

BAB V

KESIMPULAN DAN SARAN

5.1 Kesimpulan

Berdasarkan pemaparan dan hasil analisis yang dilakukan pada bab sebelumnya, maka dapat diambil beberapa kesimpulan, diantaranya adalah sebagai berikut:

1. Dari hasil analisis hidrologi, nilai debit yang digunakan untuk me *Running* kedalam program HEC-RAS ada dua, yaitu nilai debit dengan kala ulang dua tahun $Q_2=37,578 \text{ m}^3/\text{dt}$ dan data debit dengan kala ulang lima tahun $Q_5=53,446 \text{ m}^3/\text{dt}$.
2. Dari hasil analisis menggunakan program HEC-RAS 4.1.0 telah menunjukkan bahwa, terjadi kenaikan muka air banjir pada sungai yang melewati batas tanggul sungai. Namun sifatnya variatif yang tidak secara keseluruhan tanggul kanan atau kiri terjadi banjir karena antara tanggul kiri dan kanan memiliki ketinggian yang berbeda. Ketinggian kenaikan muka air banjir pada sungai terjadi antara ± 1.5 sampai dengan 2,5 meter dari ketinggian tanggul eksisting.
3. Solusi yang ditawarkan dalam rangka mengantisipasi agar supaya tidak terjadi banjir pada sungai tersebut adalah dengan normalisasi dan dibuatkan tanggul di pinggir kiri dan kanan sungai dengan ketinggian yang variatif tergantung keadaan pada masing-masing ruas sungai. Sehingga dengan demikian dapat dipastikan bahwa debit air dapat ditampung oleh sungai tersebut.

5.2 Saran

Selain beberapa kesimpulan di atas, beberapa saran yang dikemukakan antara lain:

1. Dalam perencanaan pemodelan sungai kedepannya perencana harus memperhatikan lebih detail kondisi sungai, baik itu longoran dan tumpukan sedimen.
2. Dalam penelitian selanjutnya peneliti diharapkan dapat menganalisa sedimen dengan menggunakan program HEC-RAS 4.1.0.

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LAMPIRAN

❖ **LAMPIRAN 1 (Data Analisis Hidrologi)**

CURAH HUJAN RERATA KOEFISIEN THIESSEN

1. Stasiun Monjok

Tahun 2009

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	0.7	7.5	-	-	-	-	-	-	-	1.1	-
2	0	5.7	-	3.5	0	-	4.5	-	2.5	0.3	0	0
3	-	80.8	13.5	22.5	0	-	-	-	1.6	-	-	0
4	-	11	5.5	-	-	-	-	-	-	-	0	42.3
5	-	1	5.5	-	0.6	-	-	-	-	-	0	-
6	0	0	-	-	0	-	-	-	-	-	13.6	116.3
7	-	0	0	-	-	-	-	-	-	-	0.1	0.4
8	-	0	0	-	0	-	-	-	1.9	-	0	1.4
9	-	-	7	0	25.5	-	-	-	-	-	-	10.3
10	0	0	0	2.8	-	19.7	-	-	-	3.2	0.1	0
11	0	105.8	0	2.4	1.7	-	-	-	-	27.3	-	0
12	0	18.5	0	-	26.7	-	-	-	-	3.9	-	0
13	310.0	0	2.7	3.2	-	-	-	-	1.6	-	-	0
14	225.0	0	0	7.5	-	0	-	-	1.3	-	-	-
15	40.0	0	0	0	-	-	-	-	0.2	-	44.2	-
16	125.0	30.5	0	25.3	-	-	-	-	-	-	8.9	1.2
17	-	7.5	70.7	2.3	-	-	-	-	-	-	9.9	9.8
18	-	-	0	11.7	0	-	-	-	-	-	-	0
19	20.0	0	-	6.8	-	-	-	-	0.5	-	30.9	7.5
20	372.0	0	-	-	0	-	-	-	17.1	-	0	0
21	-	0	-	-	0	-	-	-	12.1	6.1	18.3	0
22	-	12.0	-	5.3	-	-	-	-	11.2	0.8	3.7	3.5
23	0	4.1	0	0	-	-	2.4	-	0.2	7.9	0	0.2
24	0	3.2	8.2	0	0	-	20.9	-	-	2.3	-	7.4
25	0	-	-	0	3.3	-	1.3	-	-	-	0	0.3
26	0	10	-	-	19	-	-	-	-	-	-	4.8
27	0	-	-	-	0	-	-	-	-	0	0	27.8
28	47.2	13.5	7.0	0	0	-	-	-	-	-	0	1.7
29	0.2	-	21.5	-	7.5	-	-	-	-	0	0	0.1
30	20.2	-	-	-	0	-	-	0.3	0	-	1.1	6.3
31	8.2	-	24.5	-	0.6	-	-	-	-	-	-	-
Jml	1167.8	304.3	173.6	93.3	84.9	19.7	29.1	0.3	50.2	51.8	131.9	241.3
Max	372	106	71	25	27	20	21	0	17	27	44	116
Hari	10	14	11	11	8	1	4	1	11	8	11	17
T 15 hr I	575	224	42	42	55	20	5	0	9	35	59	171
T 15 hr II	593	81	132	51	30	0	25	0	41	17	73	71
Hari 15 I	3	7	6	6	4	1	1	0	6	4	5	5
Hari 15 II	7	7	5	5	4	0	3	1	5	4	6	12

Tahun 2010

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	6.1	0.5	0.5	55.2	0.5	-	-	0.6	45.8	64.3	0
2	-	27.9	0.3	0.4	1.1	-	2.8	-	-	0.1	0.7	-
3	-	6.9	6	0.3	2.3	-	4.2	-	-	0.2	2.8	-
4	-	2.8	3.2	11.0	-	-	13.1	-	0.2	-	-	0
5	-	18.0	8.8	9.2	-	-	38.8	-	-	-	5.3	-
6	0.4	1.7	2.0	0.2	11.4	-	-	-	1.6	0	0	-
7	6.0	0	0.7	0.1	22.8	-	-	-	0.9	0	1.4	-
8	-	3	3.6	6.4	0.9	-	-	-	6.4	2.5	12.7	0
9	4.3	1.0	0.3	0.4	-	-	-	-	12.4	2.8	-	0
10	-	0.2	0	62.3	-	-	-	-	6.0	0.7	-	0
11	15.5	0	18.6	15.6	-	2.3	5.9	-	0.1	0	1.5	0
12	6.6	-	1.2	7.5	-	-	22.6	-	18.2	0	-	0
13	-	9.4	28.8	21.4	19.3	-	0	0	52.5	11.7	-	0
14	3.9	0	3	0.2	0.1	-	0	6.2	-	-	-	0
15	3.9	0	0	40.7	-	-	-	-	2.9	1.8	22.5	0
16	25.2	1.5	-	27.6	-	-	0	-	32.4	35	-	0
17	0.3	-	5.4	2.7	22.0	-	0	0	7.4	-	0	0
18	0	0	0	-	-	-	0	0	1.5	-	0	0
19	20.2	0	0	17.2	-	-	0	-	13.2	0	0	-
20	2.7	-	-	0.3	-	0	-	0	90.1	1.2	17.9	-
21	4	0	0.1	-	-	0	-	4.7	-	9.1	1.9	3.3
22	-	0.3	0	-	0.1	0	-	7.1	23.8	10.2	39.6	1.7
23	7.7	1.5	0	0.9	-	0	-	1.2	8.8	204.5	23.0	2.1
24	9.4	0.5	-	0.1	-	0	-	0.7	61.0	1.0	22.9	-
25	0.4	1.1	1.7	0.7	-	-	-	-	18.1	6.0	0.5	7
26	0	12.6	0	1.0	-	0.1	-	-	-	31.5	5.8	3.9
27	2.0	0.2	14.9	-	-	-	-	-	0	-	-	38.1
28	-	0.8	7.5	-	-	0.4	-	0.2	-	2.4	17.1	0.8
29	-	-	23.8	-	-	0	-	-	-	0.3	5.3	2.6
30	0.7	-	1.7	58.7	39.5	-	-	2.8	-	13.3	0.2	1.5
31	14.5	-	0.1	-	1.4	-	0	2.0	-	10.6	-	10.5
Jml	127.7	95.5	132.2	285.41	176.1	3.3	87.4	24.9	358.1	390.7	245.4	71.5
Max	25	28	29	62	55	2	39	7	90	205	64	38
Hari	18	18	21	24	12	4	6	8	20	20	18	10
T 15 hr I	41	77	77	176	113	3	87	6	102	66	111	0
T 15 hr II	87	19	55	109	63	1	0	19	256	325	134	72
Hari 15 I	7	10	13	15	8	2	6	1	11	8	8	0
Hari 15 II	11	8	8	9	4	2	0	7	9	12	10	10

Tahun 2011

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	6.1	0.5	0.5	55.2	0.5	-	-	-	-	2.7	-
2	-	27.9	0.3	0.4	1.1	-	-	-	-	-	-	8.4
3	-	6.9	6.0	0.3	2.3	-	-	-	-	-	-	1.3
4	-	2.8	3.2	11.0	-	-	-	-	-	-	17.8	15.8
5	-	18.0	8.8	9.2	-	-	-	-	-	-	25.9	25.1
6	0.4	1.7	2.0	0.2	11.4	-	-	-	-	0.3	14.4	-
7	6.0	-	0.7	0.1	22.8	-	-	-	-	2.5	1.1	-
8	-	3.0	3.6	6.4	0.9	-	-	-	-	0.9	28.4	-
9	4.3	1.0	0.3	0.4	-	-	0.1	-	0.8	-	1.4	-
10	-	0.2	-	62.3	-	-	-	-	0.3	-	21.9	-
11	15.5	-	18.6	15.6	-	2.3	-	-	-	-	13.0	16.0
12	6.6	-	1.2	7.5	-	-	-	-	-	-	6.9	-
13	-	9.4	28.8	21.4	19.3	-	-	-	-	-	6.9	0.5
14	3.9	-	3.0	0.2	0.1	-	-	-	-	-	0.8	0.6
15	3.9	-	-	4.7	-	-	-	-	-	-	1.3	0.2
16	25.2	1.5	-	27.6	-	-	-	-	-	6.7	19.5	2.8
17	0.3	-	5.4	2.7	22.0	-	-	-	-	0.1	8.6	11.1
18	-	-	-	-	-	-	-	-	-	0.3	37.7	47.1
19	2.2	-	-	17.2	-	-	-	-	-	2.6	-	25.0
20	2.7	-	-	0.3	-	-	-	-	-	0.3	-	0.4
21	4.0	-	0.1	-	-	-	-	-	-	-	-	-
22	-	0.3	-	-	0.1	-	-	-	-	6.5	23.7	4.2
23	7.7	1.5	-	0.9	-	-	-	-	-	7.6	27.7	9.8
24	9.4	0.5	-	0.1	-	-	-	-	-	-	-	3.5
25	0.4	1.1	1.7	0.7	-	-	-	-	-	34.8	-	-
26	-	12.6	-	1.0	-	0.1	0.9	-	-	8.5	1.4	4.5
27	2.0	0.2	14.9	-	-	-	-	-	0.2	6.0	-	-
28	-	0.8	7.5	-	-	0.4	-	-	0.1	8.7	2.6	-
29	-	-	23.8	-	-	-	-	-	-	24.2	-	-
30	0.7	-	1.7	58.7	39.5	-	-	-	-	-	6.4	1.6
31	14.5	-	0.1	-	1.4	-	-	-	-	3.9	-	3.8
Jml	109.7	95.5	132.2	249.41	176.1	3.3	1	0	1.4	113.9	270.1	181.7
Max	25	28	29	62	55	2	1	0	1	35	38	47
Hari	18	18	21	24	12	4	2	0	4	16	21	19
T 15 hr I	41	77	77	140	113	3	0	0	1	4	143	68
T 15 hr II	69	19	55	109	63	1	1	0	0	110	128	114
Hari 15 I	7	10	13	15	8	2	1	0	2	3	13	8
Hari 15 II	11	8	8	9	4	2	1	0	2	13	8	11

Tahun 2012

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.8	5.6	5.2	14.1	12.9	-	-	-	-	-	2.1	0.3
2	-	57.7	6.6	-	0.1	-	-	-	-	-	10.4	49.0
3	-	15.4	15.1	6.5	-	-	-	-	-	-	0.3	15.6
4	-	5.4	1.0	20.5	0.4	-	-	-	-	-	-	0.7
5	4.6	13.3	3.4	-	-	-	-	-	-	-	-	4.7
6	14.2	0.4	0.6	-	1.1	-	-	-	-	18.8	4.9	4.4
7	22.7	0.1	36.4	1.3	-	-	-	-	-	20.1	2.3	0.1
8	69.2	12.5	6.0	-	-	-	-	-	-	-	0.5	16.4
9	43.0	11.5	2.3	12.2	-	-	-	-	-	-	1.1	63.0
10	1.2	-	-	-	-	-	-	-	-	-	-	-
11	26.8	0.7	-	-	-	-	-	-	-	0.4	-	23.4
12	19.9	1.3	-	16.4	28.3	-	-	-	-	0.3	18.0	2.1
13	0.1	-	-	-	-	-	-	-	-	-	-	-
14	3.0	-	-	-	-	-	-	-	-	-	-	-
15	3.7	13.3	26.7	-	0.2	-	-	-	-	0.1	0.1	-
16	-	0.9	0.4	0.3	0.5	-	-	-	-	2.4	2.6	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	94.4	6.8	-	24.0	-	1.0	-	-	0.7	8.1	0.2
19	0.1	2.7	23.4	-	-	15.5	-	-	-	5.6	3.8	4.5
20	23.9	6.4	44.7	3.3	-	0.4	0.3	-	-	-	18.8	2.7
21	43.9	-	-	-	-	-	-	-	-	-	-	-
22	0.9	-	-	-	-	-	-	-	-	-	-	-
23	19.6	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	9.8	-	-	-	-	-	-	-	-	0.1	4.1
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	0.2	-	-	-	-	-	0.7	4.4	0.8	2.8	9.1
28	17.7	-	-	-	-	-	-	-	0.2	-	-	-
29	11.8	-	-	-	-	-	-	-	-	-	-	-
30	3.6	-	0.7	6.1	-	-	-	-	-	0.2	-	0.1
31	12.5	-	-	-	-	-	-	-	-	-	-	-
Jml	343.2	251.6	179.3	80.7	67.5	15.9	1.3	0.7	4.6	49.4	75.9	200.4
Max	69	94	45	21	28	16	1	1	4	20	19	63
Hari	21	18	15	9	8	2	2	1	2	10	15	17
T 15 hr I	209	137	103	71	43	0	0	0	0	40	40	180
T 15 hr II	134	114	76	10	25	16	1	1	5	10	36	21
Hari 15 I	12	12	10	6	6	0	0	0	0	5	9	11
Hari 15 II	9	6	5	3	2	2	2	1	2	5	6	6

Tahun 2013

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	28.6	3.3	3.3	-	61.1	-	1.6	-	-	-	0.1	-
2	16.1	3.4	3.4	0.3	-	0.6	-	-	-	-	14.3	-
3	20.9	1.9	1.9	0.9	-	0.1	-	-	-	-	-	0.2
4	0.2	0.1	0.1	-	-	2.5	-	-	-	-	4.8	9.0
5	12.3	-	-	7.1	0.2	-	-	-	-	-	-	26.1
6	-	0.4	0.4	-	27.3	1.5	1.0	-	-	-	26.7	-
7	40.6	-	-	-	-	1.4	-	-	-	-	0.6	7.3
8	2.5	-	-	11.6	-	0.1	-	-	-	-	-	31.9
9	1.8	10.2	10.2	2.0	9.9	17.6	-	-	-	-	-	29.4
10	-	-	-	-	-	-	-	-	-	-	11.6	9.6
11	0.3	0.3	0.3	2.4	-	0.5	15.5	-	2.9	-	-	12.0
12	2.3	2.8	19.9	-	0.5	26.9	-	-	-	-	11.6	7.8
13	-	-	-	-	-	-	-	-	-	-	0.8	0.3
14	-	-	-	-	-	-	-	-	-	-	2.1	9.3
15	16.3	1.3	1.3	14.4	7.3	0.1	0.1	0.1	-	24.9	0.1	48.7
16	2.9	4.1	4.2	28.7	0.1	-	-	-	-	1.9	-	4.0
17	-	-	-	-	-	-	-	-	-	13.0	0.3	11.2
18	1.5	-	-	0.1	1.8	0.7	-	-	-	0.2	4.5	25.6
19	6.3	-	-	-	-	14.6	-	-	-	8.8	-	3.4
20	24.4	69.4	69.4	-	-	-	0.2	-	-	4.7	55.9	44.1
21	-	-	-	-	-	-	-	-	-	-	-	8.9
22	-	-	-	-	-	-	-	-	-	-	2.6	4.9
23	-	-	-	-	-	-	-	-	-	-	-	17.3
24	-	-	-	-	-	0.5	0.5	0.5	-	2.1	-	27.3
25	3.7	-	-	-	23.9	-	-	-	-	20.3	2.4	2.1
26	-	-	-	-	-	-	-	-	-	19.4	50.8	3.5
27	0.2	20.7	20.7	-	1.0	0.1	0.1	0.1	-	1.8	1.0	1.4
28	-	-	-	-	-	-	-	-	-	8.6	-	-
29	-	-	-	-	-	3.3	3.3	3.3	-	-	1.3	-
30	77.4	-	-	-	-	38.9	-	-	-	-	-	1.5
31	-	-	-	-	-	-	-	-	-	-	-	29.0
Jml	258.3	117.9	135.1	67.5	133.1	109.4	22.3	4	2.9	105.7	191.5	375.8
Max	77	69	69	29	61	39	16	3	3	25	56	49
Hari	18	12	12	9	10	16	8	4	1	11	18	26
T 15 hr I	142	24	41	39	106	51	18	0	3	25	73	192
T 15 hr II	116	94	94	29	27	58	4	4	0	81	119	184
Hari 15 I	11	9	9	7	6	10	4	1	1	1	10	12
Hari 15 II	7	3	3	2	4	6	4	3	0	10	8	14

Tahun **2014**

Tgl	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	12.6	-	-	-	-	0.9	-	-	-	-	8.6
2	-	8.7	-	0.6	-	0.3	-	-	-	-	-	17.2
3	0.2	0.9	-	1.0	0.7	-	-	1.0	-	-	-	6.6
4	9.0	-	12.0	-	-	-	-	-	-	-	-	1.1
5	26.1	-	63.8	-	-	-	-	-	-	-	3.7	2.1
6	-	-	2.2	-	-	-	5.3	-	-	-	-	6.2
7	7.3	-	12.4	-	3.2	-	-	-	-	0.1	35.5	11.6
8	31.9	4.8	5.8	-	-	-	-	-	-	-	-	1.2
9	29.4	77.4	0.1	1.4	-	-	-	-	-	-	22.4	0.1
10	9.6	-	27.2	-	-	-	-	-	-	-	32.6	3.3
11	12.0	8.2	12.3	-	-	-	-	-	-	-	9.5	-
12	7.8	0.7	2.9	-	0.2	-	-	-	-	-	4.7	-
13	0.3	-	14.3	-	-	-	11.7	-	-	-	23.3	-
14	9.3	19.9	-	0.2	-	-	0.2	-	-	-	-	-
15	48.7	0.5	-	2.6	4.3	-	-	-	-	-	-	-
16	4.0	-	-	9.3	-	-	-	-	-	-	-	0.6
17	11.2	113.8	-	1.6	-	-	-	-	-	-	21.6	6.2
18	25.6	-	-	24.8	-	-	0.8	-	-	-	14.5	-
19	3.4	8.1	68.8	3.8	-	-	1.5	-	-	-	0.2	3.8
20	44.1	-	0.2	1.0	0.1	-	0.2	-	-	-	-	1.3
21	8.9	27.0	10.3	0.1	-	-	-	-	-	-	-	-
22	4.9	5.1	1.9	3.1	-	-	-	-	-	-	6.3	0.3
23	17.3	7.4	-	-	-	1.3	-	-	-	-	3.4	3.0
24	27.3	-	-	1.6	0.7	-	-	-	-	27.8	-	0.1
25	2.1	-	-	0.1	-	-	-	-	-	-	2.9	-
26	3.5	-	-	6.8	23.9	-	-	-	-	-	0.7	3.6
27	1.4	-	-	-	-	-	0.8	-	-	-	4.7	6.9
28	-	-	-	-	-	-	-	-	-	-	7.1	11.5
29	-	-	-	20.6	-	-	-	-	-	-	43.6	1.2
30	1.5	-	-	-	-	1.4	-	-	-	4.4	0.1	0.7
31	29.0	-	-	-	-	-	-	-	-	-	-	8.7
Jml	375.8	295.1	234.2	78.6	33.1	3	21.4	1	0	32.3	236.8	105.9
Max	49	114	69	25	24	1	12	1	0	28	44	17
Hari	26	14	14	16	7	3	8	1	0	3	18	23
T 15 hr I	192	134	153	6	8	0	18	1	0	0	132	58
T 15 hr II	184	161	81	73	25	3	3	0	0	32	105	48
Hari 15 I	12	9	10	5	4	1	4	1	0	1	7	10
Hari 15 II	14	5	4	11	3	2	4	0	0	2	11	13

Tahun **2015**

Tgl	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	44.4	-	0.1	-	0.2	67.7	-	-	-	-	-	-
2	17.3	-	-	17.3	81.0	-	-	-	-	-	-	3.3
3	14.1	2.2	-	-	0.4	0.3	-	-	-	-	-	8.7
4	3.5	-	12.0	6.1	44.5	-	-	-	0.1	-	-	-
5	-	-	63.8	11.2	-	-	0.1	-	-	-	-	0.7
6	-	-	2.2	2.5	-	-	-	-	-	-	-	13.0
7	-	19.4	12.4	7.4	-	-	-	-	-	-	-	-
8	-	3.1	5.8	-	-	0.3	-	-	-	-	-	4.6
9	3.1	3.5	0.1	-	-	-	-	-	-	-	-	63.4
10	0.5	0.1	27.2	-	-	-	-	-	-	-	-	62.8
11	-	13.1	12.3	2.9	3.4	-	-	-	-	-	-	1.8
12	1.8	6.3	2.9	0.3	-	-	-	-	-	-	-	41.6
13	5.0	0.7	14.3	0.1	-	-	-	-	-	-	-	2.2
14	4.0	2.0	-	8.2	-	-	-	-	-	-	-	-
15	16.2	26.4	-	3.0	-	1.7	-	-	-	-	-	-
16	-	-	-	3.5	-	-	-	-	-	-	-	9.8
17	-	-	-	-	-	0.6	-	-	-	-	-	52.4
18	9.7	-	-	34.1	-	-	-	-	-	-	-	21.3
19	-	-	68.8	-	-	-	-	-	-	-	-	10.8
20	-	1.2	0.2	1.6	-	-	0.5	-	-	-	-	0.4
21	-	7.7	10.3	0.2	-	-	-	-	-	-	-	-
22	12.0	-	1.9	9.2	-	-	0.1	-	-	-	-	-
23	9.3	11.8	-	-	12.9	-	-	-	-	-	-	0.9
24	-	2.0	12.2	11.4	-	-	-	-	-	-	-	0.7
25	-	4.7	-	20.9	-	-	-	-	-	-	-	13.2
26	0.1	-	-	2.3	-	-	-	-	-	-	-	-
27	-	39.4	-	0.5	-	-	-	-	-	-	-	-
28	7.5	-	0.2	34.1	-	-	0.5	-	-	-	-	-
29	1.4	-	0.9	-	-	-	-	-	-	-	-	-
30	3.9	-	-	0.2	-	-	-	-	-	-	-	-
31	101.5	-	-	-	-	9.0	-	-	0.3	-	-	-
Jml	255.3	143.6	247.6	177	142.4	79.6	1.2	0	0.4	0	0	311.6
Max	102	39	69	34	81	68	1	0	0	0	0	63
Hari	18	16	18	21	6	6	4	0	2	0	0	18
T 15 hr I	110	77	153	59	130	70	0	0	0	0	0	202
T 15 hr II	145	67	95	118	13	10	1	0	0	0	0	110
Hari 15 I	10	10	11	10	5	4	1	0	1	0	0	10
Hari 15 II	8	6	7	11	1	2	3	0	1	0	0	8

Tahun	Hujan max Tahunan
2001	0
2002	0
2003	0
2004	0
2005	0
2006	0
2007	0
2008	0
2009	372
2010	205
2011	62
2012	94
2013	77
2014	114
2015	102

Tahun	Hujan max Tahunan
2009	372
2010	204.5
2011	62.3
2012	94.4
2013	77.4
2014	113.8
2015	101.5

1. Stasiun Kuripan

Tahun 2009

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	18.0	-
3	-	-	-	-	-	-	-	-	-	-	-	12.9
4	-	-	-	-	-	-	-	-	-	12.0	-	-
5	-	-	20.0	-	-	-	-	-	14.0	20.0	21.0	36.8
6	20.5	15.0	-	-	-	-	-	-	-	-	-	-
7	15.0	-	-	-	-	-	-	-	-	-	10.0	-
8	-	-	-	-	-	-	-	-	20.0	-	-	-
9	40.0	30.0	-	-	27.0	10.2	-	-	-	15.0	-	0.8
10	95.1	-	-	-	-	-	-	-	-	-	-	0.8
11	-	20.0	-	-	18.0	-	-	-	-	-	13.0	2.1
12	15.0	29.0	-	-	-	-	-	-	-	21.0	12.0	-
13	60.0	-	-	-	-	-	-	-	0.7	-	11.0	-
14	30.0	-	-	-	-	-	-	-	-	-	-	-
15	60.0	-	-	-	-	-	-	-	-	-	-	-
16	20.0	-	38.0	-	10.0	-	-	-	-	-	-	1.7
17	-	-	-	-	8.0	-	-	-	-	-	-	5.3
18	-	-	-	-	-	-	-	-	-	-	-	38.9
19	-	35.0	-	-	-	-	-	-	-	-	-	0.2
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	12.0	-	-	0.4
23	-	-	-	-	-	-	-	-	-	-	-	3.3
24	-	-	10.0	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	25.0	-	12.0	-	-	-	-	-	-	14.0	15.0	-
28	-	-	-	-	-	-	-	-	-	19.0	12.0	0.3
29	20.0	-	-	-	-	-	-	-	-	20.0	-	-
30	10.0	-	-	-	-	-	-	-	11.0	-	-	16.6
31	-	-	-	-	-	-	-	-	-	-	-	10.4
Jml	411	129	80	0	63	10.2	0	0	57.7	121	112	130.5
Max	95	35	38	0	27	10	0	0	20	21	21	39
Hari	12	5	4	0	4	1	0	0	5	7	8	14
T 15 hr I	336	94	20	0	45	10	0	0	35	68	85	53
T 15 hr II	75	35	60	0	18	0	0	0	23	53	27	77
Hari 15 I	8	4	1	0	2	1	0	0	3	4	6	5
Hari 15 II	4	1	3	0	2	0	0	0	2	3	2	9

Tahun 2010

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	2.1	-	-	-	-	-	-
2	-	-	11.0	-	-	4.4	-	-	-	-	-	-
3	-	-	9.0	-	-	0.2	49.0	-	-	-	-	-
4	-	-	-	64.0	-	11.6	21.0	-	-	-	-	-
5	-	-	27.0	7.5	-	-	-	-	-	-	-	-
6	-	-	27.0	-	-	-	-	-	27.0	-	-	-
7	23.0	-	-	-	2.8	-	-	-	32.0	13.0	100.0	-
8	25.0	-	56.0	44.0	-	-	-	-	-	-	13.0	-
9	60.0	-	28.0	-	-	1.1	-	-	-	26.0	-	-
10	-	-	11.0	-	-	9.3	-	-	27.0	14.0	-	-
11	-	-	-	48.0	-	15.4	22.0	-	28.0	-	-	-
12	-	-	-	18.0	-	-	-	-	-	-	-	-
13	-	-	-	28.0	-	-	-	-	-	-	4.0	-
14	42.0	-	-	-	3.5	-	-	-	29.0	-	-	-
15	-	-	-	-	-	0.3	-	-	-	-	-	-
16	11.0	-	-	-	-	-	-	-	9.1	-	-	-
17	-	-	-	-	-	6.8	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	57.0	27.0	-	-
19	-	18.0	35.0	31.0	-	-	-	-	17.0	-	-	11.8
20	-	-	-	62.0	-	-	-	-	24.0	-	7.0	7.0
21	-	-	28.0	-	20.0	-	-	-	56.0	35.0	-	16.7
22	25.0	20.0	-	-	-	-	-	-	55.0	29.0	46.0	7.0
23	-	26.0	-	-	-	-	-	-	36.0	19.0	-	3.5
24	-	11.0	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	31.0	-	9.5
26	-	-	-	-	-	0.7	11.0	-	-	-	-	6.0
27	-	-	-	-	-	5.5	9.0	-	-	-	31.0	20.6
28	-	-	18.0	-	18.0	-	27.0	-	-	-	151.0	25.8
29	-	-	-	-	-	-	-	-	-	-	-	3.9
30	-	-	-	-	-	-	-	37.5	-	53.0	-	-
31	-	-	-	-	-	-	-	-	-	21.0	-	4.9
Jml	186	75	250	302.5	44.3	57.4	139	37.5	397.1	268	352	116.7
Max	60	26	56	64	20	15	49	38	57	53	151	26
Hari	6	4	10	8	4	11	6	1	12	10	7	11
T 15 hr I	150	0	169	210	6	44	92	0	143	53	117	0
T 15 hr II	36	75	81	93	38	13	47	38	254	215	235	117
Hari 15 I	4	0	7	6	2	8	3	0	5	3	3	0
Hari 15 II	2	4	3	2	2	3	3	1	7	7	4	11

Tahun 2011

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.7	-	-	-	28.5	-	-	-	-	-	24.2	-
2	2.8	-	-	-	-	-	-	-	-	-	0.7	-
3	0.1	-	9.5	-	-	-	-	-	-	-	-	-
4	2.1	5.9	2.5	-	-	-	-	-	-	-	-	-
5	-	0.4	0.3	-	-	-	-	-	-	-	-	-
6	2.7	-	2.3	-	-	-	-	-	-	-	-	-
7	6.5	-	0.7	7.3	-	-	-	-	-	13.9	-	-
8	-	7.4	-	10.7	-	-	-	-	-	-	-	-
9	12.8	2.8	-	-	-	-	-	-	-	-	-	0.8
10	5.8	10.0	7.1	-	-	-	-	-	-	-	-	0.8
11	5.2	0.9	5.3	5.4	-	-	-	-	-	-	-	2.1
12	-	3.8	1.5	9.8	-	-	-	-	-	-	-	-
13	-	16.2	0.6	-	-	-	-	1.3	-	-	-	-
14	27.2	13.4	-	10.9	-	-	-	-	-	-	-	-
15	2.7	21.6	7.0	7.7	-	-	-	-	-	-	-	-
16	14.0	-	-	-	-	-	-	-	-	-	-	1.7
17	8.2	-	-	-	-	-	-	-	-	-	-	5.3
18	-	5.8	-	-	-	-	-	-	-	-	0.8	38.9
19	-	4.5	-	-	0.1	-	-	-	-	-	0.4	0.2
20	-	13.0	2.2	-	59.3	-	-	-	-	-	9.8	-
21	12.0	12.2	4.9	1.8	10.1	-	-	-	-	-	9.9	-
22	-	10.6	-	1.0	-	-	-	-	-	6.3	14.4	0.4
23	-	0.7	0.6	-	-	-	-	-	-	-	2.4	0.5
24	-	-	-	-	-	-	-	-	-	-	14.3	-
25	-	-	1.5	-	-	-	-	-	-	-	-	-
26	-	-	0.4	-	-	-	-	-	14.9	-	16.1	-
27	3.8	-	4.2	-	-	-	-	-	31.0	-	3.9	-
28	-	20.4	-	0.5	-	-	-	0.7	-	6.2	1.1	0.3
29	-	-	31.9	-	-	-	-	-	-	7.6	1.6	-
30	-	-	-	-	-	-	-	-	-	50.8	-	7.2
31	-	-	-	-	-	-	-	-	-	-	-	9.5
Jml	106.6	149.6	82.5	55.1	98	0	0	1.3	45.9	84.8	99.6	67.7
Max	27	22	32	11	59	0	0	1	31	51	24	39
Hari	15	17	17	9	4	0	0	1	2	5	13	12
T 15 hr I	69	82	37	52	29	0	0	1	0	14	25	4
T 15 hr II	38	67	46	3	70	0	0	0	46	71	75	64
Hari 15 I	11	10	10	6	1	0	0	1	0	1	2	3
Hari 15 II	4	7	7	3	3	0	0	0	2	4	11	9

Tahun 2012

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	35.6	-	1.0	15.4	-	-	-	-	-	-	-	-
2	28.5	11.0	26.9	-	-	-	-	-	-	-	6.2	6.0
3	0.1	5.5	6.5	8.6	-	-	-	-	-	4.7	56.8	20.9
4	6.0	0.3	1.0	-	-	48.4	-	-	-	-	16.8	-
5	2.3	-	37.2	5.8	-	-	-	-	0.3	-	-	6.3
6	-	22.5	13.4	-	-	-	-	-	-	-	11.6	-
7	-	1.5	1.5	3.5	-	-	-	-	-	-	8.4	36.7
8	-	-	-	-	-	-	-	-	-	-	3.4	0.8
9	-	1.3	-	-	-	-	-	-	-	-	-	27.9
10	2.2	2.7	-	4.4	15.0	-	-	-	-	-	-	5.1
11	-	0.6	-	17.6	-	-	-	-	-	3.1	-	27.2
12	-	38.5	1.4	49.2	-	-	-	-	-	0.2	-	16.6
13	1.2	43.7	9.5	-	-	-	-	-	-	0.2	-	4.4
14	-	0.3	12.7	3.3	-	-	-	-	-	-	17.2	0.8
15	-	-	0.1	28.9	-	-	2.9	-	-	-	-	16.0
16	-	1.7	0.8	-	-	-	12.2	0.4	-	-	-	9.3
17	-	-	-	46.5	40.0	-	-	0.9	-	-	-	0.5
18	-	2.4	-	0.5	38.0	-	-	-	-	-	-	9.3
19	-	6.3	-	5.5	-	0.1	-	-	-	2.8	-	12.7
20	-	2.3	-	0.9	-	-	-	-	-	-	-	34.7
21	47.3	10.2	0.2	0.2	35.0	0.2	-	-	-	0.2	-	-
22	2.9	-	-	-	30.0	-	-	-	-	-	-	-
23	0.5	1.8	3.3	-	-	-	-	-	-	-	-	0.7
24	-	21.7	-	26.5	-	-	-	-	-	-	-	25.9
25	-	-	-	11.5	-	-	-	-	-	-	3.3	44.5
26	-	0.2	-	-	-	-	-	-	-	11.8	-	34.2
27	-	-	-	0.1	28.0	0.1	-	-	-	18.1	-	4.6
28	-	-	-	-	-	22.1	-	-	-	-	-	-
29	-	-	-	-	-	1.1	-	-	-	-	3.4	3.0
30	-	-	-	-	-	-	-	-	-	5.5	-	6.2
31	-	-	-	-	20.0	-	-	-	-	13.9	-	-
Jml	126.6	174.5	115.5	228.4	206	72	15.1	1.3	0.3	60.5	127.1	354.3
Max	47	44	37	49	40	48	12	1	0	18	57	45
Hari	10	19	14	17	7	6	2	2	1	10	9	24
T 15 hr I	76	128	111	137	15	48	3	0	0	8	120	169
T 15 hr II	51	47	4	92	191	24	12	1	0	52	7	186
Hari 15 I	7	11	11	9	1	1	1	0	1	4	7	12
Hari 15 II	3	8	3	8	6	5	1	2	0	6	2	12

Tahun 2013

Tanggal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	6.1	-	0.2	0.5	0.1	-	-	-	-	0.8	-
2	-	16.5	-	-	-	-	-	-	-	0.5	-	-
3	-	5.3	1.1	3.0	-	0.1	-	-	-	-	1.5	-
4	-	0.3	9.2	4.5	-	-	-	-	-	-	0.1	18.1
5	-	-	37.2	6.6	-	-	-	-	-	-	-	116.1
6	-	5.6	16.1	-	7.7	0.5	-	-	-	-	10.5	0.1
7	-	-	7.5	-	3.3	1.4	-	-	-	-	14.5	0.1
8	0.2	10.4	2.4	3.0	-	-	-	-	-	-	-	0.6
9	0.5	-	3.3	4.3	2.1	7.8	-	-	-	-	-	4.9
10	-	8.2	-	0.9	-	-	-	-	-	-	-	0.6
11	2.1	1.5	-	2.0	-	-	-	-	-	-	10.3	76.0
12	-	14.9	-	-	2.7	-	-	-	-	-	-	28.3
13	-	15.2	-	32.2	-	-	-	-	-	-	0.7	1.8
14	-	0.1	1.3	8.3	-	-	-	-	-	-	26.6	85.7
15	-	5.5	16.2	2.2	-	-	4.1	-	-	10.1	0.2	22.8
16	-	4.6	3.1	62.2	-	-	-	-	-	1.5	4.3	2.0
17	-	-	13.3	0.2	-	16.1	-	-	-	11.0	-	20.3
18	-	-	-	-	-	0.2	-	-	-	-	0.1	0.6
19	7.3	-	-	-	-	2.2	-	-	-	2.3	-	17.7
20	26.2	-	-	-	-	6.3	2.3	-	-	2.7	16.8	33.4
21	0.7	-	-	-	0.5	0.2	-	-	-	-	-	10.2
22	12.4	-	-	2.1	0.9	-	-	-	-	-	1.0	3.5
23	1.0	-	-	-	8.7	-	-	-	-	-	-	18.0
24	-	-	-	0.1	41.0	-	-	5.0	-	-	-	54.9
25	24.9	-	-	-	-	-	-	-	-	-	-	3.2
26	4.6	14.4	-	-	7.8	-	-	-	-	55.5	24.5	1.3
27	-	11.8	16.6	-	-	-	-	-	-	-	22.7	-
28	-	7.0	-	-	-	-	-	-	-	-	1.0	-
29	3.8	-	-	-	0.4	-	-	-	-	-	3.2	-
30	6.3	-	-	-	-	-	-	-	-	-	-	-
31	20.0	-	0.3	-	-	-	-	-	-	-	-	-
Jml	110	127.4	127.6	131.8	75.6	34.9	6.4	5	0	83.6	138.8	520.2
Max	26	17	37	62	41	16	4	5	0	56	27	116
Hari	13	16	13	15	11	10	2	1	0	7	17	23
T 15 hr I	3	90	94	67	16	10	4	0	0	11	65	355
T 15 hr II	107	38	33	65	59	25	2	5	0	73	74	165
Hari 15 I	3	12	9	11	5	5	1	0	0	2	9	12
Hari 15 II	10	4	4	4	6	5	1	1	0	5	8	11

Tahun 2014

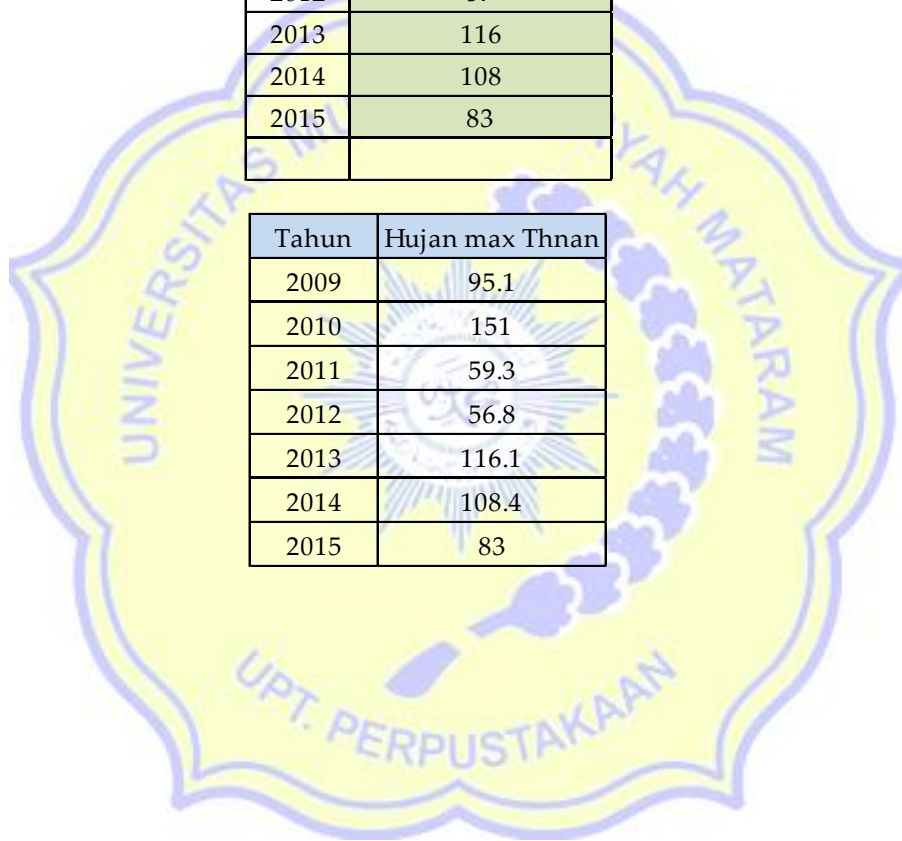
Tgl	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	20.1	-	-	-	-	-	5.7	-	-	-	-	19.0
2	43.9	-	-	45.7	0.6	-	-	-	-	-	-	11.7
3	12.5	-	-	0.1	-	-	-	-	-	-	-	5.1
4	29.5	1.6	0.3	-	-	-	-	-	-	-	0.3	0.3
5	1.3	-	2.4	6.3	-	0.3	-	-	-	-	-	4.5
6	2.1	-	-	0.1	0.2	-	-	-	-	0.9	-	11.4
7	-	-	-	0.2	12.2	-	-	-	-	-	-	6.7
8	14.4	-	-	-	-	-	0.1	-	-	-	0.4	3.1
9	2.4	28.0	-	0.2	-	-	-	-	-	-	0.1	0.3
10	0.2	-	-	0.1	-	1.0	-	-	-	-	-	3.7
11	0.8	31.5	-	0.1	0.4	-	-	-	-	-	-	0.1
12	-	1.7	-	1.2	-	-	-	-	-	-	0.6	-
13	4.0	18.0	-	0.1	-	-	38.9	-	-	-	15.9	-
14	20.8	19.0	-	1.9	2.8	-	0.9	-	-	-	89.8	-
15	-	2.0	-	5.6	-	-	-	-	-	-	14.4	0.2
16	13.2	-	-	0.4	-	-	-	-	-	-	21.3	13.4
17	-	-	-	33.3	-	-	-	-	-	-	1.7	49.4
18	0.2	-	-	0.9	-	-	0.1	-	-	-	1.0	0.1
19	9.7	-	-	84.4	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	0.3	-	-	-	3.8	3.5
21	23.9	-	-	0.1	-	-	-	-	-	-	-	7.8
22	0.6	-	-	71.6	-	-	-	-	-	-	0.1	2.0
23	20.6	-	-	-	-	8.6	-	-	-	-	7.7	2.3
24	37.5	-	-	1.8	-	-	-	-	-	1.6	-	20.4
25	22.2	-	-	-	-	-	-	-	-	-	-	0.1
26	2.7	-	-	-	-	-	-	-	-	-	-	108.4
27	1.2	-	-	-	-	-	-	-	-	-	-	12.4
28	-	-	-	-	-	-	-	-	-	-	-	58.5
29	-	-	-	-	-	-	-	-	-	-	-	7.3
30	1.8	-	-	-	-	-	-	-	-	-	-	3.9
31	1.7	-	-	-	-	-	-	-	-	-	-	47.8
Jml	287.3	101.8	2.7	254.1	16.2	9.9	46	0	0	2.5	157.1	403.4
Max	44	32	2	84	12	9	39	0	0	2	90	108
Hari	24	7	2	19	5	3	6	0	0	2	13	27
T 15 hr I	152	102	3	62	16	1	46	0	0	1	122	66
T 15 hr II	135	0	0	193	0	9	0	0	0	2	36	337
Hari 15 I	12	7	2	12	5	2	4	0	0	1	7	12
Hari 15 II	12	0	0	7	0	1	2	0	0	1	6	15

Tahun 2015

Tgl	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	13.3	52.8	-	0.5	13.7	-	-	-	-	-	-	-
2	7.3	0.1	-	2.8	63.3	-	-	-	-	-	-	19.9
3	11.5	8.8	0.7	2.3	0.2	-	-	-	-	-	-	-
4	5.4	3.7	-	-	24.4	-	-	-	-	-	-	-
5	0.6	27.0	54.8	-	0.2	-	-	-	-	-	-	0.2
6	0.5	20.2	17.3	21.7	-	-	-	-	-	-	-	0.4
7	-	12.5	29.5	9.1	-	-	-	-	-	-	-	-
8	-	2.5	0.1	-	2.1	0.8	-	-	-	-	-	0.1
9	0.2	7.5	1.9	-	0.1	-	-	-	-	5.9	6.2	14.0
10	2.2	0.1	45.0	-	3.6	-	-	-	-	-	4.2	7.3
11	-	8.2	36.2	0.6	0.2	-	-	-	-	-	-	27.2
12	-	0.2	0.3	53.0	-	-	-	-	-	-	16.7	8.0
13	5.5	5.2	5.0	-	-	-	-	-	-	-	-	1.4
14	23.8	4.0	-	83.0	-	-	-	-	-	-	-	0.3
15	18.8	2.2	0.2	11.4	-	-	-	-	-	-	-	-
16	-	0.1	-	3.6	-	-	-	-	-	-	-	-
17	0.1	4.3	0.2	-	-	-	-	-	-	-	66.3	-
18	3.8	15.9	-	0.6	-	-	-	-	-	-	0.1	19.7
19	4.0	0.1	0.1	15.6	-	-	10.4	-	-	-	34.2	65.7
20	11.8	7.7	-	-	-	-	-	-	-	-	-	6.3
21	-	5.1	-	-	-	-	-	-	-	1.9	-	2.6
22	0.8	0.5	-	-	4.6	-	-	-	-	-	-	-
23	5.8	-	-	-	-	-	-	-	-	-	9.1	-
24	0.1	0.6	17.9	4.9	-	-	-	-	-	-	-	1.5
25	0.8	0.6	-	2.2	-	-	-	-	-	-	18.0	21.2
26	-	-	-	5.5	-	-	-	-	-	-	21.8	0.1
27	-	-	-	-	-	-	-	-	-	-	-	0.1
28	3.1	-	13.8	-	-	-	-	-	-	-	3.7	-
29	-	9.0	2.0	-	-	-	-	-	-	-	-	-
30	13.3	9.0	-	-	27.6	0.3	-	-	-	-	-	-
31	14.9	9.0	-	-	-	-	-	-	9.0	-	-	-
Jml	147.6	216.9	225	216.8	140	1.1	10.4	0	9	7.8	180.27	196
Max	24	53	55	83	63	1	10	0	9	6	66	66
Hari	22	27	16	15	11	2	1	0	1	2	10	18
T 15 hr I	89	155	191	184	108	1	0	0	0	6	27	79
T 15 hr II	59	62	34	32	32	0	10	0	9	2	153	117
Hari 15 I	11	15	11	9	9	1	0	0	0	1	3	10
Hari 15 II	11	12	5	6	2	1	1	0	1	1	7	8

Tahun	Hujan max Thnan
2001	0
2002	0
2003	0
2004	0
2005	0
2006	0
2007	0
2008	0
2009	95
2010	151
2011	59
2012	57
2013	116
2014	108
2015	83

Tahun	Hujan max Thnan
2009	95.1
2010	151
2011	59.3
2012	56.8
2013	116.1
2014	108.4
2015	83



CURAH HUJAN RERATA DAERAH

Tahun 2009

Tgl	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Ags	Sep	Okt	Nov	Des
1	0	0	2	0	0	0	0	0	0	0	0	0
2	0	2	0	1	0	0	1	0	1	0	12	0
3	0	26	4	7	0	0	0	0	1	0	0	9
4	0	4	2	0	0	0	0	0	0	8	0	13
5	0	0	15	0	0	0	0	0	10	14	14	25
6	14	10	0	0	0	0	0	0	0	0	4	37
7	10	0	0	0	0	0	0	0	0	0	7	0
8	0	0	0	0	0	0	0	0	14	0	0	0
9	27	20	2	0	27	7	0	0	0	10	0	4
10	65	0	0	1	0	6	0	0	0	1	0	1
11	0	47	0	1	13	0	0	0	0	9	9	1
12	10	26	0	0	9	0	0	0	0	16	8	0
13	140	0	1	1	0	0	0	0	1	0	7	0
14	92	0	0	2	0	0	0	0	0	0	0	0
15	54	0	0	0	0	0	0	0	0	0	14	0
16	53	10	26	8	7	0	0	0	0	0	3	2
17	0	2	23	1	5	0	0	0	0	0	3	7
18	0	0	0	4	0	0	0	0	0	0	0	27
19	6	24	0	2	0	0	0	0	0	0	10	3
20	119	0	0	0	0	0	0	0	5	0	0	0
21	0	0	0	0	0	0	0	0	4	2	6	0
22	0	4	0	2	0	0	0	0	12	0	1	1
23	0	1	0	0	0	0	1	0	0	3	0	2
24	0	1	9	0	0	0	7	0	0	1	0	2
25	0	0	0	0	1	0	0	0	0	0	0	0
26	0	3	0	0	6	0	0	0	0	0	0	2
27	17	0	8	0	0	0	0	0	0	10	10	9
28	15	4	2	0	0	0	0	0	0	13	8	1
29	14	0	7	0	2	0	0	0	0	14	0	0
30	13	0	0	0	0	0	0	0	7	0	0	13
31	3	0	8	0	0	0	0	0	0	0	0	7
T 10 hr I	116	62	26	9	27	13	1	0	25	33	38	89
T 10 hr II	474	109	49	19	34	0	0	0	7	24	54	39
T 10 hr III	62	14	34	2	10	0	8	0	23	42	26	38
MAX	140	47	26	8	27	7	7	0	14	16	14	37
Jml	652	185	110	30	70	13	9	0	55	99	118	166
T 15 hr I	412	135	27	13	48	13	1	0	27	57	77	91
T 15 hr II	240	50	83	16	22	0	8	0	29	42	42	75
Hari 15 I	8	9	6	6	4	2	1	0	7	7	10	9
Hari 15 II	8	8	7	5	6	0	3	1	6	7	8	14

Tahun 2010

Tgl	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Ags	Sep	Okt	Nov	Des
1	0	2	0	0	18	2	0	0	0	15	20	0
2	0	9	8	0	0	3	1	0	0	0	0	0
3	0	2	8	0	1	0	35	0	0	0	1	0
4	0	1	1	47	0	8	18	0	0	0	0	0
5	0	6	21	8	0	0	12	0	0	0	2	0
6	0	1	19	0	4	0	0	0	19	0	0	0
7	18	0	0	0	9	0	0	0	22	9	69	0
8	17	1	39	32	0	0	0	0	2	1	13	0
9	42	0	19	0	0	1	0	0	4	19	0	0
10	0	0	7	20	0	6	0	0	20	10	0	0
11	5	0	6	38	0	11	17	0	19	0	0	0
12	2	0	0	15	0	0	7	0	6	0	0	0
13	0	3	9	26	6	0	0	0	17	4	3	0
14	30	0	1	0	2	0	0	2	20	0	0	0
15	1	0	0	13	0	0	0	0	1	1	7	0
16	16	0	0	9	0	0	0	0	17	11	0	0
17	0	0	2	1	7	5	0	0	2	0	0	0
18	0	0	0	0	0	0	0	0	39	18	0	0
19	6	12	24	27	0	0	0	0	16	0	0	8
20	1	0	0	42	0	0	0	0	45	0	10	5
21	1	0	19	0	14	0	0	1	38	27	1	12
22	17	14	0	0	0	0	0	2	45	23	44	5
23	2	18	0	0	0	0	0	0	27	78	7	3
24	3	8	0	0	0	0	0	0	19	0	7	0
25	0	0	1	0	0	0	0	0	6	23	0	9
26	0	4	0	0	0	1	7	0	0	10	2	5
27	1	0	5	0	0	4	6	0	0	0	21	26
28	0	0	15	0	12	0	18	0	0	1	108	18
29	0	0	8	0	0	0	0	0	0	0	2	3
30	0	0	1	19	13	0	0	26	0	40	0	0
31	5	0	0	0	0	0	0	1	0	18	0	7
T 10 hr I	77	22	123	108	32	20	66	0	68	53	105	0
T 10 hr II	61	16	42	170	16	16	24	2	181	34	21	13
T 10 hr III	29	44	47	20	39	4	32	32	136	220	192	89
MAX	42	18	39	47	18	11	35	26	45	78	108	26
Jml	167	82	212	297	86	40	123	33	385	307	318	102
T 15 hr I	115	25	140	199	40	31	91	2	130	57	115	0
T 15 hr II	52	57	73	98	46	9	32	32	255	250	203	102
Hari 15 I	8	10	14	15	8	8	6	1	12	9	9	0
Hari 15 II	12	9	9	9	6	4	3	7	10	13	11	12

Tahun 2011

Tgl	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Ags	Sep	Okt	Nov	Des
1	0	2	0	0	37	0	0	0	0	0	17	0
2	2	9	0	0	0	0	0	0	0	0	0	3
3	0	2	8	0	1	0	0	0	0	0	0	0
4	1	5	3	4	0	0	0	0	0	0	6	5
5	0	6	3	3	0	0	0	0	0	0	8	8
6	2	1	2	0	4	0	0	0	0	0	5	0
7	6	0	1	5	7	0	0	0	0	10	0	0
8	0	6	1	9	0	0	0	0	0	0	9	0
9	10	2	0	0	0	0	0	0	0	0	0	1
10	4	7	5	20	0	0	0	0	0	0	7	1
11	8	1	10	9	0	1	0	0	0	0	4	7
12	2	3	1	9	0	0	0	0	0	0	2	0
13	0	14	10	7	6	0	0	1	0	0	2	0
14	20	9	1	7	0	0	0	0	0	0	0	0
15	3	15	5	7	0	0	0	0	0	0	0	0
16	18	0	0	9	0	0	0	0	0	2	6	2
17	6	0	2	1	7	0	0	0	0	0	3	7
18	0	4	0	0	0	0	0	0	0	0	13	42
19	1	3	0	5	0	0	0	0	0	1	0	8
20	1	9	1	0	40	0	0	0	0	0	7	0
21	9	8	3	1	7	0	0	0	0	0	7	0
22	0	7	0	1	0	0	0	0	0	6	17	2
23	2	1	0	0	0	0	0	0	0	2	10	3
24	3	0	0	0	0	0	0	0	0	0	10	1
25	0	0	2	0	0	0	0	0	0	11	0	0
26	0	4	0	0	0	0	0	0	10	3	11	1
27	3	0	8	0	0	0	0	0	21	2	3	0
28	0	14	2	0	0	0	0	0	0	7	2	0
29	0	0	29	0	0	0	0	0	0	13	1	0
30	0	0	1	19	13	0	0	0	0	35	2	5
31	5	0	0	0	0	0	0	0	0	1	0	8
T 10 hr I	26	40	23	41	49	0	0	0	0	11	53	17
T 10 hr II	58	57	29	54	54	1	0	1	0	3	38	66
T 10 hr III	23	35	46	22	20	0	0	0	31	80	63	21
MAX	20	15	29	20	40	1	0	1	21	35	17	42
Jml	108	132	98	117	123	1	0	1	32	94	154	104
T 15 hr I	60	81	50	80	55	1	0	1	0	11	62	24
T 15 hr II	48	52	49	37	67	0	0	0	31	83	92	80
Hari 15 I	12	14	15	15	8	2	1	1	2	3	14	10
Hari 15 II	11	12	11	12	7	2	1	1	3	14	14	12

Tahun 2012

Tgl	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Ags	Sep	Okt	Nov	Des
1	25	2	2	15	4	0	0	0	0	0	1	0
2	19	26	20	0	0	0	0	0	0	0	8	20
3	0	9	9	8	0	0	0	0	0	3	39	19
4	4	2	1	7	0	33	0	0	0	0	11	0
5	3	4	26	4	0	0	0	0	0	0	0	6
6	5	15	9	0	0	0	0	0	0	6	9	1
7	7	1	13	3	0	0	0	0	0	6	6	25
8	22	4	2	0	0	0	0	0	0	0	2	6
9	14	5	1	4	0	0	0	0	0	0	0	39
10	2	2	0	3	10	0	0	0	0	0	0	3
11	9	1	0	12	0	0	0	0	0	2	0	26
12	6	27	1	39	9	0	0	0	0	0	6	12
13	1	30	6	0	0	0	0	0	0	0	0	3
14	1	0	9	2	0	0	0	0	0	0	12	1
15	1	4	9	20	0	0	2	0	0	0	0	11
16	0	1	1	0	0	0	8	0	0	1	1	6
17	0	0	0	32	27	0	0	1	0	0	0	0
18	0	32	2	0	34	0	0	0	0	0	3	6
19	0	5	7	4	0	5	0	0	0	4	1	10
20	8	4	14	2	0	0	0	0	0	0	6	25
21	46	7	0	0	24	0	0	0	0	0	0	0
22	2	0	0	0	20	0	0	0	0	0	0	0
23	7	1	2	0	0	0	0	0	0	0	0	0
24	0	15	0	18	0	0	0	0	0	0	0	18
25	0	3	0	8	0	0	0	0	0	0	2	32
26	0	0	0	0	0	0	0	0	0	8	0	23
27	0	0	0	0	19	0	0	0	1	13	1	6
28	6	0	0	0	0	15	0	0	0	0	0	0
29	4	0	0	0	0	1	0	0	0	0	2	2
30	1	0	0	2	0	0	0	0	0	4	0	4
31	4	0	0	0	14	0	0	0	0	9	0	0
T 10 hr I	101	69	84	43	15	33	0	0	0	16	77	120
T 10 hr II	26	103	49	110	70	5	11	1	0	7	28	100
T 10 hr III	70	26	3	28	77	16	0	0	1	34	5	85
MAX	46	32	26	39	34	33	8	1	1	13	39	39
Jml	196	199	136	181	162	54	11	1	2	57	111	305
T 15 hr I	118	131	109	116	24	33	2	0	0	18	95	172
T 15 hr II	77	68	27	66	138	21	9	1	1	39	16	133
Hari 15 I	15	15	13	11	7	1	1	0	1	7	11	15
Hari 15 II	9	10	7	10	7	6	3	3	2	8	7	12

Tahun 2013

Tgl	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Ags	Sep	Okt	Nov	Des
1	9	5	1	0	20	0	1	0	0	0	1	0
2	5	12	1	0	0	0	0	0	0	0	5	0
3	7	4	1	2	0	0	0	0	0	0	1	0
4	0	0	6	3	0	1	0	0	0	0	2	15
5	4	0	25	7	0	0	0	0	0	0	0	87
6	0	4	11	0	14	1	0	0	0	0	16	0
7	13	0	5	0	2	1	0	0	0	0	10	2
8	1	7	2	6	0	0	0	0	0	0	0	11
9	1	3	5	4	5	11	0	0	0	0	0	13
10	0	6	0	1	0	0	0	0	0	0	4	3
11	2	1	0	2	0	0	5	0	1	0	7	56
12	1	11	6	0	2	9	0	0	0	0	4	22
13	0	10	0	22	0	0	0	0	0	0	1	1
14	0	0	1	6	0	0	0	0	0	0	19	61
15	5	4	11	6	2	0	3	0	0	15	0	31
16	1	4	3	52	0	0	0	0	0	2	3	3
17	0	0	9	0	0	11	0	0	0	12	0	17
18	0	0	0	0	1	0	0	0	0	0	2	9
19	7	0	0	0	0	6	0	0	0	4	0	13
20	26	22	22	0	0	4	2	0	0	3	29	37
21	0	0	0	0	0	0	0	0	0	0	0	10
22	8	0	0	1	1	0	0	0	0	0	2	4
23	1	0	0	0	6	0	0	0	0	0	0	18
24	0	0	0	0	28	0	0	4	0	1	0	46
25	18	0	0	0	8	0	0	0	0	6	1	3
26	3	10	0	0	5	0	0	0	0	44	33	2
27	0	15	18	0	0	0	0	0	0	1	16	0
28	0	5	0	0	0	0	0	0	0	3	1	0
29	3	0	0	0	0	1	1	1	0	0	3	0
30	29	0	0	0	0	12	0	0	0	0	0	0
31	14	0	0	0	0	0	0	0	0	0	0	9
T 10 hr I	40	42	58	22	41	14	1	0	0	0	37	132
T 10 hr II	41	53	53	88	5	31	9	0	1	36	64	250
T 10 hr III	76	29	18	1	48	14	1	5	0	54	54	93
MAX	29	22	25	52	28	12	5	4	1	44	33	87
Jml	157	124	130	111	94	59	11	5	1	91	156	474
T 15 hr I	47	69	77	58	45	23	9	0	1	15	68	303
T 15 hr II	110	56	53	53	49	36	3	5	0	75	88	171
Hari 15 I	11	13	13	12	7	11	4	1	1	2	12	13
Hari 15 II	13	5	5	5	10	9	4	3	0	10	10	14

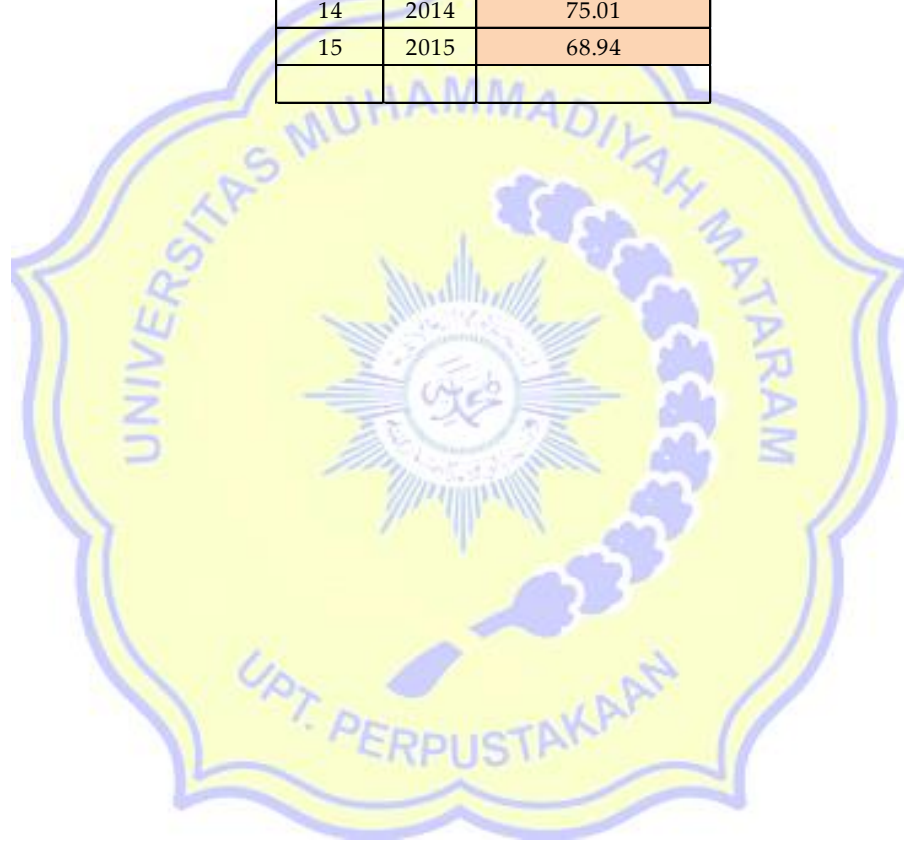
Tahun 2014

Tgl	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Ags	Sep	Okt	Nov	Des
1	14	4	0	0	0	0	4	0	0	0	0	16
2	30	3	0	31	0	0	0	0	0	0	0	13
3	9	0	0	0	0	0	0	0	0	0	0	6
4	23	1	4	0	0	0	0	0	0	0	0	1
5	9	0	22	4	0	0	0	0	0	0	1	4
6	1	0	1	0	0	0	2	0	0	1	0	10
7	2	0	4	0	9	0	0	0	0	0	11	8
8	20	2	2	0	0	0	0	0	0	0	0	2
9	11	44	0	1	0	0	0	0	0	0	7	0
10	3	0	9	0	0	1	0	0	0	0	10	4
11	4	24	4	0	0	0	0	0	0	0	3	0
12	2	1	1	1	0	0	0	0	0	0	2	0
13	3	12	5	0	0	0	30	0	0	0	18	0
14	17	19	0	1	2	0	1	0	0	0	61	0
15	16	2	0	5	1	0	0	0	0	0	10	0
16	10	0	0	3	0	0	0	0	0	0	15	9
17	4	36	0	23	0	0	0	0	0	0	8	36
18	8	0	0	9	0	0	0	0	0	0	5	0
19	8	3	22	59	0	0	0	0	0	0	0	1
20	14	0	0	0	0	0	0	0	0	0	3	3
21	19	9	3	0	0	0	0	0	0	0	0	5
22	2	2	1	50	0	0	0	0	0	0	2	1
23	20	2	0	0	0	6	0	0	0	0	6	3
24	34	0	0	2	0	0	0	0	0	10	0	14
25	16	0	0	0	0	0	0	0	0	0	1	0
26	3	0	0	2	8	0	0	0	0	0	0	75
27	1	0	0	0	0	0	0	0	0	0	1	11
28	0	0	0	0	0	0	0	0	0	0	2	44
29	0	0	0	7	0	0	0	0	0	0	14	5
30	2	0	0	0	0	0	0	0	0	1	0	3
31	10	0	0	0	0	0	0	0	0	0	0	35
T 10 hr I	122	53	41	37	10	1	6	0	0	1	31	63
T 10 hr II	86	97	31	101	4	0	32	0	0	0	125	49
T 10 hr III	107	13	4	60	8	7	0	0	0	11	27	196
MAX	34	44	22	59	9	6	30	0	0	10	61	75
Jml	315	163	76	198	22	8	38	0	0	12	182	309
T 15 hr I	165	112	51	44	14	1	37	0	0	1	125	64
T 15 hr II	151	51	26	154	8	7	1	0	0	11	58	245
Hari 15 I	15	11	10	12	8	3	5	1	0	2	11	12
Hari 15 II	14	5	4	11	3	2	4	0	0	2	13	16

Tahun 2015

Tgl	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Ags	Sep	Okt	Nov	Des
1	23	36	0	0	9	22	0	0	0	0	0	0
2	10	0	0	7	69	0	0	0	0	0	0	15
3	12	7	0	2	0	0	0	0	0	0	0	3
4	5	3	4	2	31	0	0	0	0	0	0	0
5	0	18	58	4	0	0	0	0	0	0	0	0
6	0	14	12	16	0	0	0	0	0	0	0	4
7	0	15	24	9	0	0	0	0	0	0	0	0
8	0	3	2	0	1	1	0	0	0	0	0	2
9	1	6	1	0	0	0	0	0	0	4	4	30
10	2	0	39	0	2	0	0	0	0	0	3	25
11	0	10	29	1	1	0	0	0	0	0	0	19
12	1	2	1	36	0	0	0	0	0	0	11	19
13	5	4	8	0	0	0	0	0	0	0	0	2
14	17	3	0	59	0	0	0	0	0	0	0	0
15	18	10	0	9	0	1	0	0	0	0	0	0
16	0	0	0	4	0	0	0	0	0	0	0	3
17	0	3	0	0	0	0	0	0	0	0	45	17
18	6	11	0	11	0	0	0	0	0	0	0	20
19	3	0	22	11	0	0	7	0	0	0	23	48
20	8	6	0	1	0	0	0	0	0	0	0	4
21	0	6	3	0	0	0	0	0	0	1	0	2
22	4	0	1	3	3	0	0	0	0	0	0	0
23	7	4	0	0	4	0	0	0	0	0	6	0
24	0	1	16	7	0	0	0	0	0	0	0	1
25	1	2	0	8	0	0	0	0	0	0	12	19
26	0	0	0	4	0	0	0	0	0	0	15	0
27	0	13	0	0	0	0	0	0	0	0	0	0
28	5	0	9	11	0	0	0	0	0	0	3	0
29	0	6	2	0	0	0	0	0	0	0	0	0
30	10	6	0	0	19	0	0	0	0	0	0	0
31	42	6	0	0	0	3	0	0	6	0	0	0
T 10 hr I	54	101	141	39	113	22	0	0	0	4	7	78
T 10 hr II	58	48	60	131	1	1	7	0	0	0	80	132
T 10 hr III	70	44	31	34	26	3	0	0	6	1	36	22
MAX	42	36	58	59	69	22	7	0	6	4	45	48
Jml	182	194	232	204	141	26	7	0	6	5	123	233
T 15 hr I	96	130	179	144	115	23	0	0	0	4	18	118
T 15 hr II	86	63	53	60	26	3	7	0	6	1	104	115
Hari 15 I	12	15	13	12	9	4	1	0	1	1	3	11
Hari 15 II	13	14	8	12	3	3	4	0	1	1	7	11

Tahun	Tahun	Hujan max Thnan
1	2001	0.000
2	2002	0.000
3	2003	0.000
4	2004	0.000
5	2005	0.000
6	2006	0.000
7	2007	0.000
8	2008	0.000
9	2009	139.651
10	2010	108.339
11	2011	41.513
12	2012	46.217
13	2013	87.426
14	2014	75.01
15	2015	68.94



Lampiran Tabel 1. Hujan Harian Maksimum

No	Tanggal			St. Kuripan	St. Monjok	Jumlah	Hujan Max Tahunan (mm)
		St. Kuripan	St. Monjok	0.681	0.319		
1	19 - 11 - 2001	0	0	0.000	0.000	0.000	0.000
	9 - 1 - 2001	0	0	0.000	0.000	0.000	
	1 - 1 - 2001	0	0	0.000	0.000	0.000	
2	1 - 1 - 2002	0	0	0.000	0.000	0.000	0.000
	2 - 2 - 2002	0	0	0.000	0.000	0.000	
	1 - 1 - 2002	0	0	0.000	0.000	0.000	
3	1 - 1 - 2003	0	0	0.000	0.000	0.000	0.000
	11 - 9 - 2003	0	0	0.000	0.000	0.000	
	1 - 1 - 2003	0	0	0.000	0.000	0.000	
4	1 - 1 - 2004	0	0	0.000	0.000	0.000	0.000
	17 - 2 - 2004	0	0	0.000	0.000	0.000	
	1 - 1 - 2004	0	0	0.000	0.000	0.000	
5	1 - 1 - 2005	0	0	0.000	0.000	0.000	0.000
	7 - 4 - 2005	0	0	0.000	0.000	0.000	
	1 - 1 - 2005	0	0	0.000	0.000	0.000	
6	1 - 1 - 2006	0	0	0.000	0.000	0.000	0.000
	5 - 1 - 2006	0	0	0.000	0.000	0.000	
	1 - 1 - 2006	0	0	0.000	0.000	0.000	
7	21 - 11 - 2007	0	0	0.000	0.000	0.000	0.000
	5 - 4 - 2007	0	0	0.000	0.000	0.000	
	26 - 11 - 2007	0	0	0.000	0.000	0.000	
8	1 - 1 - 2008	0	0	0.000	0.000	0.000	0.000
	8 - 4 - 2008	0	0	0.000	0.000	0.000	
	1 - 1 - 2008	0	0	0.000	0.000	0.000	
9	10 - 1 - 2009	95	0	64.801	0.000	64.801	139.651
	13 - 1 - 2009	60	310	40.884	98.767	139.651	
10	28 - 11 - 2010	151	17	102.891	5.448	108.339	108.339
	23 - 10 - 2010	19	205	12.947	65.154	78.101	
11	20 - 5 - 2011	59	0	40.407	0.000	40.407	41.513
	18 - 12 - 2011	39	47	26.506	15.006	41.513	
12	21 - 1 - 2012	47	44	32.230	13.987	46.217	46.217
	18 - 2 - 2012	2	94	1.635	30.076	31.712	
13	5 - 12 - 2013	116	26	79.110	8.316	87.426	87.426
	30 - 1 - 2013	6	77	4.293	24.660	28.953	
14	26 - 12 - 2014	108	4	73.863	1.147	75.010	75.010
	17 - 2 - 2014	0	114	0.000	36.257	36.257	
15	14 - 4 - 2015	83	8	56.556	2.613	59.168	68.939
	2 - 5 - 2015	63	81	43.132	25.807	68.939	

Lampiran Tabel 1. Hujan Harian Maksimum

No	Tanggal			St. Kuripan	St. Monjok	Jumlah	Hujan Max Tahunan (mm)
		St. Kuripan	St. Monjok	0.681	0.319		
1	10 - 1 - 2009	95	0	64.801	0.000	64.801	139.651
	13 - 1 - 2009	60	310	40.884	98.767	139.651	
2	28 - 11 - 2010	151	17	102.891	5.448	108.339	108.339
	23 - 10 - 2010	19	205	12.947	65.154	78.101	
3	20 - 5 - 2011	59	0	40.407	0.000	40.407	41.513
	18 - 12 - 2011	39	47	26.506	15.006	41.513	
4	21 - 1 - 2012	47	44	32.230	13.987	46.217	46.217
	18 - 2 - 2012	2	94	1.635	30.076	31.712	
5	5 - 12 - 2013	116	26	79.110	8.316	87.426	87.426
	30 - 1 - 2013	6	77	4.293	24.660	28.953	
6	26 - 12 - 2014	108	4	73.863	1.147	75.010	75.010
	17 - 2 - 2014	0	114	0.000	36.257	36.257	
7	14 - 4 - 2015	83	8	56.556	2.613	59.168	68.939
	2 - 5 - 2015	63	81	43.132	25.807	68.939	

Rekap Hujan Maksimum Tahunan

No	Tahun	0	St. Kuripan	St. Monjok	0
1	2001	0	0	0	0
2	2002	0	0	0	0
3	2003	0	0	0	0
4	2004	0	0	0	0
5	2005	0	0	0	0
6	2006	0	0	0	0
7	2007	0	0	0	0
8	2008	0	0	0	0
9	2009	0	95	372	0
10	2010	0	151	205	0
11	2011	0	59	62	0
12	2012	0	57	94	0
13	2013	0	116	77	0
14	2014	0	108	114	0
15	2015	0	83	102	0

CURAH HUJAN 15 HARIAN

CURAH HUJAN 15 HARIAN Sub DAS Klongkong

No.	Tahun	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec		Total
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	
1	2009	412	240	135	50	27	83	13	16	48	22	13	0	1	8	0	0	27	29	57	42	77	42	91	75	1507.2
2	2010	115	52	25	57	140	73	199	98	40	46	31	9	91	32	2	32	130	255	57	250	115	203	0	102	2153.1
3	2011	60	48	81	52	50	49	80	37	55	67	1	0	0	0	1	0	0	31	11	83	62	92	24	80	964.6
4	2012	118	77	131	68	109	27	116	66	24	138	33	21	2	9	0	1	0	1	18	39	95	16	172	133	1414.3
5	2013	47	110	69	56	77	53	58	53	45	49	23	36	9	3	0	5	1	0	15	75	68	88	303	171	1413.0
6	2014	165	151	112	51	51	26	44	154	14	8	1	7	37	1	0	0	0	0	1	11	125	58	64	245	1324.4
7	2015	96	86	130	63	179	53	144	60	115	26	23	3	0	7	0	0	0	6	4	1	18	104	118	115	1353.4
	max	411.9	240.0	135.3	68.2	178.9	82.9	198.9	154.4	114.7	138.0	33.0	35.5	90.5	32.0	2.0	31.5	129.9	254.8	57.4	250.1	124.7	202.9	303.0	245.1	
	min	47.1	47.9	24.5	49.6	26.9	25.9	13.3	16.4	13.7	7.9	0.9	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.6	1.3	18.5	16.1	0.0	75.0	
	rerata	144.6	109.2	97.4	56.7	90.2	51.9	93.5	69.2	48.7	50.9	17.9	10.8	19.9	8.6	0.5	5.4	22.6	46.1	23.3	71.7	80.0	86.0	110.2	131.6	

Data jumlah hari hujan

No.	Tahun	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec		Total
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	
1	2009	8	8	9	8	6	7	6	5	4	6	2	0	1	3	0	1	7	6	7	7	10	8	9	14	142.0
2	2010	8	12	10	9	14	9	15	9	8	6	8	4	6	3	1	7	12	10	9	13	9	11	0	12	205.0
3	2011	12	11	14	12	15	11	15	12	8	7	2	2	1	1	1	1	2	3	3	14	14	14	10	12	197.0
4	2012	15	9	15	10	13	7	11	10	7	7	1	6	1	3	0	3	1	2	7	8	11	7	15	12	181.0
5	2013	11	13	13	5	13	5	12	5	7	10	11	9	4	4	1	3	1	0	2	10	12	10	13	14	188.0
6	2014	15	14	11	5	10	4	12	11	8	3	3	2	5	4	1	0	0	0	2	2	11	13	12	16	164.0
7	2015	12	13	15	14	13	8	12	12	9	3	4	3	1	4	0	0	1	1	1	1	3	7	11	11	159.0
	rerata	11.6	11.4	12.4	9.0	12.0	7.3	11.9	9.1	7.3	6.0	4.4	3.7	2.7	3.1	0.6	2.1	3.4	3.1	4.4	7.9	10.0	10.0	10.0	13.0	176.6

CURAH HUJAN BULANAN

Tabel Curah Hujan Bulanan Sub DAS Klongkong

No	Tahun	Bulan												Total
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
5	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
6	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
7	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
9	2009	652	185	110	30	70	13	9	0	55	99	118	166	1507
10	2010	167	82	212	297	86	40	123	33	385	307	318	102	2153
11	2011	108	132	98	117	123	1	0	1	32	94	154	104	965
12	2012	196	199	136	181	162	54	11	1	2	57	111	305	1414
13	2013	157	124	130	111	94	59	11	5	1	91	156	474	1413
14	2014	315	163	76	198	22	8	38	0	0	12	182	309	1324
15	2015	182	194	232	204	141	26	7	0	6	5	123	233	1353
Max		652	199	232	297	162	59	123	33	385	307	318	474	2153
Min		108	82	76	30	22	1	0	0	0	5	111	102	965
Rerata		98	56	53	57	41	13	12	3	36	50	66	89	675



Bulan Januari

No	Tahun	Hujan
1	2005	0
2	2004	0
3	2007	0
4	2008	0
5	2012	0
6	2011	0
7	2003	0
8	2015	0
9	2010	108
10	2014	157
11	2002	167
12	2013	182
13	2001	196
14	2006	315
15	2009	652

Bulan Februari

No	Tahun	Hujan
1	2007	75
2	2001	90
3	2011	99
4	2010	100
5	2004	105
6	2005	109
7	2012	112
8	2003	113
9	2015	119
10	2008	150
11	2014	174
12	2013	211
13	2006	231
14	2009	287
15	2002	412

Bulan Maret

No	Tahun	Hujan
1	2010	55
2	2007	62
3	2003	81
4	2004	96
5	2009	116
6	2011	129
7	2014	132
8	2001	133
9	2013	138
10	2005	156
11	2012	156
12	2002	232
13	2015	249
14	2008	316
15	2006	338

Bulan April

No	Tahun	Hujan
1	2004	5
2	2009	21
3	2012	27
4	2003	63
5	2014	102
6	2008	104
7	2005	118
8	2011	122
9	2010	128
10	2015	164
11	2001	179
12	2002	185
13	2007	209
14	2006	221
15	2013	250

Bulan Mei

No	Tahun	Hujan
1	2002	0
2	2009	10
3	2003	12
4	2008	15
5	2006	20
6	2001	37
7	2004	48
8	2005	48
9	2007	54
10	2014	55
11	2010	67
12	2015	80
13	2013	117
14	2011	118
15	2012	171

Bulan Juni

No	Tahun	Hujan
1	2002	0
2	2004	0
3	2008	0
4	2009	0
5	2014	0
6	2015	0
7	2012	1
8	2011	1
9	2003	4
10	2010	6
11	2007	8
12	2005	38
13	2006	57
14	2013	80
15	2001	88

Bulan Juli

No	Tahun	Hujan
1	2001	0
2	2002	0
3	2004	0
4	2006	0
5	2008	0
6	2009	0
7	2015	1
8	2012	2
9	2013	2
10	2003	9
11	2010	18
12	2011	20
13	2014	24
14	2007	32
15	2005	48

Bulan Agustus

No	Tahun	Hujan
1	2001	0
2	2002	0
3	2003	0
4	2004	0
5	2006	0
6	2009	0
7	2011	0
8	2013	0
9	2012	1
10	2008	2
11	2014	3
12	2015	3
13	2007	6
14	2010	11
15	2005	30

Bulan September

No	Tahun	Hujan
1	2001	0
2	2002	0
3	2004	0
4	2006	0
5	2007	0
6	2011	0
7	2014	1
8	2013	1
9	2012	5
10	2015	7
11	2005	11
12	2008	11
13	2009	13
14	2003	137
15	2010	251

Bulan Oktober

No	Tahun	Hujan
1	2001	0
2	2002	0
3	2003	0
4	2004	0
5	2010	0
6	2014	0
7	2015	0
8	2008	4
9	2007	8
10	2011	25
11	2012	29
12	2009	36
13	2006	58
14	2005	69
15	2013	79

Bulan November

No	Tahun	Hujan
1	2006	22
2	2007	49
3	2009	51
4	2008	55
5	2011	58
6	2013	60
7	2005	76
8	2003	90
9	2010	103
10	2001	108
11	2015	122
12	2002	140
13	2004	186
14	2014	206
15	2012	246

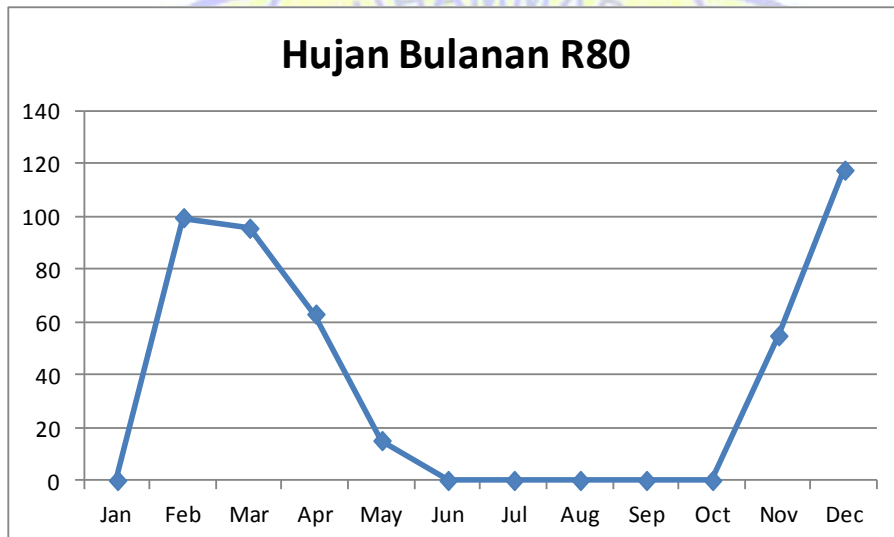
Bulan Desember

No	Tahun	Hujan
1	2001	54
2	2008	75
3	2009	110
4	2007	118
5	2006	131
6	2012	133
7	2010	155
8	2004	200
9	2002	202
10	2011	209
11	2015	213
12	2005	221
13	2003	235
14	2013	272
15	2014	405

Rekap Hujan Bulanan R₈₀

Tahun	Bulan	CH Bulanan
2008	Jan	0
2010	Feb	100
2004	Mar	96
2003	Apr	63
2008	May	15
2009	Jun	0
2006	Jul	0
2004	Aug	0
2006	Sep	0
2004	Oct	0
2008	Nov	55
2007	Dec	118

Sumber: hasil perhitungan



Tabel Curah Hujan Bulanan

No	Tahun	Bulan												Total
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
5	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
6	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
7	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
9	2009	411	129	80	0	63	10	0	0	58	121	112	131	1114
10	2010	186	75	250	303	44	57	139	38	397	268	352	117	2225
11	2011	107	150	83	55	98	0	0	1	46	85	100	68	791
12	2012	127	175	116	228	206	72	15	1	0	61	127	354	1482
13	2013	110	127	128	132	76	35	6	5	0	84	139	520	1361
14	2014	287	102	3	254	16	10	46	0	0	3	157	403	1281
15	2015	148	217	225	217	140	1	10	0	9	8	180	196	1351
	Max	411	217	250	303	206	72	139	38	397	268	352	520	2225
	Min	107	75	3	0	16	0	0	0	0	3	100	68	791
	Rerata	196	139	126	170	92	27	31	6	73	90	167	256	1372

Tabel Curah Hujan F St. Monjok

No	Tahun	Bulan												Total
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
5	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
6	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
7	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
9	2009	1168	304	174	93	85	20	29	0	50	52	132	241	2348
10	2010	128	96	132	285	176	3	87	25	358	391	245	72	1998
11	2011	110	96	132	249	176	3	1	0	1	114	270	182	1334
12	2012	343	252	179	81	68	16	1	1	5	49	76	200	1271
13	2013	258	118	135	68	133	109	22	4	3	106	192	376	1524
14	2014	376	295	234	79	33	3	21	1	0	32	237	106	1417
15	2015	255	144	248	177	142	80	1	0	0	0	0	312	1359
	Max	1168	304	248	285	176	109	87	25	358	391	270	376	2348
	Min	110	96	132	68	33	3	1	0	0	0	0	72	1271
	Rerata	377	186	176	147	116	33	23	4	60	106	165	213	1607

CURAH HUJAN RANCANGAN

Perhitungan Hujan Rancangan

Curah Hujan Maksimum Daerah DAS Kelongkong

No	Tahun	CH Maksimum	Diurutkan
1	2009	139.651	41.513
2	2010	108.339	46.217
3	2011	41.513	68.939
4	2012	46.217	75.010
5	2013	87.426	87.426
6	2014	75.010	108.339
7	2015	68.939	139.651

Tabel 4.6. Pemilihan Distribusi Frekuensi

No	Xi	Xi - X_{rerata}	$(Xi - X_{\text{rerata}})^2$	$(Xi - X_{\text{rerata}})^3$	$(Xi - X_{\text{rerata}})^4$
	(mm)	(mm)	(mm) ²	(mm) ³	(mm) ⁴
1	41.513	-39.501	1560.325	-61634.298	2434613.001
2	46.217	-34.797	1210.814	-42132.380	1466069.808
3	68.939	-12.074	145.787	-1760.257	21253.712
4	75.010	-6.003	36.038	-216.342	1298.740
5	87.426	6.412	41.116	263.642	1690.516
6	108.339	27.325	746.681	20403.401	557532.361
7	139.651	58.637	3438.350	201616.021	11822247.671
Jumlah	567.094	0.000	7179.109	116539.787	16304705.809

Sumber : hasil perhitungan

Syarat Pemilihan Distribusi (Sri Harto)

No	Distribusi	Syarat	Keterangan
1	Normal	Cs ~ 0	Jika analisis ekstrim tidak ada yang memenuhi syarat tersebut, maka digunakan Distribusi Log Pearson Type III
2	Log Normal	Cs/Cv ~ 3	
3	Gumbel Type III	Cs ~ 1,1396 Ck ~ 5,4002	

Karena tidak ada yang memenuhi Distribusi, maka digunakan Distribusi frekuensi Log Pearson type III

Tabel Distribusi Log Pearson Type III

No	Xi	Log Xi
	(mm)	(mm)
1	41.513	1.618
2	46.217	1.665
3	68.939	1.838
4	75.010	1.875
5	87.426	1.942
6	108.339	2.035
7	139.651	2.145
Σ Log Xi		13.118
Log X rata-rata		1.874
Sd		0.189
Cs		-0.054

Tabel Curah Hujan Rancangan dengan Berbagai Kala Ulang

No	Kala Ulang (tahun)	Peluang (%)	G (koef. kemencengan)	G . Sd	Log Xt	Xt (mm)
1	2	50	0.011	0.002	1.876	75.166
2	5	20	0.848	0.160	2.034	108.220
3	10	10	1.279	0.242	2.116	130.568
4	25	4	1.734	0.328	2.202	159.130
5	50	2	2.028	0.383	2.257	180.829
6	100	1	2.288	0.433	2.307	202.557
7	1000	0.1	3.007	0.568	2.442	276.922

Sumber : hasil perhitungan

**Tabel Distribusi Log Pearson Type III
Untuk Koefisien Kemencengan Cs**

Koefisien Cs	Waktu balik dalam tahun							
	2	5	10	25	50	100	200	1000
	Peluang (%)							
	50.0	20.0	10.0	4.0	2.0	1.0	0.5	0.1
3.0	-0.396	0.420	1.180	2.278	3.152	4.051	4.970	7.250
2.5	-0.360	0.518	1.250	2.262	3.048	3.845	4.652	6.600
2.2	-0.330	0.574	1.284	2.240	2.970	3.705	4.444	6.200
2.0	-0.307	0.609	1.302	2.219	2.912	3.605	4.298	5.910
1.8	-0.282	0.643	1.318	2.193	2.848	3.499	4.147	5.660
1.6	-0.254	0.675	1.329	2.163	2.780	3.388	3.990	5.390
1.4	-0.225	0.705	1.337	2.128	2.706	3.271	3.828	5.110
1.2	-0.195	0.732	1.340	2.087	2.626	3.149	3.661	4.820
1.0	-0.164	0.758	1.340	2.043	2.542	3.022	3.489	4.540
0.9	-0.148	0.769	1.339	2.018	2.498	2.957	3.401	4.395
0.8	-0.132	0.780	1.336	1.998	2.453	2.891	3.312	4.250
0.7	-0.116	0.790	1.333	1.967	2.407	2.842	3.223	4.105
0.6	-0.099	0.800	1.328	1.939	2.359	2.755	3.132	3.960
0.5	-0.083	0.808	1.323	1.910	2.311	2.686	3.041	3.815
0.4	-0.066	0.816	1.317	1.880	2.261	2.615	2.949	3.670
0.3	-0.050	0.824	1.309	1.849	2.211	2.544	2.856	3.525
0.2	-0.033	0.830	1.301	1.818	2.159	2.472	2.763	3.380
0.1	-0.017	0.836	1.292	1.785	2.107	2.400	2.670	3.235
0.0	0.000	0.842	1.282	1.751	2.054	2.326	2.576	3.090
-0.1	0.017	0.836	1.270	1.716	2.000	2.252	2.482	2.960
-0.2	0.033	0.850	1.258	1.680	1.945	2.178	2.388	2.810
-0.3	0.050	0.853	1.245	1.643	1.890	2.104	2.294	2.675
-0.4	0.066	0.855	1.231	1.606	1.834	2.029	2.201	2.540
-0.5	0.083	0.856	1.216	1.567	1.777	1.955	2.108	2.400
-0.6	0.099	0.857	1.200	1.528	1.720	1.880	2.016	2.275
-0.7	0.116	0.857	1.183	1.488	1.663	1.806	1.926	2.150
-0.8	0.132	0.856	1.166	1.448	1.606	1.733	1.837	2.035
-0.9	0.148	0.854	1.147	1.407	1.549	1.660	1.749	1.910
-1.0	0.164	0.852	1.128	1.366	1.492	1.588	1.664	1.800
-1.2	0.195	0.844	1.086	1.282	1.379	1.499	1.501	1.625
-1.4	0.225	0.832	1.041	1.198	1.270	1.318	1.351	1.465
-1.6	0.254	0.817	0.994	1.116	1.166	1.197	1.216	1.280
-1.8	0.282	0.799	0.945	1.035	1.069	1.087	1.097	1.130
-2.0	0.307	0.777	0.895	0.959	0.980	0.990	0.995	1.000
-2.2	0.330	0.752	0.844	0.888	0.900	0.905	0.907	0.910
-2.5	0.360	0.711	0.771	0.793	0.798	0.799	0.800	0.802
-3.0	0.396	0.636	0.660	0.666	0.666	0.667	0.667	0.668

Tabel Faktor Frekwensi K Untuk Distribusi Log Pearson Type III
Koefisien Asimetri, Cs Positif

No.	Cs	Periode Ulang (Thn)								
		2	5	10	25	50	100	200	500	1000
1	3.00	-0.396	0.420	1.180	2.278	3.152	4.051	4.970	6.605	7.150
2	2.90	-0.390	0.440	1.195	2.277	3.134	4.013	4.909	6.500	7.030
3	2.80	-0.384	0.460	1.210	2.275	3.114	3.973	4.847	6.402	6.920
4	2.70	-0.376	0.479	1.224	2.272	3.093	3.932	4.783	6.288	6.790
5	2.60	-0.368	0.499	1.238	2.267	3.071	3.889	4.718	6.182	6.670
6	2.50	-0.360	0.518	1.250	2.262	3.048	3.845	4.652	6.076	6.550
7	2.40	-0.351	0.537	1.262	2.265	3.023	3.800	4.652	5.961	6.420
8	2.30	-0.341	0.550	1.274	2.248	2.997	3.753	4.584	5.854	6.300
9	2.20	-0.330	0.574	1.284	2.240	2.970	3.705	4.515	5.739	6.170
10	2.10	-0.319	0.592	1.294	2.230	2.942	3.656	4.444	5.623	6.040
11	2.00	-0.307	0.609	1.302	2.219	2.912	3.605	4.372	5.507	5.910
12	1.90	-0.294	0.627	1.310	2.207	2.881	3.553	4.298	5.391	5.780
13	1.80	-0.282	0.643	1.318	2.193	2.848	3.499	4.223	5.267	5.640
14	1.70	-0.268	0.660	1.324	2.178	2.815	3.444	4.147	5.150	5.510
15	1.60	-0.254	0.675	1.329	2.163	2.780	3.388	4.069	5.025	5.370
16	1.50	-0.240	0.690	1.333	2.146	2.743	3.330	3.990	4.900	5.230
17	1.40	-0.225	0.705	1.337	2.128	2.706	3.271	3.828	4.782	5.100
18	1.30	-0.210	0.719	1.339	2.108	2.666	3.211	3.745	4.656	4.960
19	1.20	-0.195	0.732	1.340	2.087	2.626	3.149	3.661	4.523	4.810
20	1.10	-0.180	0.745	1.341	2.066	2.585	3.087	3.575	4.396	4.670
21	1.00	-0.164	0.758	1.340	2.043	2.542	3.022	3.489	4.270	4.530
22	0.90	-0.148	0.769	1.339	2.018	2.498	2.957	3.401	4.143	4.390
23	0.80	-0.132	0.780	1.336	1.993	2.453	2.891	3.312	4.008	4.240
24	0.70	-0.116	0.790	1.333	1.967	2.407	2.824	3.223	3.881	4.100
25	0.60	-0.099	0.800	1.328	1.939	2.359	2.755	3.132	3.753	3.960
26	0.50	-0.033	0.808	1.323	1.910	2.311	2.686	3.041	3.618	3.810
27	0.40	-0.066	0.816	1.317	1.880	2.261	2.615	2.949	3.490	3.670
28	0.30	-0.050	0.824	1.309	1.849	2.211	2.544	2.856	3.354	3.520
29	0.20	-0.033	0.830	1.301	1.818	2.159	2.472	2.763	3.226	3.380
30	0.10	-0.017	0.836	1.292	1.785	2.107	2.400	2.670	3.090	3.230
31	0.00	0.000	0.842	1.282	1.751	2.054	2.326	2.576	2.962	3.090

UJI KESESUAIAN DISTRIBUSI CHI SQUARE

Data Hujan Maksimum

No	Data
1	41.513
2	46.217
3	68.939
4	75.010
5	87.426
6	108.339
7	139.651
8	0.000

Banyak kelas :

$$n = 8$$

$$k = 1 + 3,3 \log n$$

$$= 4$$

Batas kelas sebaran masing-masing :

$$= \frac{100\%}{k} = \frac{100\%}{4}$$

$$= 25\%$$

Data :

$$\text{Log X rata-rata} = 1.874$$

$$\text{Sd} = 0.189$$

$$\text{Cs} = -0.054$$

Tabel Perhitungan Interval Kelas Chi Square

Kala Ulang	P (%)	G	G . Sd	Log Xt	Xt (mm)
5	20	0.848	0.160	2.034	108.220
2.5	40	0.302	0.057	1.931	85.309
1.667	60	-0.315	-0.060	1.814	65.224
1.25	80	-0.932	-0.176	1.698	49.868
1	100	~	~	~	0.000

Sumber : hasil perhitungan

Tabel Perhitungan Parameter Uji Chi Square

Kelas	Batas Kelas	Frekwensi Teoritis	Frekwensi Pengamatan	χ^2
1	0 - 49.868	2	3	0.49
2	49.868 - 65.224	2	1	0.51
3	65.224 - 85.309	2	2	0.00
4	85.309 - ~	2	2	0.00
Jumlah		8	8	0.995

Sumber : hasil perhitungan

Derajat kebebasan

$$\begin{aligned}
 p &= 2 && \text{banyak parameter untuk chi kuadrat} \\
 dk &= k - 1 \\
 &= 4 - 2 - 1 \\
 &= 1
 \end{aligned}$$

Derajat signifikan (α) dipilih :

$$\alpha = 5\%$$

Dari Tabel 2.7. Derajat Kebebasan Chi-Square diperoleh :

$$\chi^2_{cr} = 3.841$$

Syarat :

- Jika $\chi^2 < \chi^2_{cr}$, maka distribusi yang digunakan "**dapat diterima**"
- Jika $\chi^2 > \chi^2_{cr}$, maka distribusi yang digunakan "**tidak dapat diterima**"

Karena $0.995 < 3.841$, maka dapat disimpulkan distribusi yang digunakan **dapat diterima**



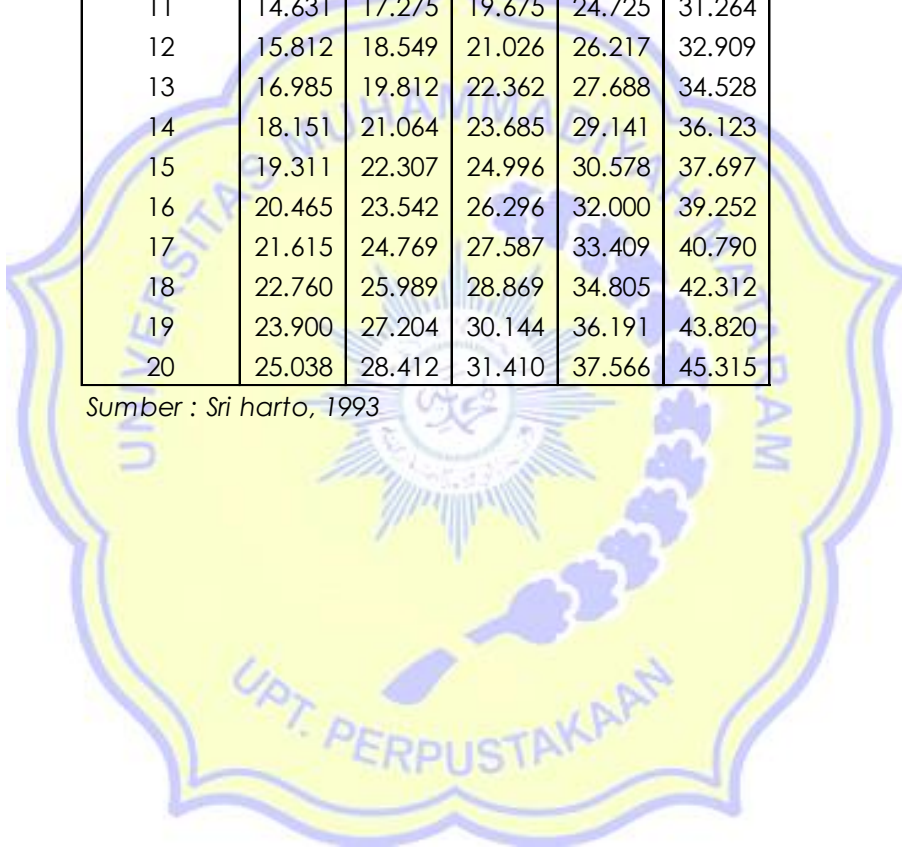
Tabel a. Distribusi Log Pearson Type III Untuk Koefisien Kemencengan Cs

Koefisien Cs	Waktu balik dalam tahun										
	1.25	2.50	1.667	2	5	10	25	50	100	200	1000
	Peluang (%)										
	80	40	60	50.0	20.0	10.0	4.0	2.0	1.0	0.5	0.1
3.0	-1.550	-0.086	-0.818	-0.396	0.420	1.180	2.278	3.152	4.051	4.970	7.250
2.5	-1.542	-0.034	-0.788	-0.360	0.518	1.250	2.262	3.048	3.845	4.652	6.600
2.2	-1.517	0.003	-0.757	-0.330	0.574	1.284	2.240	2.970	3.705	4.444	6.200
2.0	-1.491	0.028	-0.732	-0.307	0.609	1.302	2.219	2.912	3.605	4.298	5.910
1.8	-1.461	0.055	-0.703	-0.282	0.643	1.318	2.193	2.848	3.499	4.147	5.660
1.6	-1.421	0.082	-0.670	-0.254	0.675	1.329	2.163	2.780	3.388	3.990	5.390
1.4	-1.378	0.110	-0.634	-0.225	0.705	1.337	2.128	2.706	3.271	3.828	5.110
1.2	-1.329	0.137	-0.596	-0.195	0.732	1.340	2.087	2.626	3.149	3.661	4.820
1.0	-1.276	0.164	-0.556	-0.164	0.758	1.340	2.043	2.542	3.022	3.489	4.540
0.9	-1.248	0.178	-0.535	-0.148	0.769	1.339	2.018	2.498	2.957	3.401	4.395
0.8	-1.218	0.191	-0.514	-0.132	0.780	1.336	1.998	2.453	2.891	3.312	4.250
0.7	-1.189	0.205	-0.492	-0.116	0.790	1.333	1.967	2.407	2.842	3.223	4.105
0.6	-1.156	0.218	-0.469	-0.099	0.800	1.328	1.939	2.359	2.755	3.132	3.960
0.5	-1.125	0.231	-0.447	-0.083	0.808	1.323	1.910	2.311	2.686	3.041	3.815
0.4	-1.091	0.244	-0.424	-0.066	0.816	1.317	1.880	2.261	2.615	2.949	3.670
0.3	-1.058	0.256	-0.401	-0.050	0.824	1.309	1.849	2.211	2.544	2.856	3.525
0.2	-1.023	0.269	-0.377	-0.033	0.830	1.301	1.818	2.159	2.472	2.763	3.380
0.1	-0.989	0.281	-0.354	-0.017	0.836	1.292	1.785	2.107	2.400	2.670	3.235
0.0	-0.952	0.293	-0.330	0.000	0.842	1.282	1.751	2.054	2.326	2.576	3.090
-0.1	-0.913	0.302	-0.306	0.017	0.836	1.270	1.716	2.000	2.252	2.482	2.960
-0.2	-0.878	0.316	-0.281	0.033	0.850	1.258	1.680	1.945	2.178	2.388	2.810
-0.3	-0.839	0.327	-0.256	0.050	0.853	1.245	1.643	1.890	2.104	2.294	2.675
-0.4	-0.801	0.338	-0.232	0.066	0.855	1.231	1.606	1.834	2.029	2.201	2.540
-0.5	-0.761	0.349	-0.206	0.083	0.856	1.216	1.567	1.777	1.955	2.108	2.400
-0.6	-0.722	0.359	-0.181	0.099	0.857	1.200	1.528	1.720	1.880	2.016	2.275
-0.7	-0.680	0.369	-0.155	0.116	0.857	1.183	1.488	1.663	1.806	1.926	2.150
-0.8	-0.640	0.379	-0.130	0.132	0.856	1.166	1.448	1.606	1.733	1.837	2.035
-0.9	-0.598	0.388	-0.105	0.148	0.854	1.147	1.407	1.549	1.660	1.749	1.910
-1.0	-0.556	0.397	-0.080	0.164	0.852	1.128	1.366	1.492	1.588	1.664	1.800
-1.2	-0.472	0.413	-0.029	0.195	0.844	1.086	1.282	1.379	1.499	1.501	1.625
-1.4	-0.387	0.428	0.021	0.225	0.832	1.041	1.198	1.270	1.318	1.351	1.465
-1.6	-0.302	0.441	0.070	0.254	0.817	0.994	1.116	1.166	1.197	1.216	1.280
-1.8	-0.217	0.452	0.118	0.282	0.799	0.945	1.035	1.069	1.087	1.097	1.130
-2.0	-0.136	0.461	0.162	0.307	0.777	0.895	0.959	0.980	0.990	0.995	1.000
-2.2	-0.058	0.467	0.204	0.330	0.752	0.844	0.888	0.900	0.905	0.907	0.910
-2.5	0.048	0.473	0.261	0.360	0.711	0.771	0.793	0.798	0.799	0.800	0.802
-3.0	0.195	0.472	0.333	0.396	0.636	0.660	0.666	0.666	0.667	0.667	0.668

Tabel b. Derajat bebas untuk uji Chi-Square

Derajat Bebas (dk)	Derajat Signifikan (α)				
	0.200	0.100	0.050	0.010	0.001
1	1.642	2.706	3.841	6.635	10.827
2	3.219	4.605	5.991	9.210	13.815
3	4.642	6.251	7.815	11.345	16.268
4	5.989	7.779	9.488	13.277	18.465
5	7.289	9.236	11.070	15.086	20.517
6	8.558	10.645	12.592	16.812	22.457
7	9.803	12.017	14.067	18.475	24.322
8	11.030	13.362	15.507	20.090	26.125
9	12.242	14.987	16.919	21.666	27.877
10	13.442	15.987	18.307	23.209	29.588
11	14.631	17.275	19.675	24.725	31.264
12	15.812	18.549	21.026	26.217	32.909
13	16.985	19.812	22.362	27.688	34.528
14	18.151	21.064	23.685	29.141	36.123
15	19.311	22.307	24.996	30.578	37.697
16	20.465	23.542	26.296	32.000	39.252
17	21.615	24.769	27.587	33.409	40.790
18	22.760	25.989	28.869	34.805	42.312
19	23.900	27.204	30.144	36.191	43.820
20	25.038	28.412	31.410	37.566	45.315

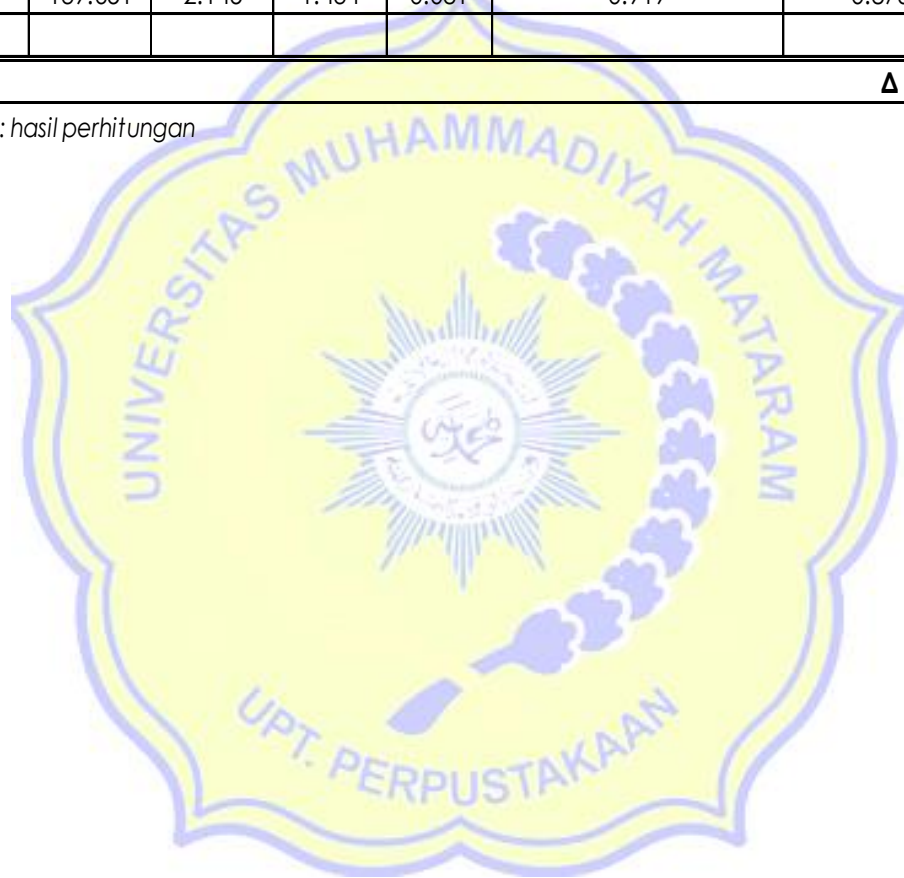
Sumber : Sri harto, 1993



Tabel Uji Smirnov-Kolmogorov (Δ maks)

No	Data (mm)	Log X	G	Pr	Probabilitas Teoritis	Probabilitas Empiris	$\Delta = P_t - P_e $	
1	41.513	1.618	-1.353	0.968	0.032	0.125	0.093	
2	46.217	1.665	-1.107	0.883	0.117	0.250	0.133	
3	68.939	1.838	-0.188	0.579	0.421	0.375	0.046	
4	75.010	1.875	0.006	0.509	0.491	0.500	0.009	
5	87.426	1.942	0.358	0.313	0.687	0.625	0.062	
6	108.339	2.035	0.851	0.158	0.842	0.750	0.092	
7	139.651	2.145	1.434	0.081	0.919	0.875	0.044	
							Δ maks	0.133

Sumber : hasil perhitungan



**Tabel Distribusi Log Pearson Type III
Untuk Koefisien Kemencengan Cs**

Koefisien Cs	Waktu balik dalam tahun										
	1.25	1.6666667	2	3	5	10	25	50	100	200	1000
	Peluang (%)										
	80	60	50.0	40.0	20.0	10.0	4.0	2.0	1.0	0.5	0.1
3.0	-1.550	-0.818	-0.396	-0.086	0.420	1.180	2.278	3.152	4.051	4.970	7.250
2.5	-1.542	-0.788	-0.360	-0.034	0.518	1.250	2.262	3.048	3.845	4.652	6.600
2.2	-1.517	-0.757	-0.330	0.003	0.574	1.284	2.240	2.970	3.705	4.444	6.200
2.0	-1.491	-0.732	-0.307	0.028	0.609	1.302	2.219	2.912	3.605	4.298	5.910
1.8	-1.461	-0.703	-0.282	0.055	0.643	1.318	2.193	2.848	3.499	4.147	5.660
1.6	-1.421	-0.670	-0.254	0.082	0.675	1.329	2.163	2.780	3.388	3.990	5.390
1.4	-1.378	-0.634	-0.225	0.110	0.705	1.337	2.128	2.706	3.271	3.828	5.110
1.2	-1.329	-0.596	-0.195	0.137	0.732	1.340	2.087	2.626	3.149	3.661	4.820
1.0	-1.276	-0.556	-0.164	0.164	0.758	1.340	2.043	2.542	3.022	3.489	4.540
0.9	-1.248	-0.535	-0.148	0.178	0.769	1.339	2.018	2.498	2.957	3.401	4.395
0.8	-1.218	-0.514	-0.132	0.191	0.780	1.336	1.998	2.453	2.891	3.312	4.250
0.7	-1.189	-0.492	-0.116	0.205	0.790	1.333	1.967	2.407	2.842	3.223	4.105
0.6	-1.156	-0.469	-0.099	0.218	0.800	1.328	1.939	2.359	2.755	3.132	3.960
0.5	-1.125	-0.447	-0.083	0.231	0.808	1.323	1.910	2.311	2.686	3.041	3.815
0.4	-1.091	-0.424	-0.066	0.244	0.816	1.317	1.880	2.261	2.615	2.949	3.670
0.3	-1.058	-0.401	-0.050	0.256	0.824	1.309	1.849	2.211	2.544	2.856	3.525
0.2	-1.023	-0.377	-0.033	0.269	0.830	1.301	1.818	2.159	2.472	2.763	3.380
0.1	-0.989	-0.354	-0.017	0.281	0.836	1.292	1.785	2.107	2.400	2.670	3.235
0.0	-0.952	-0.330	0.000	0.293	0.842	1.282	1.751	2.054	2.326	2.576	3.090
-0.1	-0.913	-0.306	0.017	0.302	0.836	1.270	1.716	2.000	2.252	2.482	2.960
-0.2	-0.878	-0.281	0.033	0.316	0.850	1.258	1.680	1.945	2.178	2.388	2.810
-0.3	-0.839	-0.256	0.050	0.327	0.853	1.245	1.643	1.890	2.104	2.294	2.675
-0.4	-0.801	-0.232	0.066	0.338	0.855	1.231	1.606	1.834	2.029	2.201	2.540
-0.5	-0.761	-0.206	0.083	0.349	0.856	1.216	1.567	1.777	1.955	2.108	2.400
-0.6	-0.722	-0.181	0.099	0.359	0.857	1.200	1.528	1.720	1.880	2.016	2.275
-0.7	-0.680	-0.155	0.116	0.369	0.857	1.183	1.488	1.663	1.806	1.926	2.150
-0.8	-0.640	-0.130	0.132	0.379	0.856	1.166	1.448	1.606	1.733	1.837	2.035
-0.9	-0.598	-0.105	0.148	0.388	0.854	1.147	1.407	1.549	1.660	1.749	1.910
-1.0	-0.556	-0.080	0.164	0.397	0.852	1.128	1.366	1.492	1.588	1.664	1.800
-1.2	-0.472	-0.029	0.195	0.413	0.844	1.086	1.282	1.379	1.499	1.501	1.625
-1.4	-0.387	0.021	0.225	0.428	0.832	1.041	1.198	1.270	1.318	1.351	1.465
-1.6	-0.302	0.070	0.254	0.441	0.817	0.994	1.116	1.166	1.197	1.216	1.280
-1.8	-0.217	0.118	0.282	0.452	0.799	0.945	1.035	1.069	1.087	1.097	1.130
-2.0	-0.136	0.162	0.307	0.461	0.777	0.895	0.959	0.980	0.990	0.995	1.000
-2.2	-0.058	0.204	0.330	0.467	0.752	0.844	0.888	0.900	0.905	0.907	0.910
-2.5	0.048	0.261	0.360	0.473	0.711	0.771	0.793	0.798	0.799	0.800	0.802
-3.0	0.195	0.333	0.396	0.472	0.636	0.660	0.666	0.666	0.667	0.667	0.668

ANALISA HIDROGRAF BANJIR

$$i = R_{24}/t * (t/T)^{2/3}$$

dimana :

- i = intensitas hujan rata-rata dalam mm/jar
- R_{24} = tinggi hujan maksimum dalam satu hari
- t = Waktu mulai hujan
- T = Waktu konsentrasi hujan

untuk daerah di Indonesia rata-rata t = 6 jam, maka :

$$T = 1 \text{ jam} \quad R_1 = R_{24}/6 * (6/1)^{2/3} = 0.55 * R_{24}$$

$$T = 2 \text{ jam} \quad R_2 = R_{24}/6 * (6/2)^{2/3} = 0.35 * R_{24}$$

$$T = 3 \text{ jam} \quad R_3 = R_{24}/6 * (6/3)^{2/3} = 0.27 * R_{24}$$

$$T = 4 \text{ jam} \quad R_4 = R_{24}/6 * (6/4)^{2/3} = 0.22 * R_{24}$$

$$T = 5 \text{ jam} \quad R_5 = R_{24}/6 * (6/5)^{2/3} = 0.19 * R_{24}$$

$$T = 6 \text{ jam} \quad R_6 = R_{24}/6 * (6/6)^{2/3} = 0.17 * R_{24}$$

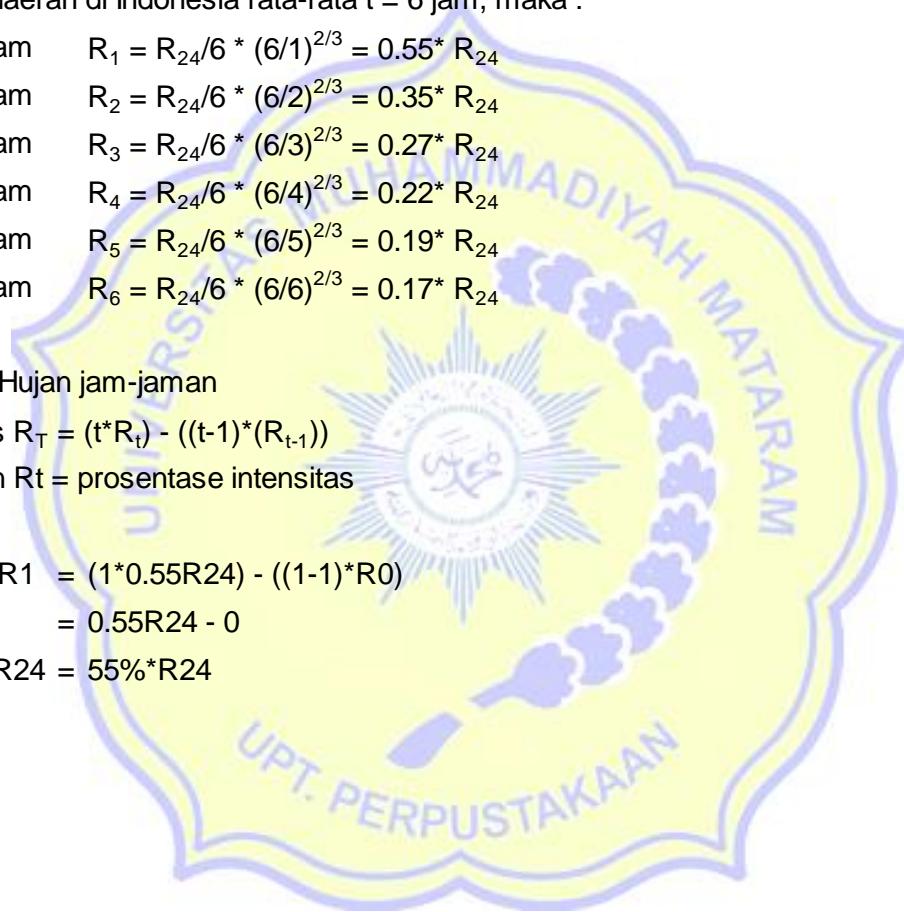
Curah Hujan jam-jaman

$$\text{Rumus } R_T = (t * R_t) - ((t-1) * (R_{t-1}))$$

dengan R_t = prosentase intensitas

$$1 \text{ jam, } R_1 = (1 * 0.55R_{24}) - ((1-1) * R_0) \\ = 0.55R_{24} - 0$$

$$0.55R_{24} = 55% * R_{24}$$



$$\begin{aligned} 2 \text{ jam, } R_2 &= (2 \cdot 0.35R_{24}) - ((2-1) \cdot 0.55R_{24}) \\ &= 0.70R_{24} - 0.55R_{24} \\ 0.15R_{24} &= 15\% \cdot R_{24} \end{aligned}$$

$$\begin{aligned} 3 \text{ jam, } R_3 &= (3 \cdot 0.27R_{24}) - ((3-1) \cdot 0.35R_{24}) \\ &= 0.81R_{24} - 0.70R_{24} \\ 0.11R_{24} &= 11\% \cdot R_{24} \end{aligned}$$

$$\begin{aligned} 4 \text{ jam, } R_4 &= (4 \cdot 0.22R_{24}) - ((4-1) \cdot 0.27R_{24}) \\ &= 0.88R_{24} - 0.81R_{24} \\ 0.07R_{24} &= 7\% \cdot R_{24} \end{aligned}$$

$$\begin{aligned} 5 \text{ jam, } R_5 &= (5 \cdot 0.19R_{24}) - ((5-1) \cdot 0.22R_{24}) \\ &= 0.96R_{24} - 0.88R_{24} \\ 0.07R_{24} &= 7\% \cdot R_{24} \end{aligned}$$

$$\begin{aligned} 6 \text{ jam, } R_6 &= (6 \cdot 0.17R_{24}) - ((6-1) \cdot 0.19R_{24}) \\ &= 1.02R_{24} - 0.96R_{24} \\ 0.07R_{24} &= 7\% \cdot R_{24} \end{aligned}$$



untuk daerah di Indonesia rata-rata $t = 6$ jam, maka :

$$T = 1 \text{ jam} \quad R_1 = R_{24}/6 * (6/1)^{2/3} = 0.55 * R_{24}$$

$$T = 2 \text{ jam} \quad R_2 = R_{24}/6 * (6/2)^{2/3} = 0.35 * R_{24}$$

$$T = 3 \text{ jam} \quad R_3 = R_{24}/6 * (6/3)^{2/3} = 0.27 * R_{24}$$

$$T = 4 \text{ jam} \quad R_4 = R_{24}/6 * (6/4)^{2/3} = 0.22 * R_{24}$$

$$T = 5 \text{ jam} \quad R_5 = R_{24}/6 * (6/5)^{2/3} = 0.19 * R_{24}$$

$$T = 6 \text{ jam} \quad R_6 = R_{24}/6 * (6/6)^{2/3} = 0.17 * R_{24}$$

Curah Hujan jam-jaman

$$\text{Rumus } R_T = (t * R_t) - ((t-1) * (R_{t-1}))$$

dengan R_t = prosentase intensitas

$$\begin{aligned} 1 \text{ jam, } R_1 &= (1 * 0.55R_{24}) - ((1-1) * R_0) \\ &= 0.55R_{24} - 0 \end{aligned}$$

$$\begin{aligned} 0.55R_{24} &= 55\% * R_{24} \\ &= \end{aligned}$$

$$\begin{aligned} 2 \text{ jam, } R_2 &= (2 * 0.35R_{24}) - ((2-1) * 0.55R_{24}) \\ &= 0.70R_{24} - 0.55R_{24} \end{aligned}$$

$$0.15R_{24} = 15\% * R_{24}$$

$$\begin{aligned} 3 \text{ jam, } R_3 &= (3 * 0.27R_{24}) - ((3-1) * 0.35R_{24}) \\ &= 0.81R_{24} - 0.70R_{24} \end{aligned}$$

$$0.11R_{24} = 11\% * R_{24}$$

$$\begin{aligned} 4 \text{ jam, } R_4 &= (4 * 0.22R_{24}) - ((4-1) * 0.27R_{24}) \\ &= 0.88R_{24} - 0.81R_{24} \end{aligned}$$

$$0.07R_{24} = 7\% * R_{24}$$

$$\begin{aligned} 5 \text{ jam, } R_5 &= (5 * 0.19R_{24}) - ((5-1) * 0.22R_{24}) \\ &= 0.96R_{24} - 0.88R_{24} \end{aligned}$$

$$0.07R_{24} = 7\% * R_{24}$$

$$\begin{aligned} 6 \text{ jam, } R_6 &= (6 * 0.17R_{24}) - ((6-1) * 0.19R_{24}) \\ &= 1.02R_{24} - 0.96R_{24} \end{aligned}$$

$$0.07R_{24} = 7\% * R_{24}$$

Untuk Tr 2 tahun

Dengan :

- C.H rancangan 2 tahun = 75.166
- Koefisien pengaliran = 0.424
- C.H efektif = 75.166 x 0.424
= 31.865

Tabel 3.11 Hujan jam-jaman Tr 2 tahun

Jam	Nisbah %	C.H.efektif jam-jaman = $Ch_{eff} \times$ Nisbah
1	55	17.526
2	15	4.780
3	11	3.505
4	7	2.231
5	7	2.231
6	7	2.231

Untuk Tr 5 tahun

Dengan :

- C.H rancangan 5 tahun = 108.220
- Koefisien pengaliran = 0.424
- C.H efektif = 108.220 x 0.424
= 45.878

Tabel 3.12 Hujan jam-jaman Tr 5 tahun

Jam	Nisbah %	C.H.efektif jam-jaman = $Ch_{eff} \times$ Nisbah
1	55	25.233
2	15	6.882
3	11	5.047
4	7	3.211
5	7	3.211
6	7	3.211

Untuk Tr 2 tahun

Dengan :

- C.H rancangan 2 tahun = 75.166
- Koefisien pengaliran = 0.424
- C.H efektif = 75.166 x 0.424
= 31.865

Jam	Nisbah %	C.H.efektif jam-jaman = $Ch_{\text{eff}} \times \text{Nisbah}$
1	55	17.526
2	15	4.780
3	11	3.505
4	7	2.231
5	7	2.231
6	7	2.231

Untuk Tr 5 tahun

Dengan :

- C.H rancangan 5 tahun = 108.220
- Koefisien pengaliran = 0.424
- C.H efektif = 108.220 x 0.424
= 45.878

Jam	Nisbah %	C.H.efektif jam-jaman = $Ch_{\text{eff}} \times \text{Nisbah}$
1	55	25.233
2	15	6.882
3	11	5.047
4	7	3.211
5	7	3.211
6	7	3.211

HIDROGRAF SATUAN SINTETIS NAKAYASU DAS KELONGKONG

Hidrograf Satuan Sintetis Nakayasu Sub DAS Klongkong

Data :

$$\text{Luas DAS (A)} = 18.006 \text{ km}^2$$

$$\text{Panjang Sungai Utama (L)} = 11.850 \text{ km}$$

$$\text{Parameter Alfa (} \alpha \text{)} = 3.000$$

$$\text{Koefisien Pengaliran (C)} = 0.424$$

$$\text{Ro} = 1.000 \text{ mm}$$

$$\text{tg} = 0,21 L^{0,7} \text{ untuk } L < 15 \text{ km} = 1.185 \text{ jam}$$

$$\text{tr} = 0.5 * \text{tg} \text{ sampai tg} = 1.185 \text{ jam}$$

$$\text{Tp} = \text{tg} + (0,8 * \text{tr}) = 2.134 \text{ jam} \quad (\text{Tp=Lengkung Naik})$$

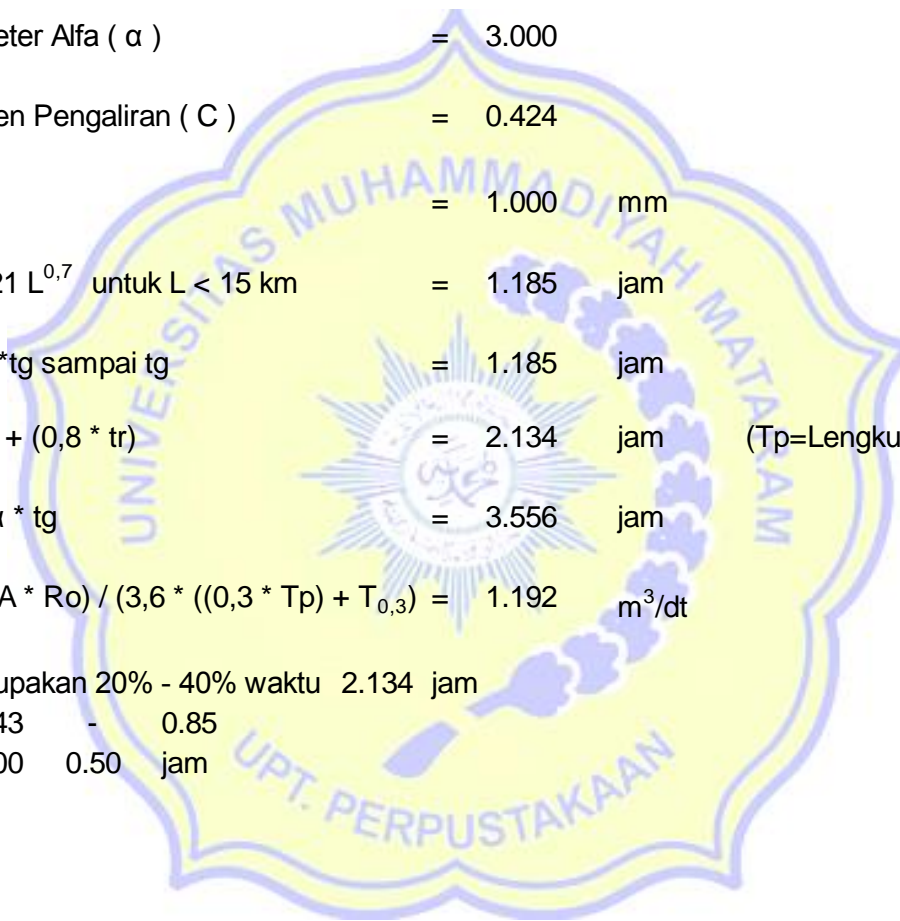
$$\text{T}_{0,3} = \alpha * \text{tg} = 3.556 \text{ jam}$$

$$\text{Qp} = (A * \text{Ro}) / (3,6 * ((0,3 * \text{Tp}) + \text{T}_{0,3})) = 1.192 \text{ m}^3/\text{dt}$$

Δt merupakan 20% - 40% waktu 2.134 jam

0.43 - 0.85

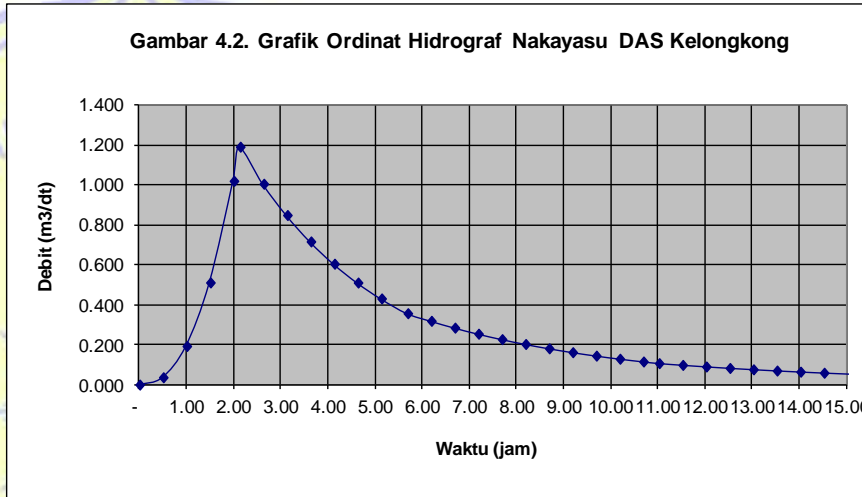
0.00 0.50 jam



Taberl 3.17 Ordinart HSS Nakayasu

t (jam)	Q (m ³ /dt/mm)	ket
-	0.000	Qd0
0.50	0.037	
1.00	0.193	
1.50	0.512	
2.00	1.021	
2.13	1.192	
2.63	1.006	Qd1
3.13	0.850	
3.63	0.717	
4.13	0.606	
4.63	0.511	
5.13	0.432	
5.69	0.358	Qd2
6.19	0.319	
6.69	0.285	
7.19	0.255	
7.69	0.228	
8.19	0.203	
8.69	0.182	
9.19	0.162	
9.69	0.145	
10.19	0.130	
10.69	0.116	Qd3
11.02	0.107	
11.52	0.099	
12.02	0.091	
12.52	0.083	
13.02	0.076	
13.52	0.070	
14.02	0.065	
14.52	0.059	
15.02	0.055	
15.52	0.050	
16.02	0.046	
16.52	0.042	
17.02	0.039	
17.52	0.036	
18.02	0.033	
18.52	0.030	
19.02	0.028	
19.52	0.025	
20.02	0.023	
20.52	0.021	
21.02	0.020	
21.52	0.018	
22.02	0.017	
22.52	0.015	
23.02	0.014	
23.52	0.013	
24.02	0.012	
24.52	0.011	
25.02	0.010	

Gambar 4.2. Grafik Ordinart Hidrograf Nakayasu DAS Kelongkong



Tabel 3.16 Waktu Lengkung Hidrograf Nakayasu

No	Karakteristik	Notasi	Awal (jam)		Akhir (jam)	
			Notasi	Nilai	Notasi	Nilai
1	Lengkung Naik	Qd0	0	0	T_p	2.134
2	Lengkung Turun Tahap 1	Qd1	T_p	2.134	$T_p + T_{0,3}$	5.689
3	Lengkung Turun Tahap 2	Qd2	$T_p + T_{0,3}$	5.689	$T_p + 2,5 T_{0,3}$	11.023
4	Lengkung Turun Tahap 3	Qd3	$T_p + 2,5 T_{0,3}$	11.023	24	24

Persamaan Lengkung Hidrograf Nakayasu

No	Karakteristik	Notasi	Persamaan
1	Lengkung Naik	Qd0	$Q_p \cdot (t/T_p)^{2,4}$
2	Lengkung Turun Tahap 1	Qd1	$Q_p \cdot 0,3^{(t-T_p)/T_{0,3}}$
3	Lengkung Turun Tahap 2	Qd2	$Q_p \cdot 0,3^{[(t-T_p+0,5T_{0,3})/(1,5 \cdot T_{0,3})]}$
4	Lengkung Turun Tahap 3	Qd3	$Q_p \cdot 0,3^{[(t-T_p+1,5T_{0,3})/(2 \cdot T_{0,3})]}$



TABEL METODE NAKAYASU

Tabel 3.18 Debit banjir (Qp)Tr 2 tahun

Qt (m ³ /dt/mm)	Akibat Hujan jam-jaman (mm)						QB (m ³ /dt)	Qbanjir (m ³ /dt)
	17.526	4.780	3.505	2.231	2.231	2.231		
0.000	0.000						0.300	0.300
0.037	0.642	0.000					0.300	0.979
0.193	3.390	0.924	0.000				0.300	4.807
0.512	8.969	2.446	1.794	0.000			0.300	14.021
1.021	17.890	4.879	3.578	2.277	0.000		0.300	29.945
1.192	20.892	5.698	4.178	2.659	2.659	0.000	0.300	37.578
1.006	17.638	4.810	3.528	2.245	2.245	2.245	0.300	34.017
0.850	14.891	4.061	2.978	1.895	1.895	1.895	0.300	28.766
0.717	12.572	3.429	2.514	1.600	1.600	1.600	0.300	24.333
0.606	10.614	2.895	2.123	1.351	1.351	1.351	0.300	20.590
0.511	8.961	2.444	1.792	1.140	1.140	1.140	0.300	17.430
0.432	7.565	2.063	1.513	0.963	0.963	0.963	0.300	14.762
0.358	6.268	1.709	1.254	0.798	0.798	0.798	0.300	12.281
0.319	5.599	1.527	1.120	0.713	0.713	0.713	0.300	11.002
0.285	5.001	1.364	1.000	0.637	0.637	0.637	0.300	9.860
0.255	4.467	1.218	0.893	0.569	0.569	0.569	0.300	8.840
0.228	3.991	1.088	0.798	0.508	0.508	0.508	0.300	7.928
0.203	3.565	0.972	0.713	0.454	0.454	0.454	0.300	7.114
0.182	3.184	0.868	0.637	0.405	0.405	0.405	0.300	6.387
0.162	2.844	0.776	0.569	0.362	0.362	0.362	0.300	5.737
0.145	2.541	0.693	0.508	0.323	0.323	0.323	0.300	5.157
0.130	2.270	0.619	0.454	0.289	0.289	0.289	0.300	4.639
0.116	2.027	0.553	0.405	0.258	0.258	0.258	0.300	4.176
0.107	1.880	0.513	0.376	0.239	0.239	0.239	0.300	3.894
0.099	1.728	0.471	0.346	0.220	0.220	0.220	0.300	3.603
0.091	1.587	0.433	0.317	0.202	0.202	0.202	0.300	3.335
0.083	1.459	0.398	0.292	0.186	0.186	0.186	0.300	3.088
0.076	1.340	0.366	0.268	0.171	0.171	0.171	0.300	2.862
0.070	1.231	0.336	0.246	0.157	0.157	0.157	0.300	2.654
0.065	1.131	0.309	0.226	0.144	0.144	0.144	0.300	2.463
0.059	1.040	0.284	0.208	0.132	0.132	0.132	0.300	2.287
0.055	0.955	0.261	0.191	0.122	0.122	0.122	0.300	2.126
0.050	0.878	0.239	0.176	0.112	0.112	0.112	0.300	1.978
0.046	0.806	0.220	0.161	0.103	0.103	0.103	0.300	1.842
0.042	0.741	0.202	0.148	0.094	0.094	0.094	0.300	1.717
0.039	0.681	0.186	0.136	0.087	0.087	0.087	0.300	1.602
0.036	0.626	0.171	0.125	0.080	0.080	0.080	0.300	1.496
0.033	0.575	0.157	0.115	0.073	0.073	0.073	0.300	1.399
0.030	0.528	0.144	0.106	0.067	0.067	0.067	0.300	1.310
0.028	0.485	0.132	0.097	0.062	0.062	0.062	0.300	1.228
0.025	0.446	0.122	0.089	0.057	0.057	0.057	0.300	1.152

Sumber : hasil perhitungan

Tabel 3.19 Debit banjir (Qp)Tr 5 tahun

Qt (m ³ /dt/mm)	Akibat Hujan jam-jaman (mm)						QB (m ³ /dt)	Qbanjir (m ³ /dt)
	25.233	6.882	5.047	3.211	3.211	3.211		
0.000	0.000						0.300	0.300
0.037	0.925	0.000					0.300	1.261
0.193	4.880	1.331	0.000				0.300	6.705
0.512	12.914	3.522	2.583	0.000			0.300	19.830
1.021	25.758	7.025	5.152	3.278	0.000		0.300	42.533
1.192	30.079	8.203	6.016	3.828	3.828	0.000	0.300	53.446
1.006	25.394	6.926	5.079	3.232	3.232	3.232	0.300	48.401
0.850	21.439	5.847	4.288	2.729	2.729	2.729	0.300	40.910
0.717	18.100	4.936	3.620	2.304	2.304	2.304	0.300	34.586
0.606	15.282	4.168	3.056	1.945	1.945	1.945	0.300	29.246
0.511	12.902	3.519	2.580	1.642	1.642	1.642	0.300	24.738
0.432	10.892	2.971	2.178	1.386	1.386	1.386	0.300	20.932
0.358	9.024	2.461	1.805	1.148	1.148	1.148	0.300	17.392
0.319	8.061	2.198	1.612	1.026	1.026	1.026	0.300	15.568
0.285	7.200	1.964	1.440	0.916	0.916	0.916	0.300	13.939
0.255	6.432	1.754	1.286	0.819	0.819	0.819	0.300	12.483
0.228	5.745	1.567	1.149	0.731	0.731	0.731	0.300	11.183
0.203	5.132	1.400	1.026	0.653	0.653	0.653	0.300	10.021
0.182	4.584	1.250	0.917	0.583	0.583	0.583	0.300	8.984
0.162	4.095	1.117	0.819	0.521	0.521	0.521	0.300	8.057
0.145	3.658	0.998	0.732	0.466	0.466	0.466	0.300	7.229
0.130	3.268	0.891	0.654	0.416	0.416	0.416	0.300	6.490
0.116	2.919	0.796	0.584	0.372	0.372	0.372	0.300	5.829
0.107	2.707	0.738	0.541	0.345	0.345	0.345	0.300	5.428
0.099	2.487	0.678	0.497	0.317	0.317	0.317	0.300	5.012
0.091	2.285	0.623	0.457	0.291	0.291	0.291	0.300	4.629
0.083	2.100	0.573	0.420	0.267	0.267	0.267	0.300	4.278
0.076	1.930	0.526	0.386	0.246	0.246	0.246	0.300	3.955
0.070	1.773	0.484	0.355	0.226	0.226	0.226	0.300	3.658
0.065	1.629	0.444	0.326	0.207	0.207	0.207	0.300	3.386
0.059	1.497	0.408	0.299	0.191	0.191	0.191	0.300	3.135
0.055	1.375	0.375	0.275	0.175	0.175	0.175	0.300	2.905
0.050	1.264	0.345	0.253	0.161	0.161	0.161	0.300	2.694
0.046	1.161	0.317	0.232	0.148	0.148	0.148	0.300	2.499
0.042	1.067	0.291	0.213	0.136	0.136	0.136	0.300	2.321
0.039	0.980	0.267	0.196	0.125	0.125	0.125	0.300	2.157
0.036	0.901	0.246	0.180	0.115	0.115	0.115	0.300	2.006
0.033	0.828	0.226	0.166	0.105	0.105	0.105	0.300	1.868
0.030	0.760	0.207	0.152	0.097	0.097	0.097	0.300	1.740
0.028	0.699	0.191	0.140	0.089	0.089	0.089	0.300	1.624
0.025	0.642	0.175	0.128	0.082	0.082	0.082	0.300	1.516

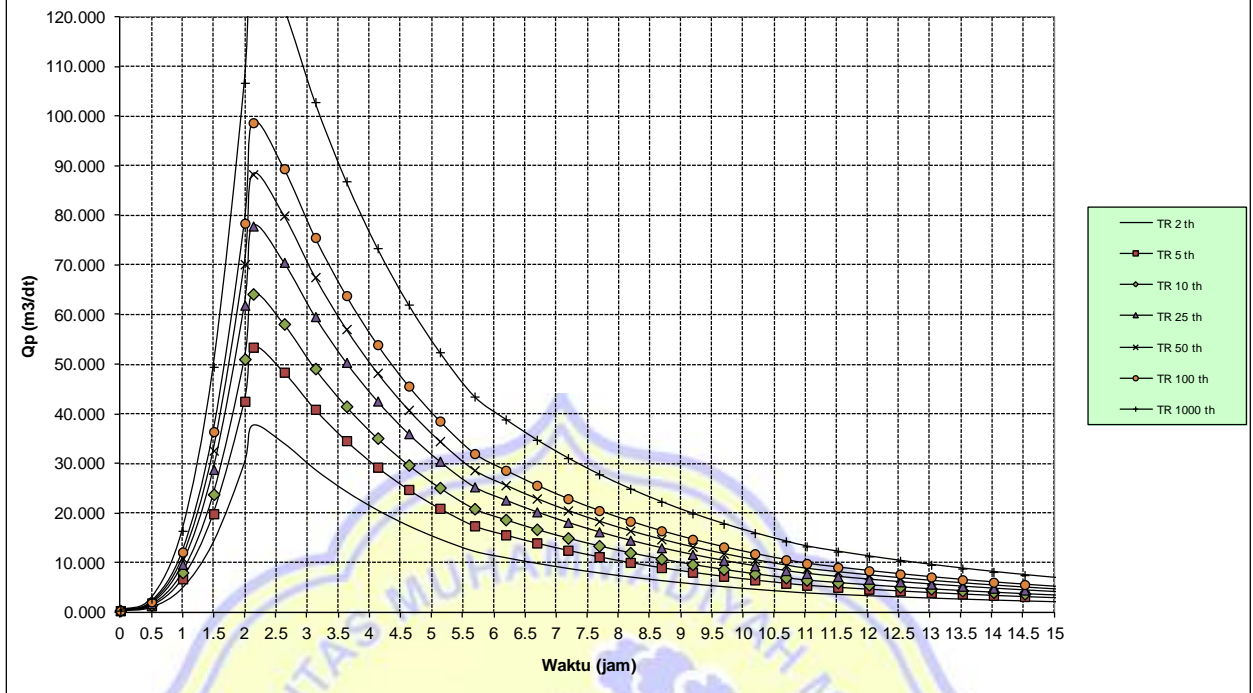
Sumber : hasil perhitungan

Tabel 3.26 Qp Metode NAKAYASU

t (jam)	Qp (m ³ /dt)						
	TR 2 th	TR 5 th	TR 10 th	TR 25 th	TR 50 th	TR 100 th	TR 1000 th
0.00	0.300	0.300	0.300	0.300	0.300	0.300	0.300
0.50	0.979	1.261	1.452	1.696	1.882	2.067	2.703
1.00	4.807	6.705	7.987	9.626	10.872	12.119	16.387
1.50	14.021	19.830	23.758	28.777	32.591	36.409	49.478
2.00	29.945	42.533	51.044	61.921	70.184	78.459	106.778
2.13	37.578	53.446	64.175	77.888	88.305	98.736	134.437
2.63	34.017	48.401	58.127	70.557	80.000	89.455	121.817
3.13	28.766	40.910	49.121	59.615	67.587	75.570	102.892
3.63	24.333	34.586	41.518	50.377	57.108	63.848	86.914
4.13	20.590	29.246	35.098	42.578	48.261	53.951	73.425
4.63	17.430	24.738	29.679	35.994	40.791	45.595	62.037
5.13	14.762	20.932	25.103	30.435	34.485	38.541	52.422
5.69	12.281	17.392	20.848	25.265	28.621	31.980	43.480
6.19	11.002	15.568	18.655	22.601	25.598	28.599	38.872
6.69	9.860	13.939	16.696	20.221	22.898	25.579	34.755
7.19	8.840	12.483	14.946	18.094	20.486	22.881	31.078
7.69	7.928	11.183	13.383	16.195	18.332	20.471	27.793
8.19	7.114	10.021	11.987	14.499	16.407	18.318	24.859
8.69	6.387	8.984	10.739	12.983	14.688	16.395	22.238
9.19	5.737	8.057	9.625	11.630	13.153	14.677	19.896
9.69	5.157	7.229	8.630	10.421	11.781	13.143	17.805
10.19	4.639	6.490	7.741	9.340	10.556	11.772	15.937
10.69	4.176	5.829	6.947	8.376	9.461	10.548	14.268
11.02	3.894	5.428	6.464	7.790	8.796	9.804	13.254
11.52	3.603	5.012	5.964	7.182	8.107	9.033	12.203
12.02	3.335	4.629	5.504	6.623	7.473	8.324	11.237
12.52	3.088	4.278	5.082	6.110	6.891	7.673	10.349
13.02	2.862	3.955	4.694	5.638	6.356	7.074	9.533
13.52	2.654	3.658	4.337	5.205	5.864	6.524	8.784
14.02	2.463	3.386	4.010	4.807	5.413	6.019	8.095
14.52	2.287	3.135	3.708	4.441	4.998	5.555	7.463
15.02	2.126	2.905	3.432	4.105	4.616	5.129	6.881
15.52	1.978	2.694	3.178	3.796	4.266	4.737	6.347
16.02	1.842	2.499	2.944	3.512	3.944	4.377	5.856
16.52	1.717	2.321	2.729	3.252	3.648	4.046	5.405
17.02	1.602	2.157	2.532	3.012	3.377	3.742	4.991
17.52	1.496	2.006	2.351	2.792	3.127	3.462	4.610
18.02	1.399	1.868	2.185	2.590	2.898	3.206	4.260
18.52	1.310	1.740	2.032	2.404	2.687	2.970	3.939
19.02	1.228	1.624	1.891	2.233	2.493	2.753	3.644
19.52	1.152	1.516	1.762	2.076	2.315	2.554	3.372
Maksimum	37.578	53.446	64.175	77.888	88.305	98.736	134.437

Sumber : hasil perhitungan

Gambar 4.6 Hidrograf Satuan Sintetik Nakayasu DAS Kelongkong



Tabel 3.18 Debit banjir (Qp)Tr 2 tahun

Qt (m ³ /dt/mm)	Akibat Hujan jam-jaman (mm)						QB (m ³ /dt)	Qbanjir (m ³ /dt)
	17.526	4.780	3.505	2.231	2.231	2.231		
0.000	0.000						0.300	0.300
0.037	0.642	0.000					0.300	0.979
0.193	3.390	0.924	0.000				0.300	4.807
0.512	8.969	2.446	1.794	0.000			0.300	14.021
1.021	17.890	4.879	3.578	2.277	0.000		0.300	29.945
1.192	20.892	5.698	4.178	2.659	2.659	0.000	0.300	37.578
1.006	17.638	4.810	3.528	2.245	2.245	2.245	0.300	34.017
0.850	14.891	4.061	2.978	1.895	1.895	1.895	0.300	28.766
0.717	12.572	3.429	2.514	1.600	1.600	1.600	0.300	24.333
0.606	10.614	2.895	2.123	1.351	1.351	1.351	0.300	20.590
0.511	8.961	2.444	1.792	1.140	1.140	1.140	0.300	17.430
0.432	7.565	2.063	1.513	0.963	0.963	0.963	0.300	14.762
0.358	6.268	1.709	1.254	0.798	0.798	0.798	0.300	12.281
0.319	5.599	1.527	1.120	0.713	0.713	0.713	0.300	11.002
0.285	5.001	1.364	1.000	0.637	0.637	0.637	0.300	9.860
0.255	4.467	1.218	0.893	0.569	0.569	0.569	0.300	8.840
0.228	3.991	1.088	0.798	0.508	0.508	0.508	0.300	7.928
0.203	3.565	0.972	0.713	0.454	0.454	0.454	0.300	7.114
0.182	3.184	0.868	0.637	0.405	0.405	0.405	0.300	6.387
0.162	2.844	0.776	0.569	0.362	0.362	0.362	0.300	5.737
0.145	2.541	0.693	0.508	0.323	0.323	0.323	0.300	5.157
0.130	2.270	0.619	0.454	0.289	0.289	0.289	0.300	4.639
0.116	2.027	0.553	0.405	0.258	0.258	0.258	0.300	4.176
0.107	1.880	0.513	0.376	0.239	0.239	0.239	0.300	3.894



Tabel 3.19 Debit banjir (Qp)Tr 5 tahun

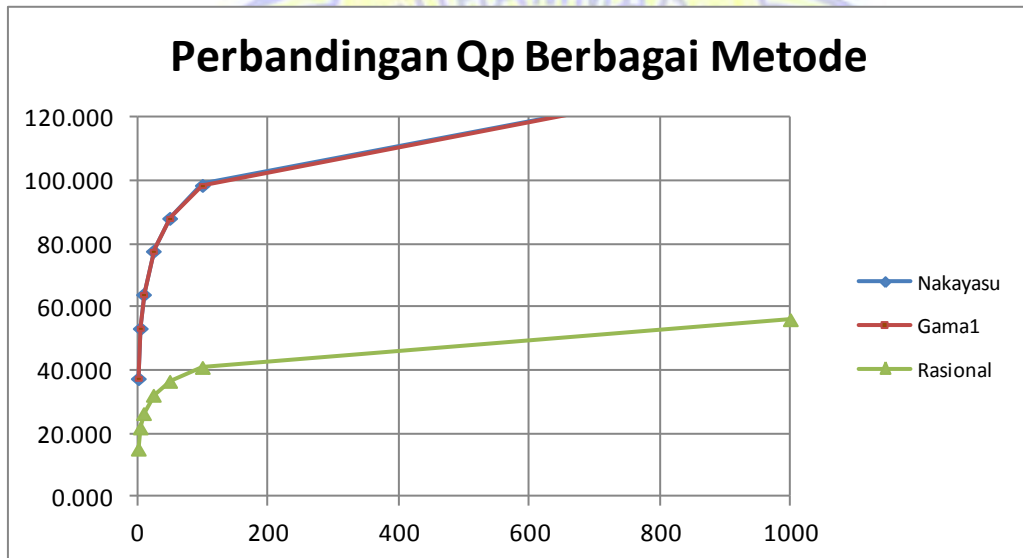
Qt (m ³ /dt/mm)	Akibat Hujan jam-jaman (mm)						QB (m ³ /dt)	Qbanjir (m ³ /dt)
	25.233	6.882	5.047	3.211	3.211	3.211		
0.000	0.000						0.300	0.300
0.037	0.925	0.000					0.300	1.261
0.193	4.880	1.331	0.000				0.300	6.705
0.512	12.914	3.522	2.583	0.000			0.300	19.830
1.021	25.758	7.025	5.152	3.278	0.000		0.300	42.533
1.192	30.079	8.203	6.016	3.828	3.828	0.000	0.300	53.446
1.006	25.394	6.926	5.079	3.232	3.232	3.232	0.300	48.401
0.850	21.439	5.847	4.288	2.729	2.729	2.729	0.300	40.910
0.717	18.100	4.936	3.620	2.304	2.304	2.304	0.300	34.586
0.606	15.282	4.168	3.056	1.945	1.945	1.945	0.300	29.246
0.511	12.902	3.519	2.580	1.642	1.642	1.642	0.300	24.738
0.432	10.892	2.971	2.178	1.386	1.386	1.386	0.300	20.932
0.358	9.024	2.461	1.805	1.148	1.148	1.148	0.300	17.392
0.319	8.061	2.198	1.612	1.026	1.026	1.026	0.300	15.568
0.285	7.200	1.964	1.440	0.916	0.916	0.916	0.300	13.939
0.255	6.432	1.754	1.286	0.819	0.819	0.819	0.300	12.483
0.228	5.745	1.567	1.149	0.731	0.731	0.731	0.300	11.183
0.203	5.132	1.400	1.026	0.653	0.653	0.653	0.300	10.021
0.182	4.584	1.250	0.917	0.583	0.583	0.583	0.300	8.984
0.162	4.095	1.117	0.819	0.521	0.521	0.521	0.300	8.057
0.145	3.658	0.998	0.732	0.466	0.466	0.466	0.300	7.229
0.130	3.268	0.891	0.654	0.416	0.416	0.416	0.300	6.490
0.116	2.919	0.796	0.584	0.372	0.372	0.372	0.300	5.829
0.107	2.707	0.738	0.541	0.345	0.345	0.345	0.300	5.428



PERBANDINGAN QP METODE HSS NAKAYASU, HSS GAMA I DAN RASIONAL

Tabel 5. Perbandingan Qp Metode HSS Nakayasu, HSS Gama I dan Rasional

No	Kala Ulang (Tahun)	Debit Rancangan (m ³ /dt)		
		HSS Nakayasu	HSS Gama I	Rasional
1	2	37.578	37.682	15.264
2	5	53.446	53.508	21.976
3	10	64.175	64.208	26.514
4	25	77.888	77.883	32.314
5	50	88.305	88.272	36.721
6	100	98.736	98.675	41.133
7	1000	134.437	134.280	56.234



DATA HUJAN MAKSIMUM TAHUNAN

Data Hujan Maksimum Tahunan Sub DAS Klongkong

No	Tahun		St. Kuripan	St. Monjok	
1	2001	0	0	0	0
2	2002	0	0	0	0
3	2003	0	0	0	0
4	2004	0	0	0	0
5	2005	0	0	0	0
6	2006	0	0	0	0
7	2007	0	0	0	0
8	2008	0	0	0	0
9	2009	0	95	372	0
10	2010	0	151	205	0
11	2011	0	59	62	0
12	2012	0	57	94	0
13	2013	0	116	77	0
14	2014	0	108	114	0
15	2015	0	83	102	0



Luas DAS

$$A = 18.006 \text{ km}^2$$

Luas DAS bagian hulu

$$A_u = 4.193 \text{ km}^2$$

Panjang Sungai utama

$$L = 11.85 \text{ km}$$

$$0.25.L = 2.96 \text{ km}$$

$$0.75.L = 8.89 \text{ km}$$

Panjang lintasan air dari titik terjauh sampai titik yang ditinjau

$$L_u = 14.84 \text{ km}$$

Beda tinggi elevasi bagian sungai hulu dan hilir

$$\Delta H = 15.11 \text{ m}$$

Slope sungai utama

$$0.1.L = 1,185.000$$

$$0.85.L = 10,072.500$$

$$H_{10} = 12.97 \text{ Elevasi pada } 0.10 L$$

$$H_{85} = 28.08 \text{ Elevasi pada } 0.85 L$$

$$S = 0.0013$$

$$H_{RT} = 20.53 \text{ Elevasi Rerata}$$

Jumlah pertemuan sungai

$$J_N = 13.00$$

Jumlah pangsa sungai tingkat 1

$$P_I = 14.00$$

Jumlah Panjang sungai tingkat 1

$$L_I = 5.66 \text{ km}$$

Jumlah pangsa sungai semua tingkat

$$P_N = 22.00$$

$$\text{pangsa tingkat } N = 8.00$$

Jumlah Panjang sungai semua tingkat

$$L_N = 14.77 \text{ km}$$

$$\text{panjang tingkat } N = 9.11 \text{ km}$$



Debit aliran dasar

$$Q_f = 0.30 \text{ m}^3/\text{dt}$$

Parameter Alfa

$$a = 3$$

Hujan satuan

$$R_o = 1 \text{ mm}$$

Koefisien pengaliran rerata DAS

$$C = 0.42$$

Koefisien Pengaliran (C)

Permukiman =	0.60	C teoritis =	0.424
Perkebunan =	0.35	C terfaktor =	-
Sawah Irigasi =	0.25		
Hutan =	0.25		
Belukar =	0.20		
Tanah Ladang =	0.35		
Sawah Tadah Hujan =	0.20		



Luar tata guna lahan

Permukiman	=	8.948	km ²
Perkebunan	=	0.000	km ²
Sawah Irigasi	=	9.058	km ²
Hutan	=	0.000	km ²
Belukar	=	0.000	km ²
Tanah Ladang	=	0.000	km ²
Sawah Tadah Hujan	=	0.000	km ²
Total	=	18.006	km ²

Luas Poligon Theissen

0	=	0.000	km ²
St. Kuripan	=	12.269	km ²
St. Monjok	=	5.737	km ²
0	=	0.000	km ²
Total	=	18.006	km ²

Panjang pengaliran di atas permukaan lahan

L ₂	=	413.891	m
L ₁	=	356.4168	m
	=	168.3485	m
	=	235.1616	m
	=	222.3662	m
	=	431.4887	m
	=	247.0348	m
	=	176.7138	m
	=	290.964	m
	=	172.239	m
	=	641.441	m
	=	496.998	m
	=	430.336	m
	=	1344.055	m
	=	450.384	m
L ₂	=	527.2446	m
	=	227.2672	m
	=	1394.0202	m
	=	117.1766	m
	=	57.9256	m
L ₃	=	539.8916	m
	=	327.443	m
	=	250.6896	m



Koefisien Kekasaran Manning

$n = 0.050$ (Saluran alam banyak batuan dan tumbuhan)

Ketinggian Lahan berdasarkan Wilayah Tanah Usaha

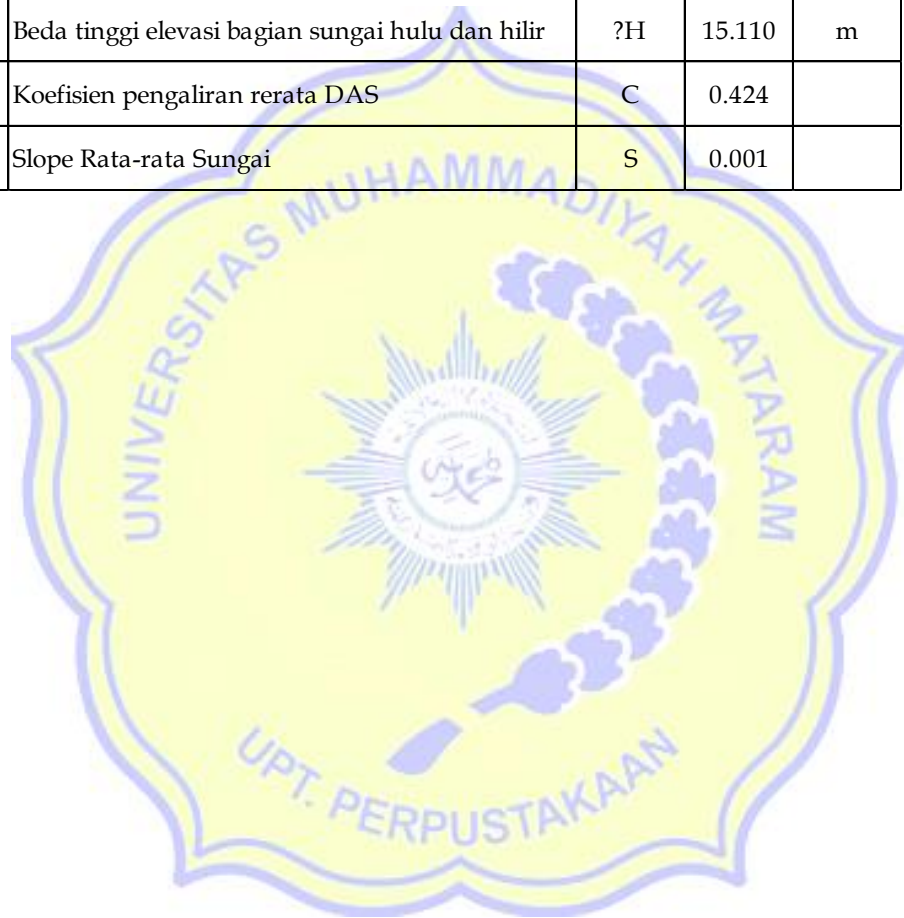
0 - 100 m =	83.111 km ²	83,111,235.63 m ²	14.14%
100 - 500 m =	317.972 km ²	317,971,503.49 m ²	54.08%
500 - 1000 m =	140.818 km ²	140,817,725.93 m ²	23.95%
> 1000 m =	46.066 km ²	46,066,066.90 m ²	7.83%
Total =	587.967 km ²		100%



PARAMETER HIDROLOGI

Parameter Dasar Analisa Hidrologi Sub DAS Kelongkong

No	Parameter	Simbol	Nilai	Satuan
1	Luas DAS	A	18.006	km ²
2	Luas DAS bagian hulu	Au	4.193	km ²
3	Panjang Sungai utama	L	11.850	km
4	Jumlah pertemuan sungai	JN	13.000	
5	Jumlah pangsa sungai tingkat 1	LI	14.000	
6	Beda tinggi elevasi bagian sungai hulu dan hilir	?H	15.110	m
7	Koefisien pengaliran rerata DAS	C	0.424	
8	Slope Rata-rata Sungai	S	0.001	



UJI KONSISTENSI

Tabel.1.1. Uji Konsistensi Pos Hujan

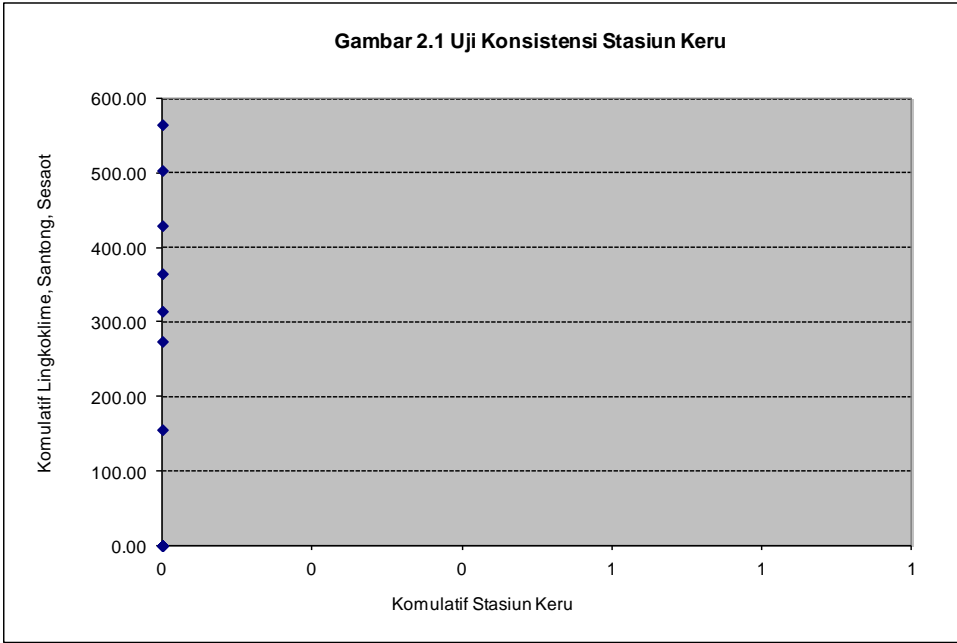
0

Tahun	0	Rerata Lingkoklime, Santong, Sesaot	Kumulatif 0	Kumulatif Lingkoklime, Santong, Sesaot
2001	0	0.00	0	0.00
2002	0	0.00	0	0.00
2003	0	0.00	0	0.00
2004	0	0.00	0	0.00
2005	0	0.00	0	0.00
2006	0	0.00	0	0.00
2007	0	0.00	0	0.00
2008	0	0.00	0	0.00
2009	0	155.70	0	155.70
2010	0	118.50	0	274.20
2011	0	40.53	0	314.73
2012	0	50.40	0	365.13
2013	0	64.50	0	429.63
2014	0	74.07	0	503.70
2015	0	61.50	0	565.20

Data Hujan Maksimum

Tahun	0	St. Kuripan	St. Monjok	0
2001	0	0	0	0
2002	0	0	0	0
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	95	372	0
2010	0	151	205	0
2011	0	59	62	0
2012	0	57	94	0
2013	0	116	77	0
2014	0	108	114	0
2015	0	83	102	0

Gambar 2.1 Uji Konsistensi Stasiun Keru

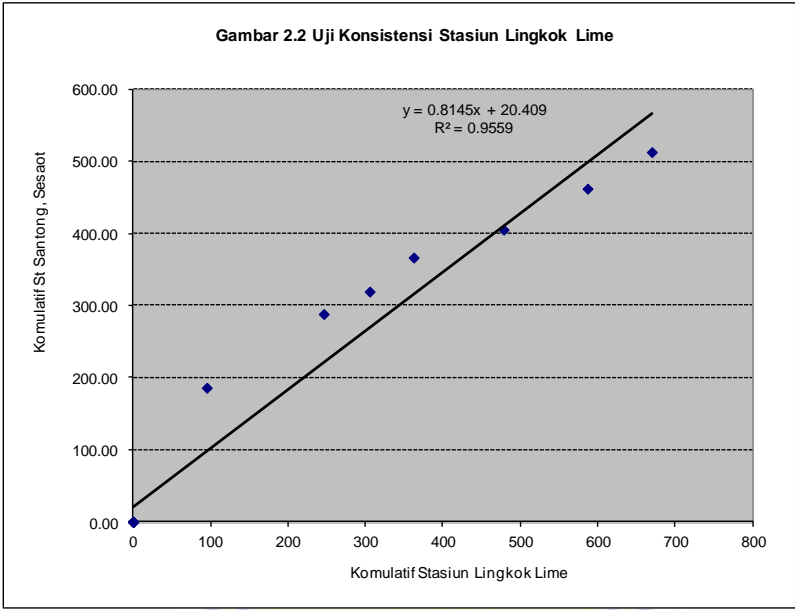


Tabel.1.1. Uji Konsistensi Pos Hujan St. Kuripan

Tahun	St. Kuripan	Rerata Santong, Sesaot	Kumulatif St. Kuripan	Kumulatif Santong, Sesaot
2001	0	0.00	0	0.00
2002	0	0.00	0	0.00
2003	0	0.00	0	0.00
2004	0	0.00	0	0.00
2005	0	0.00	0	0.00
2006	0	0.00	0	0.00
2007	0	0.00	0	0.00
2008	0	0.00	0	0.00
2009	95	186.00	95	186.00
2010	151	102.25	246	288.25
2011	59	31.15	305	319.40
2012	57	47.20	362	366.60
2013	116	38.70	478	405.30
2014	108	56.90	587	462.20
2015	83	50.75	670	512.95

Data Hujan Maksimum

Tahun	0	St. Kuripan	St. Monjok	0
2001	0	0	0	0
2002	0	0	0	0
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	95	372	0
2010	0	151	205	0
2011	0	59	62	0
2012	0	57	94	0
2013	0	116	77	0
2014	0	108	114	0
2015	0	83	102	0



Tabel.1.1. Uji Konsistensi Pos Hujan

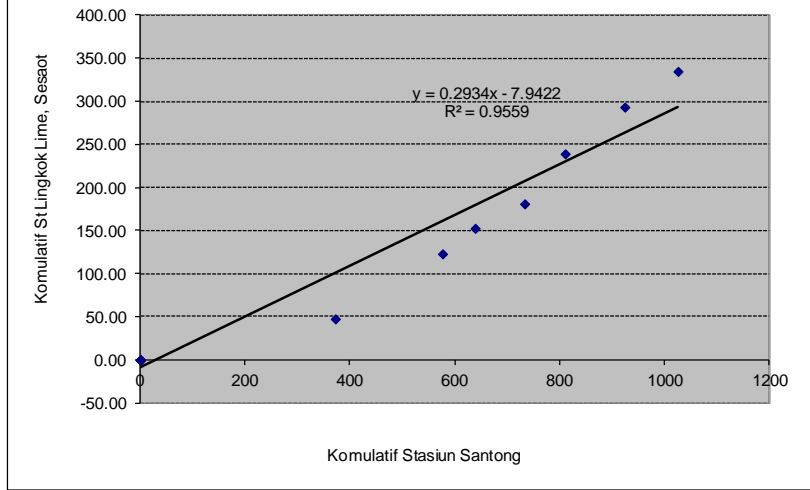
St. Monjok

Tahun	St. Monjok	Rerata -	Kumulatif St. Monjok	Kumulatif -
2001	0	0.00	0	0.00
2002	0	0.00	0	0.00
2003	0	0.00	0	0.00
2004	0	0.00	0	0.00
2005	0	0.00	0	0.00
2006	0	0.00	0	0.00
2007	0	0.00	0	0.00
2008	0	0.00	0	0.00
2009	372	47.55	372	47.55
2010	205	75.50	577	123.05
2011	62	29.65	639	152.70
2012	94	28.40	733	181.10
2013	77	58.05	811	239.15
2014	114	54.20	924	293.35
2015	102	41.50	1026	334.85

Data Hujan Maksimum

Tahun	0	St. Kuripan	St. Monjok	0
2001	0	0	0	0
2002	0	0	0	0
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	95	372	0
2010	0	151	205	0
2011	0	59	62	0
2012	0	57	94	0
2013	0	116	77	0
2014	0	108	114	0
2015	0	83	102	0

Gambar 2.3 Uji Konsistensi Stasiun Santong



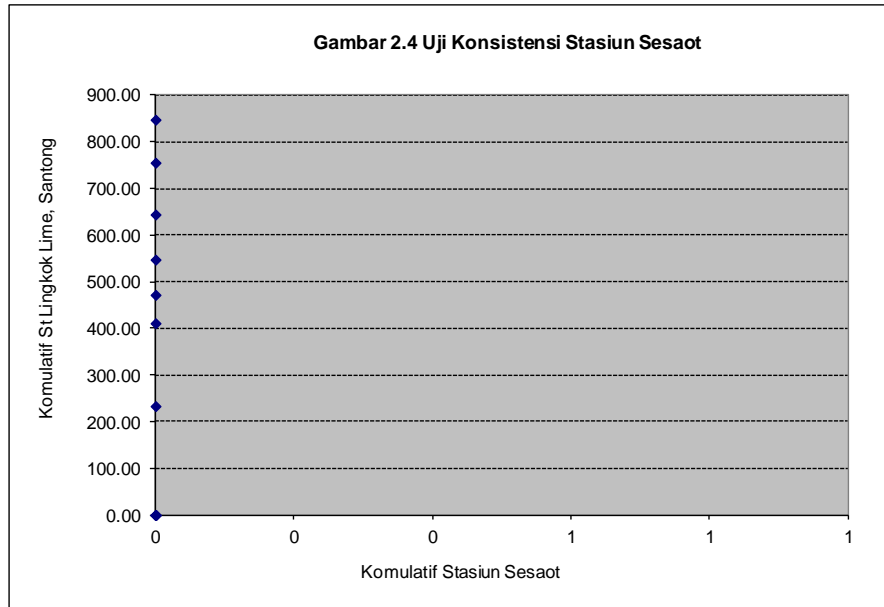
Tabel.1.1. Uji Konsistensi Pos Hujan

0

Tahun	0	Rerata Lingkoklime, Santong	Kumulatif 0	Kumulatif Lingkoklime, Santong
2001	0	0.00	0	0.00
2002	0	0.00	0	0.00
2003	0	0.00	0	0.00
2004	0	0.00	0	0.00
2005	0	0.00	0	0.00
2006	0	0.00	0	0.00
2007	0	0.00	0	0.00
2008	0	0.00	0	0.00
2009	0	233.55	0	233.55
2010	0	177.75	0	411.30
2011	0	60.80	0	472.10
2012	0	75.60	0	547.70
2013	0	96.75	0	644.45
2014	0	111.10	0	755.55
2015	0	92.25	0	847.80

Data Hujan Maksimum

Tahun	0	St. Kuripan	St. Monjok	0
2001	0	0	0	0
2002	0	0	0	0
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	95	372	0
2010	0	151	205	0
2011	0	59	62	0
2012	0	57	94	0
2013	0	116	77	0
2014	0	108	114	0
2015	0	83	102	0



KOEFSIEN THIESSEN

Tabel Luas dan Koefisien Thiessen

	Luas Area (Km ²)	Koefisien Thiessen
Sub DAS Klongkong	18.006	1.00
St. Kuripan	12.269	0.681
St. Monjok	5.737	0.319
0	0.000	0.000

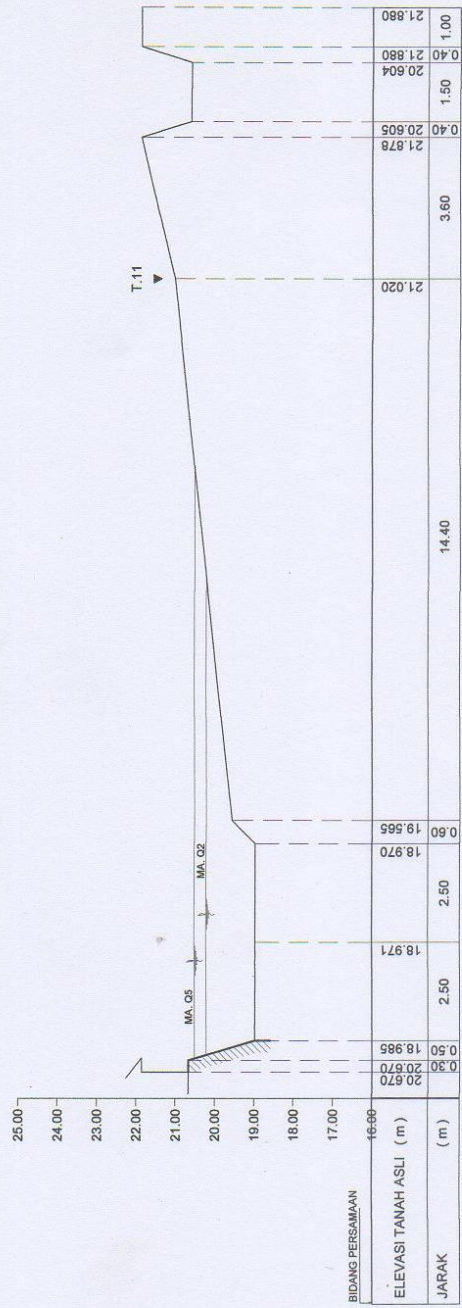
Sumber : hasil perhitungan

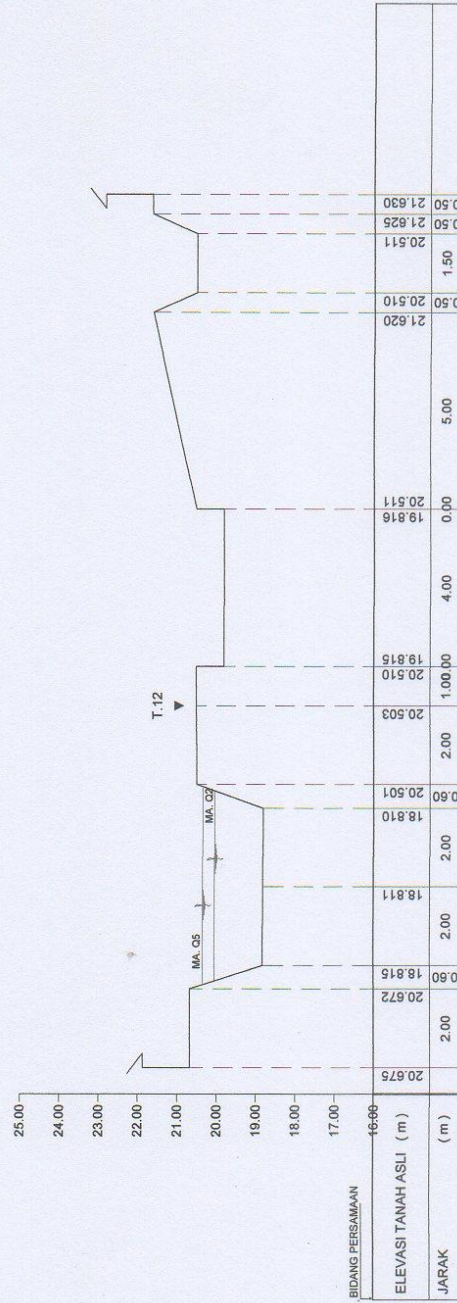
❖ LAMPIRAN 2 (Data Gambar Penampang Melintang dan Gambar Penampang Memanjang Sungai)

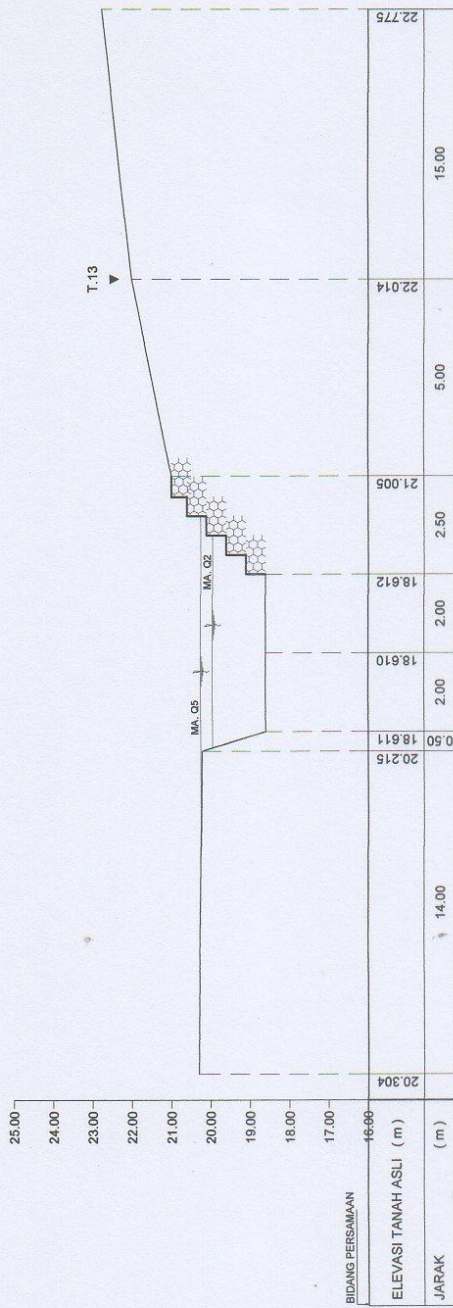


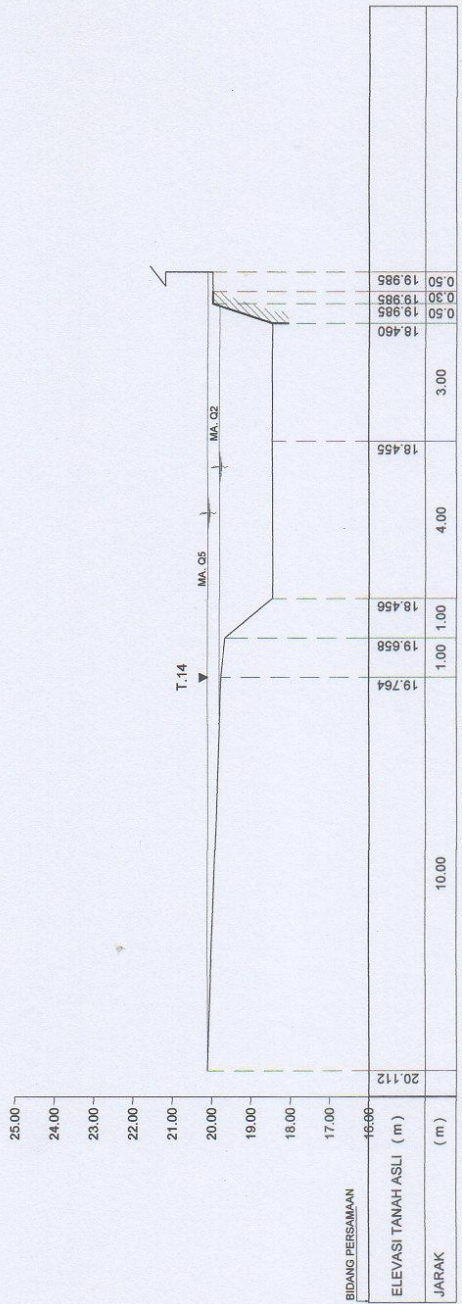
❖ Gambar potongan melintang kondisi eksisting

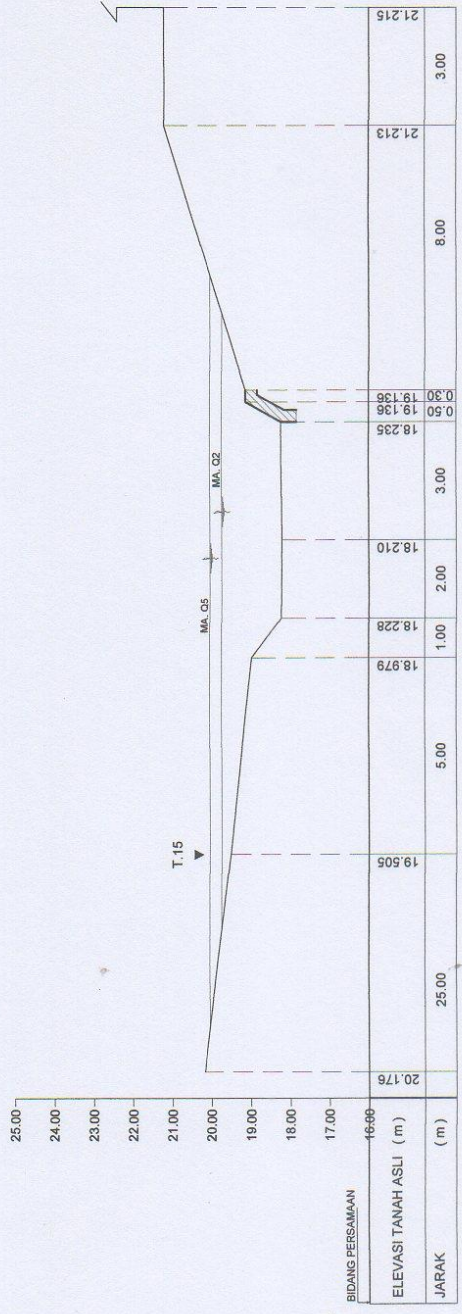


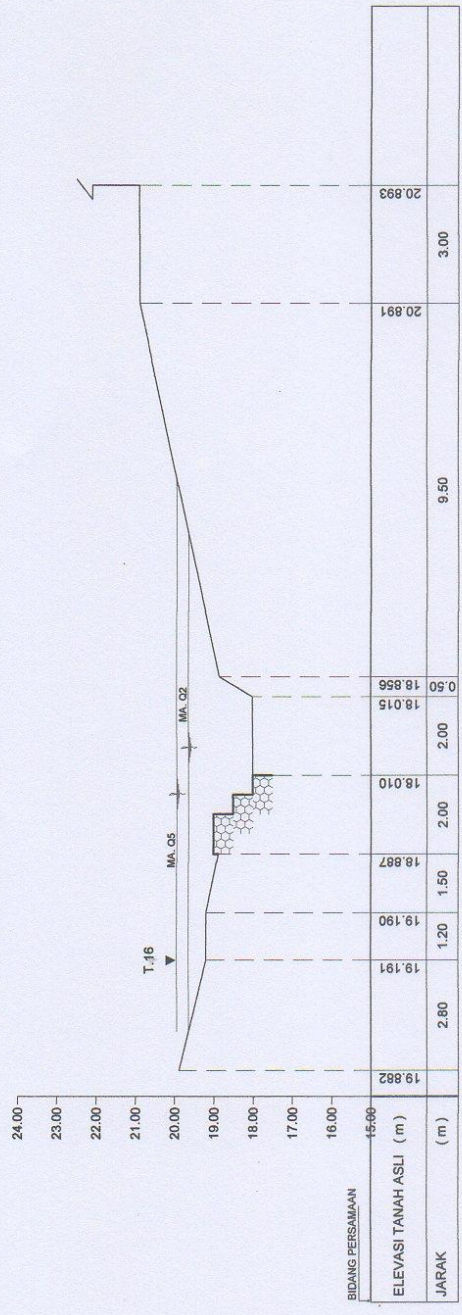


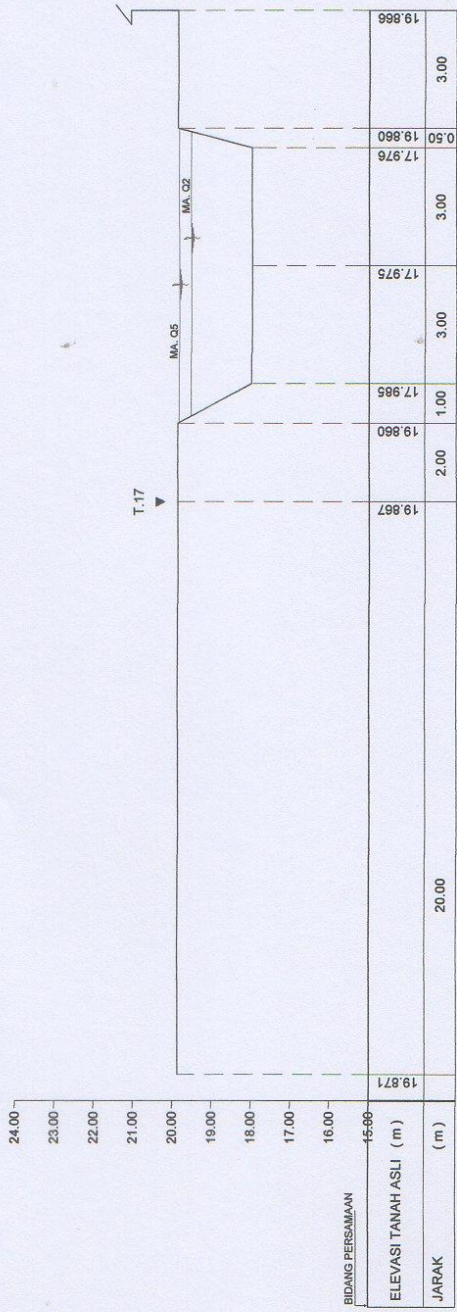


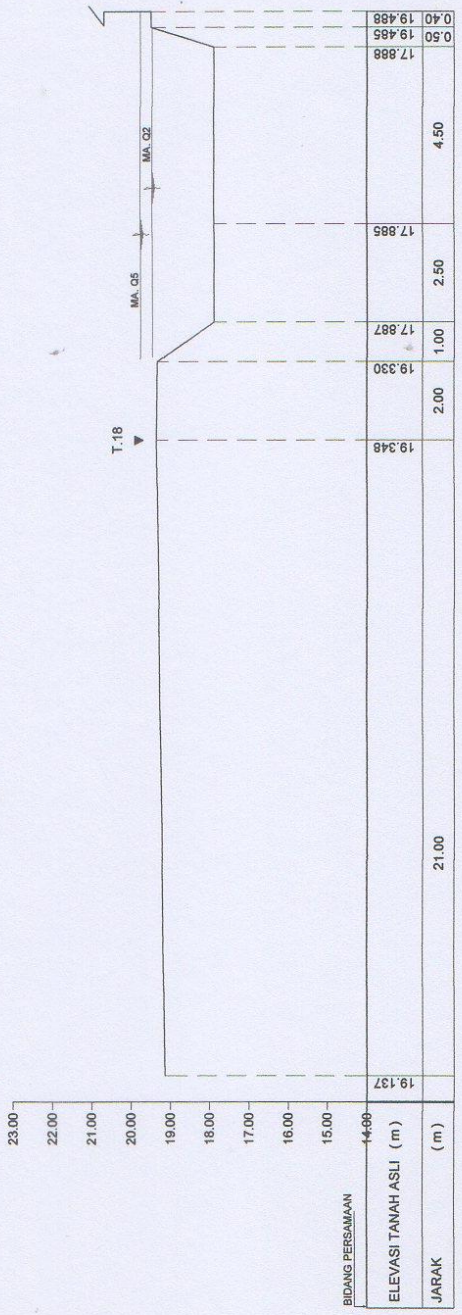


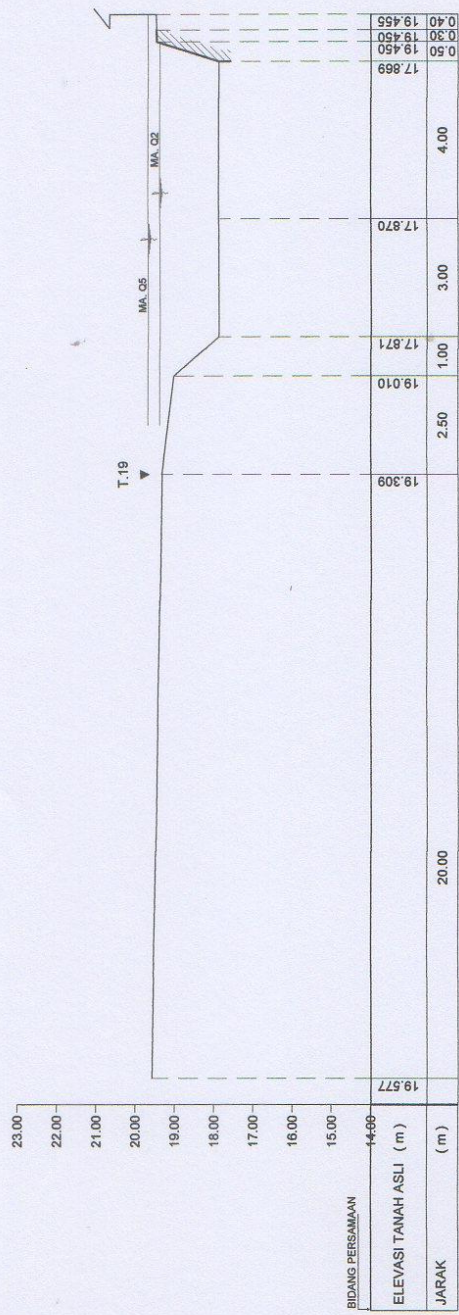


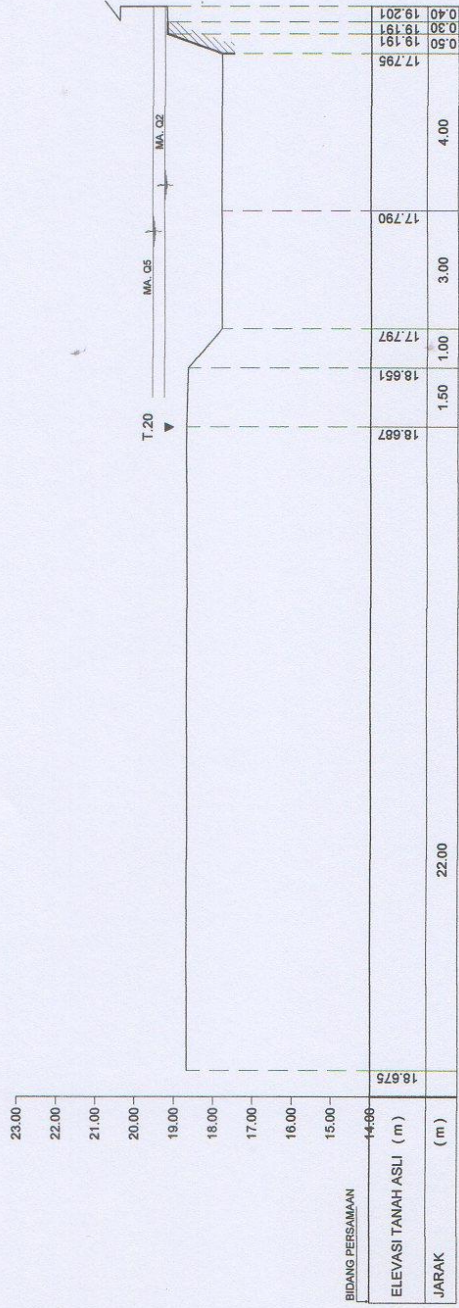




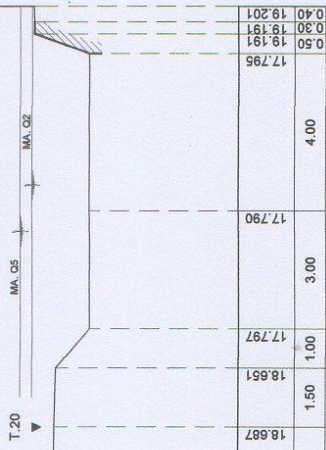








23.00
22.00
21.00
20.00
19.00
18.00
17.00
16.00
15.00

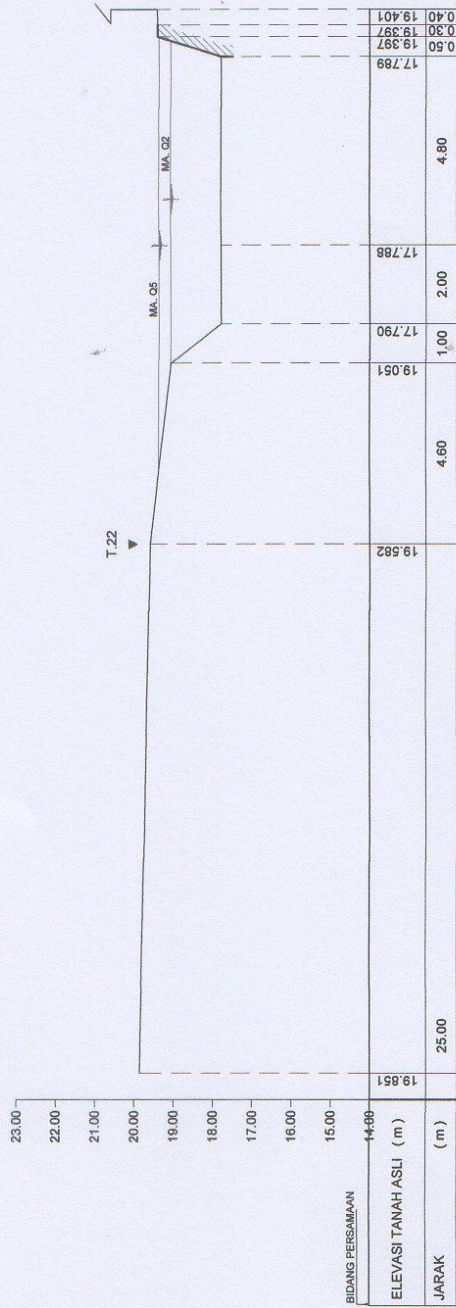


BIDANG PERSAMAAN

ELEVASI TANAH ASLI (m)

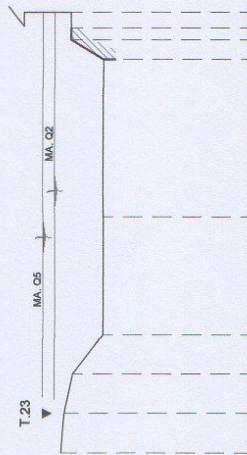
JARAK (m)



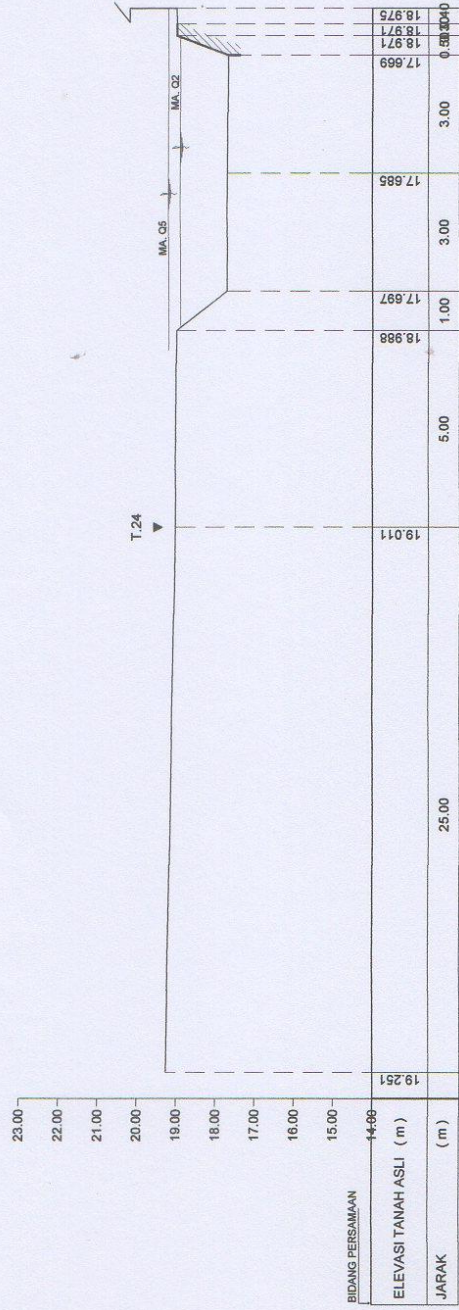


0.50	17.789
0.30	19.397
0.40	19.401

23.00
22.00
21.00
20.00
19.00
18.00
17.00
16.00
15.00
14.00



BIDANG PERSAMAAN	
ELEVASI TANAH ASLI (m)	JARAK (m)
18.811	0.00
18.728	1.00
18.520	1.00
17.756	3.00
17.750	4.00
17.751	7.00
18.571	0.50
18.571	0.38
16.572	0.40





23.00

22.00

21.00

20.00

19.00

18.00

17.00

16.00

15.00

14.88

18.701

18.615

17.517

17.515

17.518

0.50

0.50

0.50

0.50

0.50

0.50

0.50

0.50

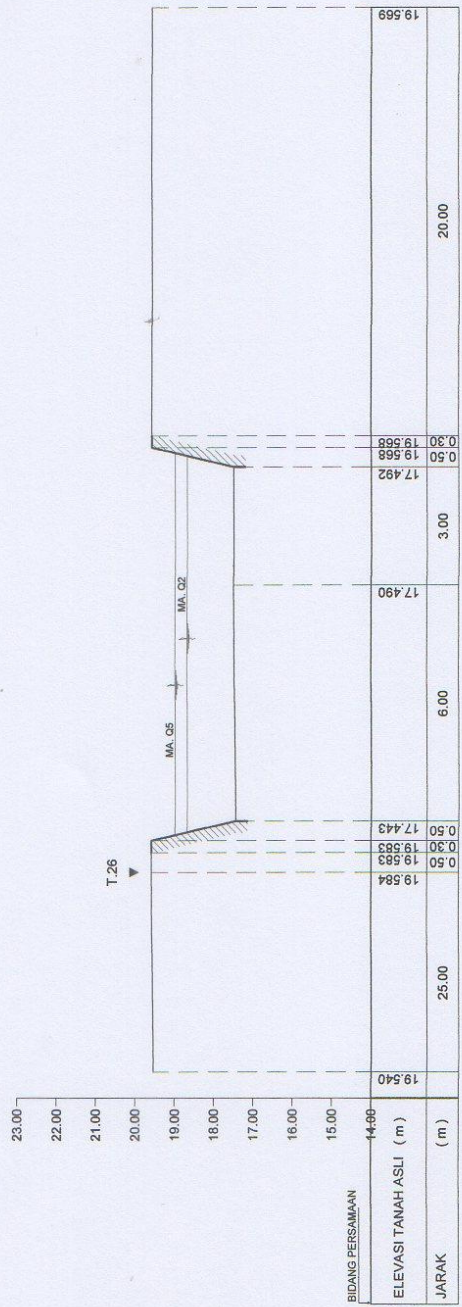
0.50

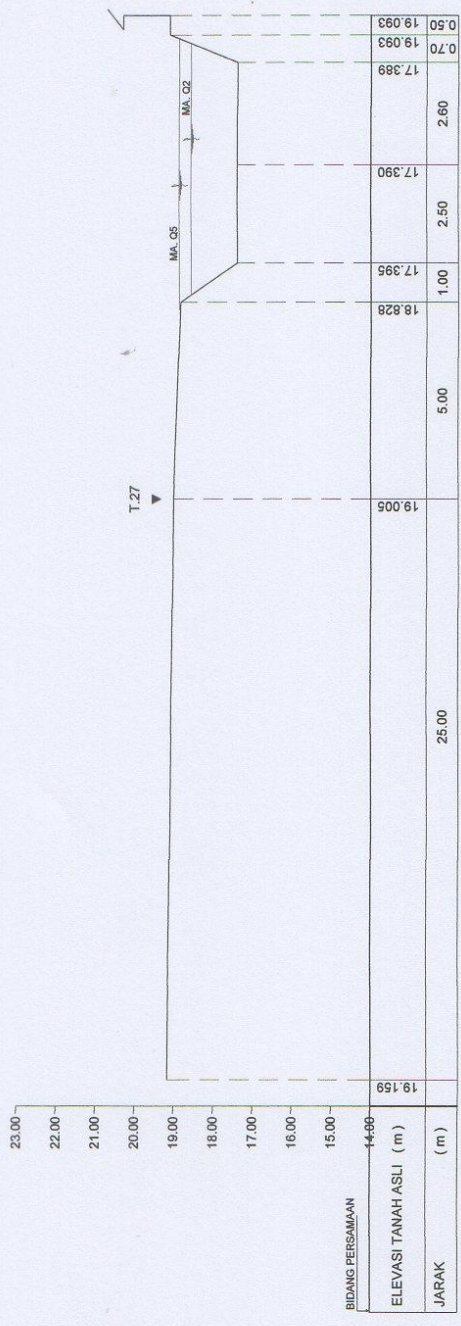
0.50

T.25

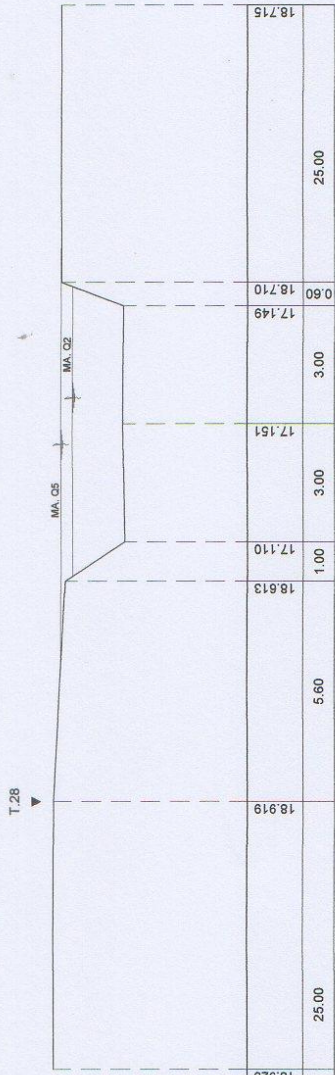
MA.02

MA.05

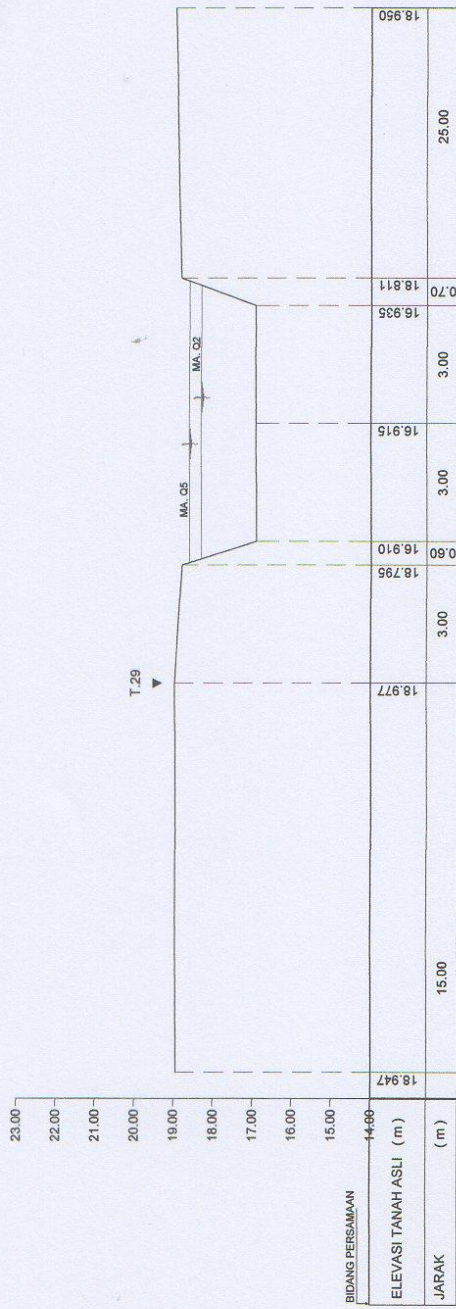




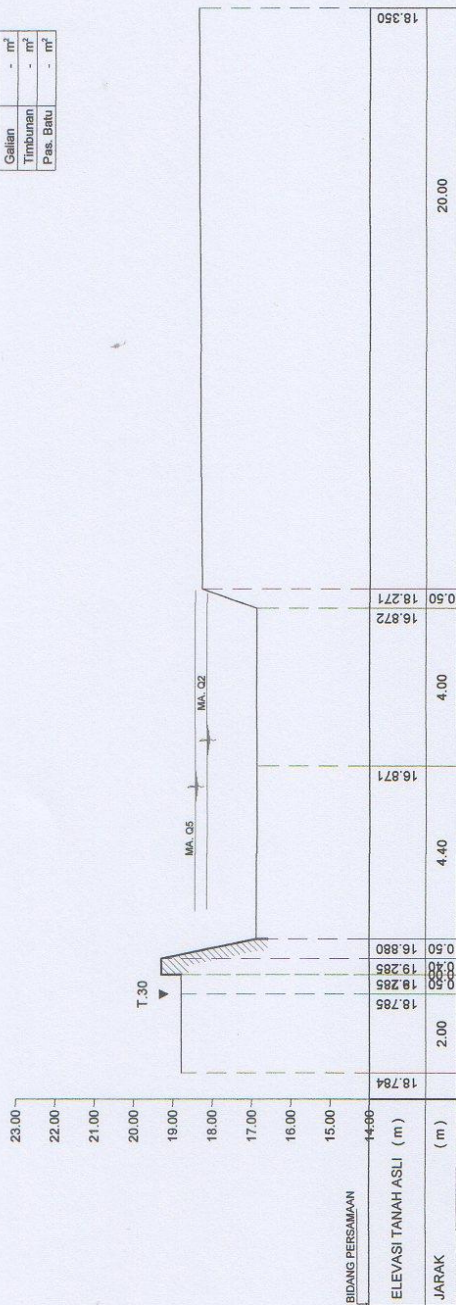
23.00									
22.00									
21.00									
20.00									
19.00									
18.00									
17.00									
16.00									
15.00									
14.89									
ELEVASI TANAH ASLI (m)	18.925	18.919	18.613	17.110	17.151	17.149	18.710	18.715	
JARAK (m)	25.00	5.60	1.00	3.00	3.00	3.00	0.60	25.00	



BIDANG PERSAMAAN

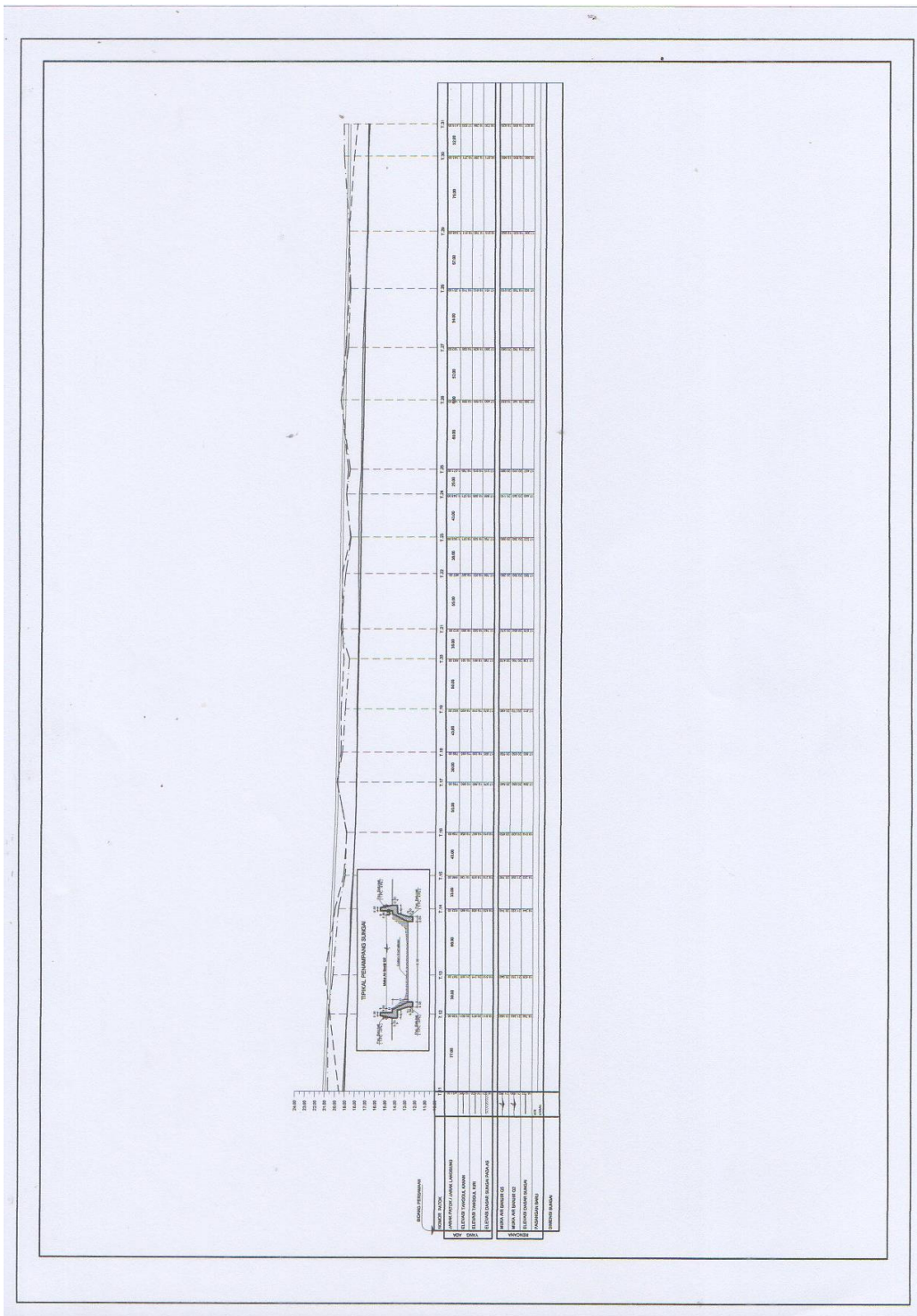


Galian	-	m ³
Timbunan	-	m ³
Pas. Batu	-	m ³

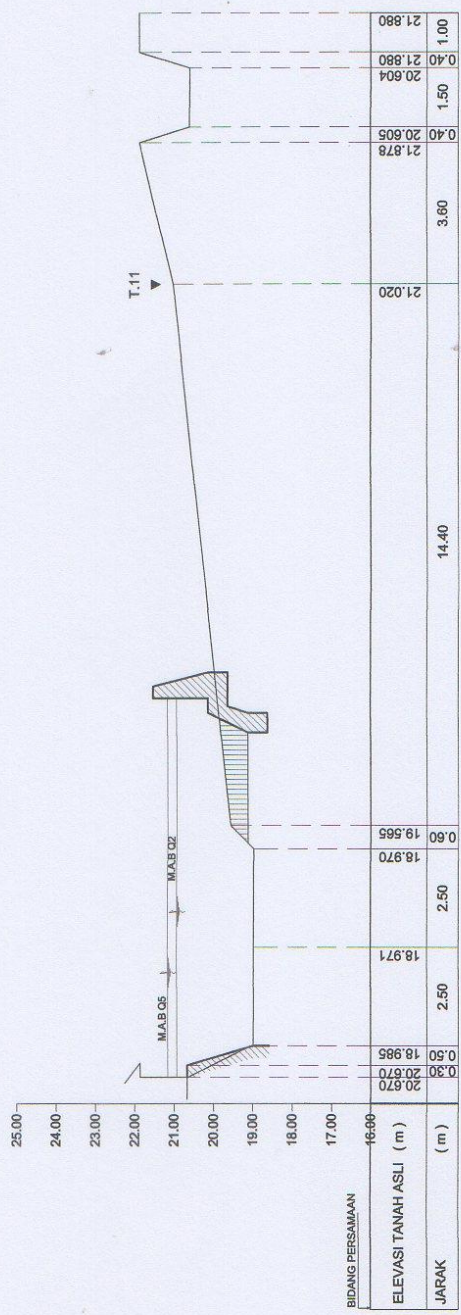


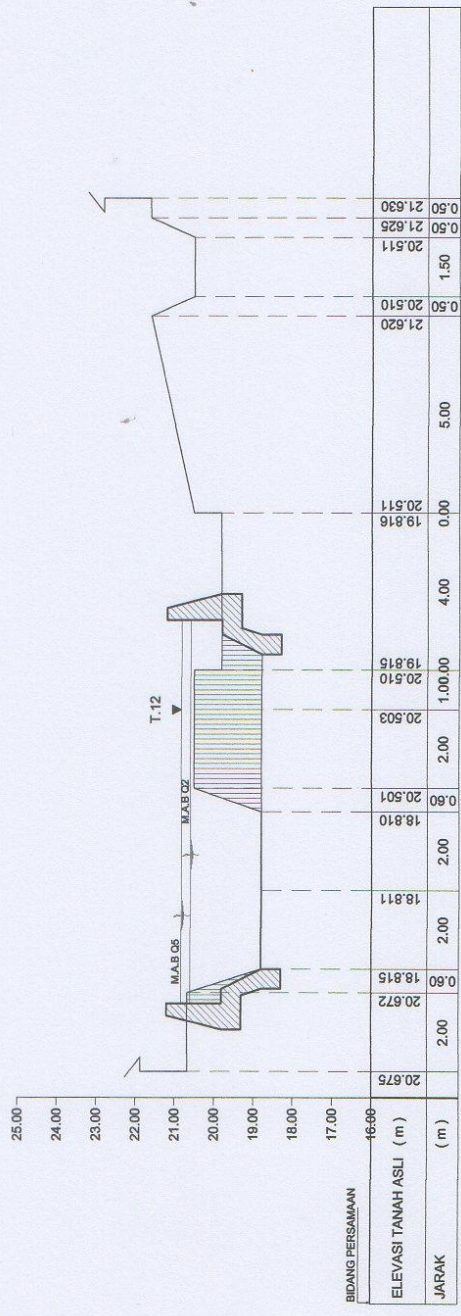
- ❖ Gambar potongan memanjang kondisi eksisting

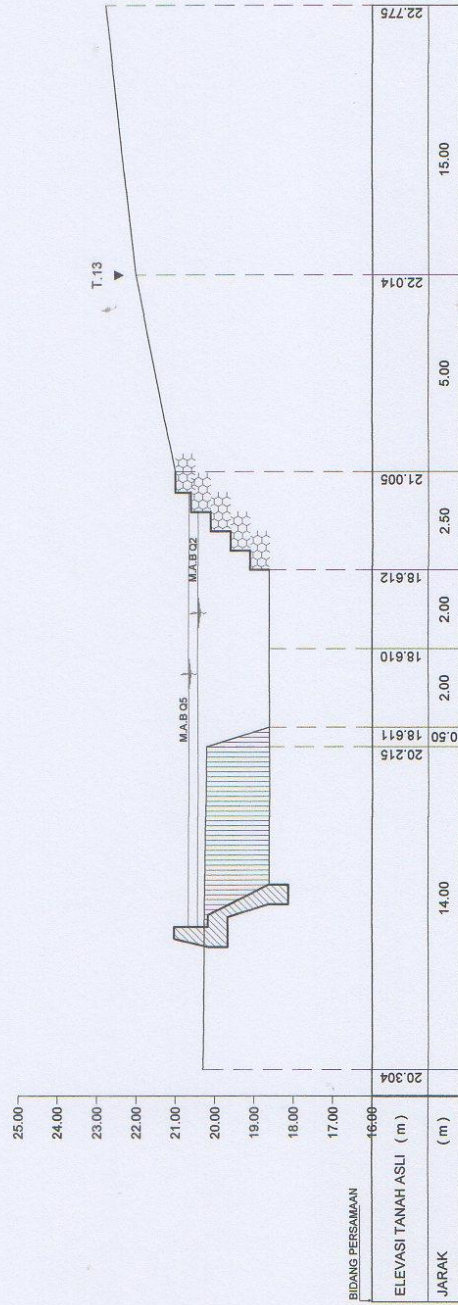




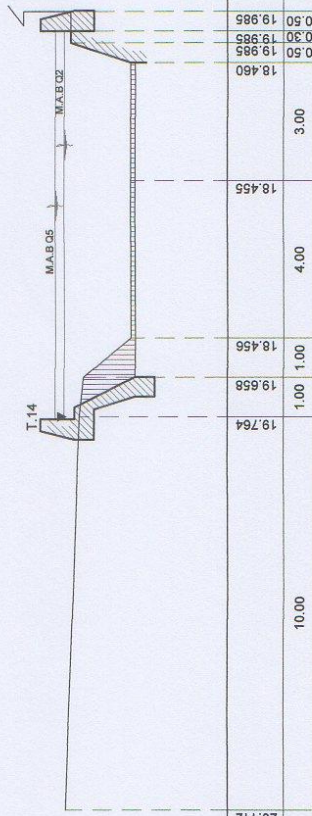
❖ Gambar potongan melintang desain rencana



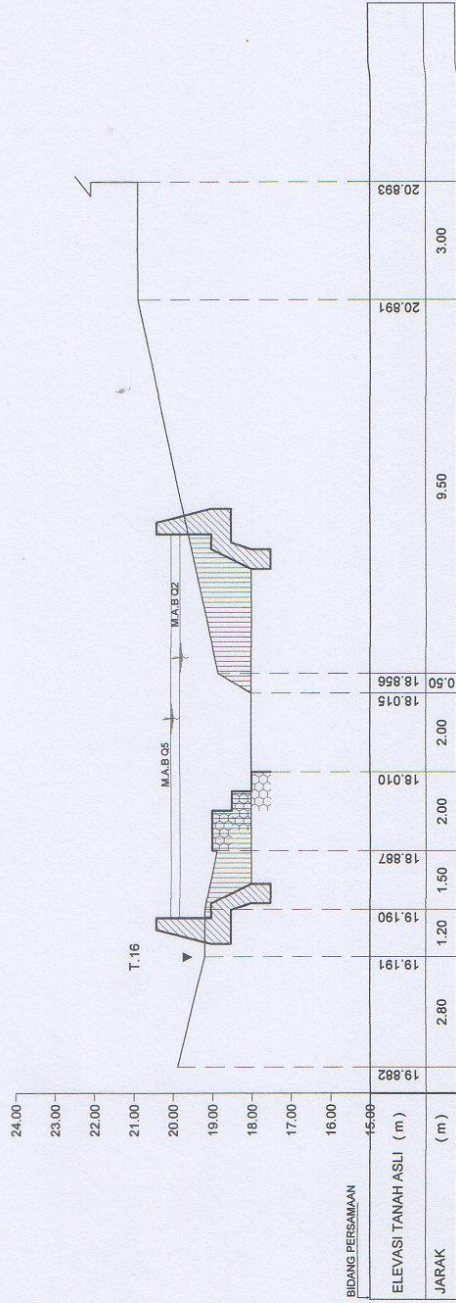




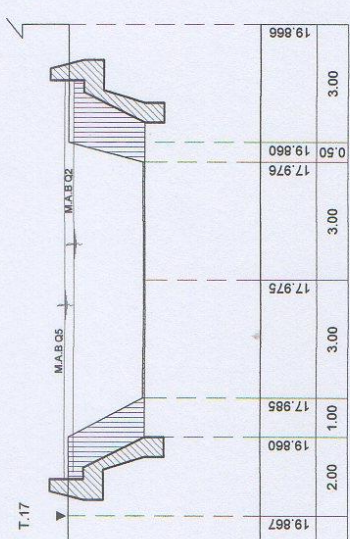
BIDANG PERSAMAAN	16.89								
ELEVASI TANAH ASLI (m)	20.112	10.00	19.784	1.00	19.658	18.456	18.455	3.00	18.460
JARAK (m)									





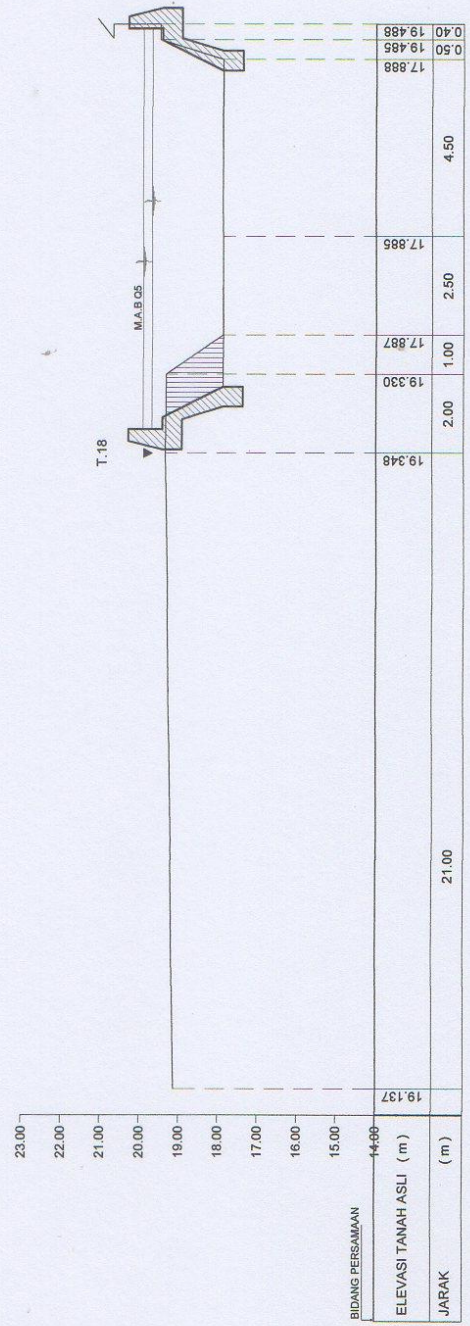


24.00
 23.00
 22.00
 21.00
 20.00
 19.00
 18.00
 17.00
 16.00
 15.00
 14.00



BIDANG PERSAMAAN	15.00								
ELEVASI TANAH ASLI (m)	19.871	19.867	19.860	17.985	17.975	17.976	19.860	19.866	
JARAK (m)		2.00	1.00	3.00	3.00	3.00	3.00	3.00	20.00

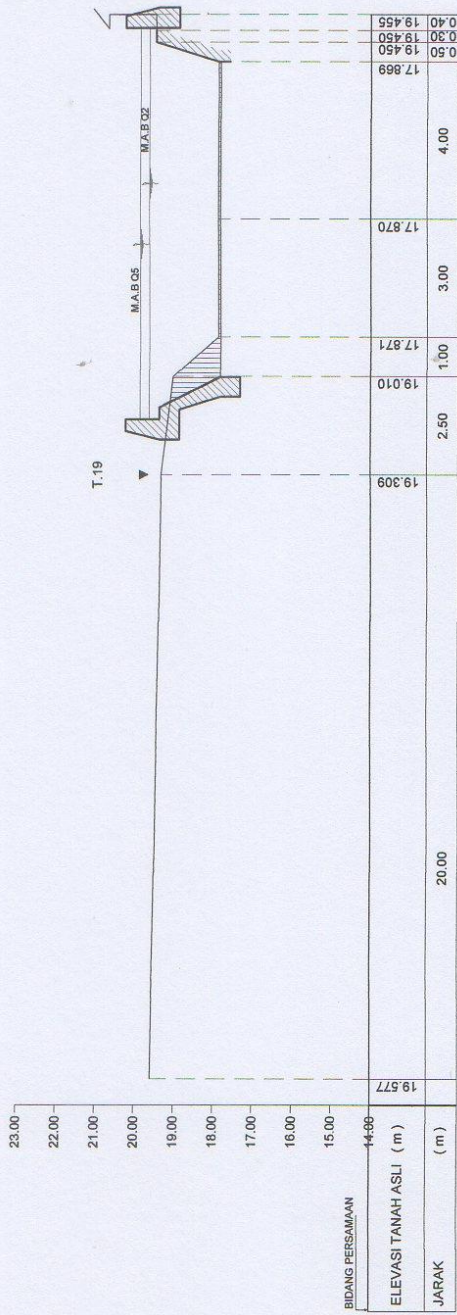


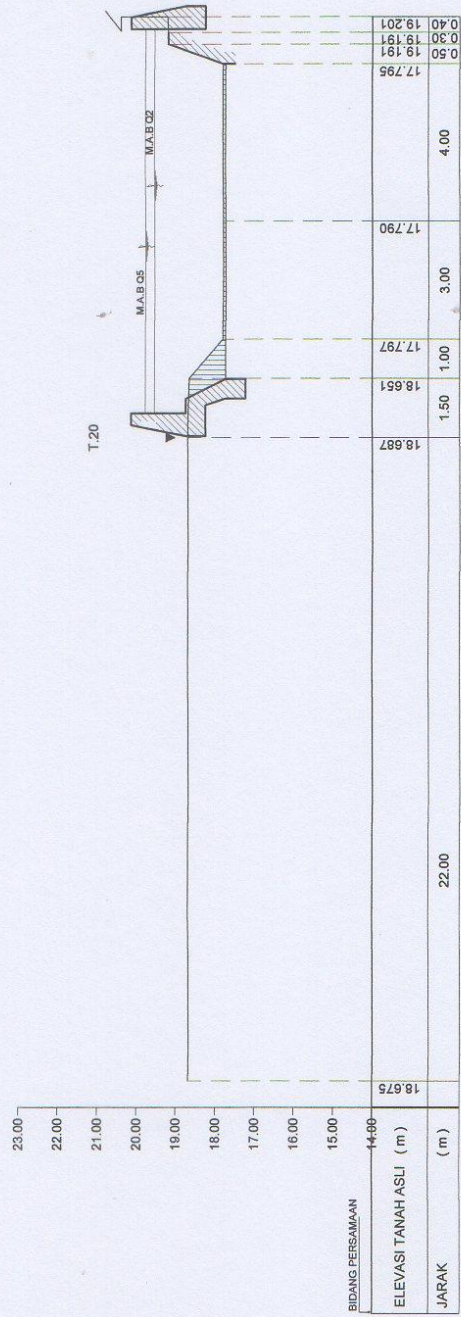


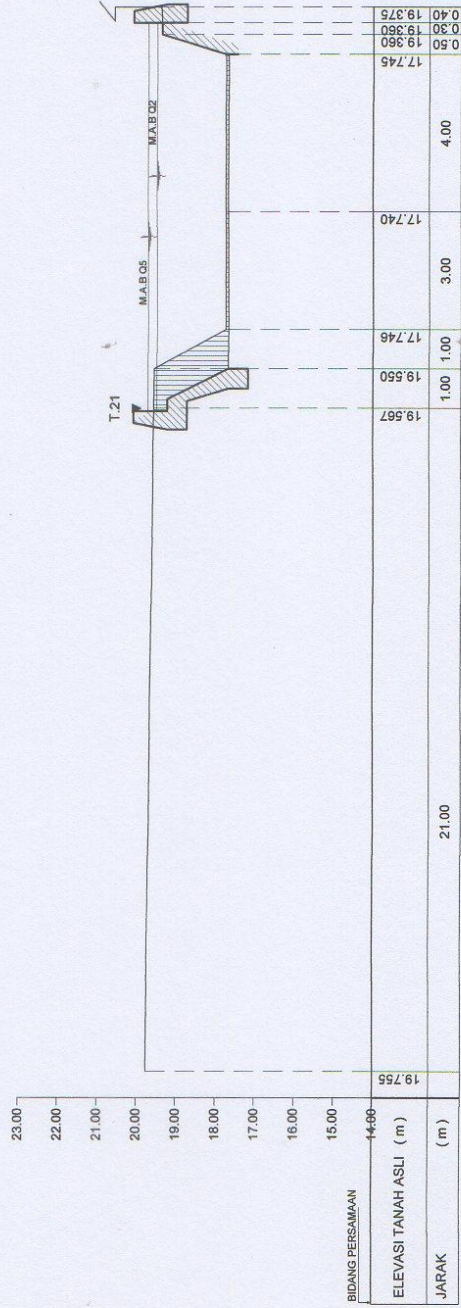
BIDANG PERSAMAAN

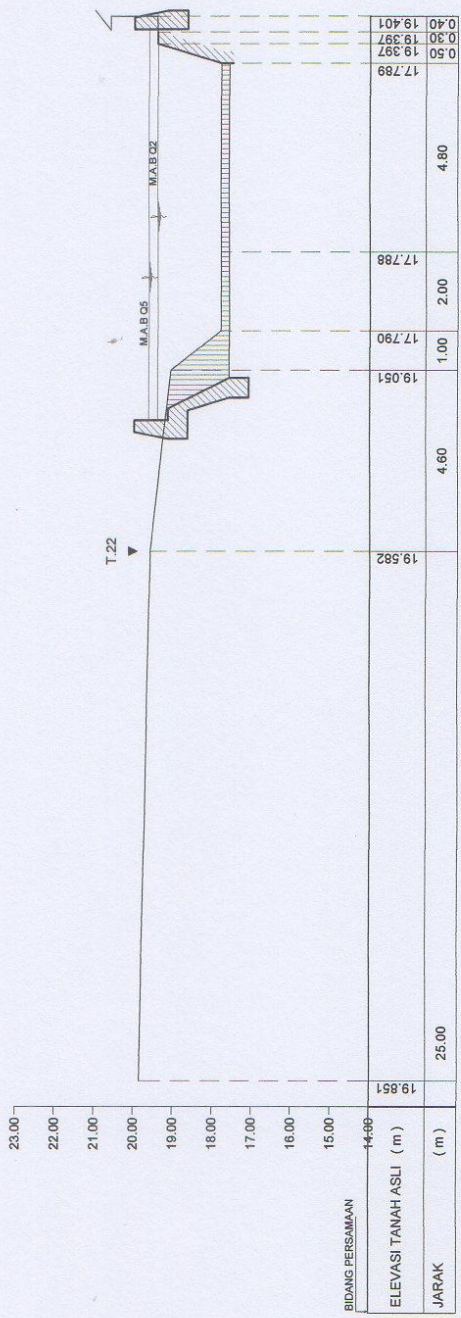
ELEVASI TANAH ASLI (m)

JARAK (m)

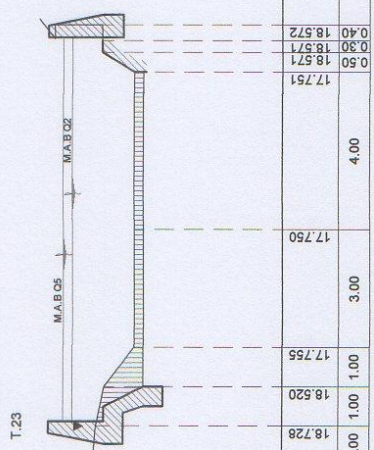




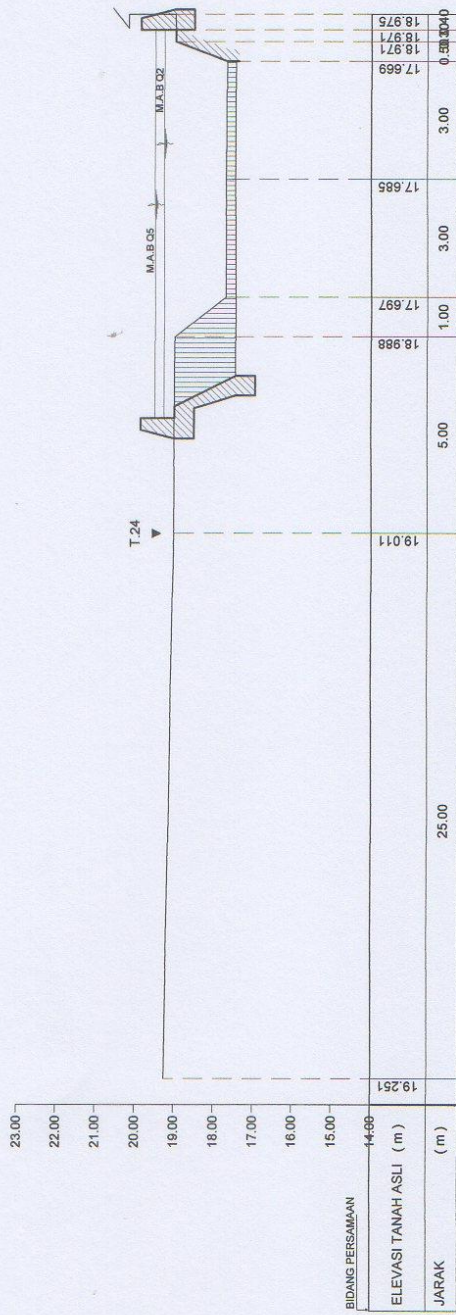




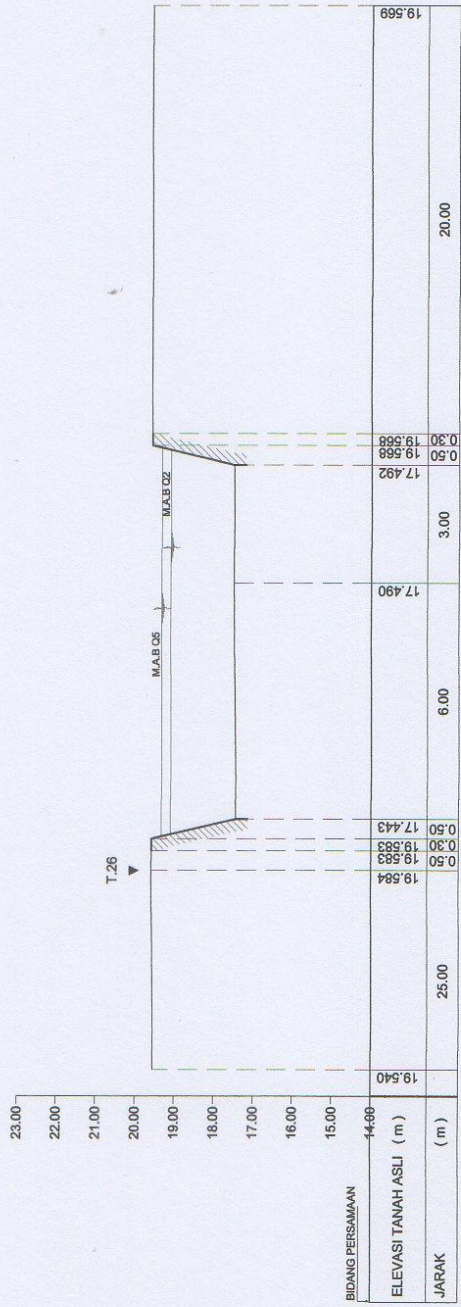
BIDANG PERSAMAAN	14.60						
ELEVASI TANAH ASLI (m)	18.811	18.728	18.520	17.755	17.750	17.751	18.571
JARAK (m)	1.00	1.00	1.00	3.00	4.00	0.30	0.40

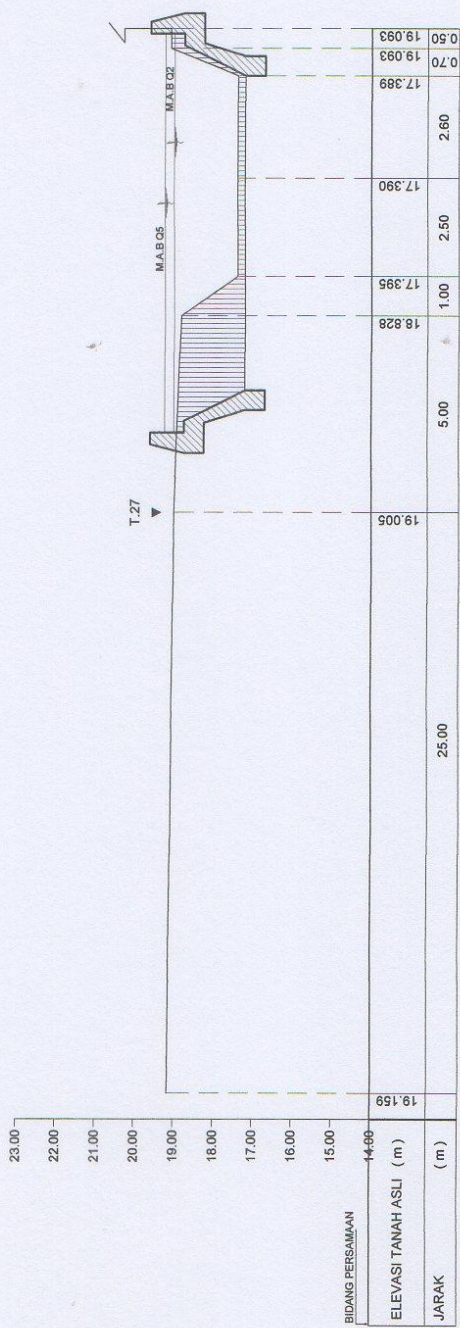


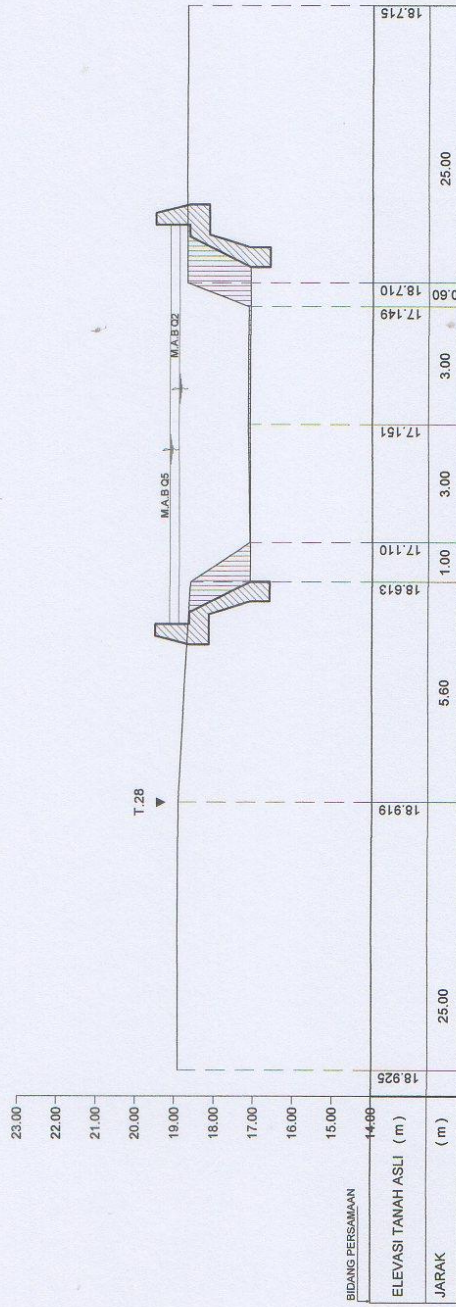
T.23

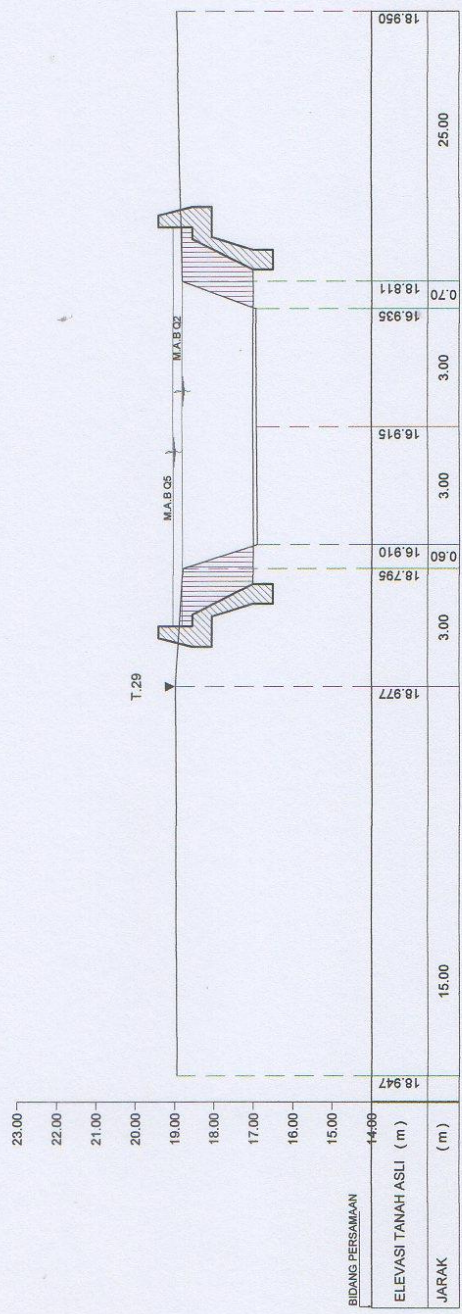








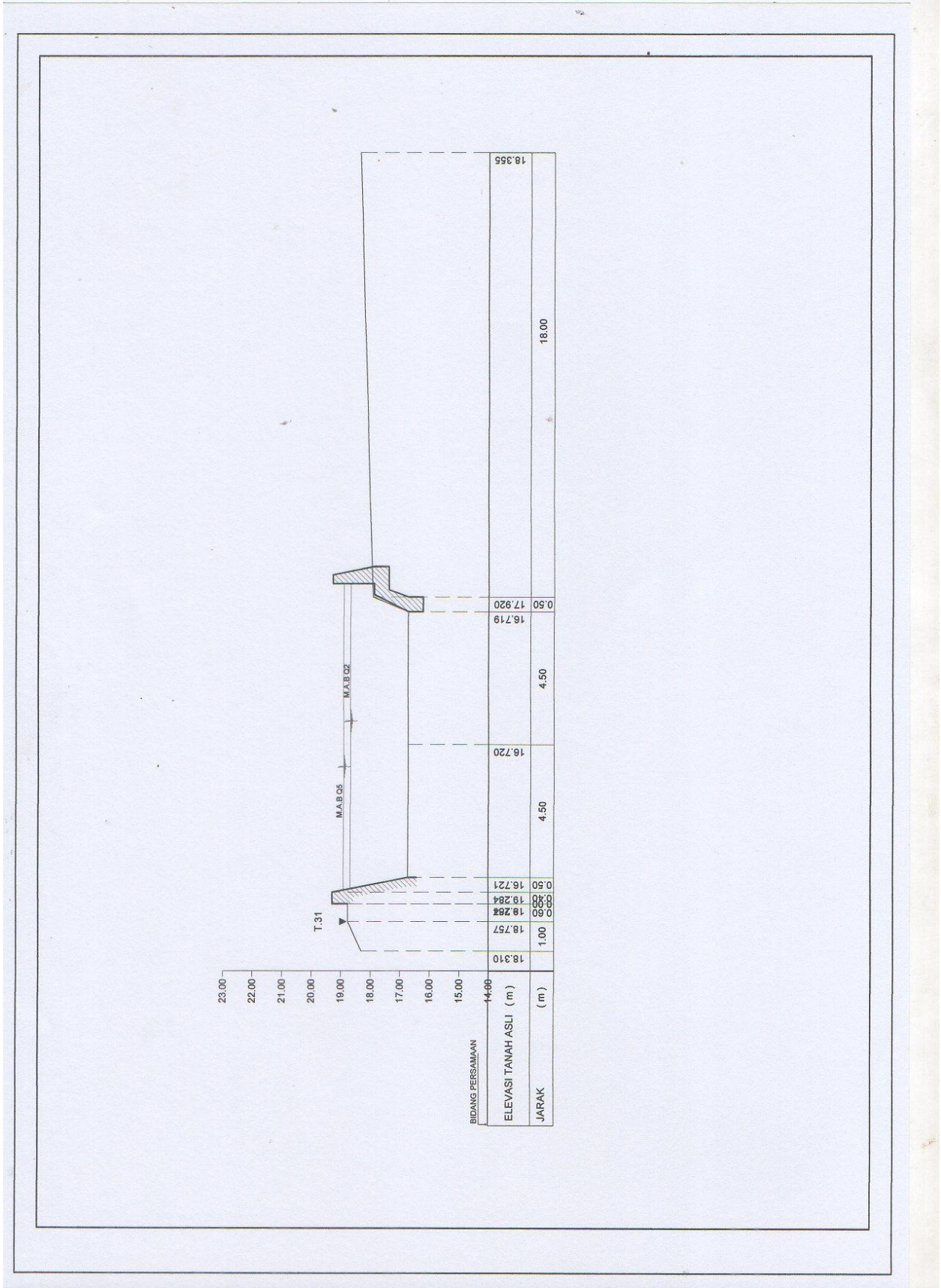




BIDANG PERSAMAAN
14.689

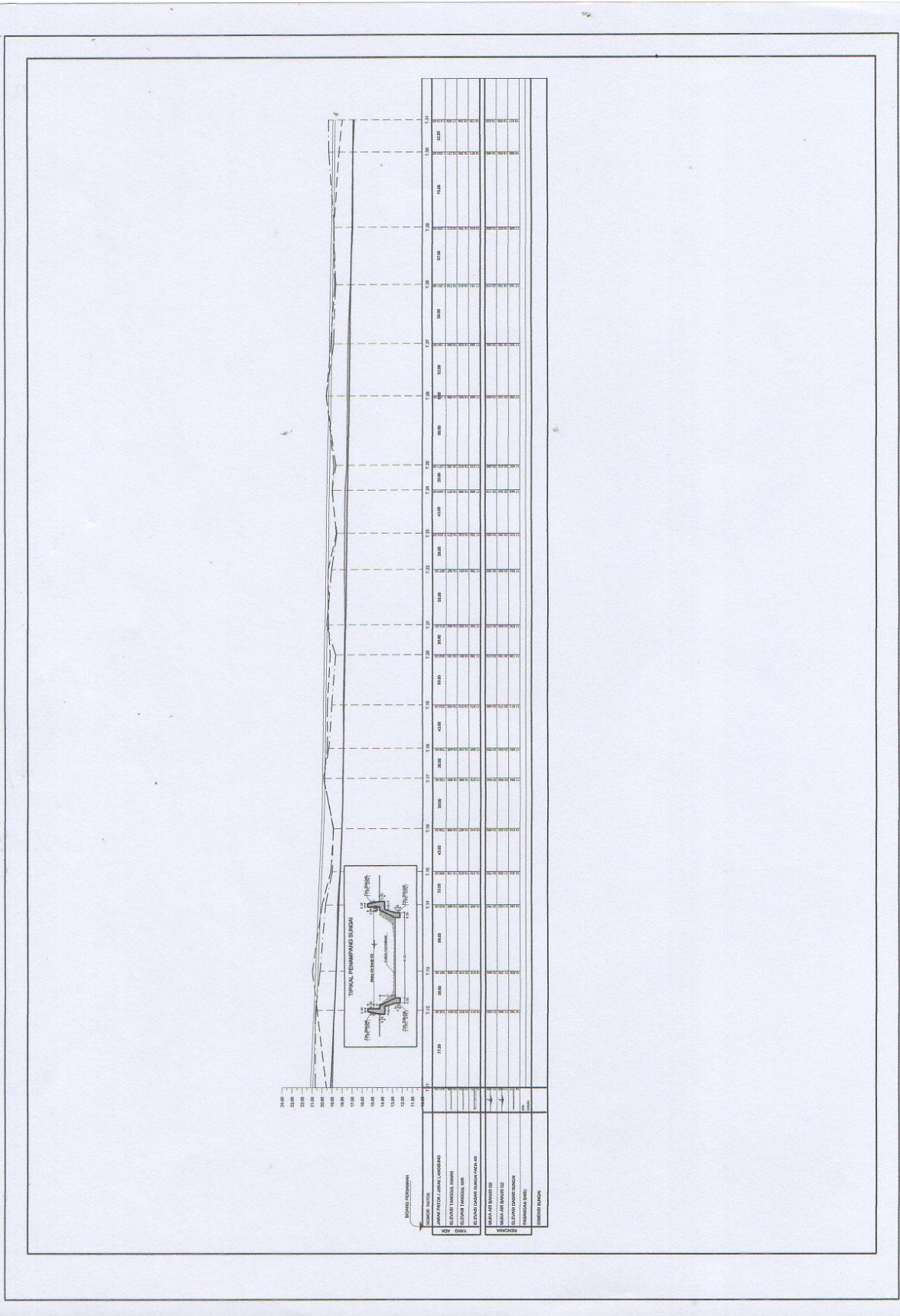
ELEVASI TANAH ASLI (m)

JARAK (m)



❖ Gambar potongan memanjang desain rencana







LEMBAR KONSULTASI

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NIM : 41311A0043
JUDUL : TUGAS AKHIR SKRIPSI

NO	Hari/Tanggal	Catatan/ Revisi	Paraf
1	07/03-19	01) Perbandingan data existing & Normalisasi: (Ditabelkan)	
2	06/03-19	1) Check Elevasi MAR existing 2) Perbandingan Elevasi MAR Existing + MAR rencana	
3	03/03-19	1) Perbaiki / check elevasi MAR EXISTING	
	18/03-19	01) tabelkan EMB + EMP u/ mengetahui perbedaan tinggi air	

Mataram :..... 2018/2019

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NO	Hari/Tanggal	Catatan/ Revisi	Paraf
5	30/01-19	<ul style="list-style-type: none">a) Bagan alir Hec. RAS.b) Sinkronkan BAB II + BAB IV.c) Data existing Sungai & tabelka.d) Data perhitungan Qmax + Q banjir.e) Konsep penamaan sungai.f) Output (perhitungan + gambar) & lampiran 1 → Lampiran (selengkapnya).g) Check koefisien yg digunakanh) sumber teori hrs jelas.i) check perhitungan sesuai dg data	

Mataram : 2018/2019

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JUDUL : TUGAS AKHIR SKRIPSI

NO	Hari/Tanggal	Catatan/ Revisi	Paraf
6	19/03-19.	perbaiki tabel. 4.2. y/ mengesahkan. kiki. Revisi. acc. 24/04-19 	

Mataram : 2018/2019

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NO	Hari/Tanggal	Catatan/ Revisi	Paraf
1	2/5 2019	Perbaiki lokasi Cek debit Cek profil existing gambar penampang sungai	A
2	4/5 2019	Cek gambar gradal Htarsen lakukan analisis Hecras gambar ulang peta lokasi tambah badan dari teras tata hias dan hias ancas	A
3	12/5 2019	Uraikan 20% di bawah bisa indang rumah diberi nomor perbaikan perkebunan	A

Mataram :..... 2018/2019

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LEMBAR KONSULTASI

NAMA : MUH. SAHID
NIM : 41311A0043
JUDUL : TUGAS AKHIR SKRIPSI

NO	Hari/Tanggal	Catatan/ Revisi	Paraf
4	20-5-2019	revisi n.b. n revisi gambar lokasi hidrologis. & harus sudah bkl di lapangan (data hujan) lebar lagi	A
5.	22-5-2019	di persipikan untuk seminar skripsi.	A

Mataram :..... 2018/2019

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