Sewer & Water Interim Servicing Report to Support Rezoning Application

285-305 Pacific Highway, Lake Munmorah

Prepared for EDH Architects

Our Ref: 18158_v1.0

26th February 2019

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CONSULTING Cubo

ENGINEERING BUILDABLE SOLUTIONS

Document Information

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Document Control					
Version	**Date**	**Author**		**Reviewer**	
		Name	**Initials**	**Name**	**Initials**
1.0	26/02/19	Vince Cubis	VC	-	

1.1 Introduction

Cubo Consulting Pty Ltd has been engaged by EDH Architects to prepare a sewer and water servicing strategy to support the rezoning application for submission to Central Coast Council for the proposed residential subdivision and development at 285-305 Pacific Highway, Lake Munmorah. This report is an interim report to outline: -

- Current information provided by Council;
- Assessments required to undertake the servicing strategies; and
- Current understanding of upgrades which may be required.

1.2 Received Information

We have obtained an email from Council (Leon Dawes 18 Feb 2019) regarding the servicing of the property. The information provided is preliminary only and subject to a detailed servicing strategy assessment. The email refers to servicing as follows: -

> *"SEWER*
>
> *…an excerpt from our sewer DSP for proposed network assets to service growth as capacity constraints have been identified for servicing of Precinct 16 (North Lake Munmorah). A proposed DN300 (Line 4 MP12) has been identified to service catchments draining to the west. A more detailed capacity assessment would need to be undertaken once loads to the east and west trunk gravity mains have been determined. A capacity upgrade has also been identified for receiving SPS MP12 which is currently identified at year 2034 in the DSP.*
>
> *WATER*
>
> *We can advise that generally there is capacity within the water network to accept these demands, however the design of the reticulation network to service the development should consider security of supply and improved interconnectivity between the existing network. In addition, the DN100 reticulation mains in this area are of an AC material for which we have a replacement policy. Again, a more detailed capacity assessment would need to be undertaken through the development application process."*

Further to the email of 18 February 2019 we received an email dated 26 February 2019 regarding SPS MP12 and its details, copy attached.

1.3 SEWER PUMP STATION MP12

The sewage pump station MP12 based on the provided information has been assessed assuming the following: -

1. The existing pump duty rate is 90L/s at 38 m head
2. The additional number of lots in the rezoning area is approximately 280
3. The existing area currently serviced by the development may be of the order of 1050 lots or 2625 EP.
4. The PWWF for the increase of lots to the development may increase by 25%.

Based on the above figures

1. It is unlikely that the existing rising main will require upgrading.
2. The existing pumps appear to exceed PWWF times with numerous starts

3. At worst the pumps may require upgrading an impeller size to increase flows.
4. May need additional detention storage

1.4 Sewer Gravity Mains

An assessment of the gravity mains feeding the sewage pump station may require upgrading between the rezoning area and the SPS. Upgrades / Supplementary mains are included in the Sewerage Plan DSP 2014-2043, copy attached. Assessments of the existing capacities of the sewer against the staging of the development may indicate that upgrades may be undertaken in a progressive manner allowing the infrastructure upgrades to be undertaken in commercially acceptable processes. Access and private property access along the routes may require negotiation time.

1.5 Water Supply

Generally, there is capacity within the water network to accept the rezoning area. Further discussions with Leon Dawes regarding the servicing of the water supply reticulation may need to extent into the adjacent existing development areas to provide cross connections between areas to allow continuous servicing during main damage.

The water supply capacity will need to verified by modelling.

1.6 Conclusion

Based on the outcomes provided in this report, it is our view that water and sewer upgrades can be programmed progressively to adequately manage water and sewer infrastructure post-development and that water and sewer issues will not preclude the rezoning of the site to allow residential development.

A servicing strategy will be prepare to detail the sewer and water requirements for the rezoning.

Yours Faithfully,

Vince Cubis
Director

Vince Cubis

From: Leon Dawes <Leon.Dawes@centralcoast.nsw.gov.au>
Sent: Monday, 18 February 2019 2:57 PM
To: Vince Cubis; Mark Eastham EDH Group
Subject: RE: 285 - 305 Paciifi Highway Lake Munmorah
Attachments: 285 Pacific Highway Lake Munmorah.pdf; Figure 3 Sewerage Capital Works - Water and Sewerage DSP 2014.pdf

Hi Vince,

Apologies for the delay in getting back to yourself and Mark on this rezoning proposal (RU6 to R2) as there was some uncertainty on the level of detail to provide at this preliminary stage. I've attached a layout of the water and sewer retic in the area of interest. For developments of this size we would request that a developer servicing strategy for water and sewer be prepared. The preliminary advice that we can offer at this stage is as follows:

SEWER

I've attached an excerpt from our sewer DSP for proposed network assets to service growth as capacity constraints have been identified for servicing of Precinct 16 (North Lake Munmorah). A proposed DN300 (Line 4 MP12) has been identified to service catchments draining to the west. A more detailed capacity assessment would need to be undertaken once loads to the east and west trunk gravity mains have been determined. A capacity upgrade has also been identified for receiving SPS MP12 which is currently identified at year 2034 in the DSP.

WATER

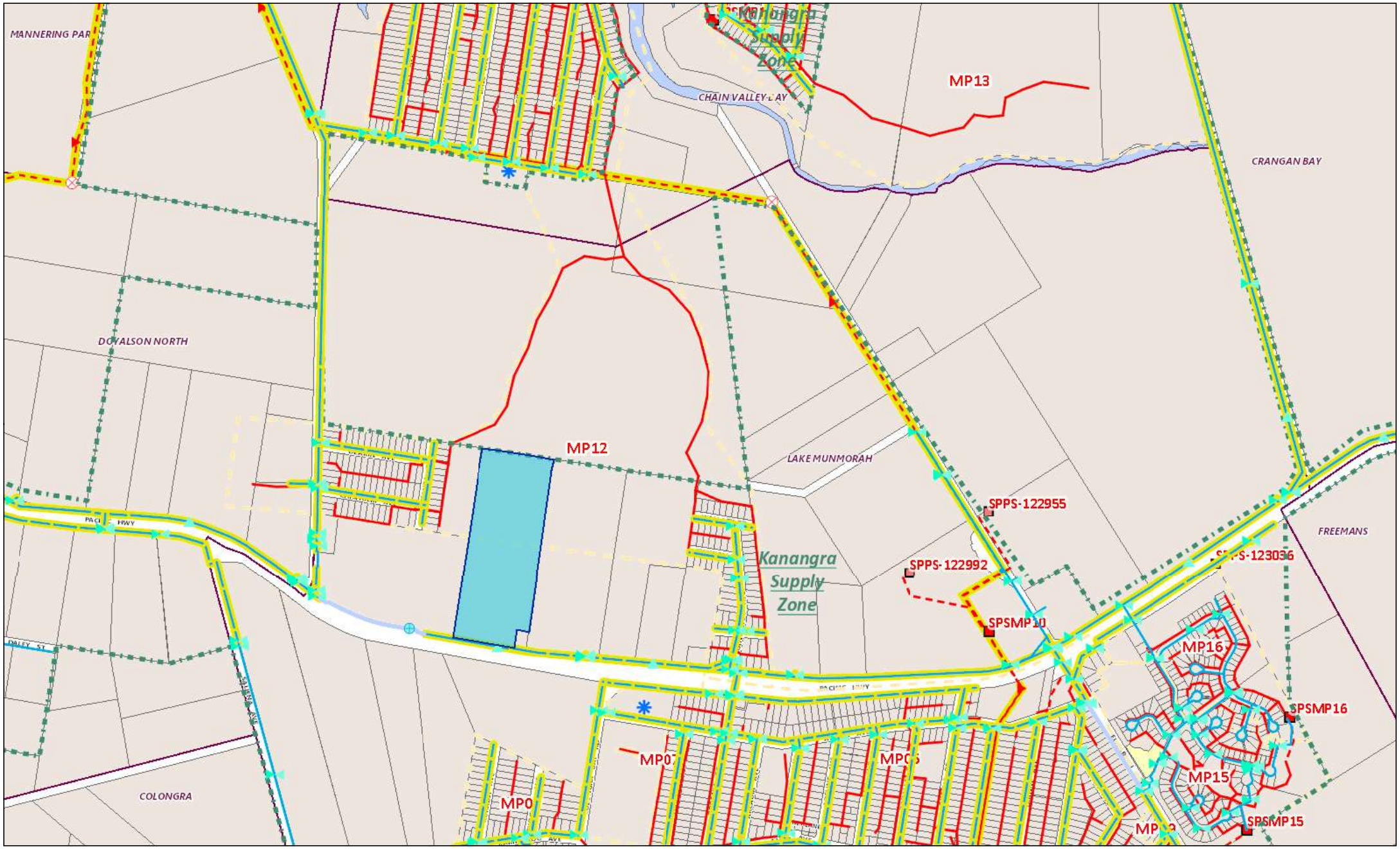
We can advise that generally there is capacity within the water network to accept these demands, however the design of the reticulation network to service the development should consider security of supply and improved interconnectivity between the existing network. In addition, the DN100 reticulation mains in this area are of an AC material for which we have a replacement policy. Again, a more detailed capacity assessment would need to be undertaken through the development application process.

While we can only provide some preliminary advice on water and sewer capacity at this stage, I'd encourage you to seek further advice through the development application process which would consider other development constraints on the land.

I hope this is sufficient advice to get you started but please give me a call if you wish to clarify or seek further information.

Regards

Leon Dawes
Section Manager Water Services and Design
Water Planning and Development
Central Coast Council
P.O. Box 20 Wyong, NSW 2259
t: 02 4350 5323
m: 0447 382 249
e: Leon.Dawes@centralcoast.nsw.gov.au



Central Coast Council ABN 73 149 644 003
DX 7306, PO Box 20, Wyong, NSW Australia 2259
Ph: (02) 43 50 5555 Fax: (02) 43 51 2098

Central Coast Council

MAP EXTRACT

Scale 1:8,461

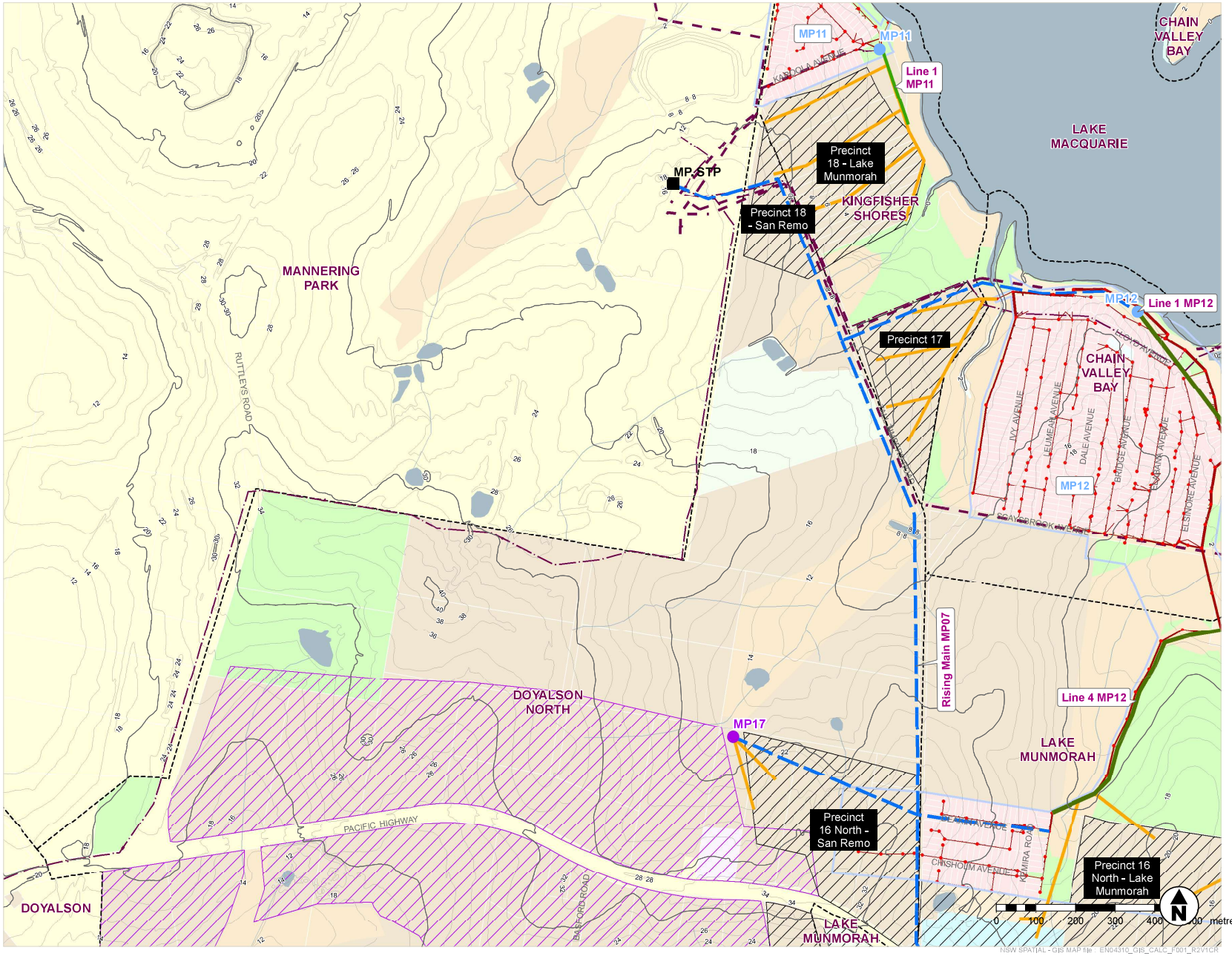
Note: Data is not survey accurate.
Scale is representation only.

Projection: Transverse Mercator
Projected Co-Ordinate System: GDA_1994_MGA_Zone56
Geographic Co-Ordinate System: GCS_GDA_1994

N
S

Disclaimer

Base Cadastre is part of the Digital Cadastral Database supplied by the NSW Land and Property Information (LPI), a division of the Department of Finance and Services. Any person whose legal rights may be affected, or intends to act on any cadastral information shown on this plan should verify such information by consulting the LPI before so acting.



Legend

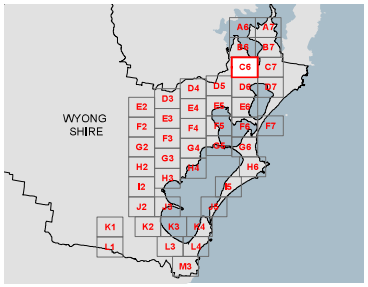
- Sewer connection point
- Sewage pumping station
- Sewage treatment plant
- Sewage pumping station catchment

Sewer system network

- <= DN150 mm
- DN160 - DN 225 mm
- >= DN300 mm
- Rising main
- Disused rising main
- Effluent transfer main
- Proposed sewage pumping station
- Proposed rising main
- Proposed sewer main DN>=300mm
- Proposed sewer main DN225 mm
- Proposed sewer main DN150 mm
- Natural drainage line
- 2m Contour
- Suburb boundary
- Development site
- Proposed employment area
- Other strategic site
- Strategically located site

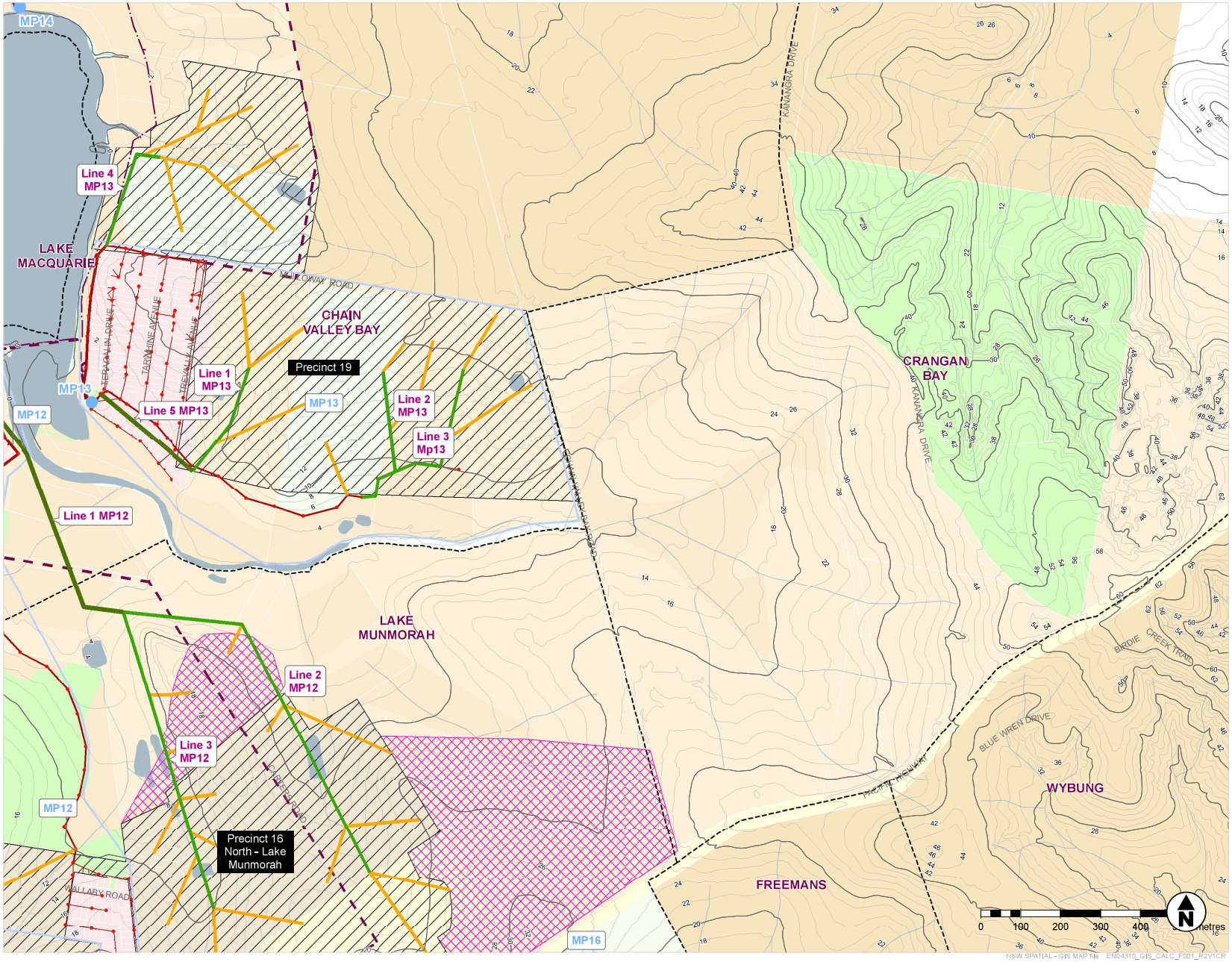
Local Environmental Plan 2013

- B1 Neighbourhood Centre
- B2 Local Centre
- E2 Environmental Conservation
- E3 Environmental Management
- IN2 Light Industrial
- R2 Low Density Residential
- RE1 Public Recreation
- RE2 Private Recreation
- RU6 Transition
- SP2 Infrastructure
- W1 Natural Waterways
- W2 Recreational Waterways



NSW SPATIAL - GIS MAP file : EN04310_GIS_CALC_F001_R2V1CR

TITLE: SEWERAGE PLAN DSP 2014 - 2043		CLIENT: WYONG SHIRE COUNCIL	
PROJECT: WYONG SHIRE SEWERAGE SYSTEM PLANNING		DRAWN: KO	PROJECT #: EN04310
SCALE: 1:10,000	A3	COORDINATE SYSTEM: GDA 1994 MGA Zone 56	SHEET: C6
CHECK: PB	DATE: 27/03/2014	MAP #: F001	REV: 2 1



NSW SPATIAL - GIS MAP file : EN04310_GIS_CALC_F001_R2V1CR

Legend

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Local Environmental Plan 2013

- E1 National Parks and Nature Reserves
- E2 Environmental Conservation
- E3 Environmental Management
- R2 Low Density Residential
- RE1 Public Recreation
- RE2 Private Recreation
- RU6 Transition
- SP2 Infrastructure
- W1 Natural Waterways
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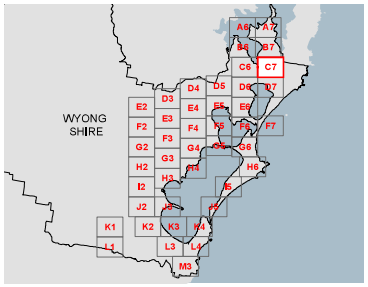


TITLE: SEWERAGE PLAN DSP 2014 - 2043		CLIENT: WYONG SHIRE COUNCIL	
PROJECT: WYONG SHIRE SEWERAGE SYSTEM PLANNING		DRAWN: KO	PROJECT #: EN04310
SCALE: 1:10,000 A3	COORDINATE SYSTEM: GDA 1994 MGA Zone 56	SHEET: C7	CHECK: PB
			DATE: 27/03/2014
			MAP #: F001
			REV VER: 2 1

Vince Cubis

From: Leon Dawes <Leon.Dawes@centralcoast.nsw.gov.au>
Sent: Tuesday, 26 February 2019 12:34 PM
To: Vince Cubis
Cc: Johnson Zhang; Luke Drury; Mark Eastham EDH Group
Subject: RE: 285 - 305 Paciifi Highway Lake Munmorah [Filed 26 Feb 2019 12:40]
Attachments: DataSharingAgreement_CentralCoastCouncil Third Party licence -New Template.doc; Flygt Catalogue Review - Mannering Pk SPS MP12.pdf; SPS MP12.pdf

Hi Vince,

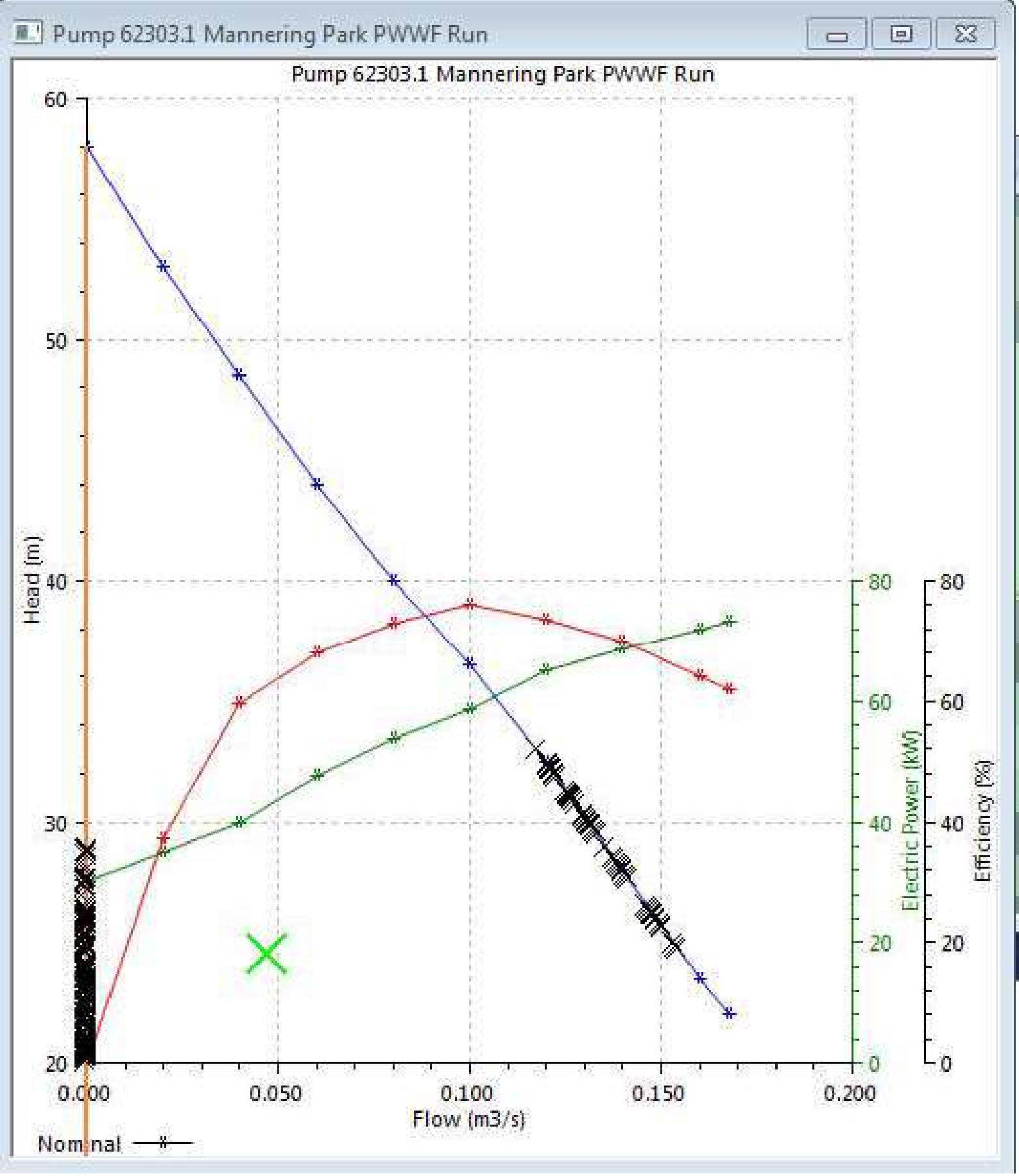
I was caught up in a meeting this morning, but regarding the additional info you were after from our phone conversation, I've included a data sharing agreement that I'd please ask you to sign and return. Once the agreement is signed, we can progress any requests for spatial information on our water and sewer network.

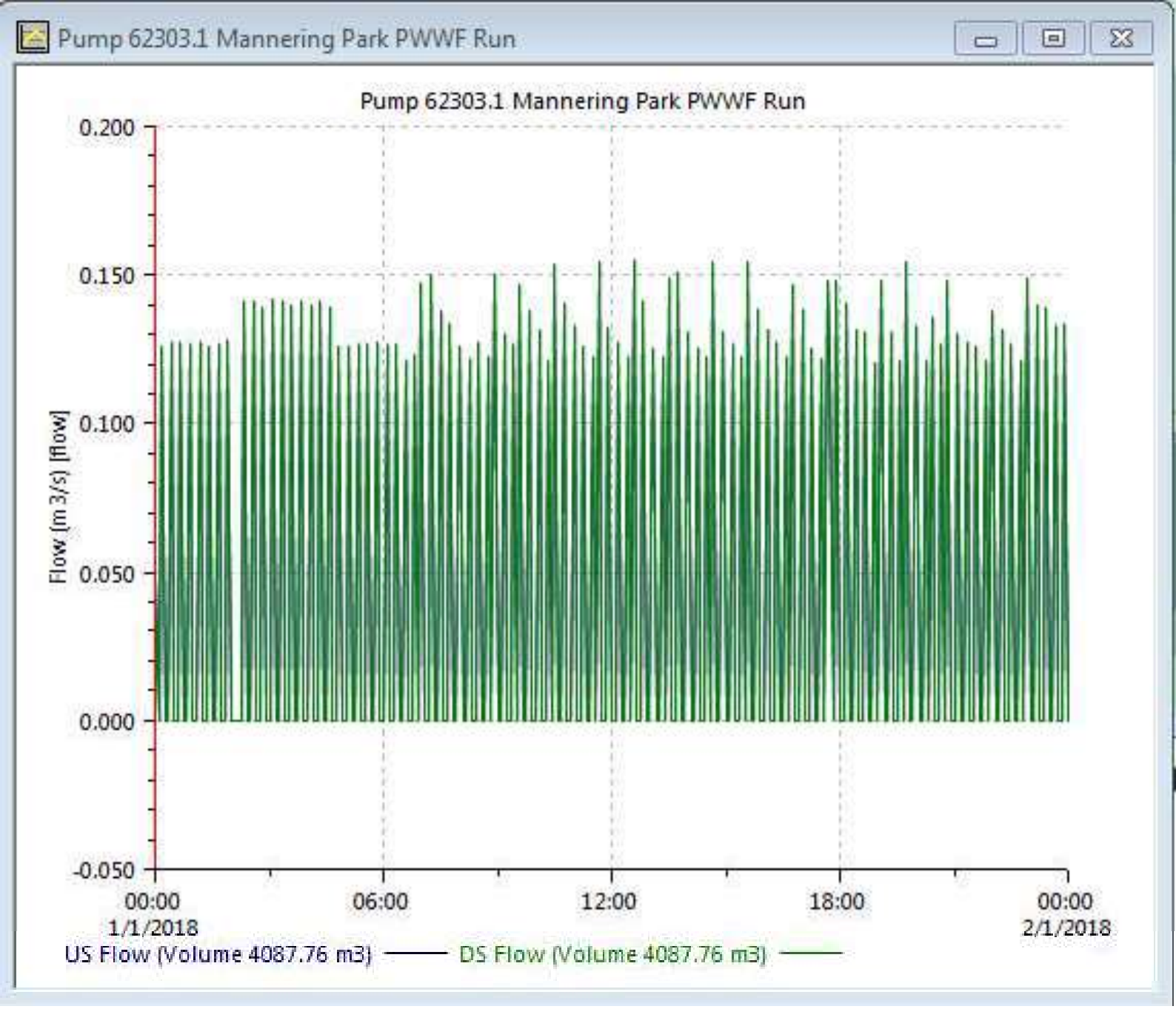
To assist you with gaining a better understanding of theoretical pump performance, I've attached WAE and pump curve on SPS MP12 based on our records. Your welcome to cross check these with the manufacturer. I've also included a few screenshots from our Infoworks ICM model for a theoretical PWWF simulation including pump operating points, flow and velocity through the DN300 rising main.

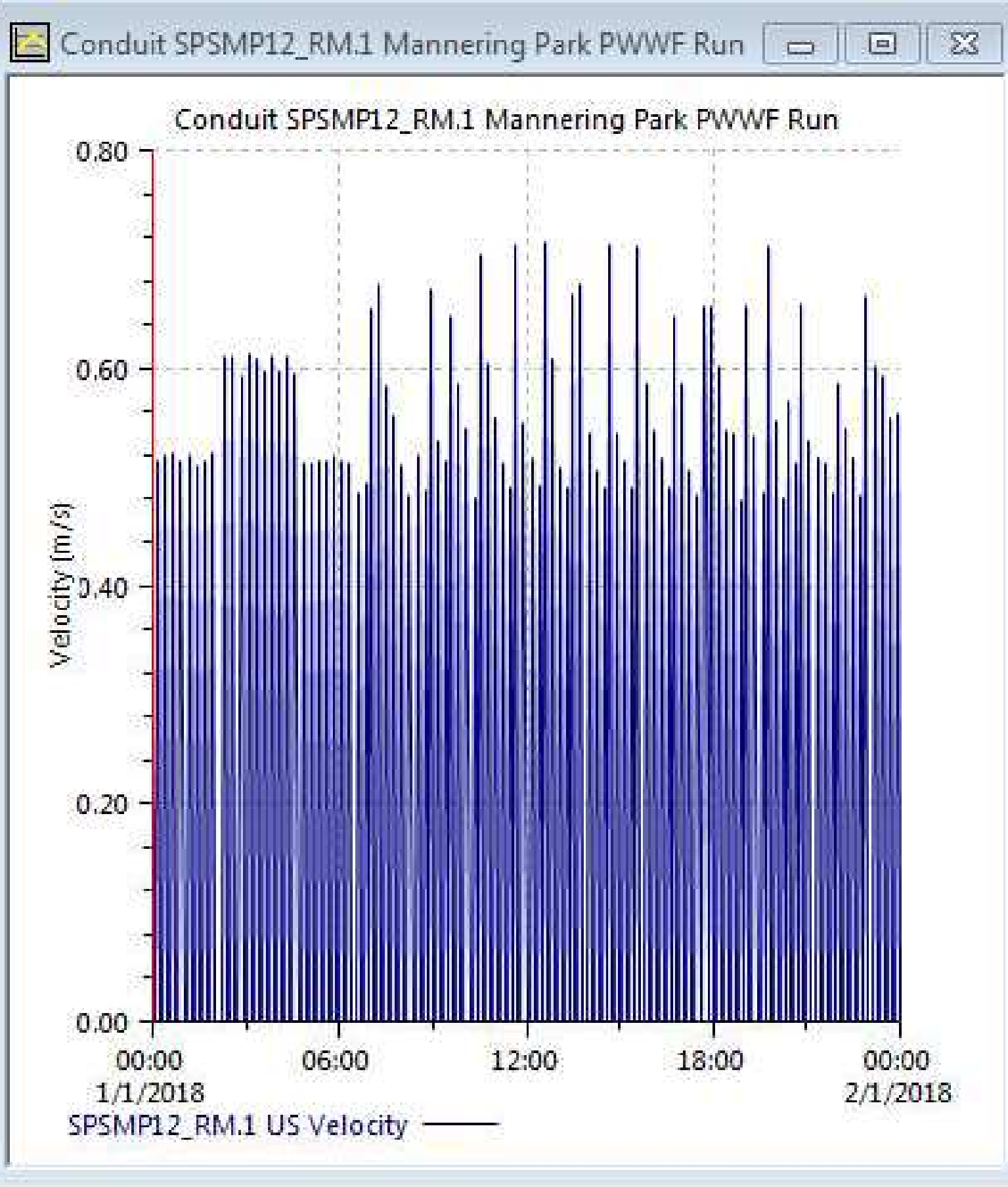
I hope this is of assistance.

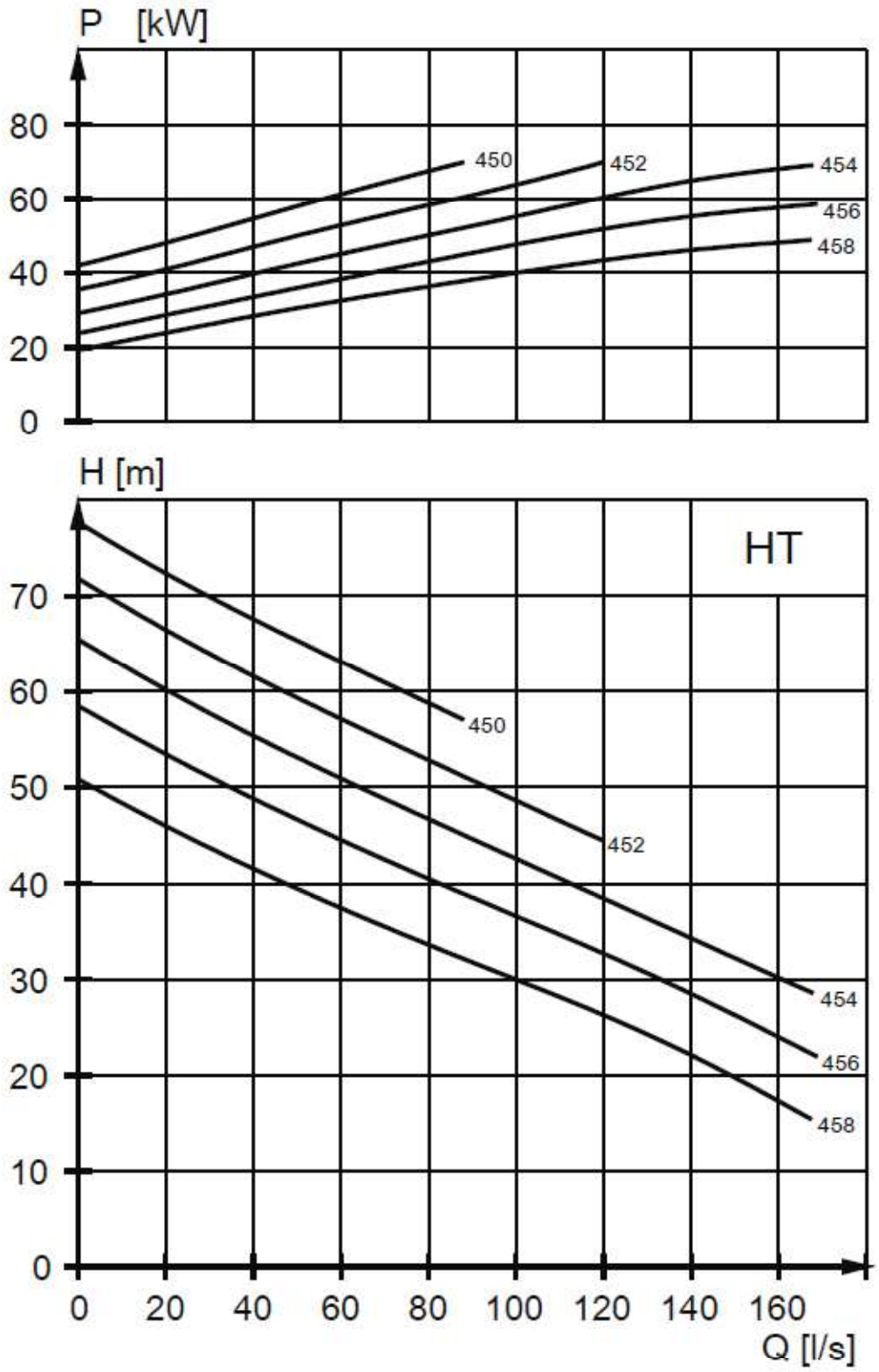
Regards

Leon


Pump 62303.1 Mannering Park PWWF Run
Pump 62303.1 Mannering Park PWWF Run
60
50
40
30
20
Head (m)
80
60
40
20
0
Electric Power (kW)
80
60
40
20
0
Efficiency (%)
0.000
0.050
0.100
0.150
0.200
Flow (m3/s)
Nominal

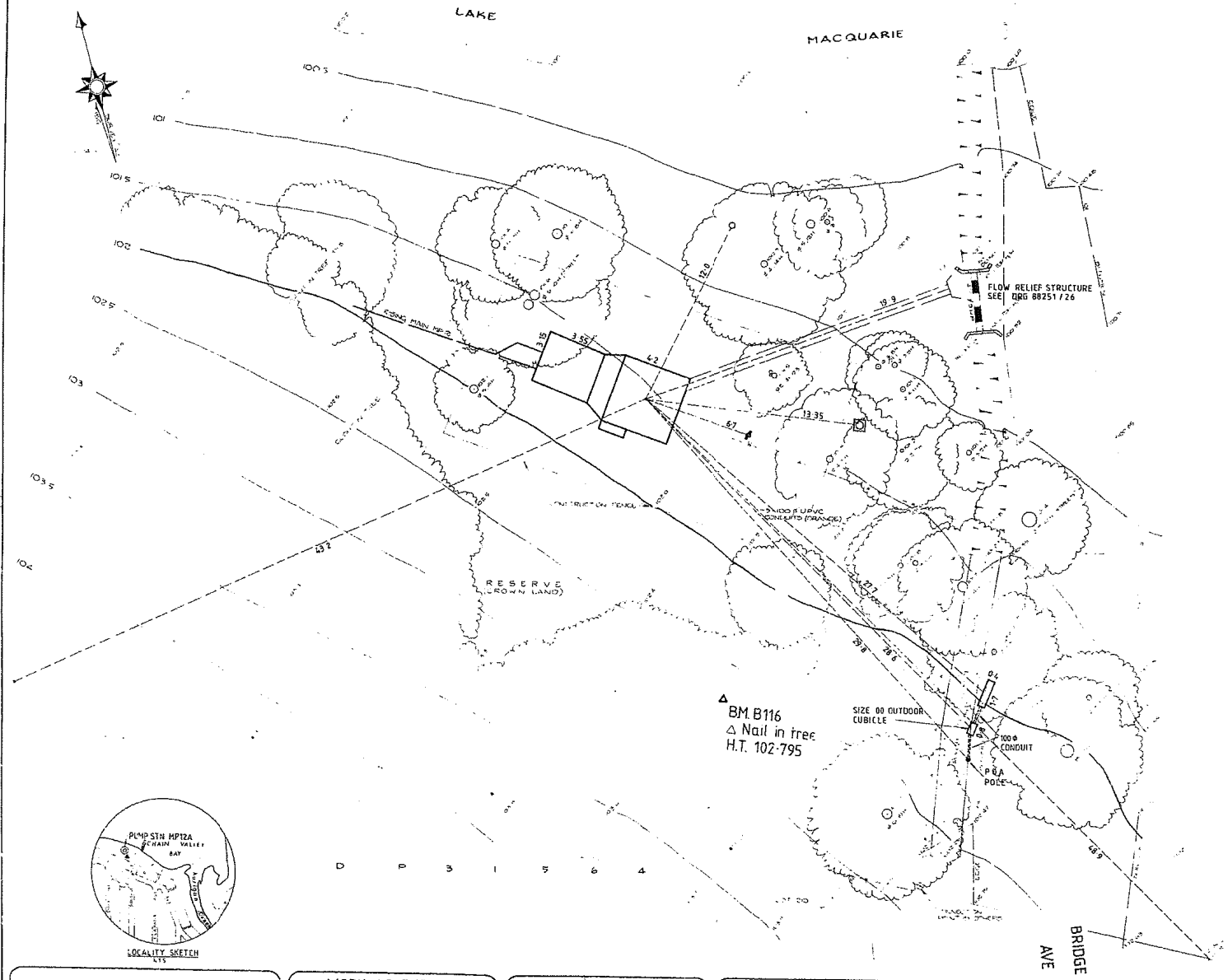

Pump 62303.1 Mannering Park PWWF Run
Pump 62303.1 Mannering Park PWWF Run
0.200
0.150
0.100
0.050
0.000
-0.050
Flow (m 3/s) [flow]
00:00
1/1/2018
06:00
12:00
18:00
00:00
2/1/2018
US Flow (Volume 4087.76 m3)
DS Flow (Volume 4087.76 m3)


Conduit SPSMP12_RM.1 Mannering Park PWWF Run
Conduit SPSMP12_RM.1 Mannering Park PWWF Run
0.80
0.60
0.40
0.20
0.00
Velocity (m/s)
00:00
1/1/2018
06:00
12:00
18:00
00:00
2/1/2018
SPSMP12_RM.1 US Velocity



(MP12) N P 3301 456HT 3 phase 4 poles 50hz Metric; 370mm Impellor, 55kW motor; 90L/s@38m

SHIRE OF WYONG
PARISH OF WALLARAH
COUNTY OF NORTHUMBERLAND



NOTES

1. SUBMERSIBLE SEWAGE PUMPING STATION 3800 mm NOMINAL INTERNAL DIAMETER CONSTRUCTED IN ACCORDANCE WITH DRAWING 88251/17
2. LADDER TO BE LOCATED UNDER ACCESS LEAF BETWEEN DARK COLOUR ON STRUCTURE AND THE WET WELL & PART IN ACCORDANCE WITH DRAWING NOT USED
3. HEIGHTS AS UNDER REFER TO LEVELS ON DRAWING

LEVEL	m
A	101·72
B	101·72
C	98·503
D	97·34
E	93·75
S	101·52
PL 300	101·10

4. SWITCHGEAR TYPE 2 TO BE MOUNTED ON A CONCRETE PLINTH AS PER DRGS 80311 SHEETS 20A & 30A
5. ELECTRICAL MAINS SUPPLY TO BE BY OVERHEAD LINE AND UNDERGROUND CONDUITS FROM THE COUNTY COUNCIL'S SUPPLY POINT
6. CONDUIT NUMBER AND SIZES

CONSUMER MAINS	PUMPS	LEVEL REGULATOR	TELEMETERING
1 × 80	2 × 100	1 × 100	1 × 80
LEFT ENTRY	TO PUMP WELL		RIGHT ENTRY

7. PUMPING STATION ETS
   EARLY — 4·2
   ULTIMATE — 33·8
   DEP PWWF l/s — 290 l/s
8. INLET ON MANHOLE INVERT RL 96·10

GOSFORD / WYONG REGION DATUM

ORIGIN OF HEIGHTS: BM ON TREE AT NORTH-EAST CORNER OF INTERSECTION OF TALL TIMBER RD AND JOSEPH BROOK AVE HT 128·142

SCALE 1:100 0 2 4 6 8 10m

LOCALITY SKETCH
PUMP STN MP12A
CHAIN VALLEY BAY

WORK AS EXECUTED
"This original drawing has been carefully compared with the work as carried out and has been amended where necessary, so that it is now a true representation of the actual work as regards dimensions, levels, layout, materials."
Signed ____ Date ____
Resident Engineer P.W.D

DETAILS OF AMENDMENT | APPROVED | DATE

DESIGNED
DRAWN H. GARNEY
TRACED H. GARNEY
EXAMINED
SURVEYED
PROJECT No. & TITLE
QUANTITIES CHECKED
SUBMITTED BY (SIGNED)
RECOMMENDED FOR APPROVAL

PUBLIC WORKS
B.D.Christie
Director of Public Works
M.P. CLARKE
Chief Engineer
WYONG SHIRE COUNCIL

WYONG SHIRE SEWERAGE
PUMPING STATION MP12
DETAIL AND CONTOUR PLAN
CHAIN VALLEY BAY AREA 12A

FILE 6066/22/180
DRAWING 88251/16X

9770 - 4

PLAN ROOM CAT.No.

WYONG SHIRE SEWERAGE

RISING MAIN MP 12

INDEX & LOCALITY PLAN

SCHEDULE

FITTING No.	MAP No.	CHAINAGE	A.V.	SCOUP	VALVE PIT	DESCRIPTION
1	9770-1	402.45		1		REFER TO PLAN 9770/1
2	9770-1	747.20	1			REFER TO PLAN 9770/1
3	9770-2	841.50		1		TAIT TIMBERS ROAD REFER TO PLAN 9770/2
4	9770-2	1430.10			1	MP11 - MP12 CONNECTION REFER TO PLAN 9770/2

-5	-6	-4
-8	4527-9	9427-7
-2	4528-3	9428-1

GWANDALAN

MANNERING PARK

PARK

CHAIN VALLEY BAY

BM ED
S. on H. wall
Jt. MZ 307

BM B/123
Jr. Pole
HT 106 834

BM 119/MA
Rail or Pole
HT 106 263

BM B/121
On Tree
HT 107 518

P.S. MP 11

BM B/122
On Tree
HT. 101 159

VALVE PIT
CH 1430 A/ RISING MAIN MP11
SEE DWG 88251/2&3

INLET CHAMBER

MANNERING PARK
TREATMENT WORKS

SCOUR
CH 402.45

SCOUR
CH 841.50

RISING MAIN MP12
SEE DWG 88251/2&3

AIR VALVE
CH 747.20

PM 21113
HT 101 465

BM B/116
On Tree
HT. 102 795

P.S. MP 12

PM 21112
HT 107 175

BM B/114
On Pole
HT. 106 215

BM B/112
On Pole
HT 113 154

BM B/116
On Pole
HT. 111 202

PM 21106
Fd in Bitumen
HT 107 795

BM B/115
On Conc
HT. 116 901

PM 21107
Fd NE cnr int.
HT. 114 388

PM 21108
Fd at int.
HT 109-007

PM 21109
Fd at int.
HT. 102 164

PM 21105
HT. 109-132

BM
On Tree
HT 108-942
(ORIGIN)

LEGEND

- SEPP 14 - COASTAL WETLANDS
- OTHER WETLANDS
- EXTENT OF BUFFER AREAS

GOSFORD/WYONG REGION DATUM

ORIGIN OF LEVELS: BM on tree fd north corner of int of Tait Timbers Rd and Scaysbrook Ave. HT. 108 942

SURVEYED BY: MP 11 - M.Glossop
MP 12A - M.Glossop, Trethy & Ingold

DATE OF SURVEY: October 1988

PLOTTED FROM: Shadia Folder G 193 & G 202

1:4000 0 80 160 240 320 400m
80 40

CAUTION
THIS PLAN HAS BEEN PREPARED AT A SCALE OF 1:4000 FOR THE PURPOSE OF M.A.X.
AND MAY NOT BE SATISFACTORY FOR OTHER PURPOSES.
THE ACCURACY OF ANY ENLARGEMENT OR OTHER REPRODUCTION MAY BE LESS THAN THAT OF THE ORIGINAL.

No.	DETAILS OF AMENDMENTS	APPROVED	DATE

WORK AS EXECUTED

"This original drawing has been carefully compared with the work as carried out and has been amended where necessary, so that it is now a true representation of the actual work as regards dimensions, levels, layouts & materials."

Signed _____
Resident Engineer P.W.D

DRAWN		SURVEYOR
TRACED		PROJECT SURVEYOR
EXAMINED		PROJECT MANAGER GOSFORD/WYONG

PUBLIC WORKS

R.D.C.Leistle
Director of Public Works
N.N. CLARKE
Chief Engineer

WYONG SHIRE COUNCIL

WYONG SHIRE SEWERAGE

COMPILATION PLAN

CHAIN VALLEY BAY AREA: MP11, MP12A

FILE

DRAWING NO.
88251/1X

9770/0

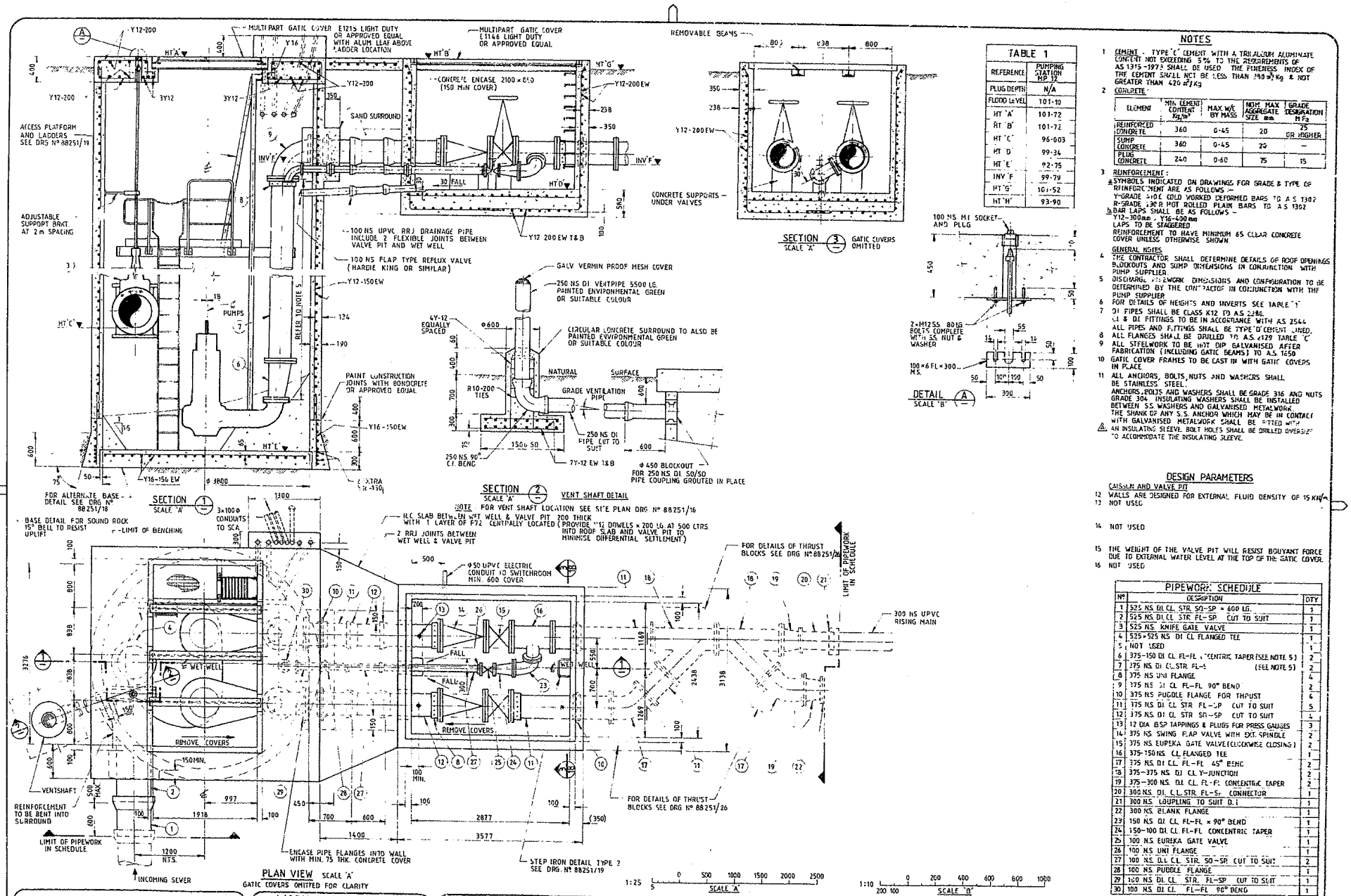


TABLE 1	
REFERENCE	PUMPING STATION MP 12
PLUG DEPTH	N/A
FLOOD LEVEL	101-10
HT 'A'	101-72
HT 'B'	101-72
HT 'C'	96-003
HT 'D'	99-34
HT 'E'	92-75
INV 'F'	99-79
HT 'G'	101-52
HT 'H'	93-90

NOTES

1 CEMENT - TYPE 'C' CEMENT WITH A TRIALCIUM ALUMINATE CONTENT NOT EXCEEDING 5% TO THE REQUIREMENTS OF AS 1315-1973 SHALL BE USED. THE FINENESS INDEX OF THE CEMENT SHALL NOT BE LESS THAN 280 m^2/Kg & NOT GREATER THAN 420 m^2/Kg

2 CONCRETE -

ELEMENT	MIN CEMENT CONTENT Kg/m^3	MAX W/C BY MASS	NOM MAX AGGREGATE SIZE mm	GRADE DESIGNATION MPa
REINFORCED CONCRETE	360	0·45	20	25 OR HIGHER
SUMP CONCRETE	360	0·45	20	–
PLUG CONCRETE	240	0·60	75	15

3 REINFORCEMENT -
a SYMBOLS INDICATED ON DRAWINGS FOR GRADE & TYPE OF REINFORCEMENT ARE AS FOLLOWS –
Y-GRADE 410C COLD WORKED DEFORMED BARS TO A.S 1302
R-GRADE 230 B HOT ROLLED PLAIN BARS TO A.S 1302
b BAR LAPS SHALL BE AS FOLLOWS –
Y12-300mm c/c, Y16-400 mm
LAPS TO BE STAGGERED
REINFORCEMENT TO HAVE MINIMUM 65 CLEAR CONCRETE COVER UNLESS OTHERWISE SHOWN.

GENERAL NOTES

4 THE CONTRACTOR SHALL DETERMINE DETAILS OF ROOF OPENINGS BLOCKOUTS AND SUMP DIMENSIONS IN CONJUNCTION WITH PUMP SUPPLIER
5 DISCHARGE PIPEWORK DIMENSIONS AND CONFIGURATION TO BE DETERMINED BY THE CONTRACTOR IN CONJUNCTION WITH THE PUMP SUPPLIER
6 FOR DETAILS OF HEIGHTS AND INVERTS SEE TABLE '1'
7 DI PIPES SHALL BE CLASS K12 TO A.S 2280.
CI & DI FITTINGS TO BE IN ACCORDANCE WITH AS 2544
ALL PIPES AND FITTINGS SHALL BE TYPE 'D' CEMENT LINED.
8 ALL FLANGES SHALL BE DRILLED TO A.S 4129 TABLE 'E'
9 ALL STEELWORK TO BE HOT DIP GALVANISED AFTER FABRICATION (INCLUDING GATIC BEAMS) TO A.S 1650
10 GATIC COVER FRAMES TO BE CAST IN WITH GATIC COVERS IN PLACE
11 ALL ANCHORS, BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL.
ANCHORS, BOLTS AND WASHERS SHALL BE GRADE 316 AND NUTS GRADE 304. INSULATING WASHERS SHALL BE INSTALLED BETWEEN S.S. WASHERS AND GALVANISED METALWORK. THE SHANK OF ANY S.S. ANCHOR WHICH MAY BE IN CONTACT WITH GALVANISED METALWORK SHALL BE FITTED WITH AN INSULATING SLEEVE. BOLT HOLES SHALL BE DRILLED OVERSIZE TO ACCOMMODATE THE INSULATING SLEEVE.

DESIGN PARAMETERS

CAISSON AND VALVE PIT
12 WALLS ARE DESIGNED FOR EXTERNAL FLUID DENSITY OF 15 kN/m^3
13 NOT USED
14 NOT USED
15 THE WEIGHT OF THE VALVE PIT WILL RESIST BOUYANT FORCE DUE TO EXTERNAL WATER LEVEL AT THE TOP OF THE GATIC COVER.
16 NOT USED

PIPEWORK SCHEDULE

N°	DESCRIPTION	QTY
1	525 NS DI CL STR SO-SP x 600 LG.	1
2	525 NS DI CL STR FL-SP CUT TO SUIT	1
3	525 NS KNIFE GATE VALVE	1
4	525 x 525 NS DI CL FLANGED TEE	1
5	NOT USED	
6	375-150 DI CL FL-FL CONCENTRIC TAPER (SEE NOTE 5)	2
7	375 NS DI CL STR FL-S (SEE NOTE 5)	2
8	375 NS UNI FLANGE	4
9	375 NS DI CL FL-FL 90° BEND	2
10	375 NS PUDDLE FLANGE FOR THRUST	6
11	375 NS DI CL STR FL-SP CUT TO SUIT	5
12	375 NS DI CL STR SO-SP CUT TO SUIT	4
13	12 DIA BSP TAPPINGS & PLUGS FOR PRESS GAUGES	3
14	375 NS SWING FLAP VALVE WITH EXT. SPINDLE	2
15	375 NS EUREKA GATE VALVE (CLOCKWISE CLOSING)	2
16	375-150 NS CL FLANGED TEE	1
17	375 NS DI CL FL-FL 45° BEND	2
18	375-375 NS DI CL Y-JUNCTION	2
19	375-300 NS DI CL FL-FL CONCENTRIC TAPER	2
20	300 NS DI CL STR FL-S CONNECTOR	1
21	300 NS COUPLING TO SUIT D.I	1
22	300 NS BLANK FLANGE	1
23	150 NS DI CL FL-FL x 90° BEND	1
24	150-100 DI CL FL-FL CONCENTRIC TAPER	1
25	100 NS EUREKA GATE VALVE	1
26	100 NS UNI FLANGE	1
27	100 NS DI CL STR SO-SP CUT TO SUIT	2
28	100 NS PUDDLE FLANGE	1
29	100 NS DI CL STR FL-SP CUT TO SUIT	1
30	100 NS DI CL FL-FL 90° BEND	1

A NOTE 11 AMENDED — WE — APPROVED — DATE 13.12.89

WORK AS EXECUTED
"This original drawing has been carefully compared with the work as carried out and has been amended where necessary, so that it is now a true representation of the actual work as regards dimensions, levels, layout & materials."
Signed ..... Resident Engineer P.W.D

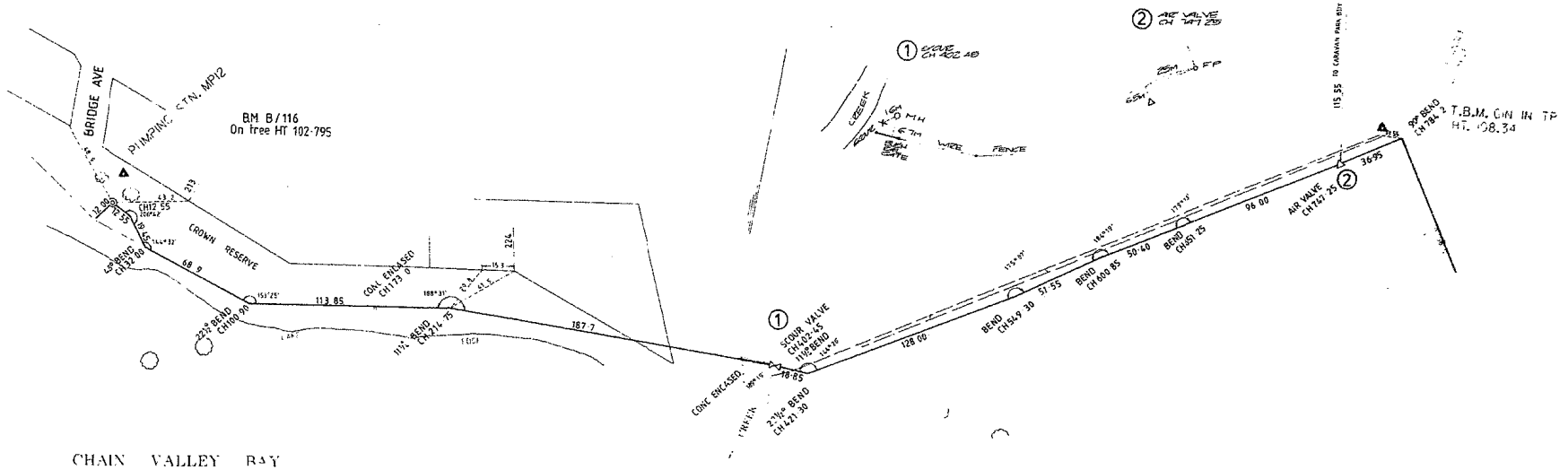
DESIGNED — DRAWN — TRACED — CHECKED — SUPERVISED — GRD / WYONG

PUBLIC WORKS
R.D.Christie Director of Public Works
M.N.Clarke Chief Engineer
WYONG SHIRE COUNCIL

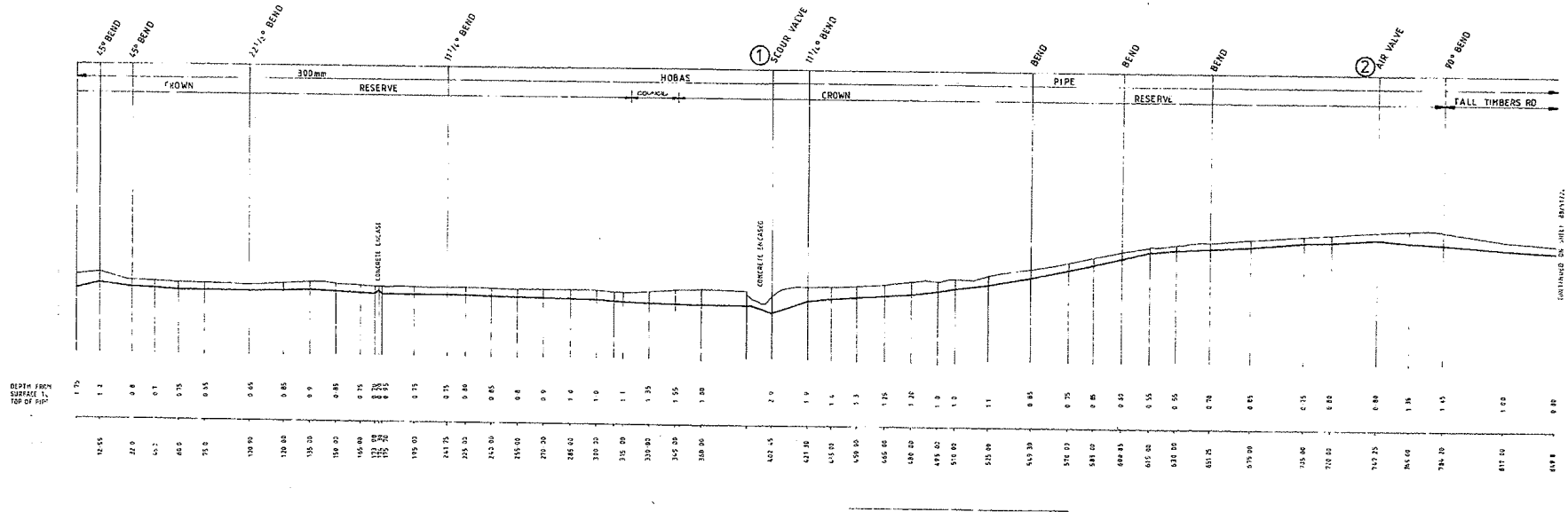
WYONG SHIRE SEWERAGE
PUMPING STATION MP 12
GENERAL ARRGT. & DETAILS
CHAIN VALLEY BAY — AREA MP12A

FILE 6066/22/180
DRAWING 88251/11 X

9770-5



CHAIN VALLEY BAY



GOSFORD-WYONG REGION DATUM

WORK AS EXECUTED

"This original drawing has been carefully compared with the work as carried out and has been amended where necessary, so that it is now a true representation of the actual work as regards dimensions, levels, layout & materials."

Signed ..... HEAD

Assistant Engineer P.W.D

88251/1

PUBLIC WORKS

R.D.Chrisanne
Director of Public Works
M.N.Clarke
Chief Engineer

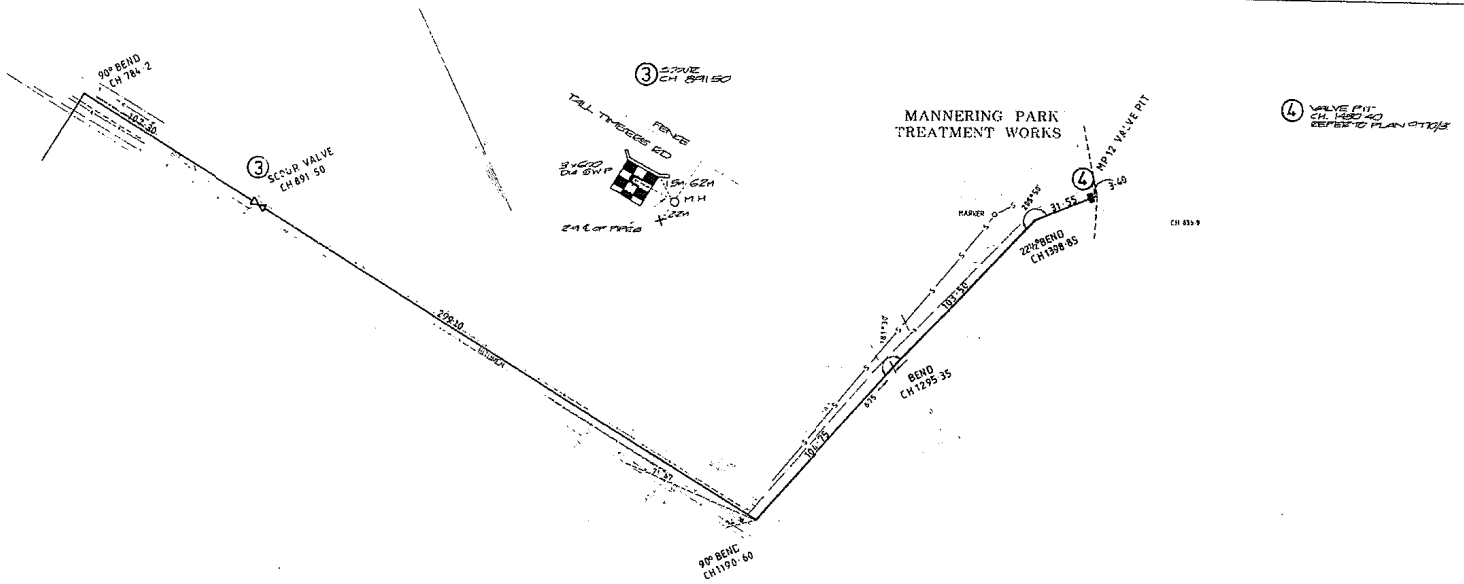
WYONG SHIRE COUNCIL

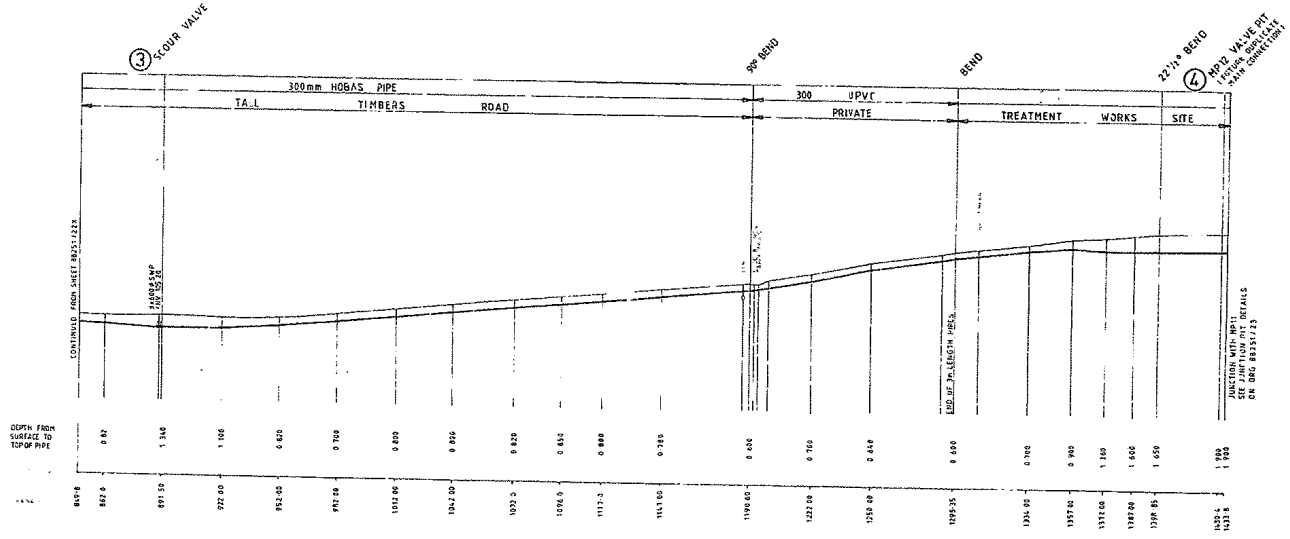
WYONG SHIRE SEWERAGE
RISING MAIN MP 12
ROUTE PLAN AND LONGITUDINAL SECTION
CH. 00 TO CH. 849·8
CHAIN VALLEY BAY

6066/22/180

88251 / 21X

9770-1





GOSFORD-WYONG REGION DATUM

WORK AS EXECUTED

"This original drawing has been carefully compared with the work as carried out and has been amended where necessary, so that it is now a true representation of the actual work as regards dimensions, levels, layout & materials."

Signed _____
Resident Engineer P.W.D

88251/1

PUBLIC WORKS

R.D.Christie
Director of Public Works
M.N.Clarke
Chief Engineer

WYONG SHIRE COUNCIL

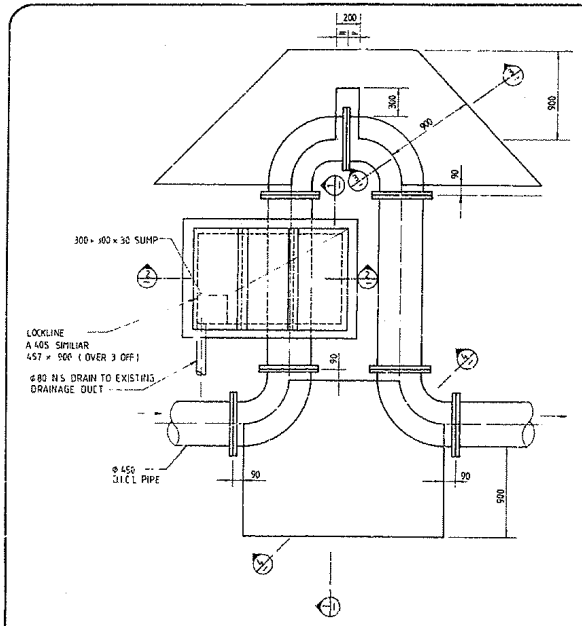
WYONG SHIRE SEWERAGE
RISING MAIN MP 12
ROUTE PLAN & LONGITUDINAL SECTION
CH849·8 TO CH1434·9
CHAIN VALLEY BAY

6066 / 2 / 180

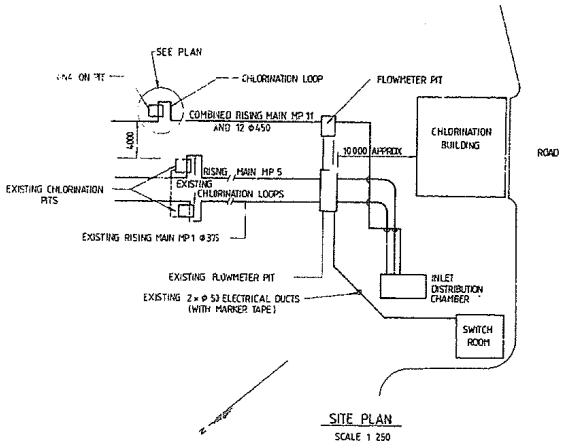
88251/22X

8905-2

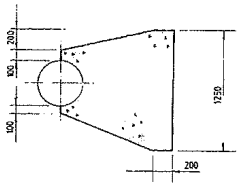
9770-2



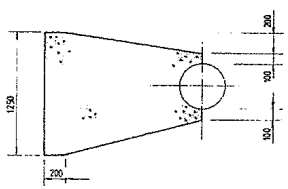
PLAN



SITE PLAN
SCALE 1 250



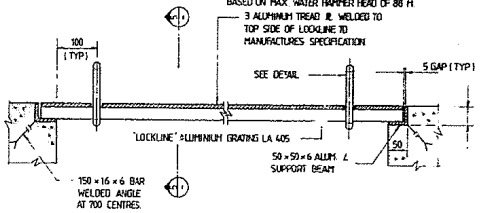
SECTION 3



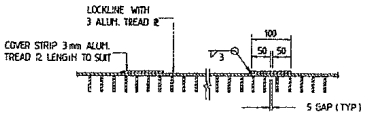
SECTION 4

NOTES

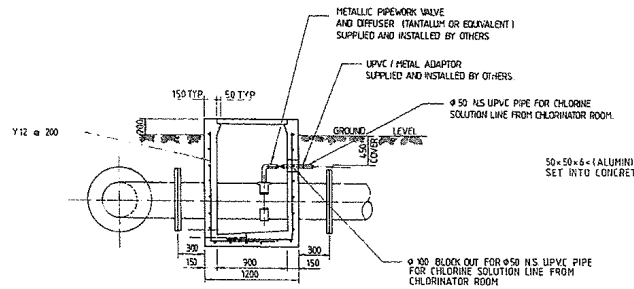
1. ALL DIMENSIONS IN MILLIMETRES.
2. ALL ALUMINIUM COVERS AND SUPPORT BEAMS WILL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR
3. CONCRETE:
   a) CEMENT WILL BE TYPE C OR D
   b) CONCRETE WILL BE GRADE 25.
   c) MAXIMUM AGGREGATE SIZE WILL BE 20 mm.
   d) SLUMP SHALL NOT EXCEED 50 mm.
   e) COVER TO REINFORCEMENT SHALL BE 65 mm UNLESS OTHERWISE SPECIFIED.
   f) INTERNAL AND EXPOSED EXTERNAL SURFACES SHALL BE FINISHED TO F3 STANDARD.
4. THE TOP OF EXTERNAL WALLS SHALL BE PROVIDED WITH 15 mm x 15mm ARISES.
5. ALL PVC PIPE SHALL BE LAID IN A TRENCH AND BEDDED / SURROUNDED IN SAND.
6. THE EXACT LOCATION OF THE PIT AND UPVC PIPE WILL BE ADVISED BY THE SUPERINTENDENT.
7. STEPIRONS TO BE FORMED FROM Φ 24mm DEFORMED BAR GRADE 2305 TO A.S. 1302.
8. STEPIRONS TO BE HOT DIPPED GALVANISED TO A.S. 1650 AFTER FORMING.
9. DIMENSIONS MARKED WITH * MAY BE SLIGHTLY ALTERED DURING CONSTRUCTION. FINAL DIMENSIONS TO BE CONFIRMED BY SUPERINTENDENT.
10. THRUST BLOCK DESIGN BASED ON SOIL BEARING CAPACITY OF 50 KPA. INCREASE SIZE OF THRUST BLOCK IN POORER MATERIAL. MAX. THRUST BASED ON MAX. WATER HAMMER HEAD OF 88 M.



CHLORINATION DOSING PIT COVER
CROSS SECTION
SCALE 1:5

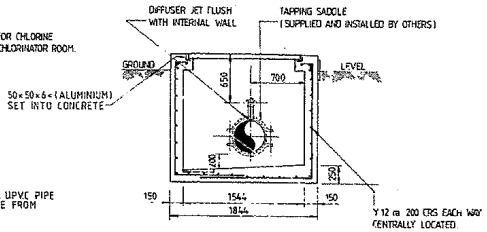


SECTION 5
SCALE 1:5



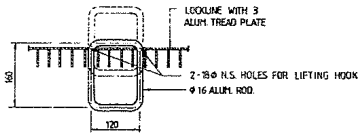
NOTE THRUST BLOCKS NOT SHOWN FOR CLARITY

SECTION 1



SECTION 2

CHLORINATION DOSING PIT DETAILS
SCALE 1:250



LIFTING HOOK DETAIL
SCALE 1:5

NO.	DETAILS OF AMENDMENTS	APPROVED	DATE

WORK AS EXECUTED
"This original drawing has been carefully compared with the work as carried out and has been amended where necessary, so that it is now a true representation of the actual work as regards dimensions, levels, layout and materials."
Signed ..... Resident Engineer P.W.D

DESIGNED R.D.Christie
DRAWN
CHECKED

Signature ..... DIVISIONAL ENGINEER
Signature ..... PROJECT MANAGER (WATER&SEWERAGE)

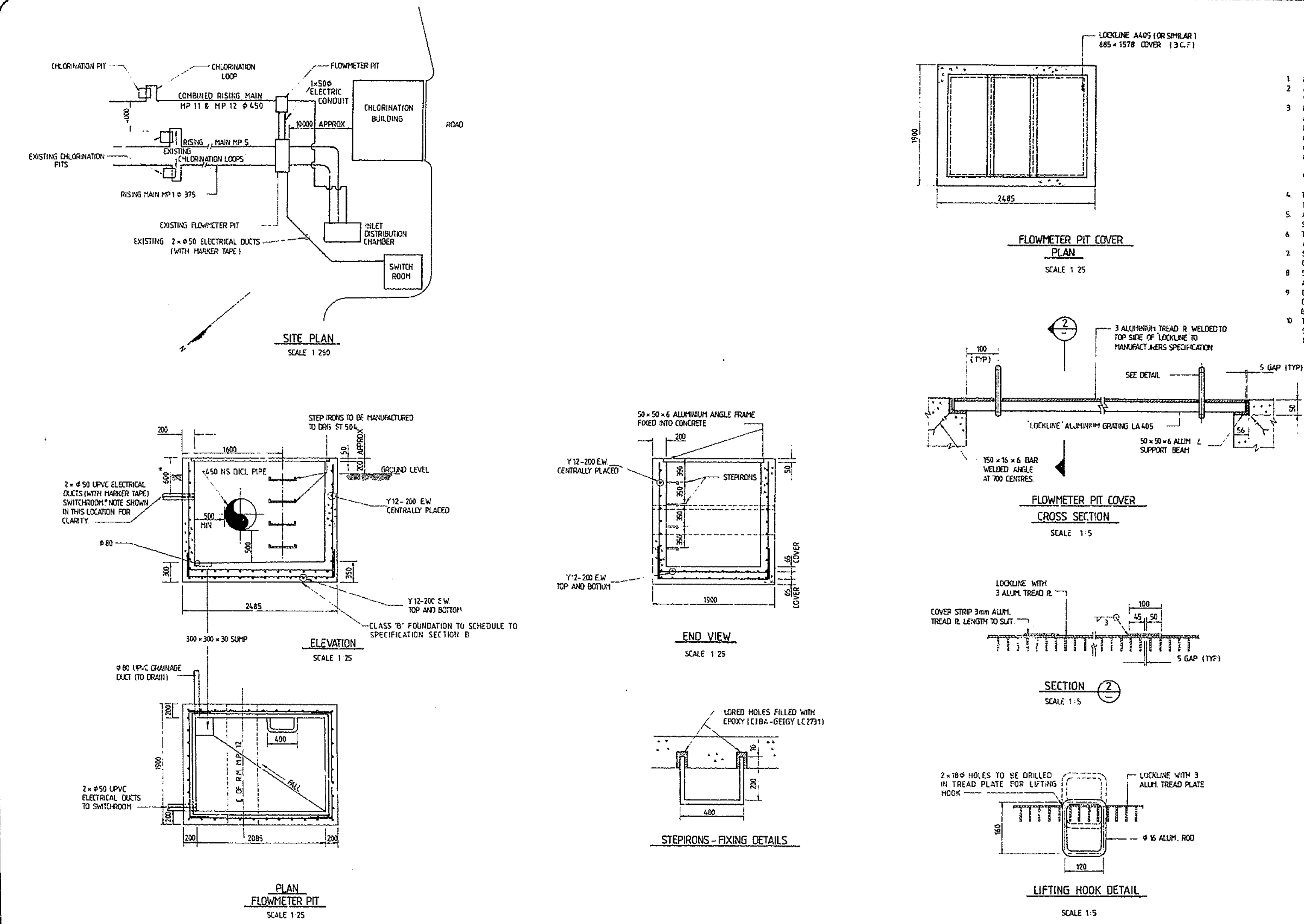
PUBLIC WORKS

R.D.Christie
Director of Public Works
M.N.Clarke
Chief Engineer

WYONG SHIRE SEWERAGE
MANNERING PARK TREATMENT WORKS
CHLORINATION FACILITY FOR
COMBINED RISING MAINS MP 11 & MP 12.

FILE 6066/22/180
DRAWING 88251/24X

9770-9



NOTES

1. ALL DIMENSIONS IN MILLIMETRES.
2. ALL ALUMINIUM COVERS AND SUPPORT BEAMS WILL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR
3. CONCRETE.
   a) CEMENT WILL BE TYPE A
   b) CONCRETE WILL BE GRADE 25
   c) MAXIMUM AGGREGATE SIZE WILL BE 20 mm
   d) SLUMP SHALL NOT EXCEED 50 mm
   e) COVER TO REINFORCEMENT SHALL BE 65 mm UNLESS OTHERWISE SPECIFIED.
   f) INTERNAL AND EXPOSED EXTERNAL SURFACES SHALL BE FINISHED TO F3 STANDARD
4. THE TOP OF EXTERNAL WALLS SHALL BE PROVIDED WITH 15 mm × 15 mm ARISES.
5. ALL PVC PIPE SHALL BE LAID IN A TRENCH AND BEDDED / SURROUNDED IN SAND
6. THE EXACT LOCATION OF THE PIT AND UPVC PIPE WILL BE ADVISED BY THE SUPERINTENDENT
7. STEPIRONS TO BE FORMED FROM φ 24 mm DEFORMED BAR GRADE Z305 TO AS 1302
8. STEPIRONS TO BE HOT DIPPED GALVANISED TO AS 1650 AFTER FORMING.
9. DIMENSIONS MARKED WITH * MAY BE SLIGHTLY ALTERED DURING CONSTRUCTION. FINAL DIMENSIONS TO BE CONFIRMED BY SUPERINTENDENT.
10. THRUST BLOCK DESIGN BASED ON SOIL BEARING CAPACITY OF 50 KPA INCREASE SIZE OF THRUST BLOCK IN POORER MATERIAL. MAX. THRUST BASED ON MAX. WATER HAMMER HEAD OF 95 M

MK	DETAILS OF AMENDMENTS	APPROVED	DATE

WORK AS EXECUTED
This original drawing has been carefully compared with the work as carried out and has been amended where necessary, so that it is now a true representation of the actual work as regards dimensions, levels, layout & materials.
Signed [signature] 1/4/91
Resident Engineer P.W.D.

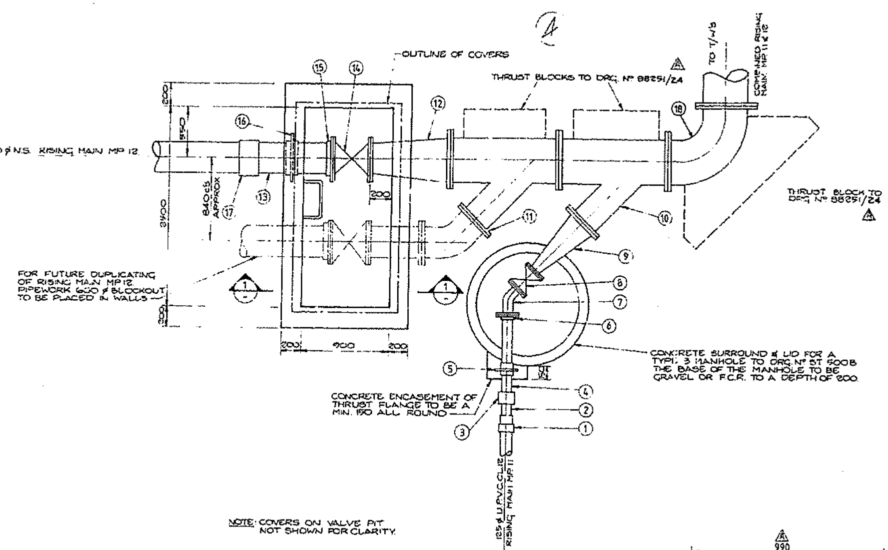
DESIGNED
DRAWN
CHECKED 16.1.89
Signature SUPERVISING ENGINEER
Signature PROJECT MANAGER

PUBLIC WORKS
R.D. Christie Director of Public Works
M.N. Clarke Chief Engineer

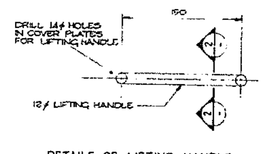
WYONG SHIRE SEWERAGE
MANNERING PARK TREATMENT WORKS
FLOWMETER PIT DETAILS
FOR RISING MAINS FROM
CHAIN VALLEY BAY

FILE 6066 / 22 / 180
DRAWING 88251/25X

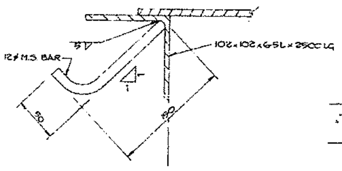
9770-10



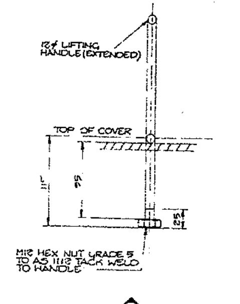
RISING MAIN MP 11 & 12 JUNCTION DETAILS
SCALE 1:200



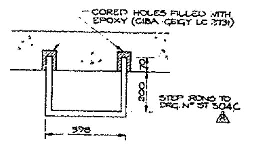
DETAILS OF LIFTING HANDLE
(3 REQ'D)
SCALE 1:25



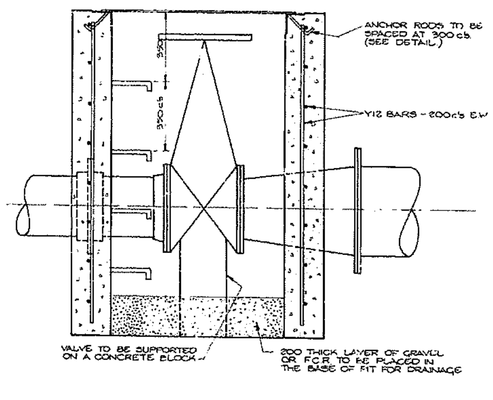
ANCHOR ROD DETAIL
SCALE 1:25



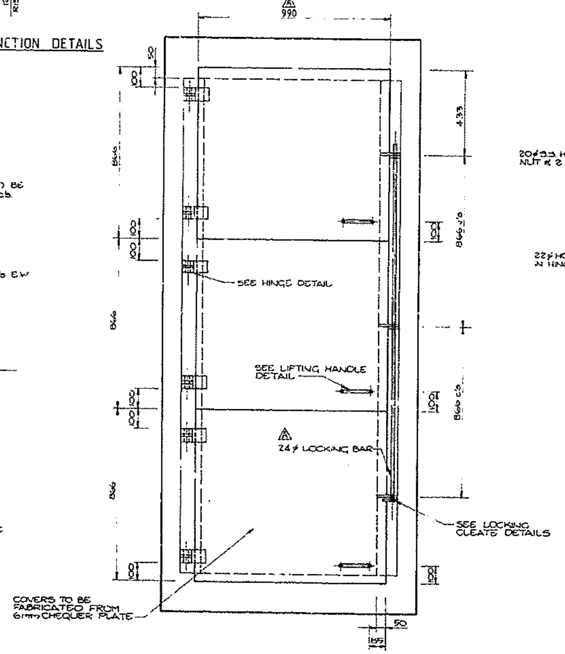
SECTION 2
SCALE 1:25



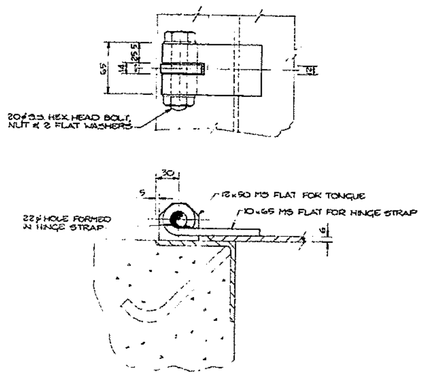
STEPIRONS - FIXING DETAILS
SCALE 1:20



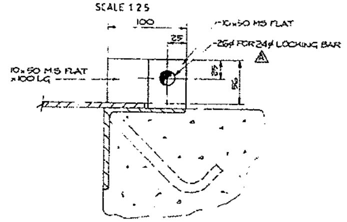
SECTION 1
SCALE 1:20



PLAN OF JUNCTION PIT COVERS
SCALE 1:20



HINGE DETAIL
SCALE 1:25



DETAIL OF LOCKING CLEATS
SCALE 1:25

NOTES

1. ALL DIMENSIONS IN MILLIMETRES
2. CONCRETE:
   a) CEMENT WILL BE TYPE A
   b) CONCRETE WILL BE GRADE 25
   c) MAXIMUM AGGREGATE SIZE WILL BE 20 mm
   d) SLUMP SHALL NOT EXCEED 50 mm
   e) COVER TO REINFORCEMENT SHALL BE 65 mm UNLESS OTHERWISE SPECIFIED.
   f) INTERNAL AND EXPOSED EXTERNAL SURFACES SHALL BE FINISHED TO F3 STANDARD.
3. THE TOP OF EXTERNAL WALLS SHALL BE PROVIDED WITH 15 mm × 15 mm ARISES.
4. STEPIRONS TO BE FORMED FROM 24 mm ⌀ DEFORMED BAR GRADE 230S TO AS 1302.
5. STEPIRONS TO BE HOT DIPPED GALVANISED TO AS. 1650 AFTER FORMING
6. ALL COVER PLATES TO BE 6mm CHEQUER PLATE.
7. BASE OF TREAD ON COVER PLATE TO BE REMOVED AT THE POINTS CONTACT WHERE THE HINGES AND LOCKING CLEATS ARE TO BE WELDED
8. WELD METAL TO BE CLEAR OF ANGLE FRAME AS SHOWN TO ALLOW COVER PLATES TO SEAT
9. ALL WELDS UNLESS OTHERWISE SPECIFIED TO BE 5mm FILLET WELD CONTINUOUS. ELECTRODES TO BE ELECTRODES TO BE E48 XX.
10. ALL FLAME CUT SURFACES AND WELD BURRS TO BE GROUND FLUSH BEFORE HOT DIP GALVANISING
11. LOCKING BAR IS TO BE COGGED AT ONE END AND HAVE A 12 ⌀ HOLE DILLED AT OTHER END FOR PADLOCK LOCKING BAR IS TO BE 24 ⌀

PIPEWORK SCHEDULE		
Nº	DESCRIPTION	QTY.
1	100 - 125 N.S. U.P.V.C. SW 50-50 REDUCING CONNECTOR CL 18.	1
2	100 N.S. U.P.V.C. SP - SP PIPE CUT TO SIZE	1
3	100 N.S. DI - U.P.V.C. PIPE COUPLING	1
4	100 N.S. D.I.C.L. SP - SP PIPE	1
5	100 N.S. PUDDLE FLANGE	1
6	100 N.S. D.I. UNI FLANGE	1
7	100 N.S. D.I.C.L. FL - FL 45° BEND	1
8	100 N.S. GATE	1
9	100 - 300 N.S. D.I.C.L. FL - FL TAPER	1
10	450 N.S. D.I.C.L. FL - FL 'Y' WITH A 300 FL BRANCH	2
11	300 N.S. D.I. OR C.I. BLANK FLANGE	1
12	300 - 450 N.S. D.I.C.L. FL - FL TAPER	1
13	300 N.S. D.I.C.L. SP - SP PIPE	1
14	300 N.S. GATE VALVE	1
15	300 N.S. D.I. UNI FLANGE	1
16	[illegible] N.S. D.I. PUDDLE FLANGE	1
17	300 N.S. D.I. - (TO SUIT RISING MAT'L) COUPLING	1
18	450 N.S. D.I.C.L. FL - FL 90° BEND	1

DETAILS OF AMENDMENTS | APPROVED | DATE

WORK AS EXECUTED

"This original drawing has been carefully compared with the work as carried out and has been amended where necessary so that it is now a true representation of the actual work as regards dimensions, levels, layout & materials."
Signed ...
Resident Engineer P.W.D.

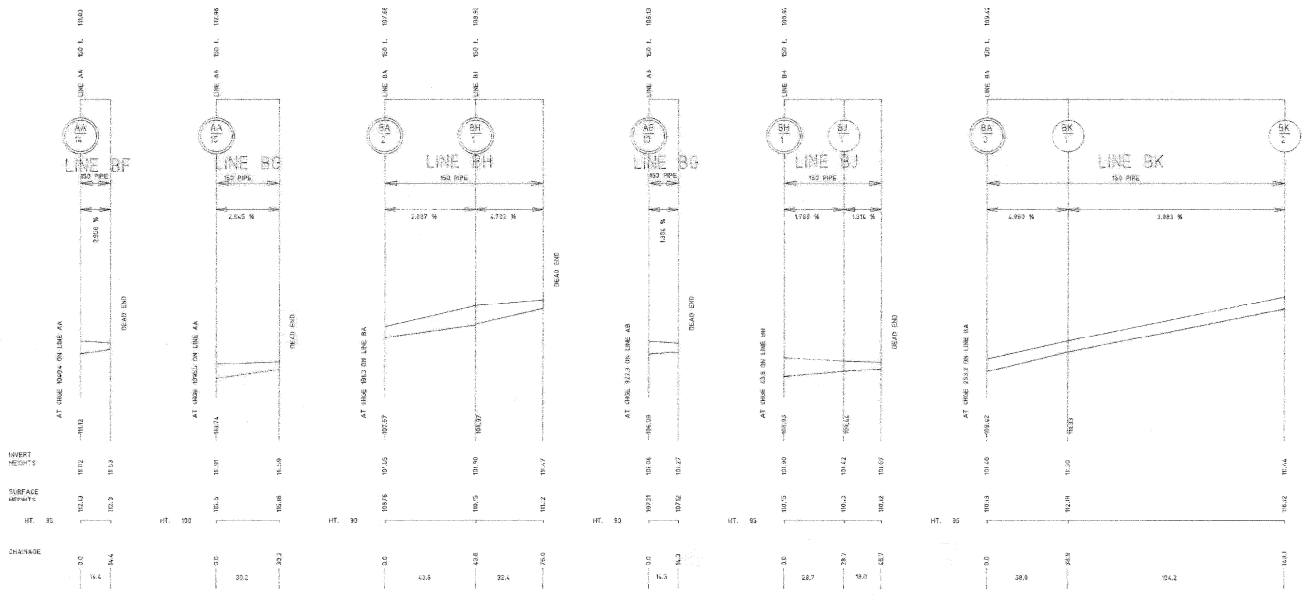
DESIGNED Signature ... Name ...
DRAWN Signature ... Name B. PEARSON
CHECKED Signature ... Name ...
Signature ... SUPERVISING ENGINEER
Signature ... PROJECT ENGINEER

PUBLIC WORKS
R.D. Christie, Director of Public Works
M.N. Clarke, Chief Engineer
WYONG SHIRE COUNCIL

WYONG SHIRE SEWERAGE
JUNCTION PIT DETAILS FOR RISING MAINS MP. 11 & MP. 12
CHAIN VALLEY BAY

FILE 6056/27/180
DRAWING 88251/23X

9770-3



GOSFORD-WYONG REGION DATUM

SCALE 1000 METRES HORIZONTAL

SCALE 1000 METRES VERTICAL

CAUTION
THIS PLAN HAS BEEN PREPARED AT A SCALE OF 1000M W.100M FOR THE PURPOSE OF WORK AS EXECUTED DRAWINGS AND MAY NOT BE SATISFACTORY FOR OTHER PURPOSES. THE ACCURACY OF ANY ENLARGEMENT OR OTHER REPRODUCTION MAY BE LESS THAN THAT OF THE ORIGINAL.

NK	DETAILS OF AMENDMENTS	APPROVED	DATE

WORK AS EXECUTED

"THE ORIGINAL PLAN OR LOCAL OFFICE DRAWING HAS BEEN CAREFULLY CHECKED WITH THE WORK AS CARRIED OUT AND HAS BEEN AMENDED WHERE NECESSARY SO THAT IT IS A TRUE REPRESENTATION OF THE WORK AS REGARDS DIMENSIONS LEVELS LAYOUT AND MATERIALS"

PUBLIC WORKS

R.D.Christie
Director of Public Works
M.N.Clarke
Chief Engineer

WYONG SHIRE COUNCIL

WYONG SHIRE SEWERAGE
LONGITUDINAL SECTIONS
LINES BF,BG,BH,BI,BJ,BK.

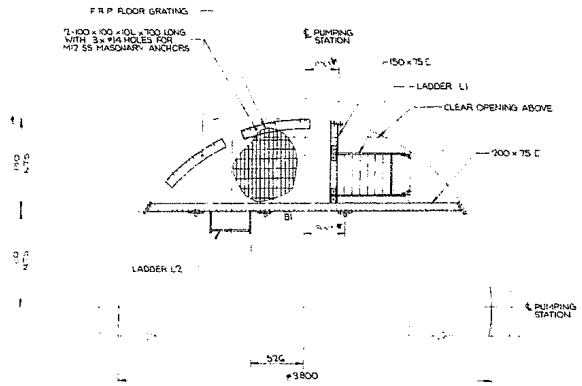
CHAIN VALLEY BAY AREA : MP12A

FILE

DRAWING NO.
88251/11X

8606- 11

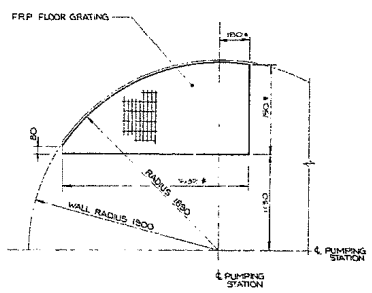
PLAN ROOM CAT.No.



PLAN

WET WELL LADDERS & PLATFORM LAYOUT

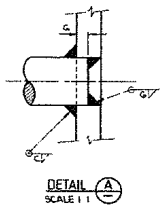
SCALE 1:20



FLOOR PANEL DETAILS

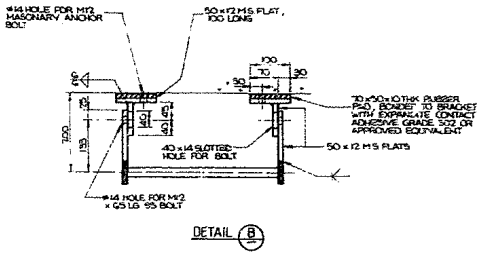
SCALE 1:20

NOTE NOTCHES NOT SHOWN LADDER STILES & BRACKETS

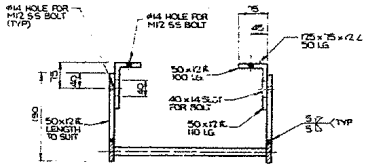


DETAIL (A)

SCALE 1:1

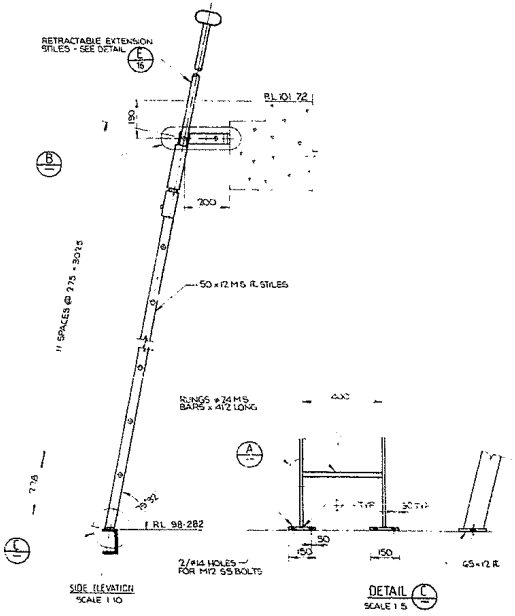


DETAIL (B)



DETAIL (D)

SCALE 1:5



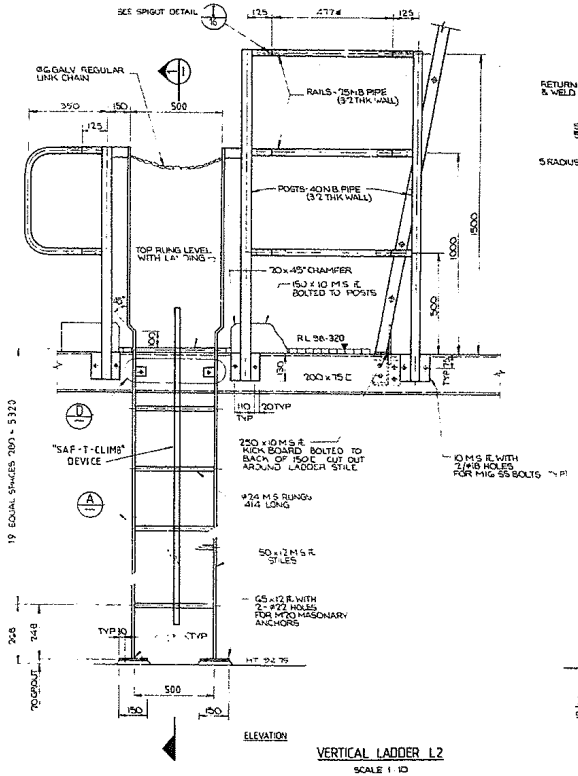
SIDE ELEVATION

SCALE 1:10

DETAIL (C)

SCALE 1:5

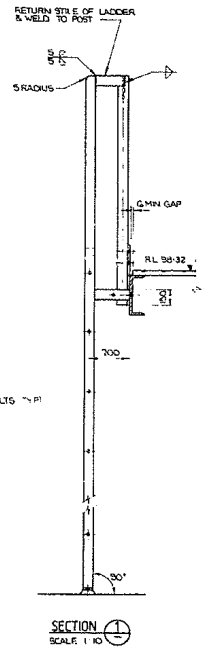
SLOPING LADDER L1



ELEVATION

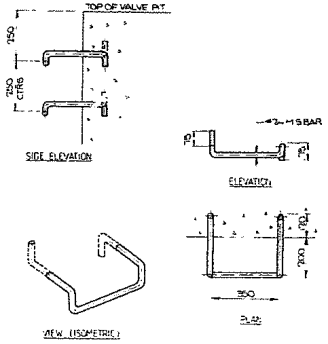
VERTICAL LADDER L2

SCALE 1:10



SECTION (1)

SCALE 1:10



STEPIRON DETAILS

SCALE 1:10

NOTE 1 - THE DIMENSIONS NOTED ℄ MARKED ⌀ ARE TO BE DETERMINED BY THE CONTRACTOR IN CONJUNCTION WITH THE PUMP SUPPLIER.

CAUTION

THIS PLAN HAS BEEN PREPARED AT A SCALE OF 1:5 (A3) FOR THE PURPOSE OF W A X AND MAY NOT BE SATISFACTORY FOR OTHER PURPOSES. THE ACCURACY OF ANY ENLARGEMENT OR OTHER REPRODUCTION MAY BE LESS THAN THAT OF THE ORIGINAL.

9770 - 7

NO.	DETAILS OF AMENDMENTS	APPROVED	DATE

WORK AS EXECUTED

"This original drawing has been carefully compared with the work as carried out and has been amended where necessary so that it is now a true representation of the actual work as regards dimensions, levels, layout, materials."

Signed ..... Resident Engineer P.W.D.

DESIGNED R. Christie 8-11-89

SUPERVISING DRAWN

CHECKED 16-11-89

TRACED DRAWN A.J.W. CHECKED

PUBLIC WORKS DEPARTMENT N.S.W.

R. CHRISTIE DIRECTOR OF PUBLIC WORKS

M.N. CLARKE. CHIEF ENGINEER

WYONG SHIRE COUNCIL

WYONG SHIRE SEWERAGE

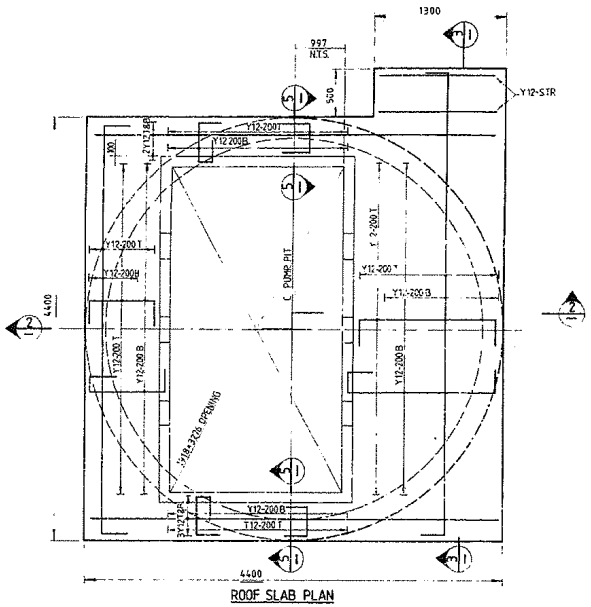
PUMPING STATION M.P. 12

LADDERS & PLATFORM DETAILS

CHAIN VALLEY BAY AREA M.P. 12A

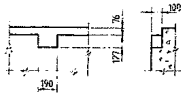
FILE 6066/22/180

DRAWING NO. 88251/19X



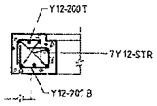
ROOF SLAB PLAN

NTS



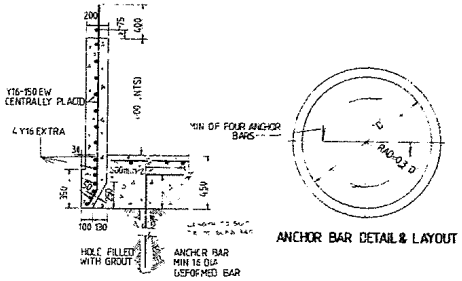
TYPICAL REBATE FOR LIGHT DUTY COVER

SCALE-A



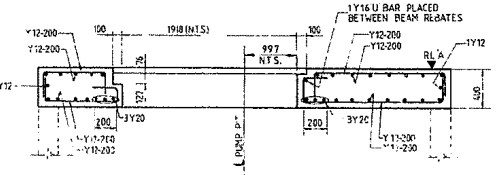
SECTION (5)

NTS



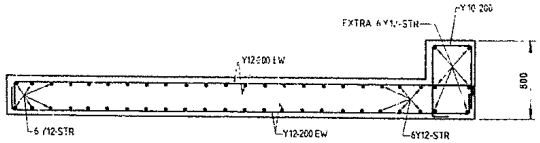
ALTERNATIVE BOTTOM DETAIL FOR WET WELL CONSTRUCTED AS CAISSON

NOTE ANCHOR BARS TO BE DESIGNED FOR WELL UPLIFT FORCE OF 700 kN THE CONTRACTOR SHALL SUBMIT DESIGN PROPOSALS TO SUPERINTENDENT FOR APPROVAL PRIOR TO CONSTRUCTION



SECTION (2)

NTS



SECTION (3)

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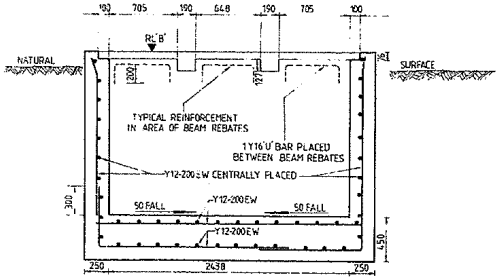
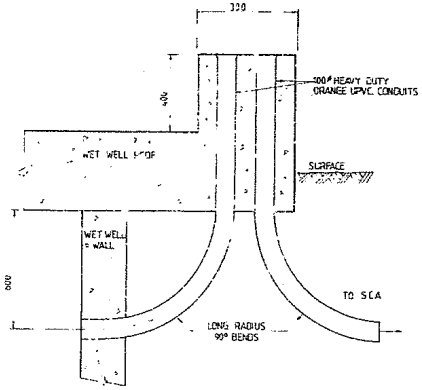


SECTION THRU VALVE PIT

SCALE A

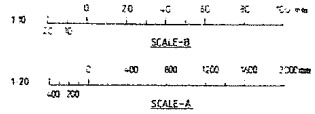
SEE SECTION (3/17) DWG. N° 88251/17



TYPICAL SECTION

TERMINATION CABINET CONDUIT ARRANGEMENT

SCALE-B



NOTE : THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. N° 88251/17

MR	DETAILS OF AMENDMENTS	APPROVED	DATE

WORK AS EXECUTED

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Signed.....

Resident Engineer, P.W.D

QUEENSLAND BAGGERY		SUPERVISING ENGINEER	
DRAWN			
A.Llewellyn	8.11.88	PROJECT MANAGER	DESIGNED WYONG
TRACED			
CHECKED			

PUBLIC WORKS

R.D.Christie, Director of Public Works

M.N.Clarke, Chief Engineer

WYONG SHIRE COUNCIL

WYONG SHIRE SEWERAGE

PUMPING STATION MP 12

ROOF DETAILS & ALTERNATIVE WET WELL ANCHORAGE

CHAIN VALLEY BAY AREA 12A

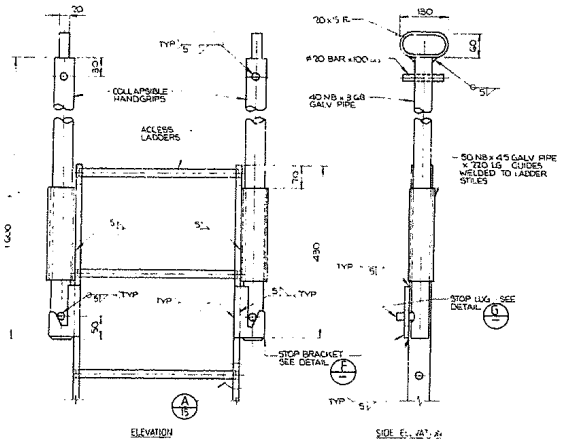
FILE 6066/22/180

DRAWING 88251/18X

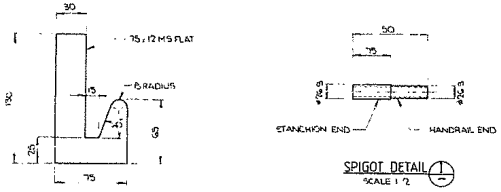
B1

9770 - 6

PLAN ROOM CAT.No.

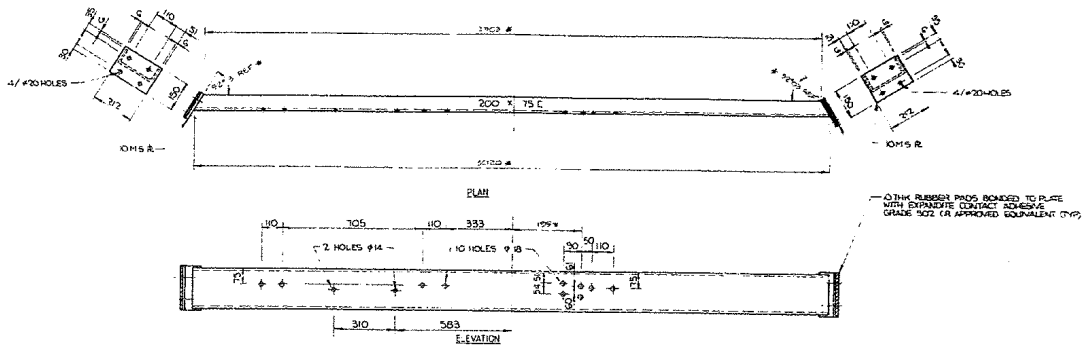


COLLAPSIBLE SAFETY HANDGRIP DETAIL (E)
SCALE - 1 5

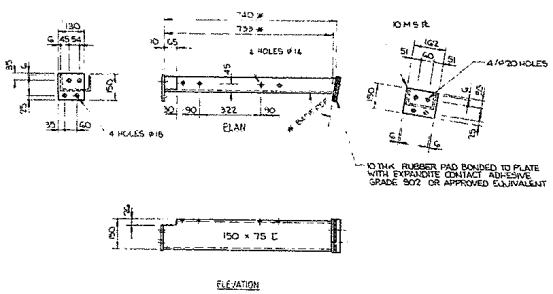


DETAIL (F)
SCALE 1 2

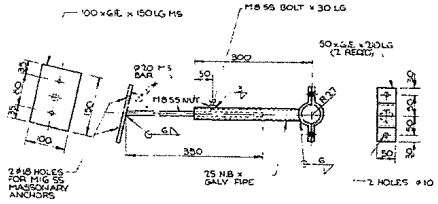
SPIGOT DETAIL (1)
SCALE 1 2



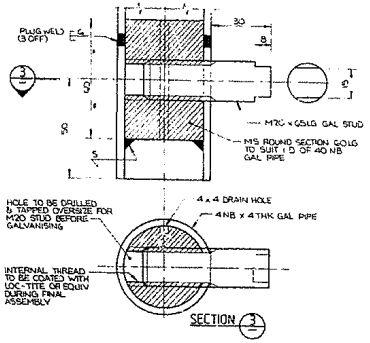
PLATFORM SUPPORT BEAM-B1
SCALE - 1 10



PLATFORM SUPPORT BEAM - B2
SCALE 1 10



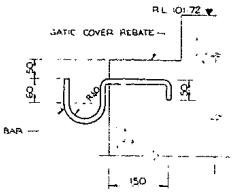
EXTENSION SPINDLE ADJUSTABLE SUPPORT BRACKET
SCALE 1:5



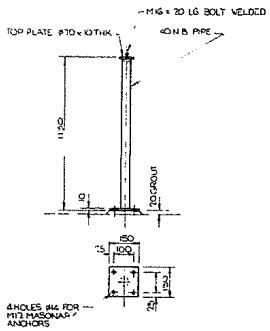
LOWER STOP LUG DETAIL (G)
SCALE 1 1

NOTES

1. DIMENSIONS & ANGLES MARKED * ARE TO BE DETERMINED IN CONJUNCTION WITH PUMP MANUFACTURER OR SUPPLIER
2. STANCHION PIPE ENDS TO BE PRESSED TO FACILITATE WELDING
3. ALL WELDS TO BE 6 mm CONTINUOUS FILLET UNLESS SHOWN OTHERWISE
4. WELDING TO BE IN ACCORDANCE WITH A S 1554
5. ALL BURS & SHARP EDGES TO BE GROUND SMOOTH
6. ALL MILD STEEL TO BE HOT DIPPED GALVANISED AFTER FABRICATION
7. ALL STAINLESS STEEL ANCHORS, NUTS & WASHERS TO BE OF GRADE 316



HOOK BOLT DETAIL (A)
SCALE 1 5
2 REQUIRED



DROP TUBE SUPPORT BRACKET
SCALE - 1 10

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NO	DETAILS OF AMENDMENTS	APPROVED	DATE

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Signed ... Date ...
Resident Engineer P.W.D

DESIGNED B.R.Tilden 8.8.84 — SUPERVISING ENGINEER
CHECKED 16.1.85 — PROJECT MANAGER (CO-ORDINATING)
TRACED ... DRAWN A.J.W. CHECKED ...

PUBLIC WORKS DEPARTMENT N.S.W.
R. CHESSE DIRECTOR OF PUBLIC WORKS
M.N. CLARKE CHIEF ENGINEER
WYONG SHIRE COUNCIL

WYONG SHIRE SEWERAGE
PUMPING STATION M.P. 12
MISCELLANEOUS STEEL DETAILS
CHAIN VALLEY BAY AREA MP12A

FILE 6066/22/180
DRAWING NO. 88251/20X

9770 - 8

B1