949	1.03
1586	1.19
3397	2.01
7039	4.36
9253	5.78



Story Bridge
1056.92

Q (m^3/s)	Design WL (m AHD)
424	0.95
950	1.00
1586	1.14
3397	1.84
7028	3.93
9143	5.22



Appendix M - Flood Forecasting Model Results

TABLE M-1 - Flood Forecasting Model Results

MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	1996 Flood Event: Small "n" MIKE 11 WL (m AHD)	Small "n" FF Model WL (m AHD)	Small "n" Difference (m)	Large "n" FF Model WL (m AHD)	Large "n" Difference (m)	100 Year ARI Event: Large "n" MIKE 11 WL (m AHD)	Large "n" FF Model WL (m AHD)	Large "n" Difference (m)
1000	78.66	BN 2020		9.49	9.5	0.01	9.9	0.41	22.76	22.76	0.00
1000.285	78.375	BN 2010		9.40	9.41	0.01	9.82	0.42	22.57	22.57	0.00
1000.775	77.885	BN 2000		9.23	9.24	0.01	9.68	0.45	22.29	22.29	0.00
1001.315	77.345	BN 1990		9.09	9.1	0.01	9.58	0.49	22.20	22.20	0.00
1001.865	76.795	BN 1980		8.84	8.85	0.01	9.38	0.54	21.68	21.68	0.00
1002.35	76.310	BN 1970		8.57	8.58	0.01	9.19	0.62	21.48	21.48	0.00
1002.785	75.875	BN 1960		8.47	8.48	0.01	9.15	0.68	21.46	21.46	0.00
1003.275	75.385	BN 1950		8.25	8.26	0.01	8.99	0.74	21.13	21.13	0.00
1003.775	74.885	BN 1940		8.06	8.07	0.01	8.84	0.78	20.86	20.86	0.00
1004.3	74.360	BN 1930		7.80	7.82	0.02	8.62	0.82	20.41	20.41	0.00
1004.81	73.850	BN 1920		7.68	7.69	0.01	8.53	0.85	20.37	20.38	0.01
1005.325	73.335	BN 1910		7.53	7.55	0.02	8.41	0.88	20.20	20.20	0.00
1005.87	72.790	BN 1900		7.38	7.39	0.01	8.23	0.85	19.89	19.89	0.00
1006.3	72.360	BN 1890	Moggill Gauge	7.37	7.39	0.02	8.17	0.80	19.72	19.72	0.00
1006.91	71.750	BN 1880		7.27	7.28	0.01	8	0.73	19.51	19.51	0.00
1007.41	71.250	BN 1870		7.21	7.22	0.01	7.91	0.70	19.48	19.48	0.00
1007.92	70.740	BN 1860		7.04	7.05	0.01	7.75	0.71	19.19	19.19	0.00
1008.445	70.215	BN 1850		6.99	7.01	0.02	7.66	0.67	19.02	19.02	0.00
1008.925	69.735	BN 1840		6.93	6.95	0.02	7.61	0.68	18.96	18.96	0.00
1009.4	69.260	BN 1830		6.85	6.87	0.02	7.54	0.69	18.86	18.86	0.00
1009.72	68.940	BN 1820		6.81	6.83	0.02	7.51	0.70	18.85	18.85	0.00
1010.49	68.170	BN 1810		6.65	6.67	0.02	7.37	0.72	18.50	18.50	0.00
1010.725	67.935	BN 1800		6.65	6.66	0.01	7.37	0.72	18.52	18.52	0.00
1010.98	67.680	BN 1790		6.60	6.62	0.02	7.33	0.73	18.44	18.44	0.00
1011.51	67.150	BN 1780		6.54	6.56	0.02	7.28	0.74	18.43	18.43	0.00
1011.98	66.680	BN 1770		6.47	6.49	0.02	7.22	0.75	18.43	18.43	0.00
1012.475	66.185	BN 1760		6.39	6.41	0.02	7.14	0.75	18.33	18.33	0.00
1012.935	65.725	BN 1750		6.32	6.34	0.02	7.07	0.75	18.22	18.22	0.00
1013.445	65.215	BN 1740		6.26	6.28	0.02	7.01	0.75	18.14	18.14	0.00
1013.91	64.750	BN 1730		6.19	6.21	0.02	6.94	0.75	18.08	18.08	0.00
1014.31	64.350	BN 1720		6.11	6.13	0.02	6.87	0.76	18.05	18.05	0.00
1014.61	64.050	BN 1710	Goodna Hospital Gauge	6.06	6.08	0.02	6.82	0.76	18.08	18.08	0.00
1015.09	63.570	BN 1700		6.05	6.07	0.02	6.8	0.75	17.94	17.95	0.01
1015.56	63.100	BN 1690		5.97	6	0.03	6.73	0.76	17.81	17.81	0.00
1016.14	62.520	BN 1680		5.91	5.94	0.03	6.67	0.76	17.71	17.72	0.01
1016.64	62.020	BN 1670		5.80	5.82	0.02	6.57	0.77	17.62	17.62	0.00
1017.13	61.530	BN 1660		5.66	5.68	0.02	6.4	0.74	17.39	17.39	0.00
1017.61	61.050	BN 1650		5.56	5.58	0.02	6.23	0.67	17.26	17.26	0.00
1017.92	60.740	BN 1640		5.48	5.51	0.03	6.12	0.64	17.10	17.10	0.00
1018.2	60.460	BN 1630		5.49	5.51	0.02	6.08	0.59	17.02	17.03	0.01
1018.725	59.935	BN 1620		5.42	5.45	0.03	5.96	0.54	16.69	16.70	0.01
1019.095	59.565	BN 1610		5.37	5.39	0.02	5.86	0.49	16.56	16.56	0.00
1019.49	59.170	BN 1600		5.33	5.36	0.03	5.78	0.45	16.45	16.45	0.00
1019.865	58.795	BN 1590		5.28	5.31	0.03	5.68	0.40	16.15	16.15	0.00
1020.115	58.545	BN 1580		5.28	5.3	0.02	5.64	0.36	16.25	16.25	0.00
1020.525	58.135	BN 1570		5.27	5.3	0.03	5.6	0.33	16.22	16.22	0.00
1020.83	57.830	BN 1560		5.23	5.25	0.02	5.53	0.30	16.07	16.07	0.00
1021.095	57.565	BN 1550		5.16	5.19	0.03	5.45	0.29	15.86	15.86	0.00
1021.539	57.121	BN 1540		5.10	5.13	0.03	5.33	0.23	15.69	15.69	0.00
1021.715	56.945	BN 1530		5.10	5.13	0.03	5.31	0.21	15.72	15.72	0.00
1021.895	56.765	BN 1520		5.09	5.12	0.03	5.28	0.19	15.65	15.65	0.00
1022.105	56.555	BN 1510		5.09	5.11	0.02	5.26	0.17	15.53	15.53	0.00
1022.575	56.085	BN 1500		5.02	5.05	0.03	5.18	0.16	15.45	15.46	0.01
1023.04	55.620	BN 1490		4.92	4.95	0.03	5.1	0.18	15.21	15.21	0.00
1023.57	55.090	BN 1480		4.88	4.91	0.03	5.08	0.20	15.12	15.12	0.00
1024.08	54.580	BN 1470		4.81	4.84	0.03	5.02	0.21	15.07	15.07	0.00
1024.563	54.097	BN 1460		4.72	4.75	0.03	4.94	0.22	15.01	15.01	0.00
1025.07	53.590	BN 1450		4.67	4.7	0.03	4.88	0.21	14.91	14.91	0.00
1025.36	53.300	BN 1440		4.60	4.64	0.04	4.81	0.21	14.77	14.77	0.00
1025.59	53.070	BN 1430		4.54	4.57	0.03	4.74	0.20	14.61	14.61	0.00
1026.17	52.490	BN 1420		4.51	4.54	0.03	4.7	0.19	14.48	14.49	0.01
1026.68	51.980	BN 1410	Mt Ommaney Gauge	4.43	4.46	0.03	4.61	0.18	14.38	14.38	0.00
1026.9	51.760	BN 1400		4.38	4.42	0.04	4.56	0.18	14.25	14.25	0.00
1027.16	51.500	BN 1390		4.35	4.39	0.04	4.52	0.17	14.11	14.11	0.00
1027.68	50.980	BN 1380		4.32	4.36	0.04	4.5	0.18	14.17	14.17	0.00
1028.18	50.480	BN 1370		4.27	4.31	0.04	4.48	0.21	14.19	14.20	0.01
1028.68	49.980	BN 1360		4.17	4.21	0.04	4.43	0.26	14.06	14.06	0.00
1028.72	49.940	BN1350	Centenary Bridge								
1028.76	49.900	BN 1340		4.08	4.12	0.04	4.35	0.27	13.91	13.91	0.00
1029.2	49.460	BN 1330		3.98	4.03	0.05	4.29	0.31	13.80	13.80	0.00
1029.68	48.980	BN 1320		3.95	3.99	0.04	4.28	0.33	13.82	13.82	0.00
1030.22	48.440	BN 1310		3.89	3.93	0.04	4.26	0.37	13.82	13.82	0.00
1030.87	47.790	BN 1300		3.79	3.84	0.05	4.23	0.44	13.75	13.75	0.00
1031.26	47.400	BN 1290		3.71	3.76	0.05	4.18	0.47	13.59	13.59	0.00
1031.7	46.960	BN 1280	Darra Wharf Gauge	3.59	3.65	0.06	4.04	0.45	13.21	13.21	0.00
1031.995	46.665	BN 1270		3.60	3.65	0.05	3.99	0.39	13.31	13.31	0.00
1032.23	46.430	BN 1260		3.57	3.62	0.05	3.94	0.37	13.18	13.18	0.00
1032.585	46.075	BN 1250		3.52	3.57	0.05	3.85	0.33	12.94	12.94	0.00
1033.08	45.580	BN 1240		3.48	3.54	0.06	3.79	0.31	12.79	12.79	0.00
1033.37	45.290	BN 1230		3.43	3.49	0.06	3.73	0.30	12.68	12.68	0.00
1033.9	44.760	BN 1220		3.35	3.41	0.06	3.65	0.30	12.45	12.45	0.00
1034.37	44.290	BN 1210		3.29	3.35	0.06	3.6	0.31	12.29	12.29	0.00
1034.89	43.770	BN 1200	Sherwood Gauge	3.23	3.29	0.06	3.53	0.30	12.19	12.19	0.00

TABLE M-1 - Flood Forecasting Model Results

MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	1996 Flood Event: Small "n" MIKE 11 WL (m AHD)	1996 Flood Event: Small "n" FF Model WL (m AHD)	1996 Flood Event: Small "n" Difference (m)	1996 Flood Event: Large "n" FF Model WL (m AHD)	1996 Flood Event: Large "n" Difference (m)	100 Year ARI Event: Large "n" MIKE 11 WL (m AHD)	100 Year ARI Event: Large "n" FF Model WL (m AHD)	100 Year ARI Event: Large "n" Difference (m)
1035.414	43.246	BN 1190		3.15	3.21	0.06	3.42	0.27	11.94	11.94	0.00
1035.9	42.760	BN 1180		3.06	3.12	0.06	3.29	0.23	11.65	11.66	0.01
1036.46	42.200	BN 1170		2.98	3.05	0.07	3.17	0.19	11.35	11.35	0.00
1036.77	41.890	BN 1160		2.95	3.02	0.07	3.11	0.16	11.28	11.28	0.00
1036.915	41.745	BN 1150		2.92	2.99	0.07	3.06	0.14	11.12	11.12	0.00
1037.09	41.570	BN 1140		2.93	2.99	0.06	3.06	0.13	11.07	11.07	0.00
1037.11	41.550	BN 1130	Indooroopilly Bridge								
1037.175	41.485	BN 1120		2.79	2.86	0.07	2.93	0.14	10.98	10.98	0.00
1037.285	41.375	BN 1110	Clarence Road Gauge	2.77	2.84	0.07	2.9	0.13	10.93	10.93	0.00
1037.625	41.035	BN 1100		2.73	2.81	0.08	2.86	0.13	10.91	10.91	0.00
1038.085	40.575	BN 1090		2.72	2.79	0.07	2.85	0.13	10.93	10.93	0.00
1038.6	40.060	BN 1080		2.63	2.71	0.08	2.8	0.17	10.91	10.91	0.00
1039.1	39.560	BN 1070		2.54	2.62	0.08	2.77	0.23	10.90	10.90	0.00
1039.565	39.095	BN 1060	Oxley Creek Gauge	2.49	2.57	0.08	2.76	0.27	10.92	10.92	0.00
1040.09	38.570	BN 1050	King Authur Terrace Gauge	2.46	2.55	0.09	2.76	0.30	10.84	10.84	0.00
1040.49	38.170	BN 1040		2.40	2.48	0.08	2.71	0.31	10.71	10.71	0.00
1041.01	37.650	BN 1030		2.38	2.46	0.08	2.71	0.33	10.74	10.75	0.01
1041.23	37.430	BN 1020		2.36	2.44	0.08	2.68	0.32	10.71	10.71	0.00
1041.46	37.200	BN 1010	Tennyson Power House Gauge	2.32	2.4	0.08	2.64	0.32	10.62	10.62	0.00
1041.7	36.960	BN 1000		2.32	2.4	0.08	2.64	0.32	10.59	10.59	0.00
1041.96	36.700	BN 990	Yeronga Street Gauge	2.27	2.34	0.07	2.58	0.31	10.45	10.45	0.00
1042.235	36.425	BN 980		2.21	2.29	0.08	2.53	0.32	10.30	10.30	0.00
1042.515	36.145	BN 970		2.20	2.28	0.08	2.52	0.32	10.29	10.29	0.00
1042.91	35.750	BN 960		2.12	2.19	0.07	2.44	0.32	10.22	10.23	0.01
1043.725	34.935	BN 950		1.94	2.01	0.07	2.28	0.34	9.91	9.91	0.00
1044.06	34.600	BN 940	Sandy Creek Gauge	1.91	1.98	0.07	2.24	0.33	9.75	9.75	0.00
1044.34	34.320	BN 930		1.86	1.92	0.06	2.18	0.32	9.58	9.59	0.01
1044.605	34.055	BN 920		1.84	1.9	0.06	2.15	0.31	9.53	9.53	0.00
1044.86	33.800	BN 910		1.81	1.87	0.06	2.11	0.30	9.49	9.50	0.01
1045.4	33.260	BN 900		1.73	1.79	0.06	2.01	0.28	9.31	9.31	0.00
1045.885	32.775	BN 890		1.71	1.72	0.01	1.9	0.19	9.17	9.17	0.00
1046.18	32.480	BN 880		1.71	1.72	0.01	1.89	0.18	9.09	9.09	0.00
1046.34	32.320	BN 870	Dutton Park Cemetery Gauge	1.71	1.72	0.01	1.88	0.17	9.02	9.02	0.00
1046.58	32.080	BN 860		1.70	1.72	0.02	1.85	0.15	8.97	8.97	0.00
1046.9	31.760	BN 850		1.70	1.71	0.01	1.77	0.07	8.78	8.78	0.00
1047.35	31.310	BN 840		1.70	1.71	0.01	1.72	0.02	8.41	8.41	0.00
1047.915	30.745	BN 830	Highgate Hill Gauge	1.70	1.71	0.01	1.72	0.02	8.17	8.17	0.00
1048.375	30.285	BN 820		1.69	1.7	0.01	1.72	0.03	8.23	8.24	0.01
1048.89	29.770	BN 810	St Lucia Ferry Gauge	1.69	1.7	0.01	1.71	0.02	8.00	8.00	0.00
1049.12	29.540	BN 800		1.69	1.7	0.01	1.71	0.02	7.94	7.94	0.00
1049.37	29.290	BN 790		1.69	1.69	0.00	1.71	0.02	7.75	7.76	0.01
1049.59	29.070	BN 780		1.68	1.69	0.01	1.7	0.02	7.74	7.74	0.00
1049.87	28.790	BN 770		1.68	1.69	0.01	1.7	0.02	7.63	7.63	0.00
1050.43	28.230	BN 760		1.68	1.68	0.00	1.7	0.02	7.61	7.61	0.00
1050.86	27.800	BN 750		1.67	1.68	0.01	1.69	0.02	7.46	7.46	0.00
1051.36	27.300	BN 740		1.67	1.68	0.01	1.69	0.02	7.46	7.46	0.00
1051.895	26.765	BN 730		1.67	1.67	0.00	1.68	0.01	7.30	7.30	0.00
1052.31	26.350	BN 720		1.66	1.67	0.01	1.68	0.02	7.40	7.41	0.01
1052.37	26.290	BN 710	Merivale Bridge								
1052.39	26.270	BN 700		1.66	1.66	0.00	1.68	0.02	7.23	7.23	0.00
1052.595	26.065	BN 690		1.66	1.66	0.00	1.67	0.01	7.14	7.14	0.00
1052.607	26.053	BN 680	William Jolly Bridge								
1052.64	26.020	BN 670		1.65	1.66	0.01	1.67	0.02	6.63	6.63	0.00
1052.865	25.795	BN 660	Montague Road Gauge	1.65	1.66	0.01	1.67	0.02	6.49	6.49	0.00
1053.32	25.340	BN 650		1.65	1.65	0.00	1.67	0.02	6.42	6.42	0.00
1053.356	25.304	BN 640	Victoria Bridge								
1053.385	25.275	BN630		1.65	1.65	0.00	1.66	0.01	6.24	6.24	0.00
1053.9	24.760	BN 620		1.64	1.65	0.01	1.66	0.02	5.85	5.85	0.00
1054.64	24.020	BN 610		1.64	1.64	0.00	1.65	0.01	5.78	5.78	0.00
1054.66	24.000	BN 600	Captain Cook Bridge								
1054.68	23.980	BN 590		1.64	1.64	0.00	1.65	0.01	5.70	5.70	0.00
1054.97	23.690	BN 560		1.64	1.64	0.00	1.65	0.01	5.45	5.45	0.00
1055.28	23.380	BN 550		1.64	1.64	0.00	1.65	0.01	5.40	5.40	0.00
1055.42	23.240	BN 540		1.64	1.64	0.00	1.64	0.00	5.40	5.40	0.00
1055.96	22.700	BN 530	Port Office Gauge	1.63	1.63	0.00	1.64	0.01	5.34	5.34	0.00
1056.4	22.260	BN 520		1.63	1.63	0.00	1.64	0.01	5.09	5.09	0.00
1056.695	21.965	BN 510		1.63	1.63	0.00	1.63	0.00	5.03	5.03	0.00
1056.865	21.795	BN 500		1.63	1.63	0.00	1.63	0.00	5.22	5.22	0.00
1056.92	21.740	BN 495	Story Bridge								
1056.95	21.710	BN 490		1.63	1.63	0.00	1.63	0.00	5.12	5.12	0.00
1057.09	21.570	BN 480		1.63	1.63	0.00	1.63	0.00	4.97	4.97	0.00
1057.53	21.130	BN 470		1.63	1.62	-0.01	1.63	0.00	4.83	4.83	0.00
1058.04	20.620	BN 460		1.62	1.62	0.00	1.63	0.01	4.58	4.58	0.00
1058.23	20.430	BN 450		1.62	1.62	0.00	1.63	0.01	4.50	4.50	0.00
1058.53	20.130	BN 440		1.62	1.62	0.00	1.62	0.00	4.37	4.37	0.00
1058.735	19.925	BN 430		1.62	1.62	0.00	1.62	0.00	4.41	4.41	0.00
1059.035	19.625	BN 420		1.62	1.61	-0.01	1.62	0.00	4.13	4.13	0.00
1059.54	19.120	BN 410		1.61	1.61	0.00	1.62	0.01	4.09	4.09	0.00
1059.99	18.670	BN 400		1.61	1.61	0.00	1.61	0.00	3.88	3.88	0.00
1060.345	18.315	BN 390		1.61	1.61	0.00	1.61	0.00	3.65	3.65	0.00
1060.535	18.125	BN 380		1.61	1.61	0.00	1.61	0.00	3.50	3.50	0.00
1061.015	17.645	BN 370		1.61	1.6	-0.01	1.61	0.00	3.45	3.45	0.00
1061.53	17.130	BN 360		1.60	1.6	0.00	1.6	0.00	3.24	3.24	0.00

TABLE M-1 - Flood Forecasting Model Results

				1996 Flood Event					100 Year ARI Event		
MIKE 11 CHAINAGE (km)	AMTD CHAINAGE (km)	CROSS SECTION NUMBER	STRUCTURE\GAUGE IDENTIFICATION	Small "n" MIKE 11 WL (m AHD)	Small "n" FF Model WL (m AHD)	Small "n" Difference (m)	Large "n" FF Model WL (m AHD)	Large "n" Difference (m)	Large "n" MIKE 11 WL (m AHD)	Large "n" FF Model WL (m AHD)	Large "n" Difference (m)
1062.02	16.640	BN 350		1.60	1.6	0.00	1.6	0.00	3.16	3.16	0.00
1062.535	16.125	BN 340		1.60	1.59	-0.01	1.6	0.00	3.12	3.12	0.00
1062.94	15.720	BN 330		1.59	1.59	0.00	1.59	0.00	3.11	3.11	0.00
1063.31	15.350	BN 320	Newstead Park Gauge	1.59	1.59	0.00	1.59	0.00	2.99	3.00	0.01
1063.645	15.015	BN 310	Cresent Road Gauge	1.59	1.59	0.00	1.59	0.00	2.72	2.72	0.00
1064	14.660	BN 300		1.59	1.58	-0.01	1.59	0.00	2.68	2.68	0.00
1064.49	14.170	BN 290		1.58	1.58	0.00	1.58	0.00	2.55	2.55	0.00
1065.01	13.650	BN 280		1.58	1.58	0.00	1.58	0.00	2.57	2.57	0.00
1065.503	13.157	BN 270		1.58	1.57	-0.01	1.58	0.00	2.53	2.53	0.00
1065.99	12.670	BN 260	Cairncross Dock Gauge	1.58	1.57	-0.01	1.58	0.00	2.54	2.54	0.00
1066.505	12.155	BN 250		1.57	1.57	0.00	1.57	0.00	2.46	2.46	0.00
1067.02	11.640	BN 240		1.57	1.57	0.00	1.57	0.00	2.43	2.43	0.00
1067.485	11.175	BN 230		1.57	1.57	0.00	1.57	0.00	2.32	2.32	0.00
1067.965	10.695	BN 220		1.57	1.56	-0.01	1.57	0.00	2.20	2.20	0.00
1068.66	10.000	BN 210		1.56	1.56	0.00	1.56	0.00	2.02	2.02	0.00
1069.045	9.615	BN 200		1.56	1.56	0.00	1.56	0.00	1.95	1.95	0.00
1069.535	9.125	BN 190	Bulimba Power House Gauge	1.56	1.55	-0.01	1.55	-0.01	1.89	1.89	0.00
1070.025	8.635	BN 180		1.55	1.55	0.00	1.55	0.00	1.82	1.82	0.00
1070.53	8.130	BN 170		1.55	1.55	0.00	1.55	0.00	1.72	1.72	0.00
1071.04	7.620	BN 160		1.55	1.54	-0.01	1.54	-0.01	1.64	1.64	0.00
1071.52	7.140	BN 150		1.54	1.54	0.00	1.54	0.00	1.67	1.67	0.00
1072.015	6.645	BN 140		1.54	1.54	0.00	1.54	0.00	1.56	1.56	0.00
1072.515	6.145	BN 130		1.54	1.53	-0.01	1.53	-0.01	1.50	1.50	0.00
1072.995	5.665	BN 120		1.53	1.53	0.00	1.53	0.00	1.46	1.46	0.00
1073.485	5.175	BN 110		1.53	1.53	0.00	1.53	0.00	1.36	1.36	0.00
1074	4.660	BN 100		1.53	1.52	-0.01	1.53	0.00	1.29	1.29	0.00
1074.46	4.200	BN 90		1.52	1.52	0.00	1.52	0.00	1.22	1.22	0.00
1074.985	3.675	BN 80		1.52	1.52	0.00	1.52	0.00	1.09	1.09	0.00
1075.48	3.180	BN 70		1.51	1.51	0.00	1.51	0.00	1.06	1.06	0.00
1076	2.660	BN 60		1.51	1.51	0.00	1.51	0.00	1.07	1.07	0.00
1076.495	2.165	BN 50		1.51	1.51	0.00	1.51	0.00	0.96	0.96	0.00
1077.01	1.650	BN 40		1.51	1.51	0.00	1.51	0.00	0.96	0.96	0.00
1077.51	1.150	BN 30		1.51	1.51	0.00	1.51	0.00	0.97	0.97	0.00
1078.04	0.620	BN 20		1.51	1.51	0.00	1.51	0.00	0.95	0.95	0.00
1078.525	0.135	BN 10		1.51	1.51	0.00	1.51	0.00	0.92	0.92	0.00

Appendix N - Community Consultation Information Bulletin/Questionnaire

Brisbane River Flood Study

We Need Your Help

Brisbane City

Our Business - A Better Brisbane

About the study

As part of Brisbane City Council's ongoing commitment to the enhancement of Brisbane's waterways, a flood study is currently being undertaken of the Brisbane River from Moreton Bay to the City boundary at Moggill.

The aims of the study are to :

- calculate design flood levels along the length of the river;
- develop a flood forecasting model;
- set flood regulation lines along the river; and
- develop a revegetation strategy.

What is revegetation?

Brisbane City Council wants to enhance the urban amenity and environmental value of the waterways within Brisbane by identifying areas along river and creek corridors which are suitable for revegetation with endemic native trees and shrubs.

Revegetation however, is limited by local ownership and flooding constraints. It may only occur where flood levels on private properties are not increased due to tree planting. It is anticipated that in the future, the Brisbane River may support a range of vegetation communities varying in type, form and density along the river banks, forming an ecological corridor. Significant areas at the top of the river bank may also be available for revegetation.

Why we need your help

Copies of this flyer will be distributed to environmental groups situated along the Brisbane River corridor. Due to the length of the Brisbane River, an A1 size plan of the study area has been provided to your Group Coordinator.

Community groups such as yours possess valuable knowledge about the river's history and areas which are of ecological significance. We want to collect any comments you may have about the Brisbane River so it can be managed effectively and areas suitable for revegetation investigated in the flood study. You can help by taking a few moments to complete the attached questionnaire and return it to:

Reply Paid Permit 11
Sinclair Knight Merz
PO Box 246
SPRING HILL QLD 4004

Please note that responses to the questionnaire will be confidential. You may distribute this questionnaire to any parties you feel may contribute to this study. The closing date for submissions is Friday 29 August, 1997. If you have any enquiries relating to the study or to information contained in this flyer, please contact Scott Abbey on phone (076) 398 400 or fax (076) 398 490.