BAB I
PENDAHULUAN

1.1. Latar Belakang

Kota Pemangkat berada di Kecamatan Pemangkat, Kabupaten Sambas, Kalimantan Barat, Indonesia. Kota Pemangkat merupakan salah satu daerah padat penduduk di Kabupaten Sambas, terletak di pesisir laut yang langsung menghadap Laut Natuna. Sistem drainase yang ada di Kota Pemangkat bermuara ke laut sehingga dipengaruhi oleh fenomena pasang surut air laut. Sistem drainase di Kota Pemangkat secara umum terdiri dari dua jenis saluran yaitu saluran alami dan saluran buatan. Saluran alami berupa parit-parit dan sungai yang melintasi kota. Saluran-saluran drainase buatan umumnya terdapat di pusat kota baik di kawasan permukiman penduduk, kawasan perdagangan dan jasa serta kawasan perkantoran. Sedangkan sungai–sungai yang melintas di tengah Kota Pemangkat seperti Sungai Pemangkat, Sungai Penjajap dan Sungai Sinam. Sungai pemangkat merupakan sungai utama yang mengalirkan/membuang volume air di Kota Pemangkat ke muara laut natuna.

Pada saat terjadi pasang, elevasi muka air pada aliran sungai menjadi tinggi karena terjadi aliran balik (*Back Water*) hingga menyebabkan genangan/ banjir di Kota Pemangkat. Elevasi muka air sungai akan menjadi semakin meningkat, jika pasang air laut terjadi bersamaan dengan intensitas curah hujan yang tinggi. Daerah yang sering mengalami genangan/ banjir pada saat puncak pasang serta saat pasang bersamaan dengan hujan yaitu kawasan yang berada di sekitar sungai pemangkat, sehingga mengakibatkan kerugian bagi warga yang tinggal di sekitar sungai maupun pengguna jalan raya.

Oleh karena itu, penelitian ini bertujuan untuk mengkaji pengaruh pasang surut terhadap aliran sungai pemangkat di Kota Pemangkat.

1.2. Rumusan Masalah

Berdasarkan kondisi yang digambarkan pada latar belakang diatas, maka rumusan masalah dari penelitian ini adalah sebagai berikut ;

1. Sering terjadi banjir/ genangan pada kawasan sungai pemangkat yang diakibatkan oleh pasang air laut.
2. Intensitas curah hujan yang tinggi bersamaan dengan pasang air laut mengakibatkan semakin tingginya banjir/ genangan.
3. Kapasitas sungai belum mampu mengalirkan debit curah hujan tinggi pada saat terjadinya aliran balik (*back water*).
4. Perlunya mengubah atau memperbesar dimensi sungai pemangkat agar elevasi muka air yang terjadi tidak terlalu tinggi.

1.3. Tujuan Penelitian

Tujuan dari penelitian ini adalah :

1. Menghitung debit banjir rencana pada daerah aliran sungai pemangkat.
2. Menganalisis data pasang surut di muara laut natuna.
3. Membuat berbagai simulasi kondisi pada aliran sungai pemangkat.
4. Menganalisis kondisi hasil simulasi aliran sungai pemangkat.

1.4. Manfaat Penelitian

Adapun manfaat dari penelitian ini adalah sebagai berikut ;

1. Mengaplikasikan ilmu terkait bidang keairan khususnya pada pemodelan aliran dari profil muka air di sungai pemangkat.
2. Sebagai masukan dan referensi dalam bidang pembelajaran maupun penelitian terkait pemodelan aliran sungai lebih lanjut kepada Pemerintah dan Dinas setempat.
3. Informasi dan pengetahuan bagi pembaca dan masyarakat sekitar khususnya.

1.5. Batasan Masalah

Adapun batasan masalah dari penelitian ini adalah :

1. Tidak menghitung sedimentasi yang terjadi pada aliran sungai pemangkat.
2. Data curah hujan yang dikaji merupakan data tahunan.

1.6. Sistematika Penulisan

Adapun sistematika penulisan skripsi adalah sebagai berikut :

Bab I Pendahuluan

Pendahuluan memberikan gambaran secara singkat dalam penulisan skripsi ini yang meliputi latar belakang, perumusan masalah, tujuan penelitian, manfaat penelitian, batasan masalah, sistematika penulisan dan gambaran umum lokasi penelitian.

Bab II Landasan Teori

Landasan Teori yang menguraikan teori-teori dan parameter yang berhubungan dengan penulisan skripsi ini.

Bab III Metodologi Penelitian

Metodologi Penelitian yang merupakan parameter penelitian, waktu, tempat penelitian, serta pengambilan data.

Bab IV Analisis Dan Pembahasan

Analisis dan Pembahasan merupakan pengolahan data hasil penelitian beserta pembahasan dari data yang diperoleh di lapangan.

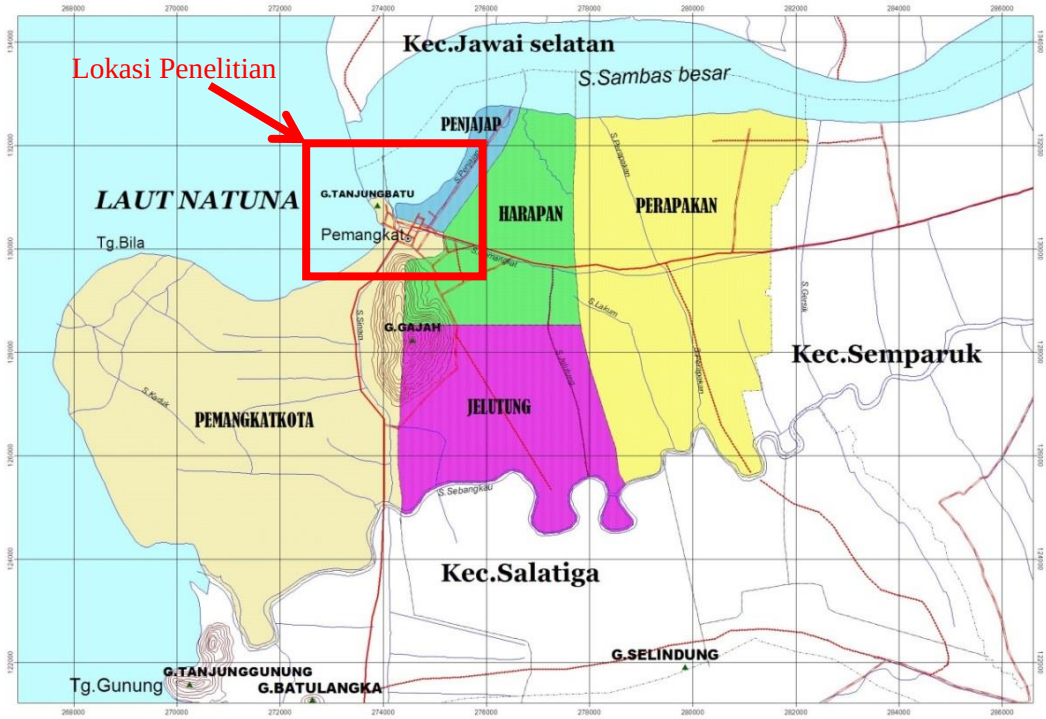
Bab V Penutup

Penutup berisikan kesimpulan dari seluruh penulisan skripsi serta saran yang diperlukan setelah melakukan studi terhadap masalah yang dibahas dalam skripsi.

1.7. Gambaran Umum Lokasi Penelitian

Kota Pemangkat berada di Kecamatan Pemangkat yang terletak di pesisir laut yang langsung menghadap laut natuna. Letak geografis kecamatan pemangkat terletak di sebelah timur Kabupaten Sambas atau diantara 1˚05’01” - 1˚12’14” Lintang Utara dan 108˚54’01” - 109˚04’49” Bujur Timur. Secara administratif batas wilayah Kecamatan Pemangkat adalah :

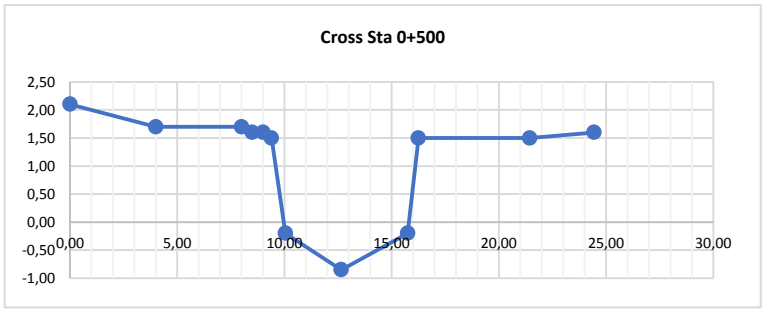
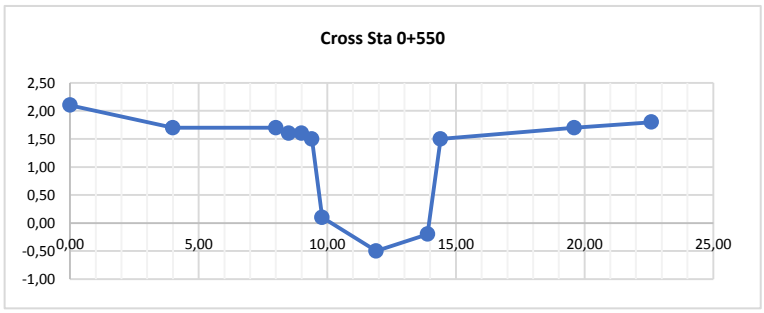
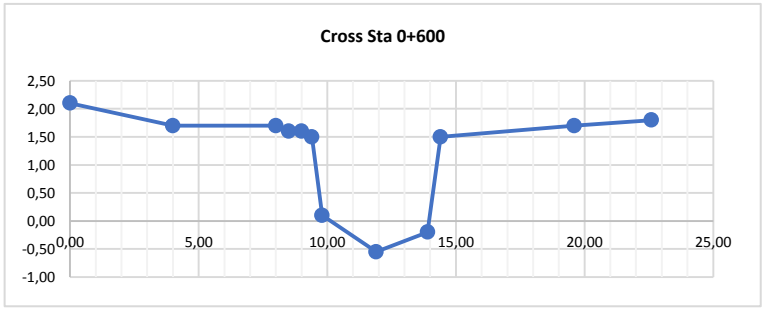
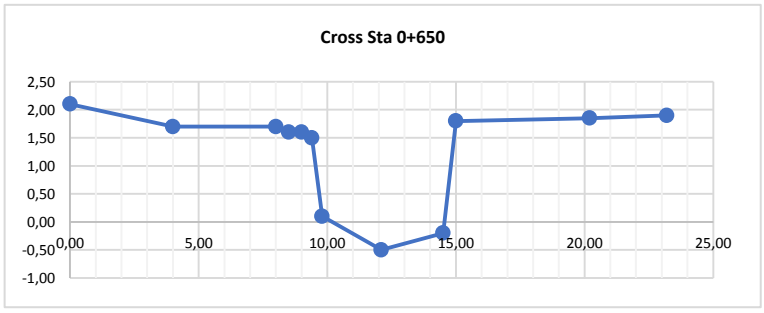
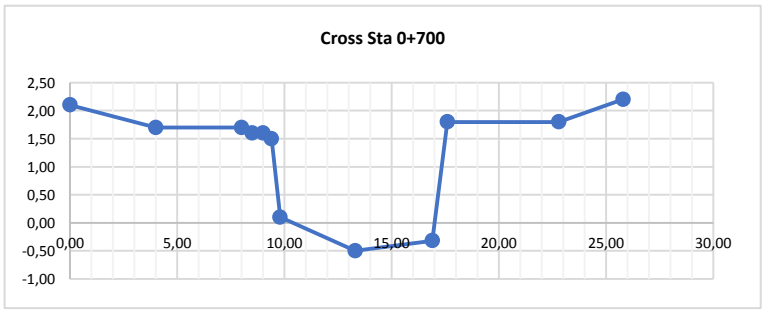
1. Utara : Kecamatan Jawai
2. Selatan : Kecamatan Salatiga
3. Timur : Kecamatan Semparuk
4. Barat : Laut Natuna

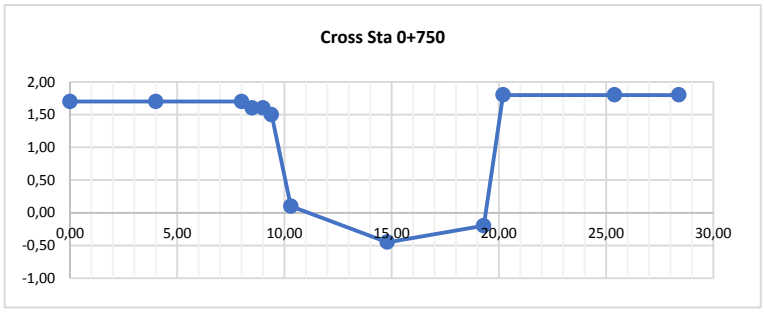
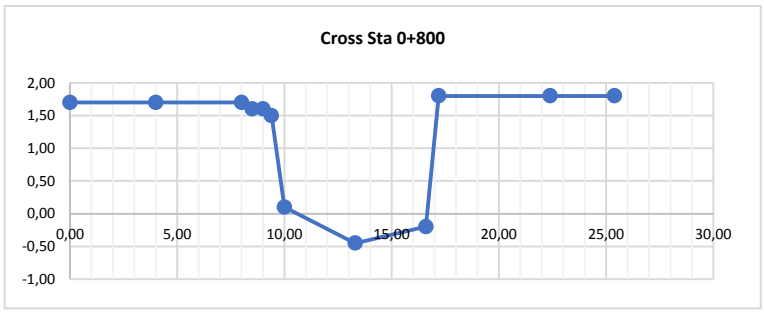
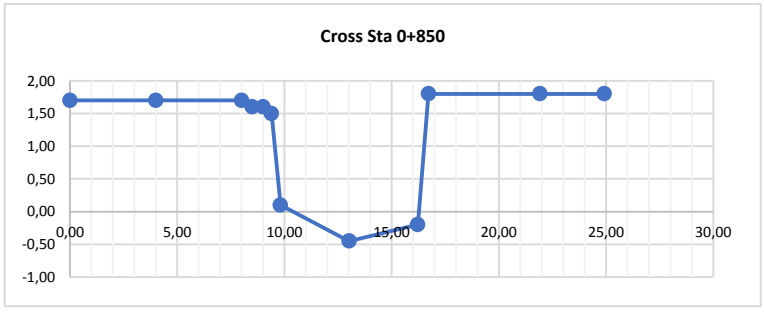
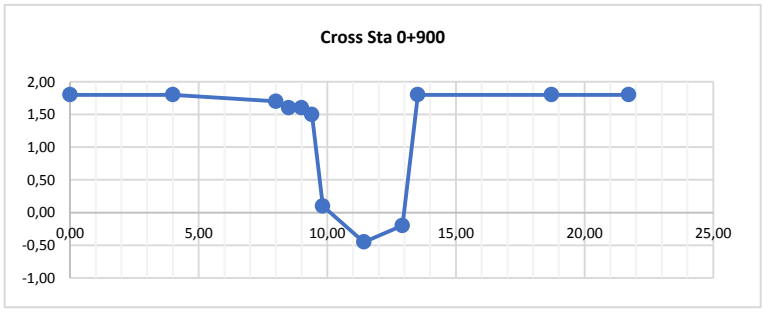
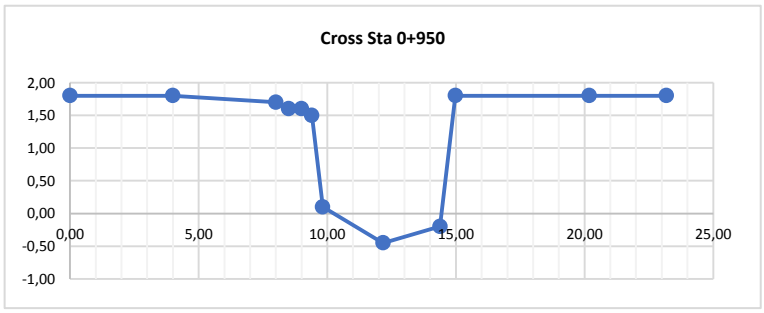


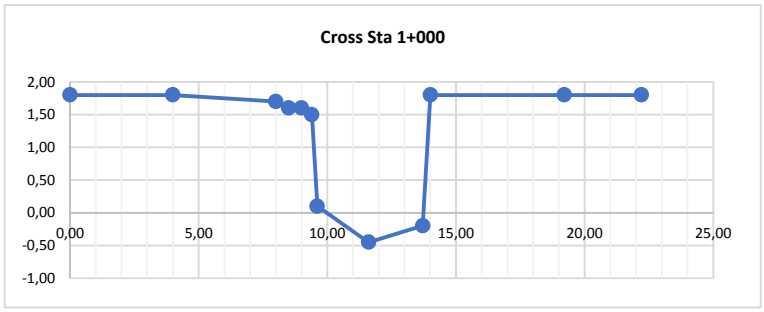
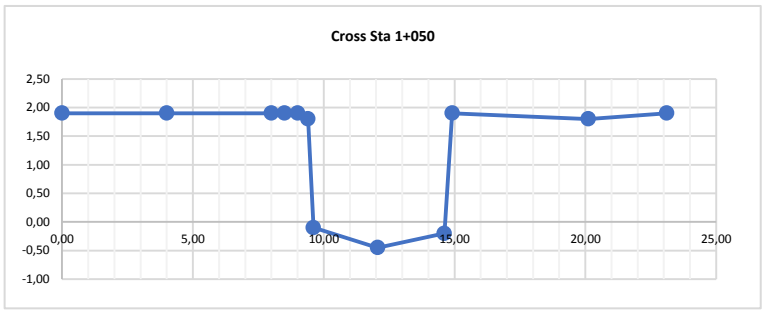
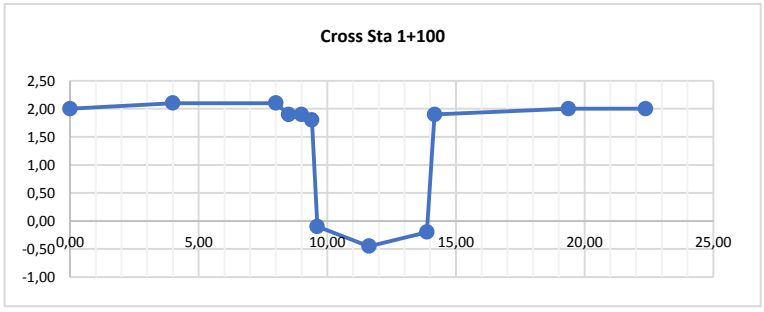
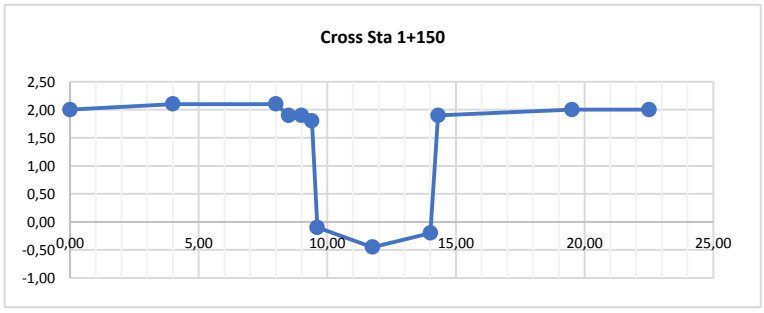
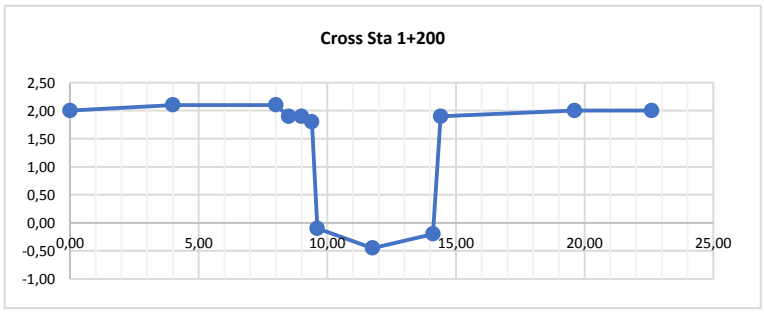
Gambar 1. 1 Peta Kecamatan Pemangkat **(PEMANGKAT, 2014)**

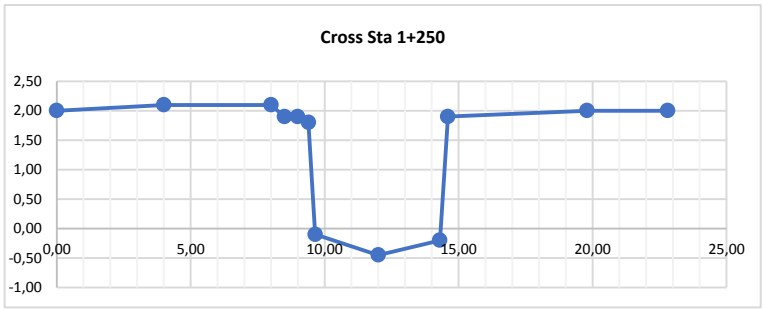


Gambar 1. 2 Lokasi Penelitian Sungai Pemangkat **(Sumber: Hasil Pendekatan Peta Citra Satelit)**

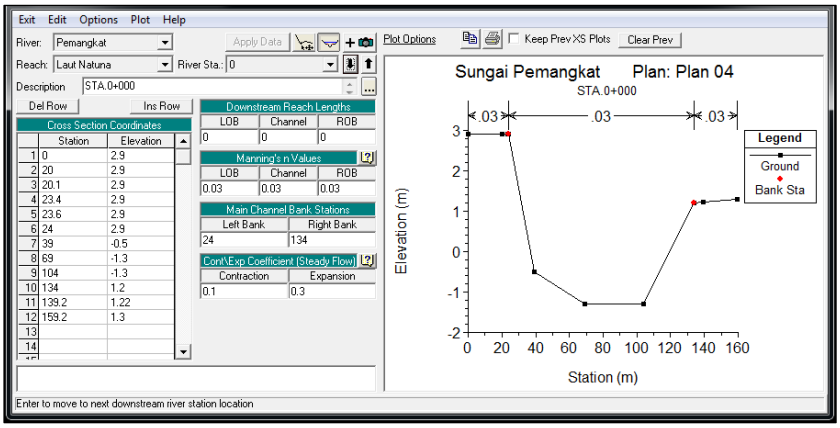
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8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
10.05	-0.20	
12.65	-0.85	
15.75	-0.20	
16.25	1.50	
21.45	1.50	
24.45	1.60	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.80	0.10	
11.90	-0.50	
13.90	-0.20	
14.40	1.50	
19.60	1.70	
22.60	1.80	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.80	0.10	
11.90	-0.55	
13.90	-0.20	
14.40	1.50	
19.60	1.70	
22.60	1.80	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.80	0.10	
12.10	-0.50	
14.50	-0.20	
15.00	1.80	
20.20	1.85	
23.20	1.90	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.80	0.10	
13.30	-0.50	
16.90	-0.32	
17.60	1.80	
22.80	1.80	
25.80	2.20	

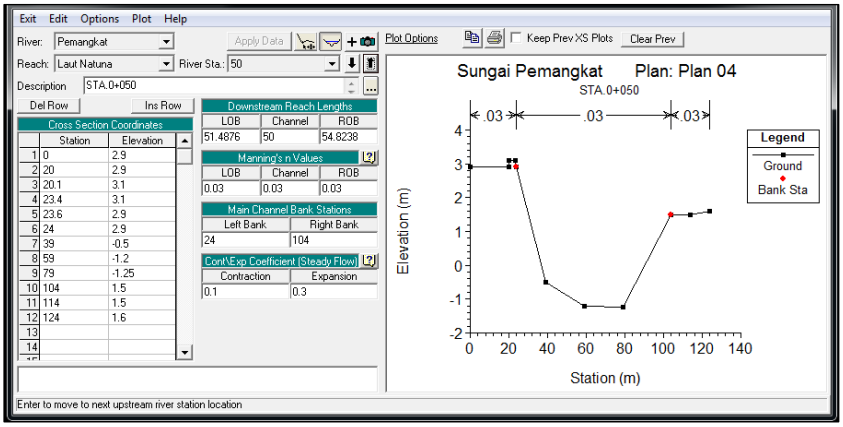
X	Y	*Cross Section* Eksisting Sungai Pemangkat Lanjutan
0.00	1.70	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
10.30	0.10	
14.80	-0.45	
19.30	-0.20	
20.20	1.80	
25.40	1.80	
28.40	1.80	
0.00	1.70	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
10.00	0.10	
13.30	-0.45	
16.60	-0.20	
17.20	1.80	
22.40	1.80	
25.40	1.80	
0.00	1.70	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.82	0.10	
13.02	-0.45	
16.22	-0.20	
16.72	1.80	
21.92	1.80	
24.92	1.80	
0.00	1.80	
4.00	1.80	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.82	0.10	
11.42	-0.45	
12.92	-0.20	
13.52	1.80	
18.72	1.80	
21.72	1.80	
0.00	1.80	
4.00	1.80	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
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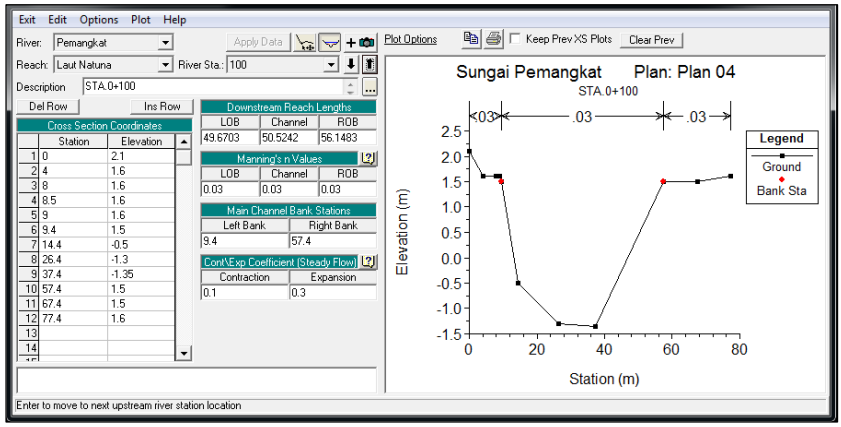
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4.00	1.80	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.61	0.10	
11.61	-0.45	
13.71	-0.20	
14.01	1.80	
19.21	1.80	
22.21	1.80	
0.00	1.90	
4.00	1.90	
8.00	1.90	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.61	-0.10	
12.06	-0.45	
14.61	-0.20	
14.91	1.90	
20.11	1.80	
23.11	1.90	
0.00	2.00	
4.00	2.10	
8.00	2.10	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.61	-0.10	
11.62	-0.45	
13.87	-0.20	
14.17	1.90	
19.37	2.00	
22.37	2.00	
0.00	2.00	
4.00	2.10	
8.00	2.10	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.61	-0.10	
11.76	-0.45	
14.01	-0.20	
14.31	1.90	
19.51	2.00	
22.51	2.00	
0.00	2.00	
4.00	2.10	
8.00	2.10	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.61	-0.10	
11.76	-0.45	
14.11	-0.20	
14.41	1.90	
19.61	2.00	
22.61	2.00	

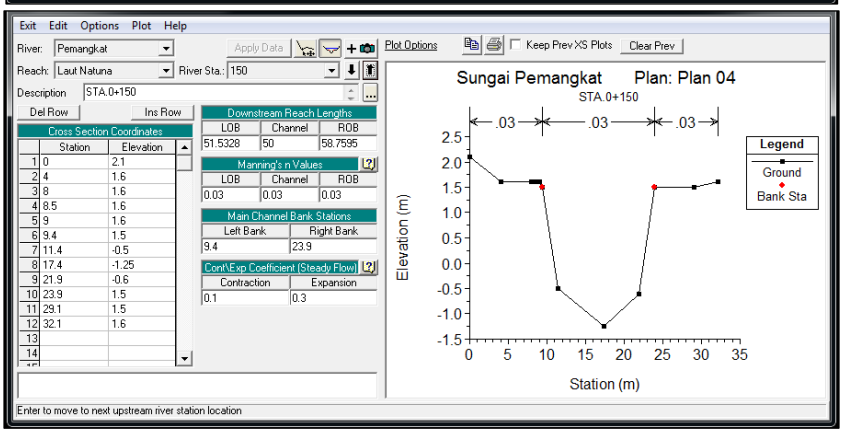
X	Y	*Cross Section* Eksisting Sungai Pemangkat Lanjutan
0.00	2.00	
4.00	2.10	
8.00	2.10	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.65	-0.10	
12.00	-0.45	
14.30	-0.20	
14.60	1.90	
19.80	2.00	
22.80	2.00	

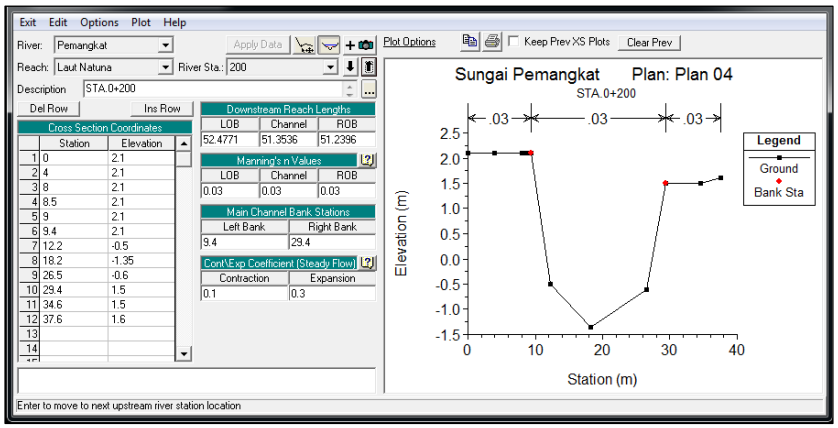
Lampiran D-1 *Input* Data *Cross Section* Sungai Pemangkat

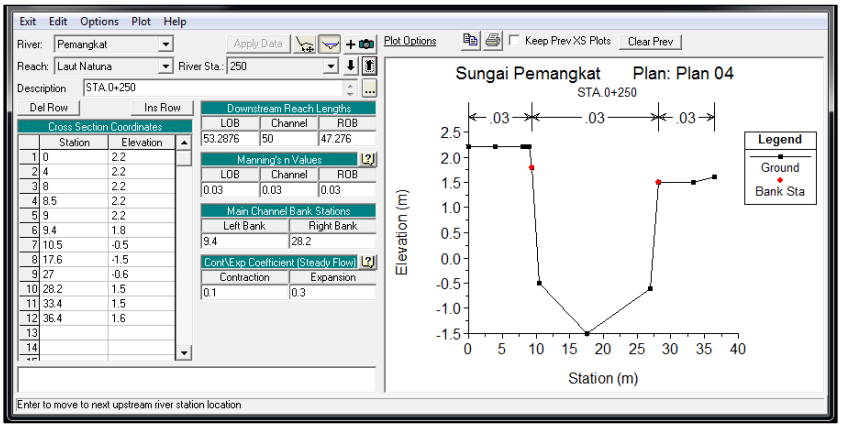


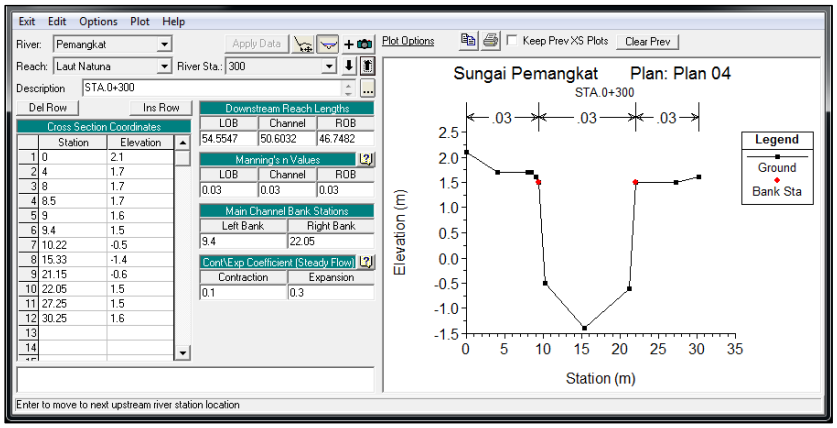


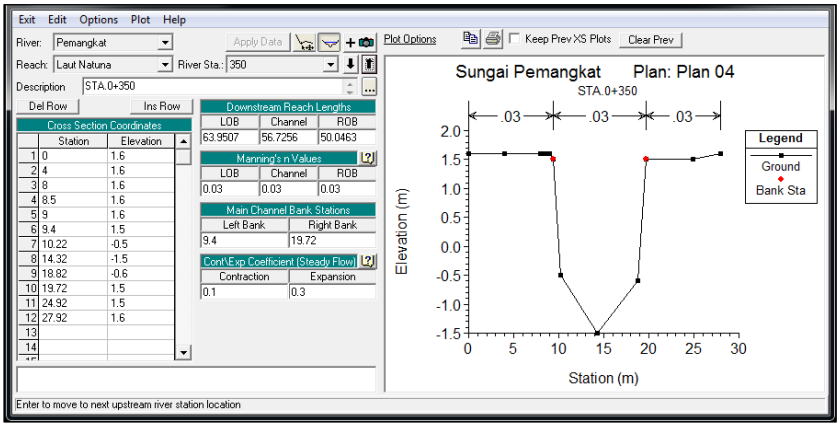


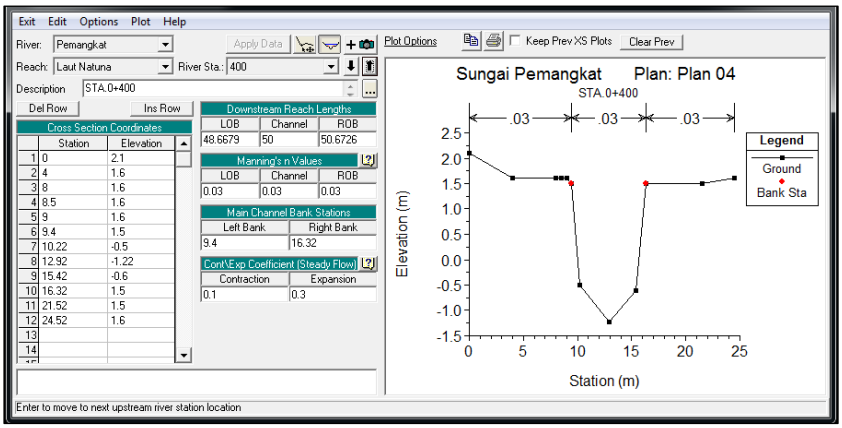


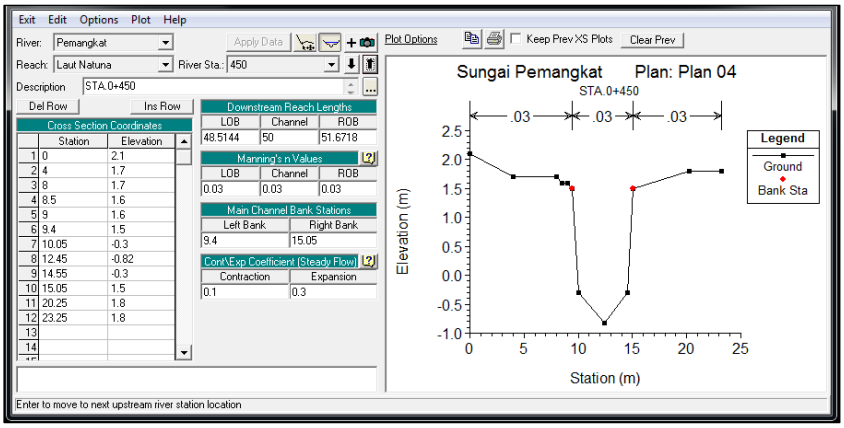

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 200
Description: STA.0+200
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.1
2 4 2.1
3 8 2.1
4 8.5 2.1
5 9 2.1
6 9.4 2.1
7 12.2 -0.5
8 18.2 -1.35
9 26.5 -0.6
10 29.4 1.5
11 34.6 1.5
12 37.6 1.6
Downstream Reach Lengths
LOB Channel ROB
52.4771 51.3536 51.2396
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 29.4
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.0+200
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

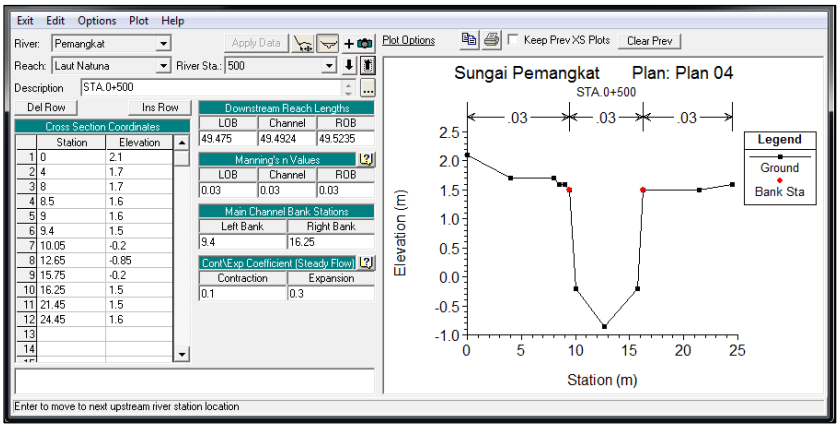

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 250
Description: STA.0+250
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.2
2 4 2.2
3 8 2.2
4 8.5 2.2
5 9 2.2
6 9.4 1.8
7 10.5 -0.5
8 17.6 -1.5
9 27 -0.6
10 28.2 1.5
11 33.4 1.5
12 36.4 1.6
Downstream Reach Lengths
LOB Channel ROB
53.2876 50 47.276
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 28.2
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.0+250
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

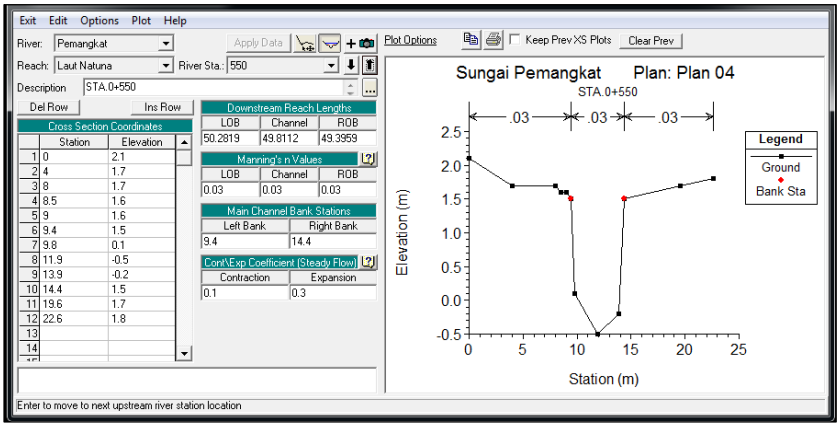

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 300
Description: STA.0+300
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.1
2 4 1.7
3 8 1.7
4 8.5 1.7
5 9 1.6
6 9.4 1.5
7 10.22 -0.5
8 15.33 -1.4
9 21.15 -0.6
10 22.05 1.5
11 27.25 1.5
12 30.25 1.6
Downstream Reach Lengths
LOB Channel ROB
54.5547 50.6032 46.7482
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 22.05
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.0+300
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

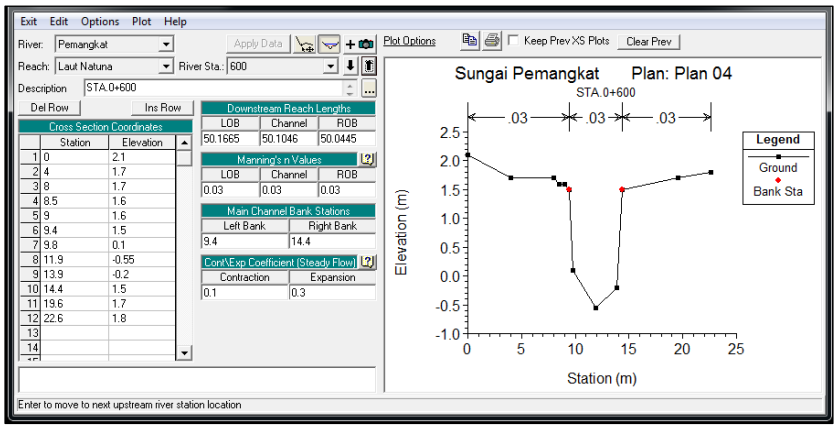

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 350
Description: STA.0+350
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 1.6
2 4 1.6
3 8 1.6
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 10.22 -0.5
8 14.32 -1.5
9 18.82 -0.6
10 19.72 1.5
11 24.92 1.5
12 27.92 1.6
Downstream Reach Lengths
LOB Channel ROB
63.9507 56.7256 50.0463
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 19.72
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.0+350
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

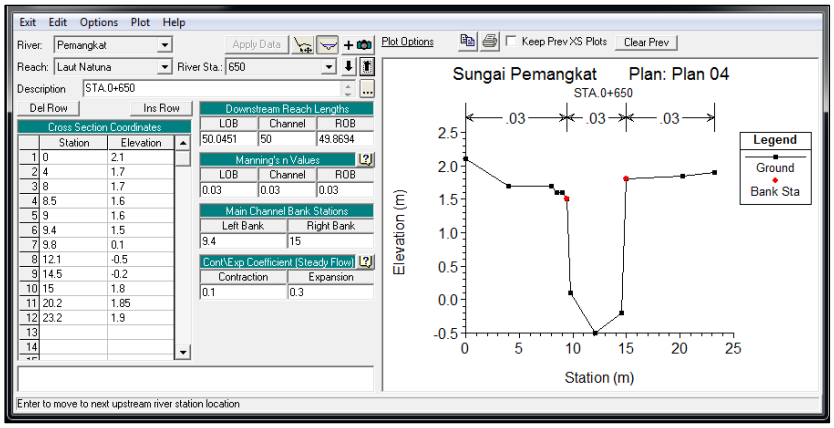

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 400
Description: STA.0+400
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.1
2 4 1.6
3 8 1.6
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 10.22 -0.5
8 12.92 -1.22
9 15.42 -0.6
10 16.32 1.5
11 21.52 1.5
12 24.52 1.6
Downstream Reach Lengths
LOB Channel ROB
48.6679 50 50.6726
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 16.32
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.0+400
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

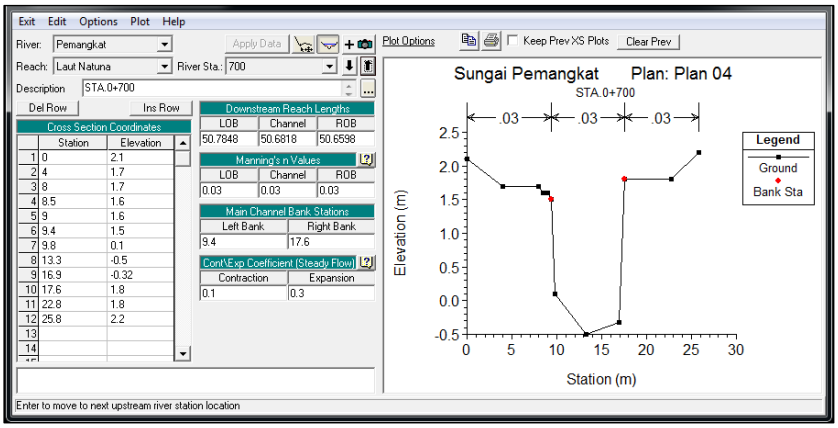

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 450
Description: STA.0+450
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.1
2 4 1.7
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 10.05 -0.3
8 12.45 -0.82
9 14.55 -0.3
10 15.05 1.5
11 20.25 1.8
12 23.25 1.8
Downstream Reach Lengths
LOB Channel ROB
48.5144 50 51.6718
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 15.05
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.0+450
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

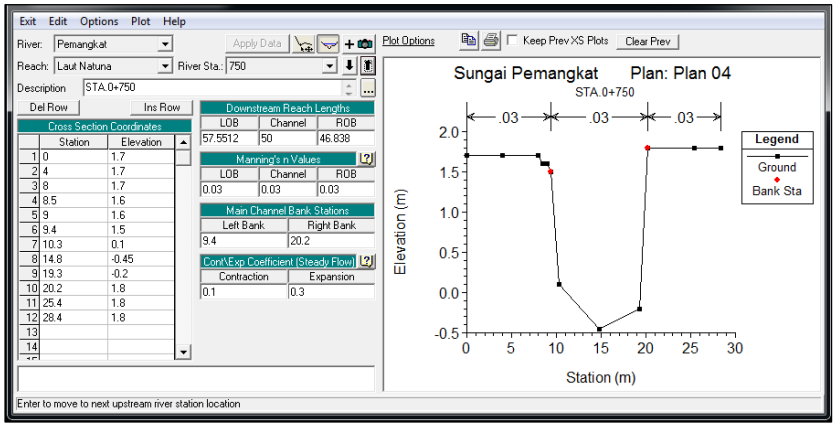

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 500
Description: STA.0+500
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.1
2 4 1.7
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 10.05 -0.2
8 12.65 -0.85
9 15.75 -0.2
10 16.25 1.5
11 21.45 1.5
12 24.45 1.6
Downstream Reach Lengths
LOB Channel ROB
49.475 49.4924 49.5235
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 16.25
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.0+500
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

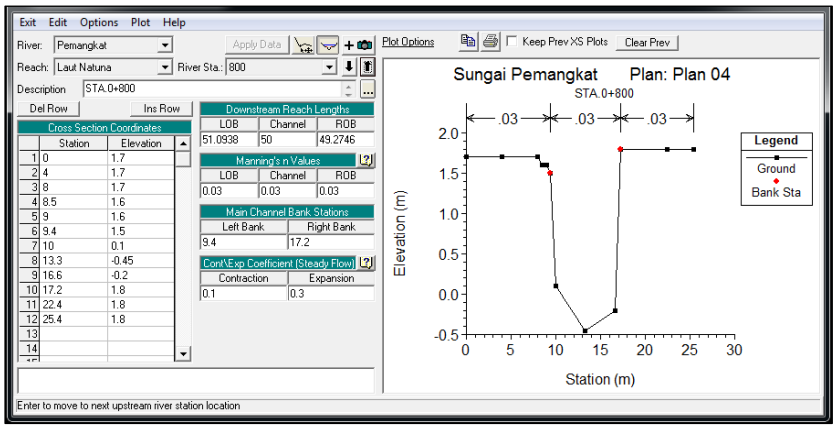

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 550
Description: STA.0+550
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.1
2 4 1.7
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 9.8 0.1
8 11.9 -0.5
9 13.9 -0.2
10 14.4 1.5
11 19.6 1.7
12 22.6 1.8
Downstream Reach Lengths
LOB Channel ROB
50.2819 49.8112 49.3959
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 14.4
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.0+550
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

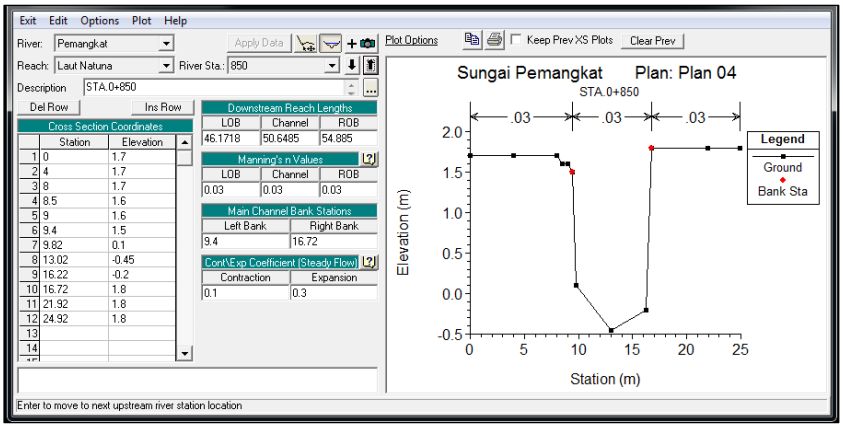

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 600
Description: STA.0+600
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.1
2 4 1.7
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 9.8 0.1
8 11.9 -0.55
9 13.9 -0.2
10 14.4 1.5
11 19.6 1.7
12 22.6 1.8
Downstream Reach Lengths
LOB Channel ROB
50.1665 50.1046 50.0445
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 14.4
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.0+600
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

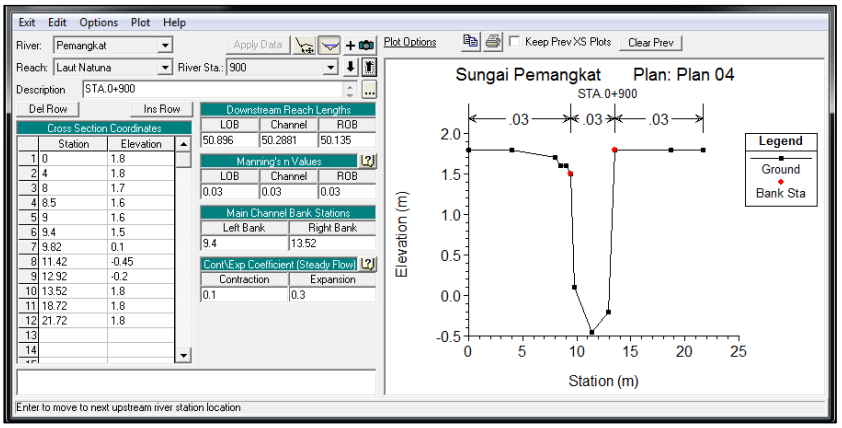

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 650
Description: STA.0+650
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.1
2 4 1.7
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 9.8 0.1
8 12.1 -0.5
9 14.5 -0.2
10 15 1.8
11 20.2 1.85
12 23.2 1.9
Downstream Reach Lengths
LOB Channel ROB
50.0451 50 49.8694
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 15
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.0+650
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

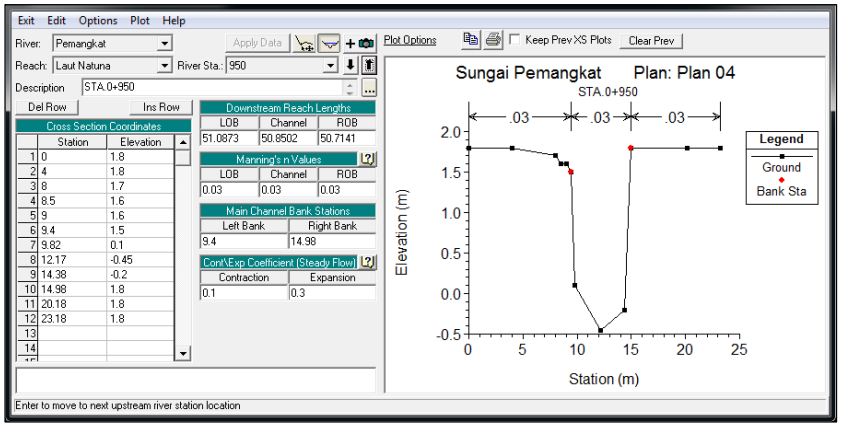

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 700
Description: STA.0+700
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2.1
2 4 1.7
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 9.8 0.1
8 13.3 -0.5
9 16.9 -0.32
10 17.6 1.8
11 22.8 1.8
12 25.8 2.2
Downstream Reach Lengths
LOB Channel ROB
50.7848 50.6818 50.6598
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 17.6
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.0+700
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

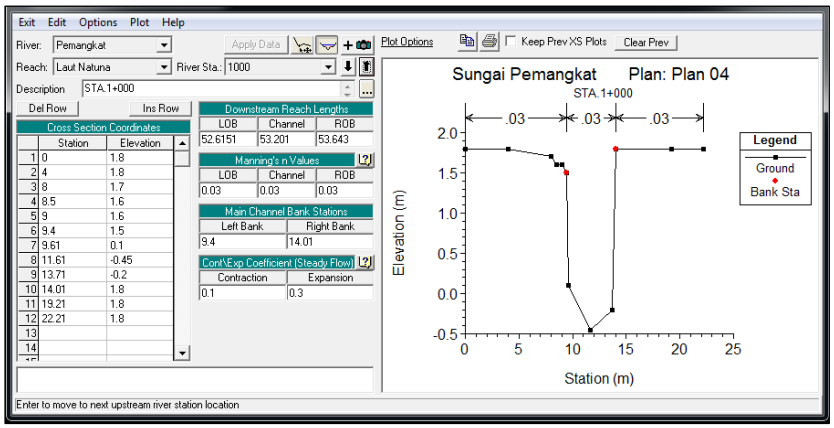

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 750
Description: STA.0+750
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 1.7
2 4 1.7
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 10.3 0.1
8 14.8 -0.45
9 19.3 -0.2
10 20.2 1.8
11 25.4 1.8
12 28.4 1.8
Downstream Reach Lengths
LOB Channel ROB
57.5512 50 46.838
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 20.2
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.0+750
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

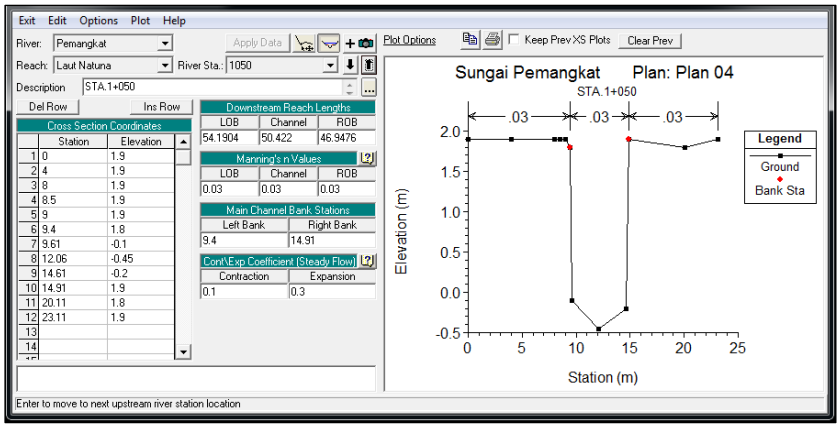

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 800
Description: STA.0+800
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 1.7
2 4 1.7
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 10 0.1
8 13.3 -0.45
9 16.6 -0.2
10 17.2 1.8
11 22.4 1.8
12 25.4 1.8
Downstream Reach Lengths
LOB Channel ROB
51.0938 50 49.2746
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 17.2
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.0+800
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

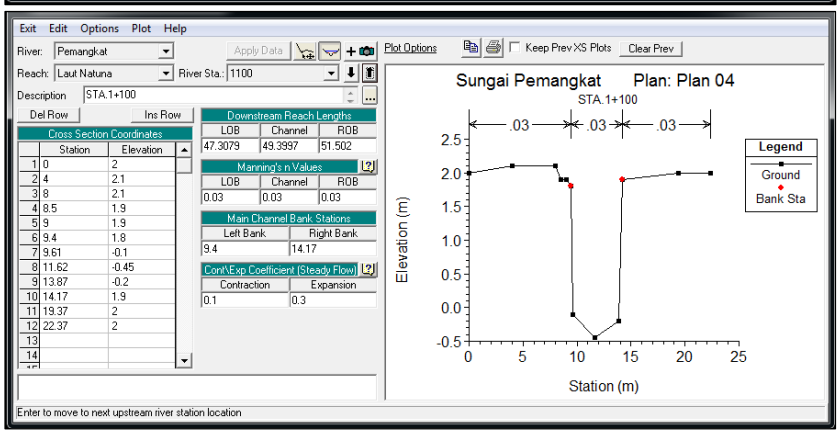

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 850
Description: STA.0+850
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 1.7
2 4 1.7
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 9.82 0.1
8 13.02 -0.45
9 16.22 -0.2
10 16.72 1.8
11 21.92 1.8
12 24.92 1.8
Downstream Reach Lengths
LOB Channel ROB
46.1718 50.6485 54.885
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 16.72
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.0+850
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

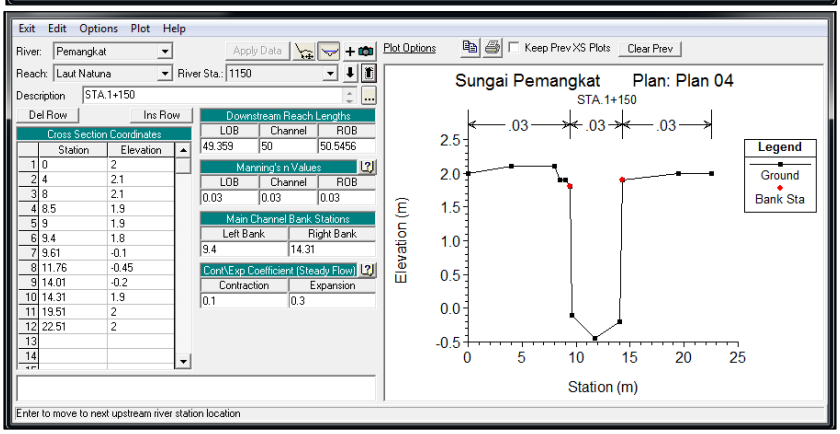

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 900
Description: STA.0+900
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 1.8
2 4 1.8
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 9.82 0.1
8 11.42 -0.45
9 12.92 -0.2
10 13.52 1.8
11 18.72 1.8
12 21.72 1.8
Downstream Reach Lengths
LOB Channel ROB
50.896 50.2881 50.135
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 13.52
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.0+900
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

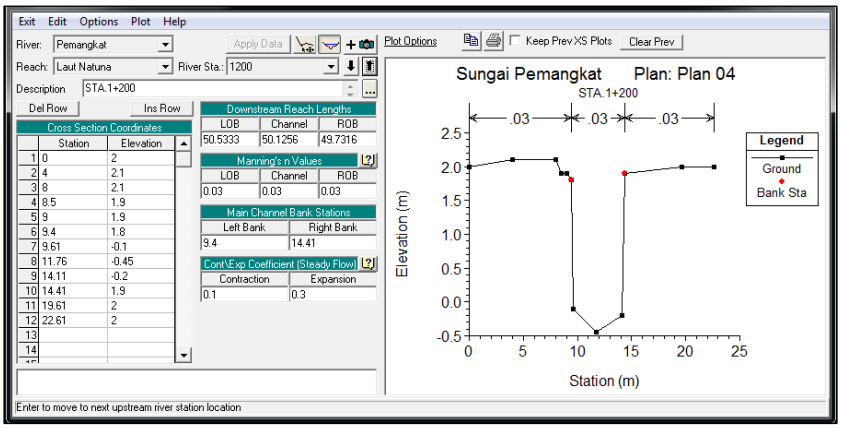

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 950
Description: STA.0+950
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 1.8
2 4 1.8
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 9.82 0.1
8 12.17 -0.45
9 14.38 -0.2
10 14.98 1.8
11 20.18 1.8
12 23.18 1.8
Downstream Reach Lengths
LOB Channel ROB
51.0873 50.8502 50.7141
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 14.98
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.0+950
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

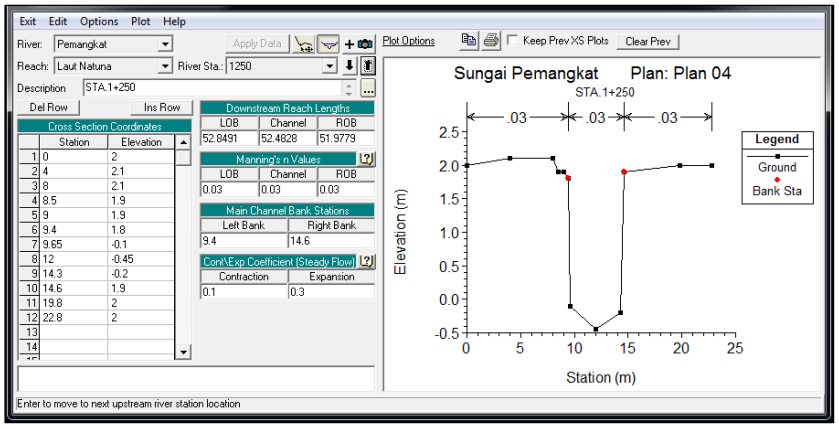

Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 1000
Description: STA.1+000
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 1.8
2 4 1.8
3 8 1.7
4 8.5 1.6
5 9 1.6
6 9.4 1.5
7 9.61 0.1
8 11.61 -0.45
9 13.71 -0.2
10 14.01 1.8
11 19.21 1.8
12 22.21 1.8
Downstream Reach Lengths
LOB Channel ROB
52.6151 53.201 53.643
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 14.01
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.1+000
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location


Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 1050
Description: STA.1+050
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 1.9
2 4 1.9
3 8 1.9
4 8.5 1.9
5 9 1.9
6 9.4 1.8
7 9.61 -0.1
8 12.06 -0.45
9 14.61 -0.2
10 14.91 1.9
11 20.11 1.8
12 23.11 1.9
Downstream Reach Lengths
LOB Channel ROB
54.1904 50.422 46.9476
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 14.91
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.1+050
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location


Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 1100
Description: STA.1+100
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2
2 4 2.1
3 8 2.1
4 8.5 1.9
5 9 1.9
6 9.4 1.8
7 9.61 -0.1
8 11.62 -0.45
9 13.87 -0.2
10 14.17 1.9
11 19.37 2
12 22.37 2
Downstream Reach Lengths
LOB Channel ROB
47.3079 49.3997 51.502
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 14.17
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.1+100
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location


Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 1150
Description: STA.1+150
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2
2 4 2.1
3 8 2.1
4 8.5 1.9
5 9 1.9
6 9.4 1.8
7 9.61 -0.1
8 11.76 -0.45
9 14.01 -0.2
10 14.31 1.9
11 19.51 2
12 22.51 2
Downstream Reach Lengths
LOB Channel ROB
49.359 50 50.5456
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 14.31
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Sungai Pemangkat Plan: Plan 04
STA.1+150
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location


Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 1200
Description: STA.1+200
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2
2 4 2.1
3 8 2.1
4 8.5 1.9
5 9 1.9
6 9.4 1.8
7 9.61 -0.1
8 11.76 -0.45
9 14.11 -0.2
10 14.41 1.9
11 19.61 2
12 22.61 2
Downstream Reach Lengths
LOB Channel ROB
50.5333 50.1256 49.7316
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 14.41
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.1+200
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location


Exit Edit Options Plot Help
River: Pemangkat
Reach: Laut Natuna
River Sta.: 1250
Description: STA.1+250
Del Row
Ins Row
Cross Section Coordinates
Station Elevation
1 0 2
2 4 2.1
3 8 2.1
4 8.5 1.9
5 9 1.9
6 9.4 1.8
7 9.65 -0.1
8 12 -0.45
9 14.3 -0.2
10 14.6 1.9
11 19.8 2
12 22.8 2
Downstream Reach Lengths
LOB Channel ROB
52.8491 52.4828 51.9779
Manning's n Values
LOB Channel ROB
0.03 0.03 0.03
Main Channel Bank Stations
Left Bank Right Bank
9.4 14.6
Cont\Exp Coefficient (Steady Flow)
Contraction Expansion
0.1 0.3
Apply Data
Plot Options
Keep Prev XS Plots
Clear Prev
Sungai Pemangkat Plan: Plan 04
STA.1+250
.03 .03 .03
Legend
Ground
Bank Sta
Elevation (m)
Station (m)
Enter to move to next upstream river station location

Lampiran E-1 Data Pasang Surut Muara Laut Natuna

No	Pukul	Tanggal	Bacaan	Elevasi
0	15:00	28 Desember 2020	0.61	1.163
1	16:00	28 Desember 2020	1.07	1.067
2	17:00	28 Desember 2020	0.88	0.875
3	18:00	28 Desember 2020	0.76	0.755
4	19:00	28 Desember 2020	0.75	0.745
5	20:00	28 Desember 2020	0.95	0.952
6	21:00	28 Desember 2020	1.30	1.297
7	22:00	28 Desember 2020	1.60	1.605
8	23:00	28 Desember 2020	1.84	1.835
9	0:00	29 Desember 2020	1.99	1.989
10	1:00	29 Desember 2020	2.01	2.008
11	2:00	29 Desember 2020	1.90	1.902
12	3:00	29 Desember 2020	1.60	1.605
13	4:00	29 Desember 2020	1.36	1.355
14	5:00	29 Desember 2020	1.14	1.144
15	6:00	29 Desember 2020	0.93	0.933
16	7:00	29 Desember 2020	0.25	0.798
17	8:00	29 Desember 2020	0.01	0.558
18	9:00	29 Desember 2020	0.27	0.817
19	10:00	29 Desember 2020	0.39	0.942
20	11:00	29 Desember 2020	0.58	1.134
21	12:00	29 Desember 2020	0.78	1.326
22	13:00	29 Desember 2020	0.90	1.451
23	14:00	29 Desember 2020	0.80	1.355
24	15:00	29 Desember 2020	0.78	1.326
25	16:00	29 Desember 2020	0.65	1.201
26	17:00	29 Desember 2020	0.46	1.009
27	18:00	29 Desember 2020	0.31	0.856
28	19:00	29 Desember 2020	0.12	0.673
29	20:00	29 Desember 2020	0.22	0.769
30	21:00	29 Desember 2020	0.58	1.134
31	22:00	29 Desember 2020	0.92	1.470
32	23:00	29 Desember 2020	1.27	1.816
33	0:00	30 Desember 2020	1.37	1.921
34	1:00	30 Desember 2020	1.55	2.104
35	2:00	30 Desember 2020	1.51	2.056
36	3:00	30 Desember 2020	1.33	1.883
37	4:00	30 Desember 2020	1.06	1.614
38	5:00	30 Desember 2020	0.70	1.249
39	6:00	30 Desember 2020	0.45	1.000

No	Pukul	Tanggal	Bacaan	Elevasi
40	7:00	30 Desember 2020	0.33	0.885
41	8:00	30 Desember 2020	0.31	0.856
42	9:00	30 Desember 2020	0.10	0.654
43	10:00	30 Desember 2020	0.05	0.597
44	11:00	30 Desember 2020	0.07	0.616
45	12:00	30 Desember 2020	0.27	0.817
46	13:00	30 Desember 2020	0.52	1.067
47	14:00	30 Desember 2020	0.68	1.230
48	15:00	30 Desember 2020	0.86	1.413
49	16:00	30 Desember 2020	0.65	1.201
50	17:00	30 Desember 2020	0.46	1.009
51	18:00	30 Desember 2020	0.31	0.856
52	19:00	30 Desember 2020	0.12	0.673
53	20:00	30 Desember 2020	0.22	0.769
54	21:00	30 Desember 2020	0.58	1.134
55	22:00	30 Desember 2020	0.92	1.470
56	23:00	30 Desember 2020	1.27	1.816
57	0:00	31 Desember 2020	1.37	1.921
58	1:00	31 Desember 2020	1.55	2.104
59	2:00	31 Desember 2020	1.51	2.056
60	3:00	31 Desember 2020	1.33	1.883
61	4:00	31 Desember 2020	1.06	1.614
62	5:00	31 Desember 2020	0.70	1.249
63	6:00	31 Desember 2020	0.45	1.000
64	7:00	31 Desember 2020	0.33	0.885
65	8:00	31 Desember 2020	0.27	0.817
66	9:00	31 Desember 2020	0.17	0.721
67	10:00	31 Desember 2020	0.09	0.645
68	11:00	31 Desember 2020	0.16	0.712
69	12:00	31 Desember 2020	0.39	0.942
70	13:00	31 Desember 2020	0.57	1.125
71	14:00	31 Desember 2020	0.75	1.297
72	15:00	31 Desember 2020	0.88	1.432
73	16:00	31 Desember 2020	0.93	1.480
74	17:00	31 Desember 2020	1.60	1.450
75	18:00	31 Desember 2020	0.88	1.432
76	19:00	31 Desember 2020	0.45	1.000
77	20:00	31 Desember 2020	0.31	0.856
78	21:00	31 Desember 2020	0.22	0.769
79	22:00	31 Desember 2020	0.47	1.019

No	Pukul	Tanggal	Bacaan	Elevasi
80	23:00	31 Desember 2020	0.82	1.374
81	0:00	01 Januari 2021	1.14	1.691
82	1:00	01 Januari 2021	1.42	1.969
83	2:00	01 Januari 2021	1.55	2.104
84	3:00	01 Januari 2021	1.63	2.182
85	4:00	01 Januari 2021	1.54	2.094
86	5:00	01 Januari 2021	1.30	1.854
87	6:00	01 Januari 2021	1.03	1.576
88	7:00	01 Januari 2021	1.01	1.557
89	8:00	01 Januari 2021	0.83	1.384
90	9:00	01 Januari 2021	0.66	1.211
91	10:00	01 Januari 2021	0.45	1.000
92	11:00	01 Januari 2021	0.34	0.894
93	12:00	01 Januari 2021	0.17	0.721
94	13:00	01 Januari 2021	0.29	0.837
95	14:00	01 Januari 2021	0.52	1.067
96	15:00	01 Januari 2021	0.78	1.326
97	16:00	01 Januari 2021	0.82	1.374
98	17:00	01 Januari 2021	0.87	1.422
99	18:00	01 Januari 2021	0.61	1.163
100	19:00	01 Januari 2021	0.54	1.086
101	20:00	01 Januari 2021	0.38	0.933
102	21:00	01 Januari 2021	0.27	0.817
103	22:00	01 Januari 2021	0.28	0.827
104	23:00	01 Januari 2021	0.45	1.000
105	0:00	02 Januari 2021	0.83	1.384
106	1:00	02 Januari 2021	1.19	1.739
107	2:00	02 Januari 2021	1.42	1.969
108	3:00	02 Januari 2021	1.55	2.104
109	4:00	02 Januari 2021	1.47	2.017
110	5:00	02 Januari 2021	1.44	1.989
111	6:00	02 Januari 2021	1.21	1.758
112	7:00	02 Januari 2021	0.94	1.489
113	8:00	02 Januari 2021	0.66	1.211
114	9:00	02 Januari 2021	0.46	1.009
115	10:00	02 Januari 2021	0.26	0.808
116	11:00	02 Januari 2021	0.13	0.683
117	12:00	02 Januari 2021	0.10	0.654
118	13:00	02 Januari 2021	0.24	0.789
119	14:00	02 Januari 2021	0.44	0.990

No	Pukul	Tanggal	Bacaan	Elevasi
120	15:00	02 Januari 2021	0.61	1.163
121	16:00	02 Januari 2021	0.79	1.336
122	17:00	02 Januari 2021	0.84	1.393
123	18:00	02 Januari 2021	0.79	1.336
124	19:00	02 Januari 2021	0.64	1.192
125	20:00	02 Januari 2021	0.44	0.990
126	21:00	02 Januari 2021	0.31	0.856
127	22:00	02 Januari 2021	0.27	0.817
128	23:00	02 Januari 2021	0.31	0.856
129	0:00	03 Januari 2021	0.53	1.077
130	1:00	03 Januari 2021	0.87	1.422
131	2:00	03 Januari 2021	1.16	1.710
132	3:00	03 Januari 2021	1.36	1.912
133	4:00	03 Januari 2021	1.39	1.941
134	5:00	03 Januari 2021	1.40	1.950
135	6:00	03 Januari 2021	1.31	1.864
136	7:00	03 Januari 2021	1.21	1.758
137	8:00	03 Januari 2021	1.03	1.585
138	9:00	03 Januari 2021	0.91	1.461
139	10:00	03 Januari 2021	0.83	1.384
140	11:00	03 Januari 2021	0.80	1.355
141	12:00	03 Januari 2021	0.67	1.221
142	13:00	03 Januari 2021	0.54	1.086
143	14:00	03 Januari 2021	0.56	1.115
144	15:00	03 Januari 2021	0.64	1.192
145	16:00	03 Januari 2021	0.79	1.336
146	17:00	03 Januari 2021	0.93	1.480
147	18:00	03 Januari 2021	0.95	1.499
148	19:00	03 Januari 2021	0.90	1.451
149	20:00	03 Januari 2021	0.71	1.259
150	21:00	03 Januari 2021	0.53	1.077
151	22:00	03 Januari 2021	0.37	0.923
152	23:00	03 Januari 2021	0.29	0.837
153	0:00	04 Januari 2021	0.30	0.846
154	1:00	04 Januari 2021	0.48	1.029
155	2:00	04 Januari 2021	0.80	1.355
156	3:00	04 Januari 2021	1.06	1.614
157	4:00	04 Januari 2021	1.29	1.845
158	5:00	04 Januari 2021	1.40	1.950
159	6:00	04 Januari 2021	1.45	1.998

No	Pukul	Tanggal	Bacaan	Elevasi
160	7:00	04 Januari 2021	1.22	1.768
161	8:00	04 Januari 2021	1.01	1.557
162	9:00	04 Januari 2021	0.87	1.422
163	10:00	04 Januari 2021	0.61	1.163
164	11:00	04 Januari 2021	0.43	0.981
165	12:00	04 Januari 2021	0.39	0.942
166	13:00	04 Januari 2021	0.26	0.808
167	14:00	04 Januari 2021	0.40	0.952
168	15:00	04 Januari 2021	0.51	1.057
169	16:00	04 Januari 2021	0.81	1.365
170	17:00	04 Januari 2021	0.98	1.528
171	18:00	04 Januari 2021	0.99	1.537
172	19:00	04 Januari 2021	1.10	1.653
173	20:00	04 Januari 2021	1.05	1.605
174	21:00	04 Januari 2021	0.87	1.422
175	22:00	04 Januari 2021	0.69	1.240
176	23:00	04 Januari 2021	0.52	1.067
177	0:00	05 Januari 2021	0.47	1.019
178	1:00	05 Januari 2021	0.43	0.981
179	2:00	05 Januari 2021	0.55	1.096
180	3:00	05 Januari 2021	0.83	1.384
181	4:00	05 Januari 2021	1.04	1.595
182	5:00	05 Januari 2021	1.10	1.653
183	6:00	05 Januari 2021	1.31	1.864
184	7:00	05 Januari 2021	1.40	1.950
185	8:00	05 Januari 2021	1.32	1.873
186	9:00	05 Januari 2021	1.11	1.662
187	10:00	05 Januari 2021	0.83	1.384
188	11:00	05 Januari 2021	0.77	1.317
189	12:00	05 Januari 2021	0.48	1.029
190	13:00	05 Januari 2021	0.36	0.913
191	14:00	05 Januari 2021	0.37	0.923
192	15:00	05 Januari 2021	0.50	1.048
193	16:00	05 Januari 2021	0.73	1.278
194	17:00	05 Januari 2021	0.94	1.489
195	18:00	05 Januari 2021	1.10	1.653
196	19:00	05 Januari 2021	1.21	1.758
197	20:00	05 Januari 2021	1.20	1.749
198	21:00	05 Januari 2021	1.13	1.681
199	22:00	05 Januari 2021	0.89	1.441

No	Pukul	Tanggal	Bacaan	Elevasi
200	23:00	05 Januari 2021	0.75	1.297
201	0:00	06 Januari 2021	0.56	1.115
202	1:00	06 Januari 2021	0.33	0.885
203	2:00	06 Januari 2021	0.34	0.894
204	3:00	06 Januari 2021	0.38	0.933
205	4:00	06 Januari 2021	0.61	1.163
206	5:00	06 Januari 2021	0.82	1.374
207	6:00	06 Januari 2021	1.01	1.557
208	7:00	06 Januari 2021	1.17	1.720
209	8:00	06 Januari 2021	1.23	1.777
210	9:00	06 Januari 2021	1.15	1.701
211	10:00	06 Januari 2021	1.06	1.614
212	11:00	06 Januari 2021	0.84	1.393
213	12:00	06 Januari 2021	0.66	1.211
214	13:00	06 Januari 2021	0.49	1.038
215	14:00	06 Januari 2021	0.40	0.952
216	15:00	06 Januari 2021	0.48	1.029
217	16:00	06 Januari 2021	0.63	1.182
218	17:00	06 Januari 2021	0.79	1.345
219	18:00	06 Januari 2021	1.09	1.643
220	19:00	06 Januari 2021	1.27	1.816
221	20:00	06 Januari 2021	1.32	1.873
222	21:00	06 Januari 2021	1.31	1.864
223	22:00	06 Januari 2021	1.16	1.710
224	23:00	06 Januari 2021	0.98	1.528
225	0:00	07 Januari 2021	0.76	1.307
226	1:00	07 Januari 2021	0.53	1.077
227	2:00	07 Januari 2021	0.37	0.923
228	3:00	07 Januari 2021	0.29	0.837
229	4:00	07 Januari 2021	0.30	0.846
230	5:00	07 Januari 2021	0.45	1.000
231	6:00	07 Januari 2021	0.64	1.192
232	7:00	07 Januari 2021	0.85	1.403
233	8:00	07 Januari 2021	1.04	1.595
234	9:00	07 Januari 2021	1.15	1.701
235	10:00	07 Januari 2021	1.13	1.681
236	11:00	07 Januari 2021	1.01	1.557
237	12:00	07 Januari 2021	0.87	1.422
238	13:00	07 Januari 2021	0.69	1.240
239	14:00	07 Januari 2021	0.56	1.115

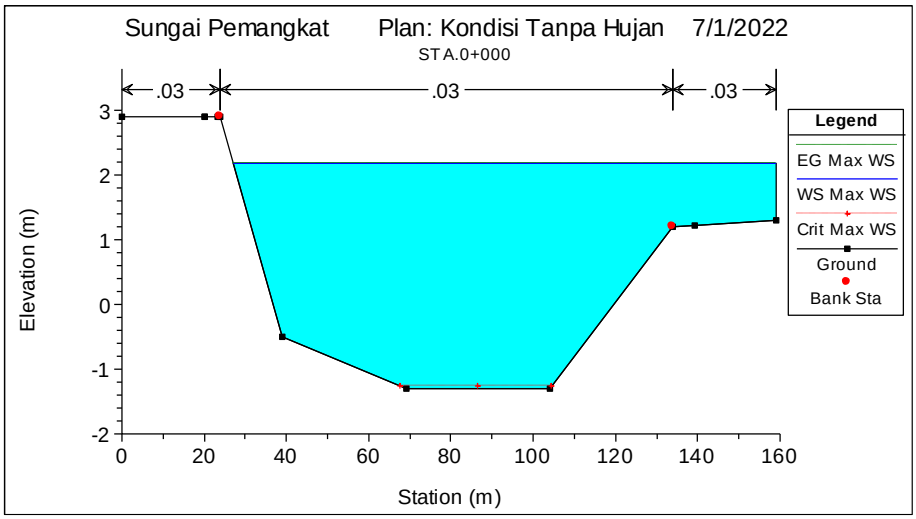
No	Pukul	Tanggal	Bacaan	Elevasi
240	15:00	07 Januari 2021	0.47	1.019
241	16:00	07 Januari 2021	0.53	1.077
242	17:00	07 Januari 2021	0.71	1.259
243	18:00	07 Januari 2021	0.97	1.518
244	19:00	07 Januari 2021	1.20	1.749
245	20:00	07 Januari 2021	1.42	1.969
246	21:00	07 Januari 2021	1.48	2.027
247	22:00	07 Januari 2021	1.46	2.008
248	23:00	07 Januari 2021	1.28	1.835
249	0:00	08 Januari 2021	1.14	1.691
250	1:00	08 Januari 2021	0.90	1.451
251	2:00	08 Januari 2021	0.69	1.240
252	3:00	08 Januari 2021	0.38	0.933
253	4:00	08 Januari 2021	0.32	0.875
254	5:00	08 Januari 2021	0.27	0.817
255	6:00	08 Januari 2021	0.42	0.971
256	7:00	08 Januari 2021	0.62	1.173
257	8:00	08 Januari 2021	0.72	1.269
258	9:00	08 Januari 2021	0.92	1.470
259	10:00	08 Januari 2021	1.16	1.710
260	11:00	08 Januari 2021	1.09	1.643
261	12:00	08 Januari 2021	1.03	1.585
262	13:00	08 Januari 2021	0.91	1.461
263	14:00	08 Januari 2021	0.71	1.259
264	15:00	08 Januari 2021	0.55	1.096
265	16:00	08 Januari 2021	0.49	1.038
266	17:00	08 Januari 2021	0.55	1.096
267	18:00	08 Januari 2021	0.77	1.317
268	19:00	08 Januari 2021	1.05	1.605
269	20:00	08 Januari 2021	1.33	1.883
270	21:00	08 Januari 2021	1.50	2.046
271	22:00	08 Januari 2021	1.54	2.094
272	23:00	08 Januari 2021	1.52	2.075
273	0:00	09 Januari 2021	1.32	1.873
274	1:00	09 Januari 2021	1.14	1.691
275	2:00	09 Januari 2021	0.92	1.470
276	3:00	09 Januari 2021	0.64	1.192
277	4:00	09 Januari 2021	0.45	1.000
278	5:00	09 Januari 2021	0.27	0.817
279	6:00	09 Januari 2021	0.26	0.808

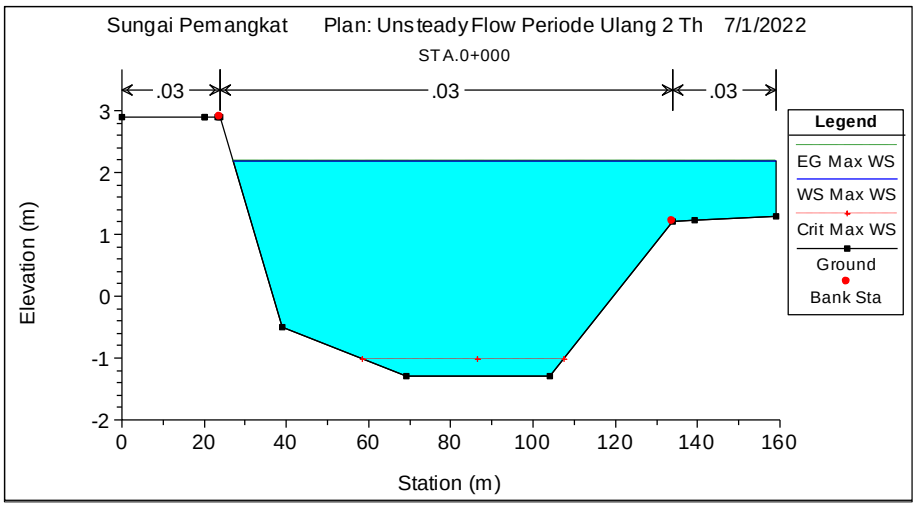
No	Pukul	Tanggal	Bacaan	Elevasi
280	7:00	09 Januari 2021	0.18	0.731
281	8:00	09 Januari 2021	0.53	1.077
282	9:00	09 Januari 2021	0.64	1.192
283	10:00	09 Januari 2021	0.91	1.461
284	11:00	09 Januari 2021	1.13	1.681
285	12:00	09 Januari 2021	1.00	1.547
286	13:00	09 Januari 2021	0.96	1.509
287	14:00	09 Januari 2021	0.84	1.393
288	15:00	09 Januari 2021	0.62	1.173
289	16:00	09 Januari 2021	0.54	1.086
290	17:00	09 Januari 2021	0.48	1.029
291	18:00	09 Januari 2021	0.57	1.125
292	19:00	09 Januari 2021	0.83	1.384
293	20:00	09 Januari 2021	1.13	1.681
294	21:00	09 Januari 2021	1.43	1.979
295	22:00	09 Januari 2021	1.59	2.142
296	23:00	09 Januari 2021	1.63	2.181
297	0:00	10 Januari 2021	1.53	2.085
298	1:00	10 Januari 2021	1.38	1.931
299	2:00	10 Januari 2021	1.13	1.681
300	3:00	10 Januari 2021	0.79	1.345
301	4:00	10 Januari 2021	0.62	1.173
302	5:00	10 Januari 2021	0.57	1.125
303	6:00	10 Januari 2021	0.31	0.856
304	7:00	10 Januari 2021	5.40	0.808
305	8:00	10 Januari 2021	5.60	0.827
306	9:00	10 Januari 2021	7.30	0.990
307	10:00	10 Januari 2021	9.50	1.201
308	11:00	10 Januari 2021	11.20	1.365
309	12:00	10 Januari 2021	12.90	1.528
310	13:00	10 Januari 2021	13.20	1.557
311	14:00	10 Januari 2021	12.90	1.528
312	15:00	10 Januari 2021	10.50	1.297
313	16:00	10 Januari 2021	8.50	1.105
314	17:00	10 Januari 2021	7.80	1.038
315	18:00	10 Januari 2021	7.40	1.000
316	19:00	10 Januari 2021	9.50	1.201
317	20:00	10 Januari 2021	12.40	1.480
318	21:00	10 Januari 2021	15.20	1.749
319	22:00	10 Januari 2021	18.80	2.094

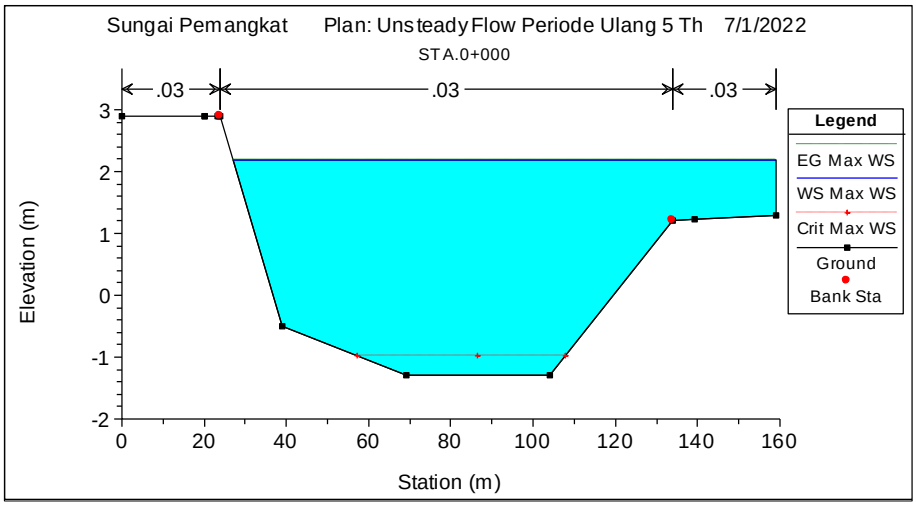
No	Pukul	Tanggal	Bacaan	Elevasi
320	23:00	10 Januari 2021	19.50	2.161
321	0:00	11 Januari 2021	18.90	2.104
322	1:00	11 Januari 2021	17.50	1.969
323	2:00	11 Januari 2021	15.20	1.749
324	3:00	11 Januari 2021	12.80	1.518
325	4:00	11 Januari 2021	9.10	1.163
326	5:00	11 Januari 2021	8.50	1.105
327	6:00	11 Januari 2021	7.60	1.019
328	7:00	11 Januari 2021	0.35	0.904
329	8:00	11 Januari 2021	0.28	0.827
330	9:00	11 Januari 2021	0.34	0.894
331	10:00	11 Januari 2021	0.55	1.096
332	11:00	11 Januari 2021	0.72	1.269
333	12:00	11 Januari 2021	0.80	1.355
334	13:00	11 Januari 2021	0.94	1.489
335	14:00	11 Januari 2021	0.90	1.451
336	15:00	11 Januari 2021	0.70	1.249
337	16:00	11 Januari 2021	0.59	1.144
338	17:00	11 Januari 2021	0.47	1.019
339	18:00	11 Januari 2021	0.39	0.942
340	19:00	11 Januari 2021	0.40	0.952
341	20:00	11 Januari 2021	0.54	1.086
342	21:00	11 Januari 2021	0.90	1.451
343	22:00	11 Januari 2021	1.23	1.777
344	23:00	11 Januari 2021	1.50	2.046
345	0:00	12 Januari 2021	1.62	2.151
346	1:00	12 Januari 2021	1.65	2.180
347	2:00	12 Januari 2021	1.52	2.075
348	3:00	12 Januari 2021	1.28	1.835

Lampiran F-1 Simulasi *Cross Section* Sungai Pemangkat

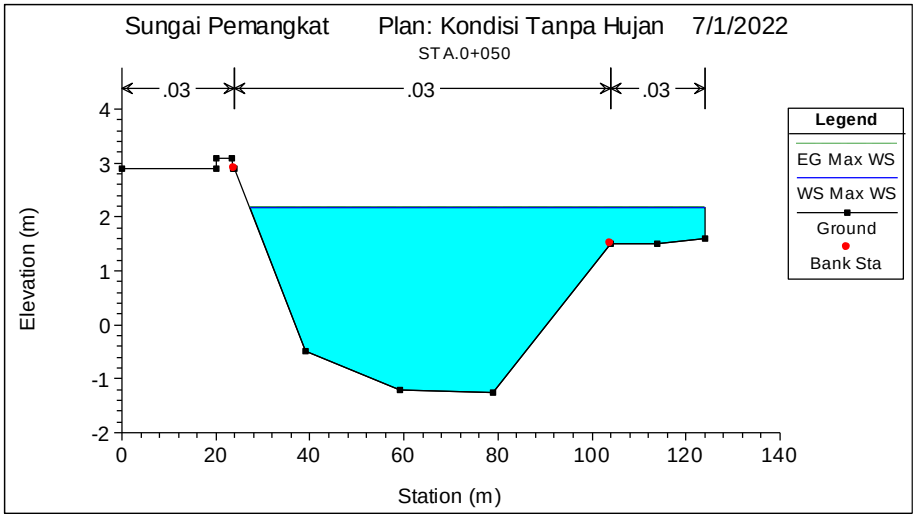
- STA. 0+000

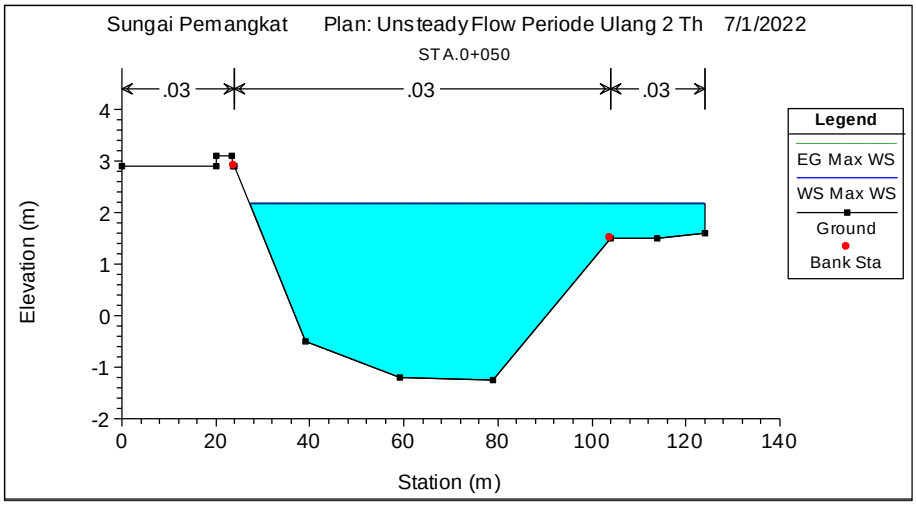


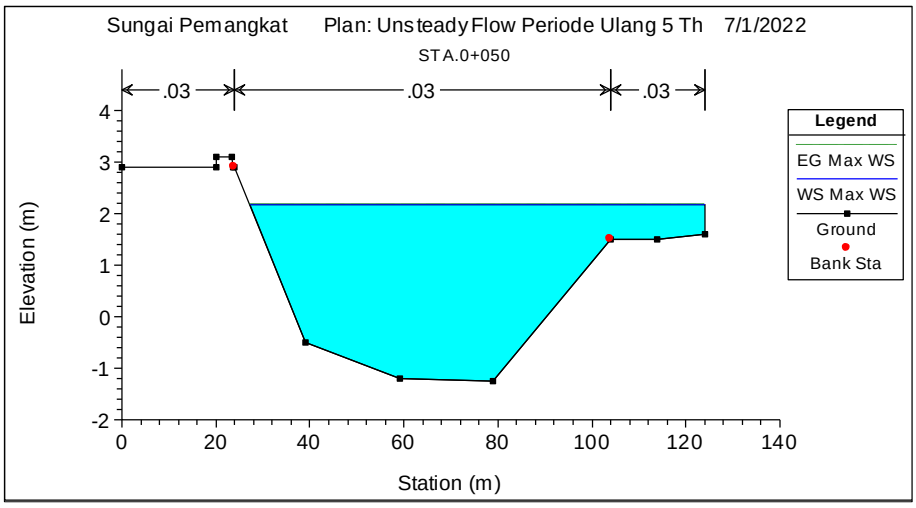




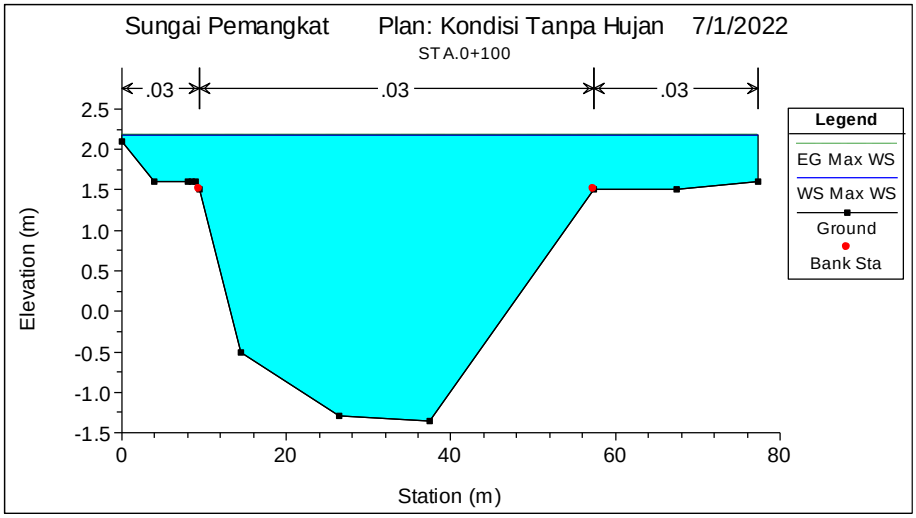
- STA. 0+050

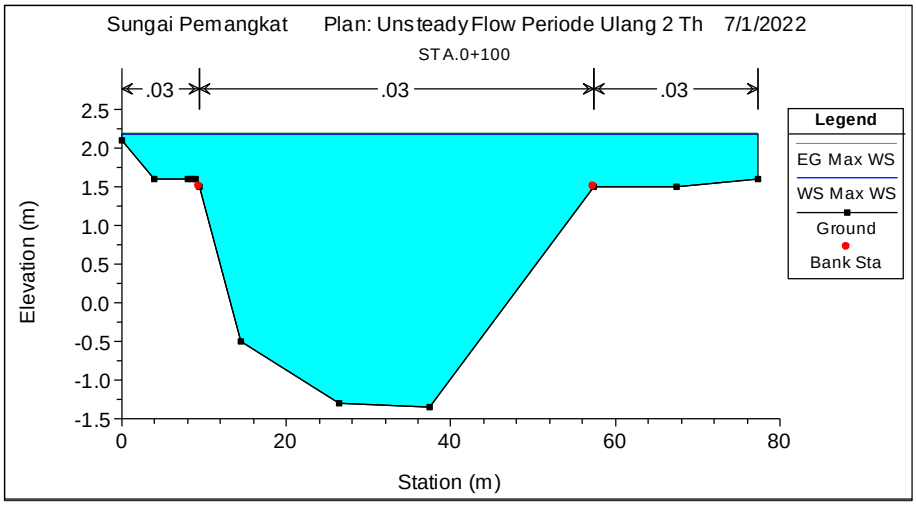

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+050
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
4
3
2
1
0
-1
-2
0
20
40
60
80
100
120
140

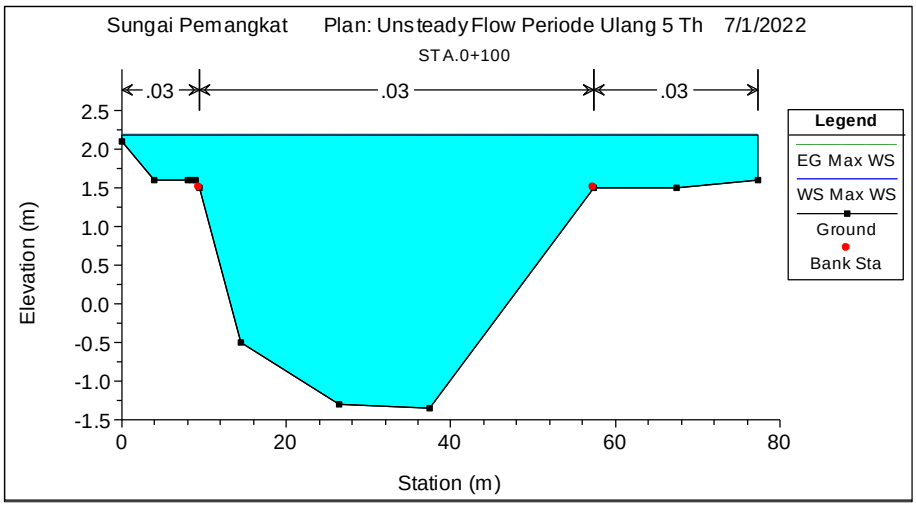

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+050
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
4
3
2
1
0
-1
-2
0
20
40
60
80
100
120
140


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+050
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
4
3
2
1
0
-1
-2
0
20
40
60
80
100
120
140

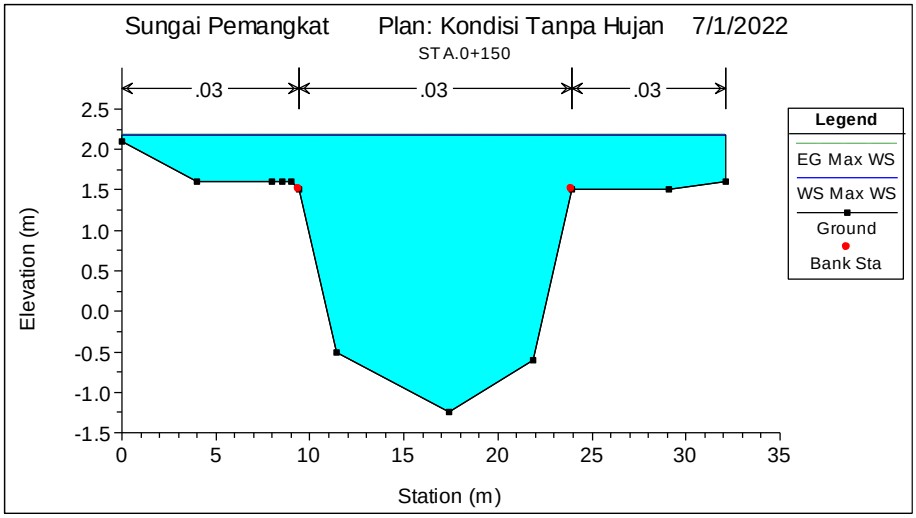
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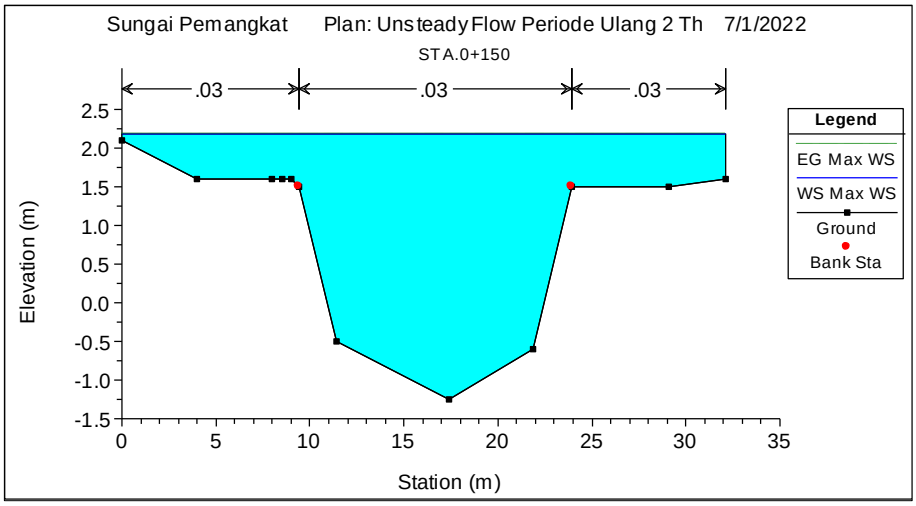

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+100
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0
20
40
60
80

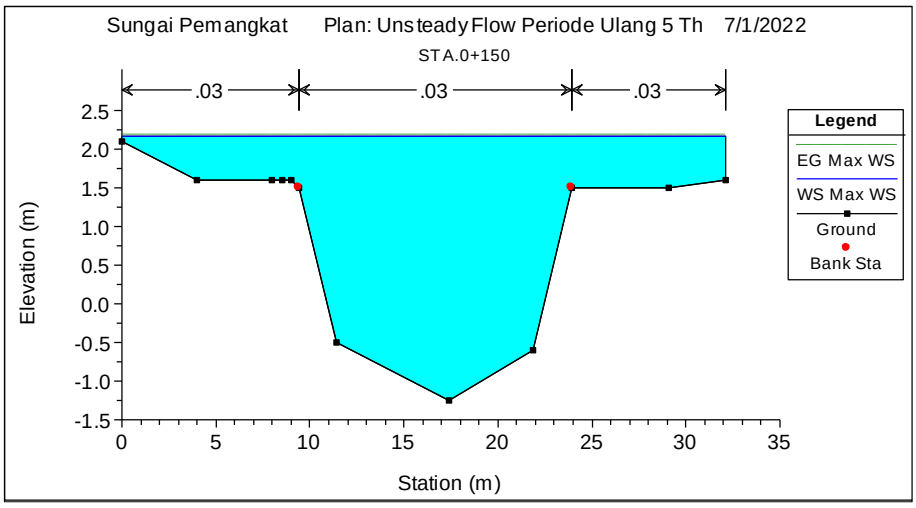

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+100
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0
20
40
60
80


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+100
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0
20
40
60
80

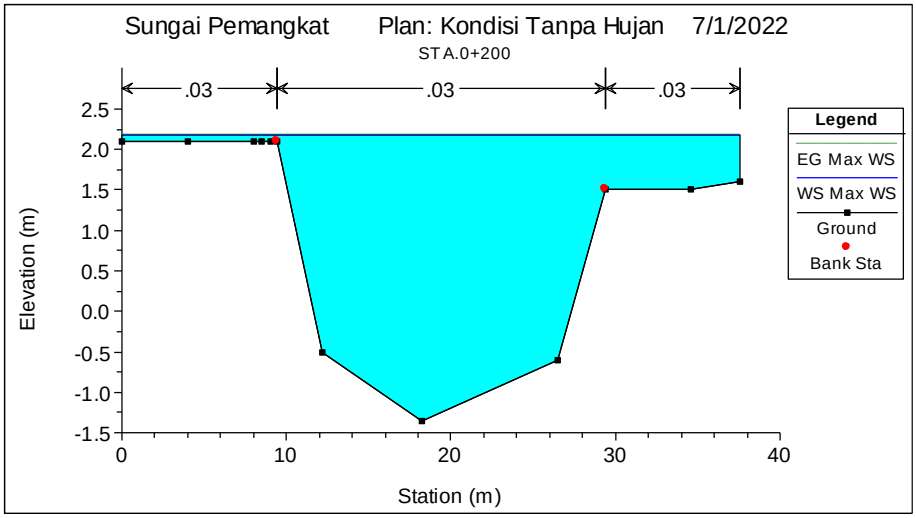
- STA. 0+150

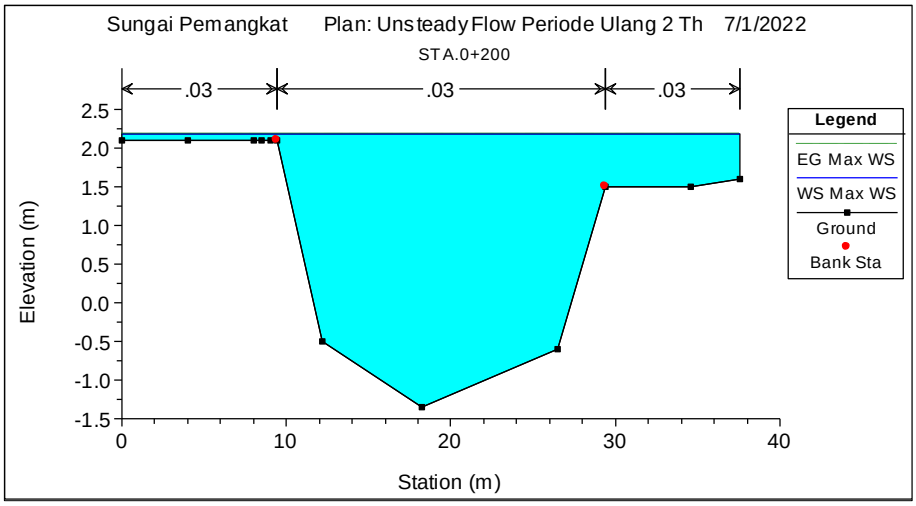

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+150
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

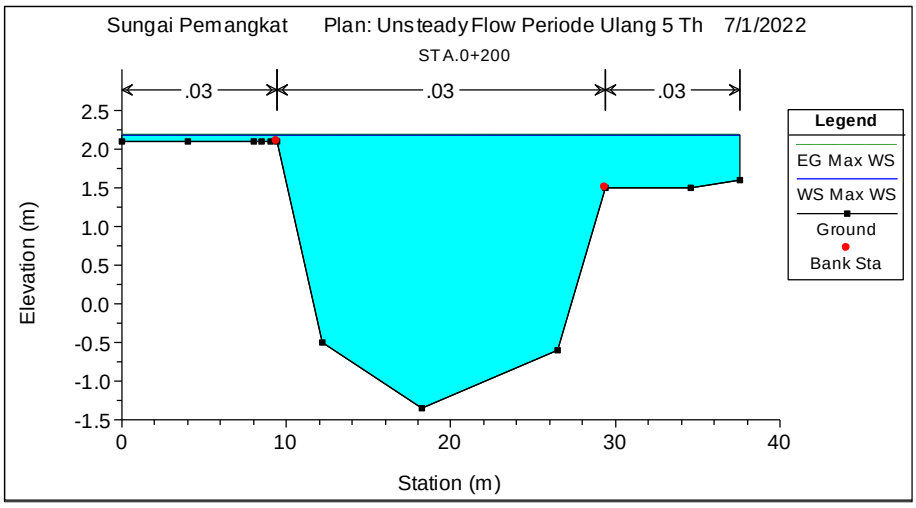

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+150
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+150
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

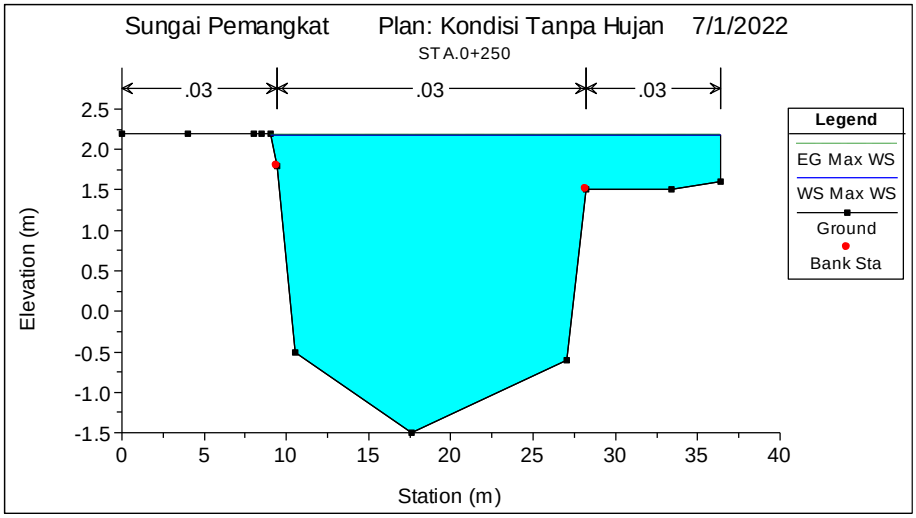
- STA. 0+200

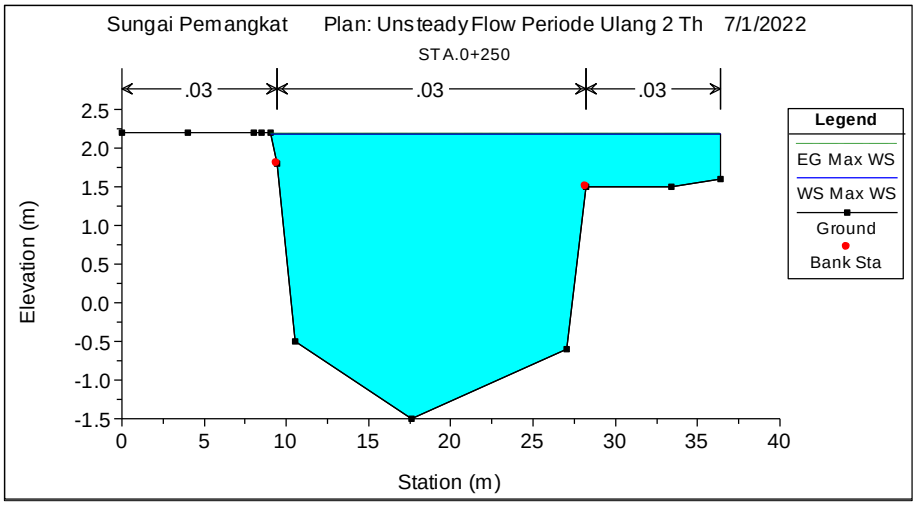

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+200
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

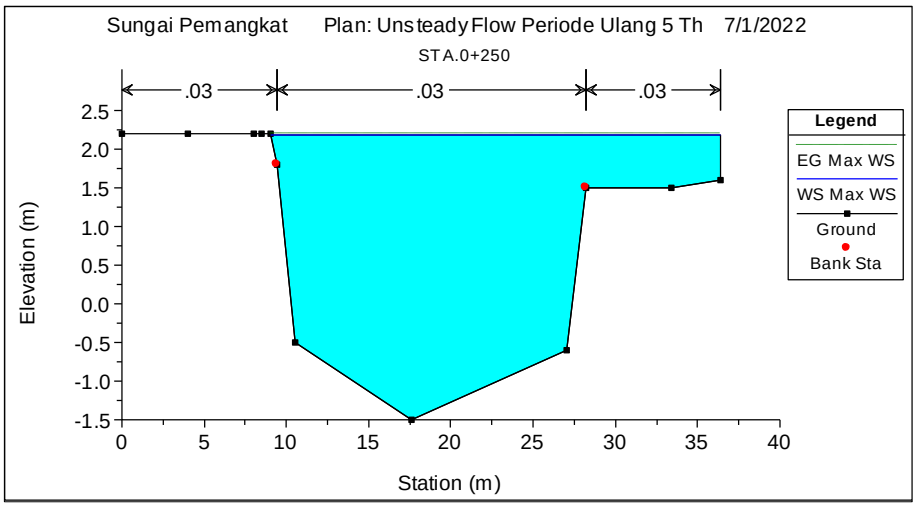

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+200
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+200
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

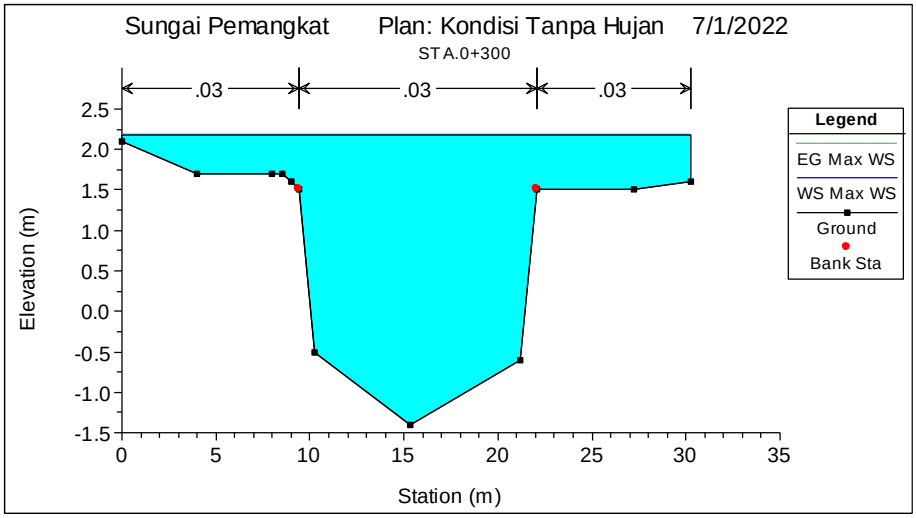
- STA. 0+250

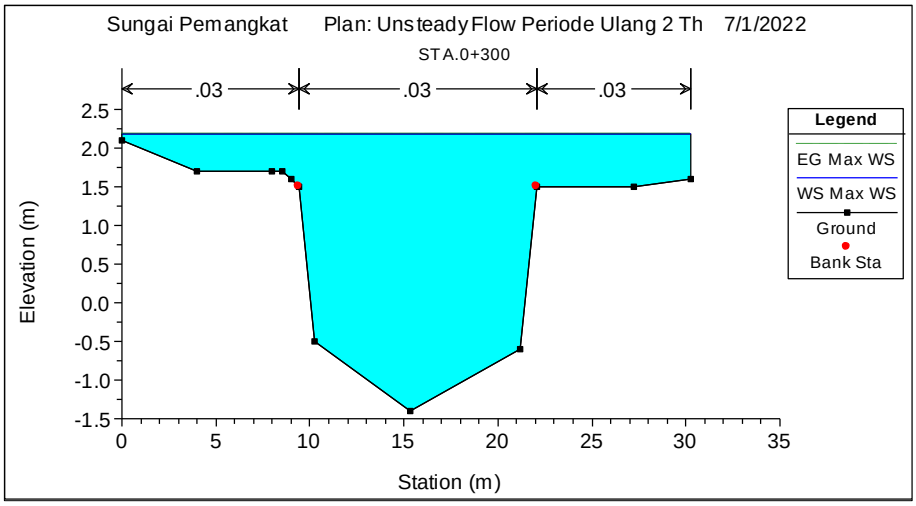

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+250
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

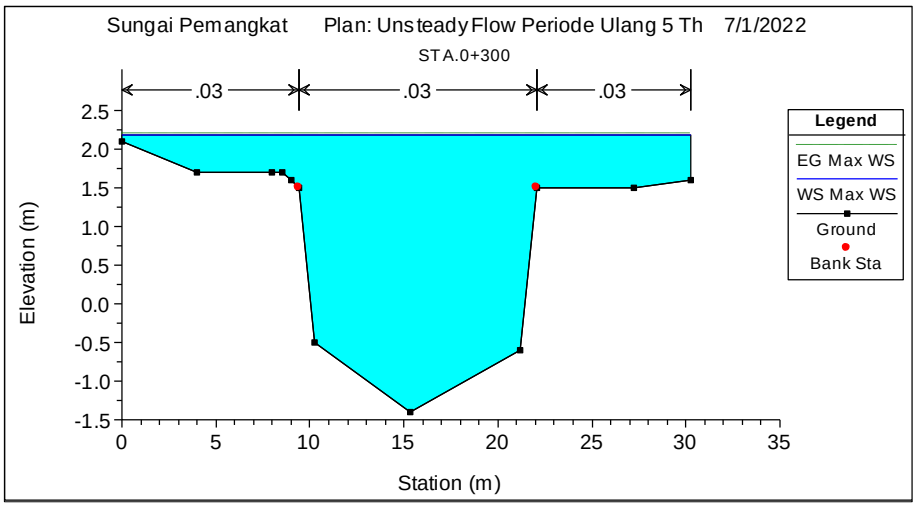

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+250
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+250
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

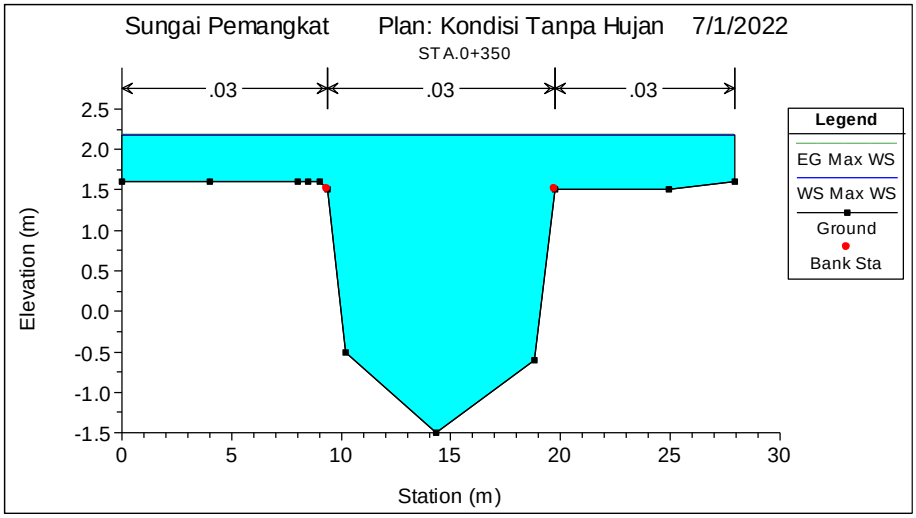
- STA. 0+300

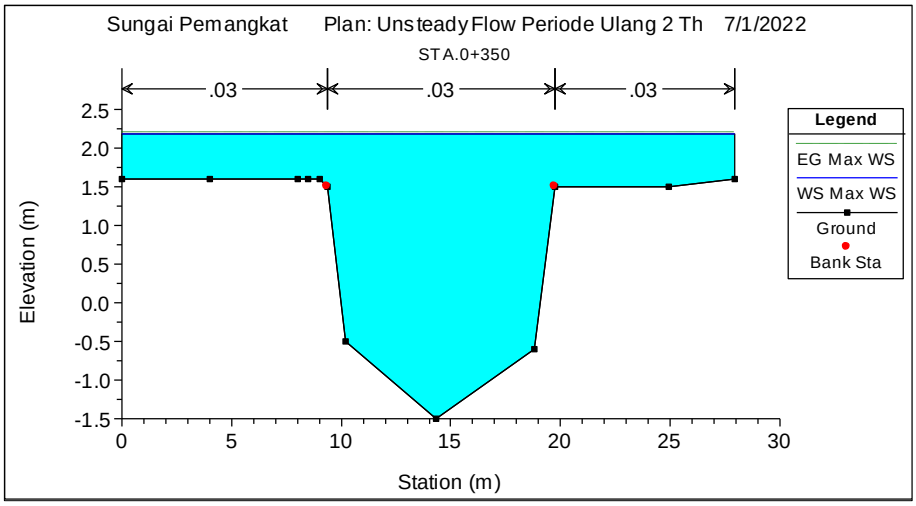

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+300
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

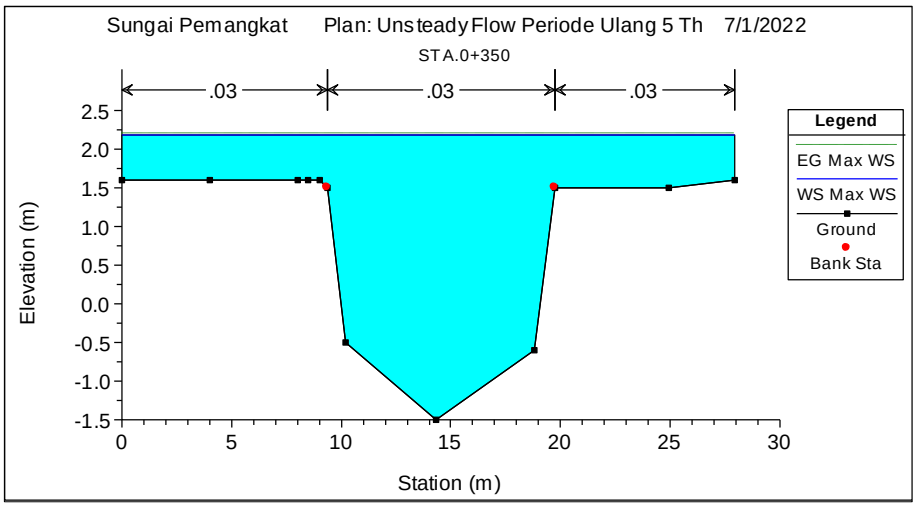

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+300
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+300
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

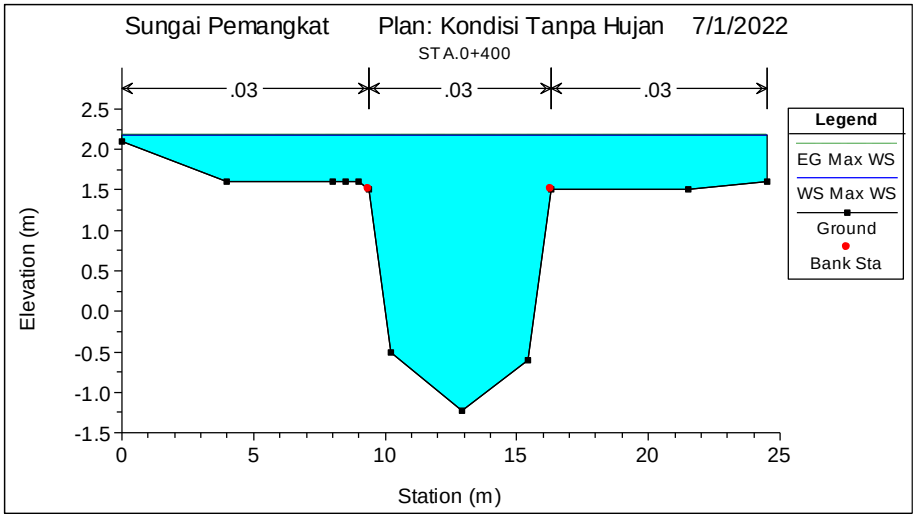
- STA. 0+350

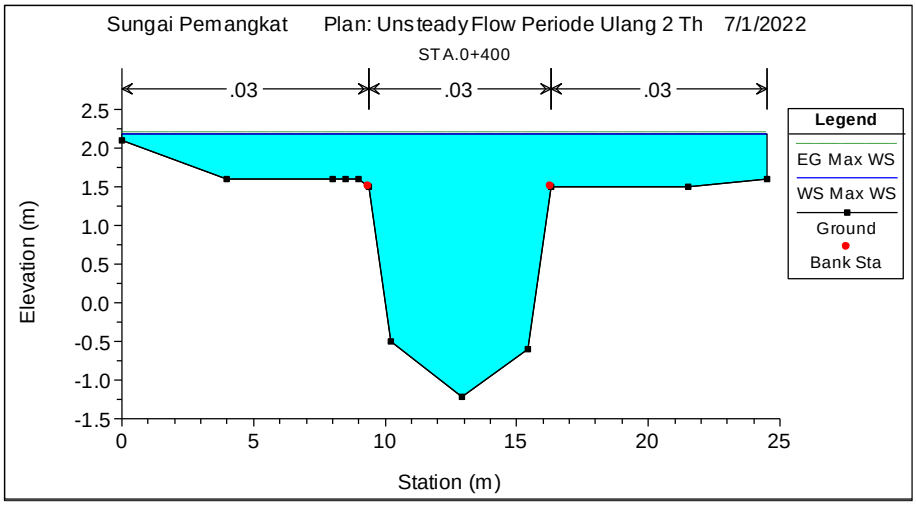

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+350
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

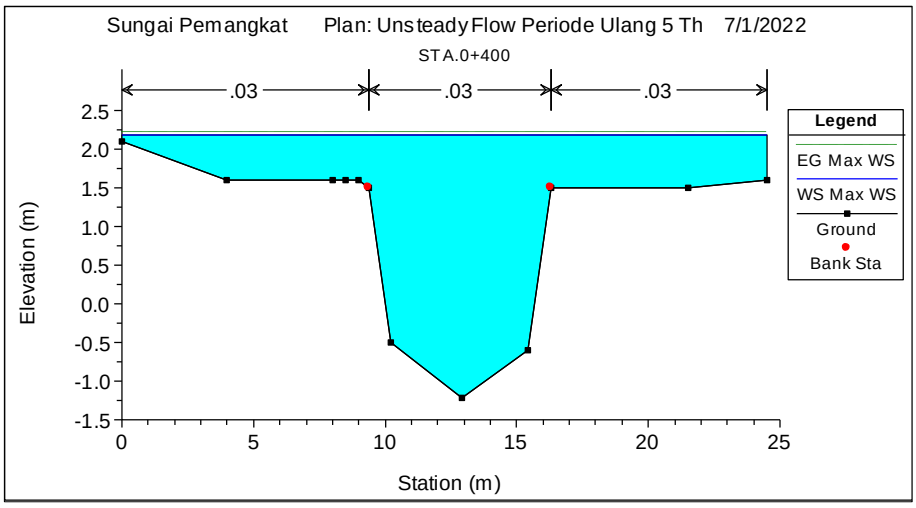

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+350
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+350
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

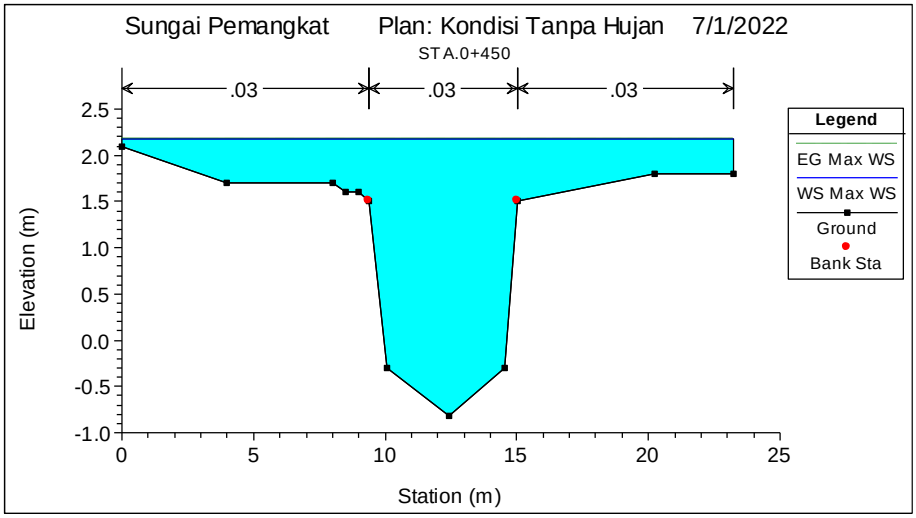
- STA. 0+400

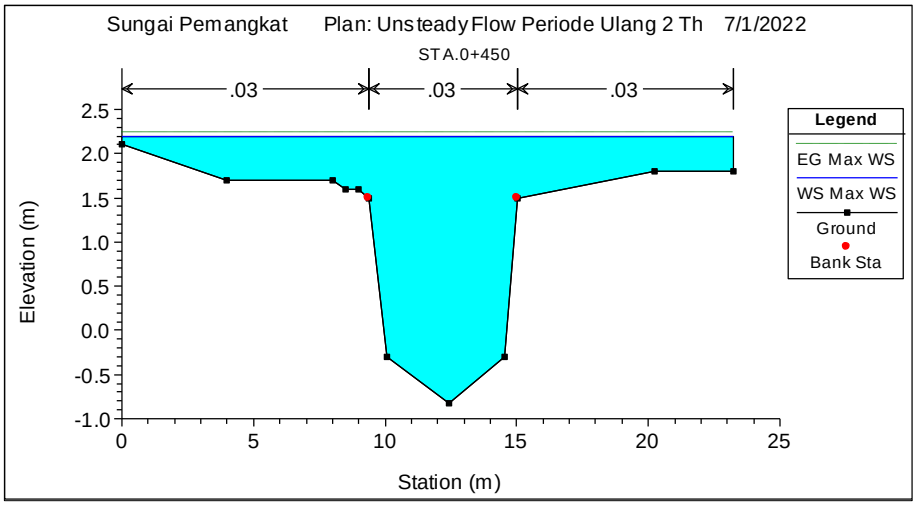

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+400
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

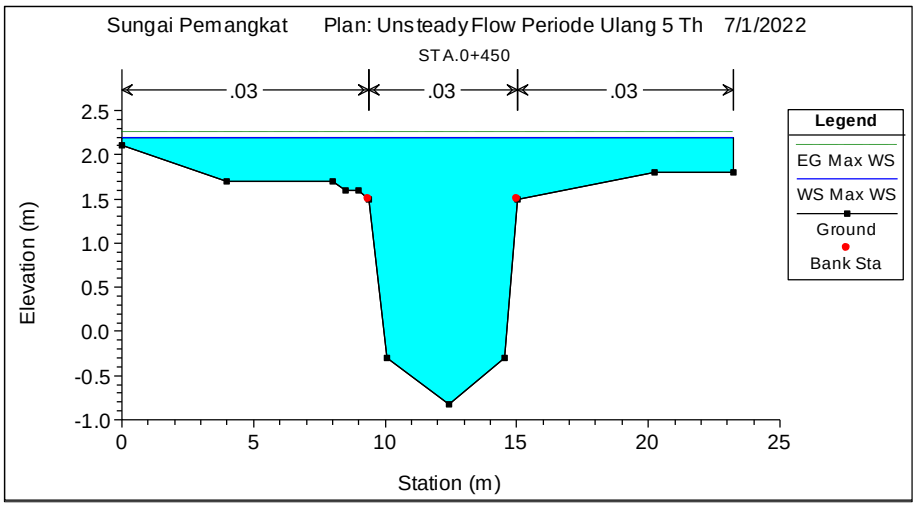

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+400
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+400
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

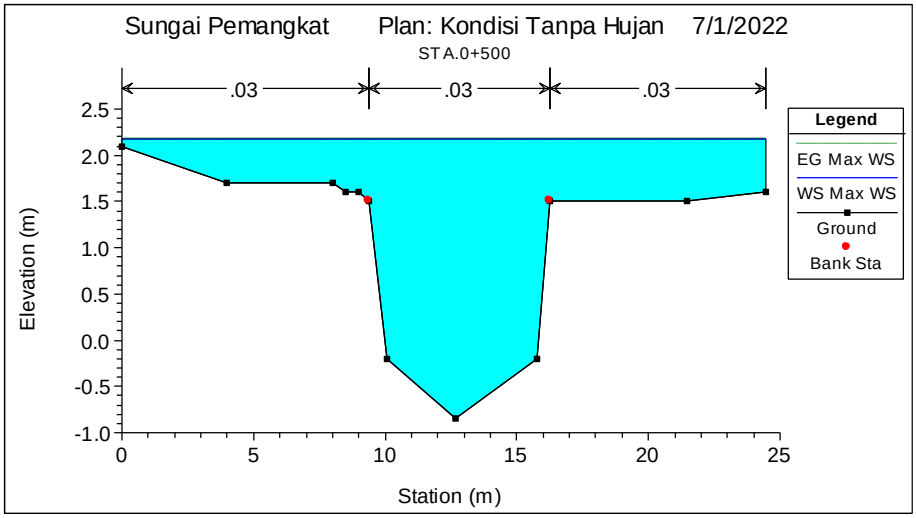
- STA. 0+450

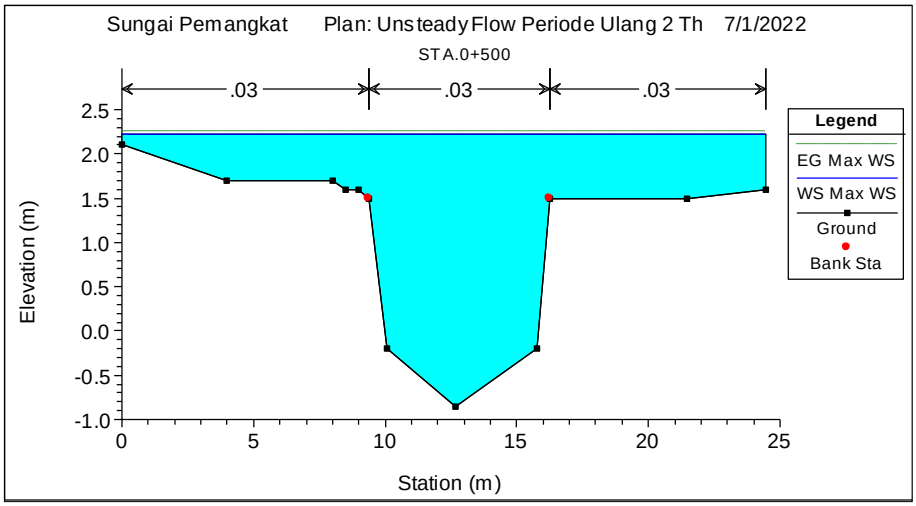

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+450
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

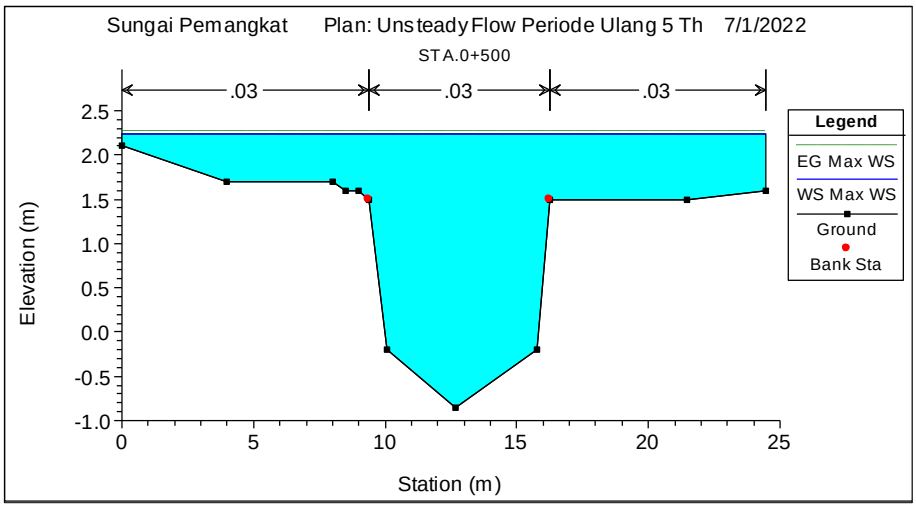

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+450
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+450
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

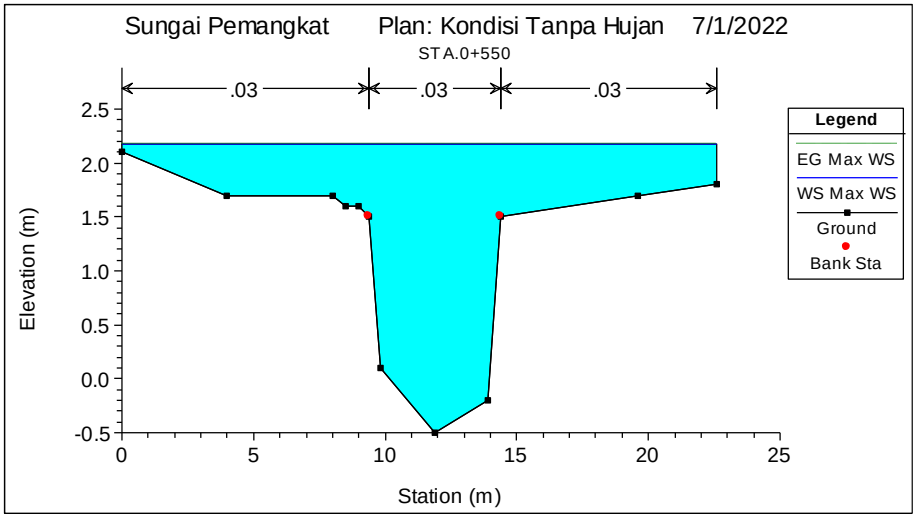
- STA. 0+500

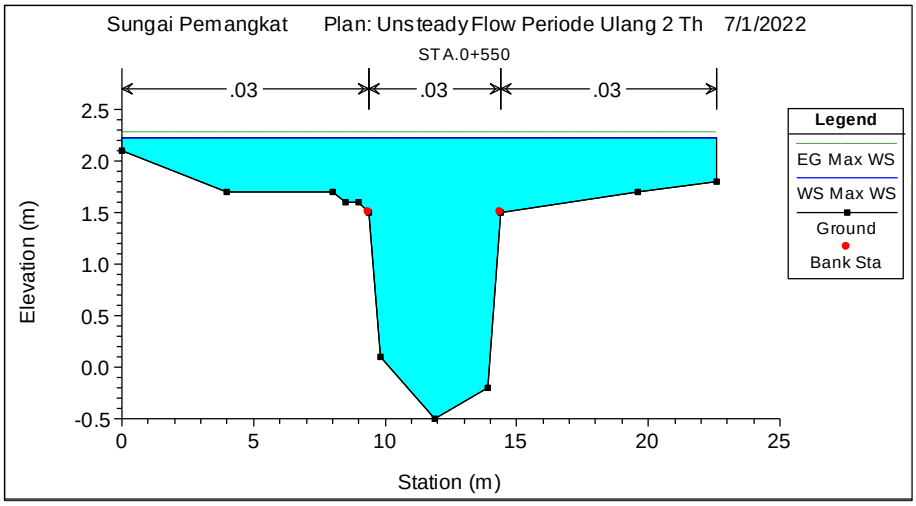

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+500
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

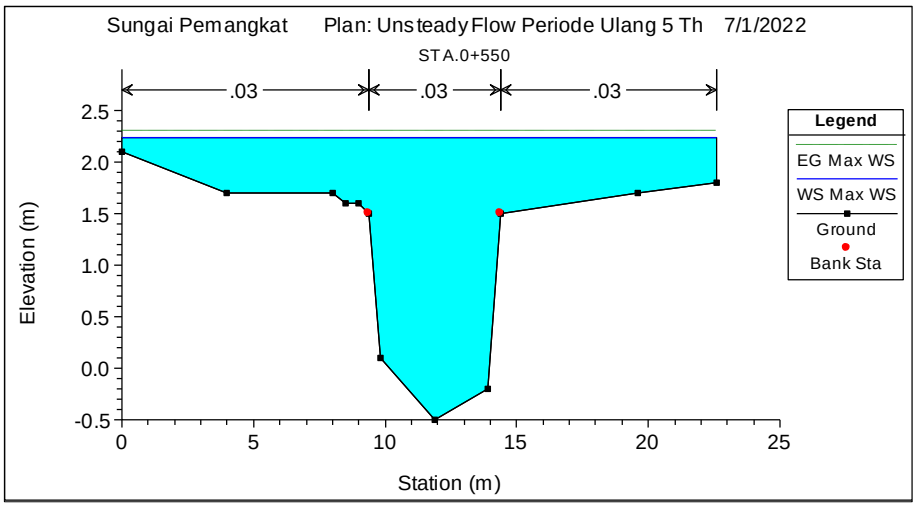

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+500
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+500
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

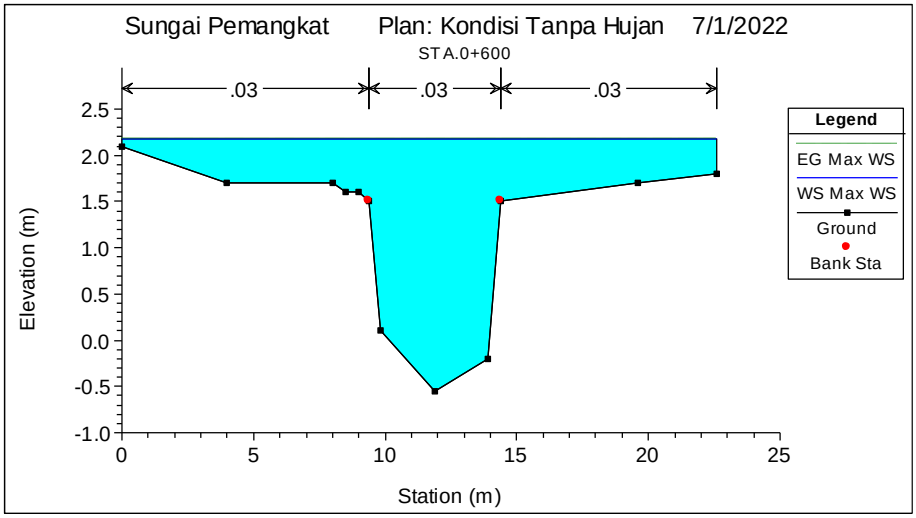
- STA. 0+550

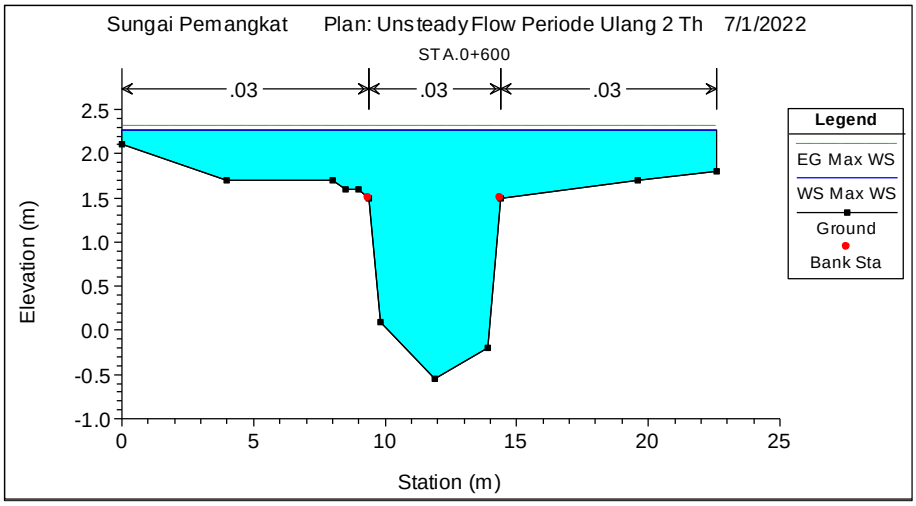

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+550
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
5
10
15
20
25

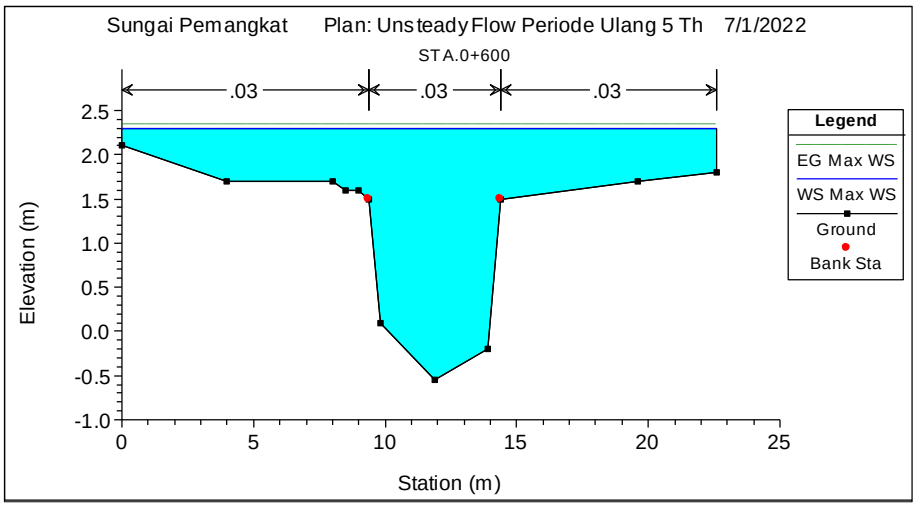

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+550
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
5
10
15
20
25


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+550
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
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20
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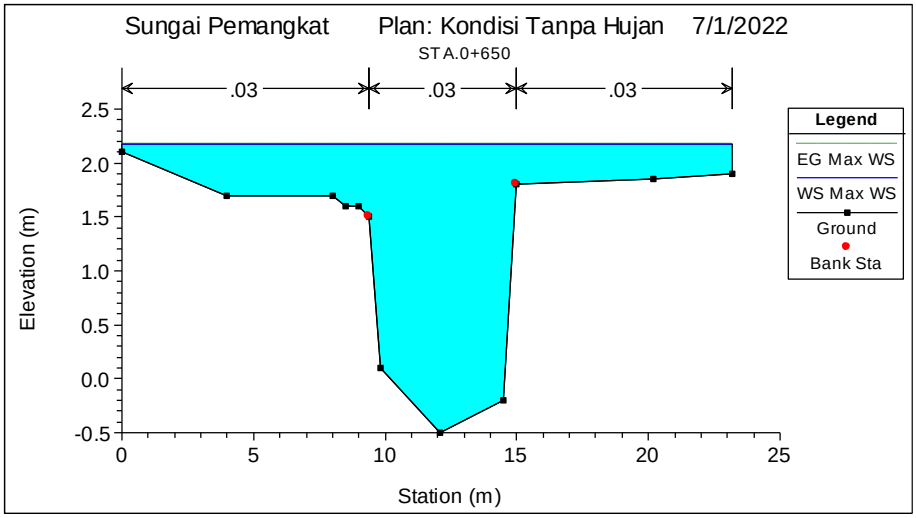
- STA. 0+600

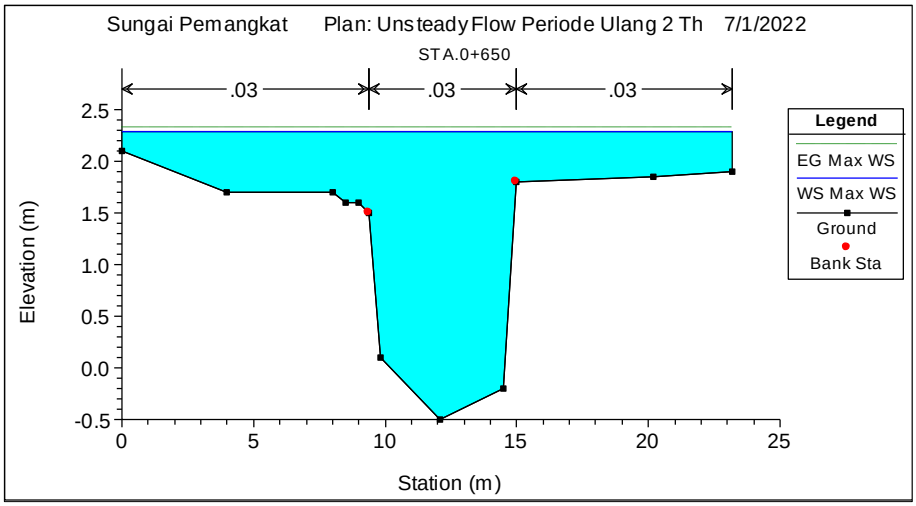

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
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.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

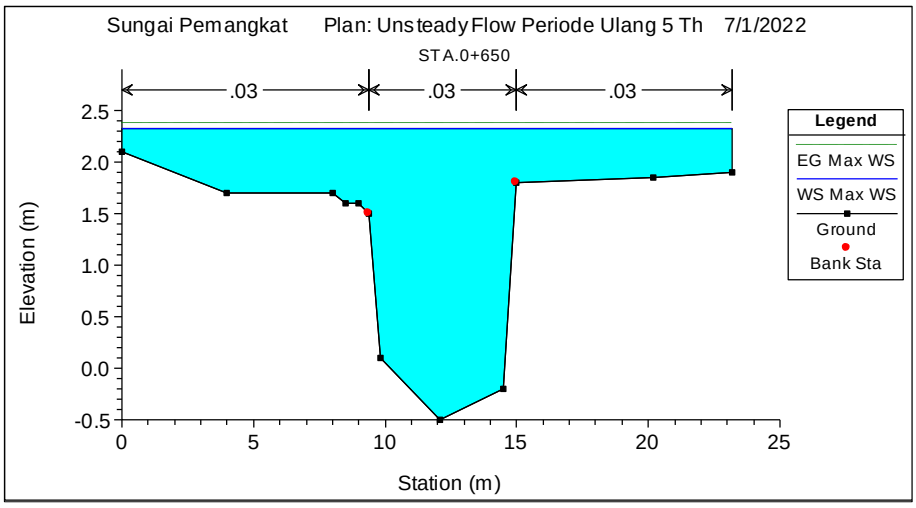

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+600
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+600
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

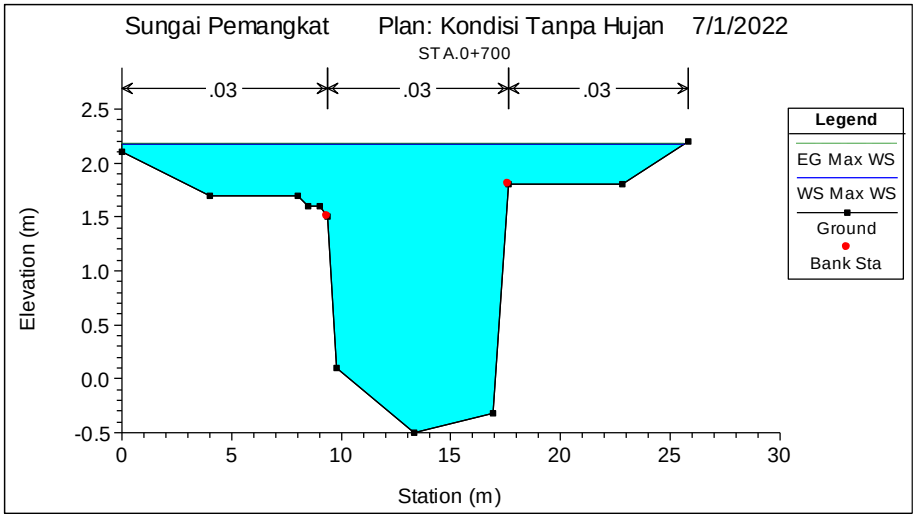
- STA. 0+650

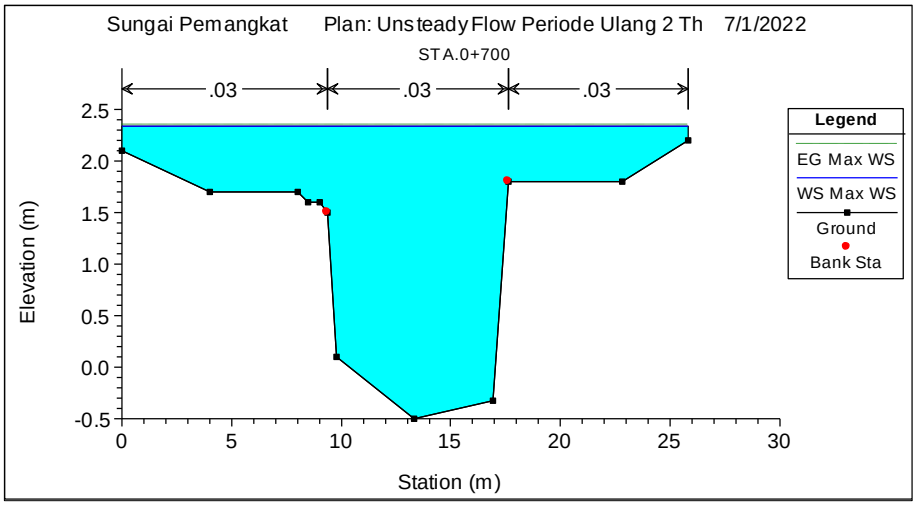

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+650
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

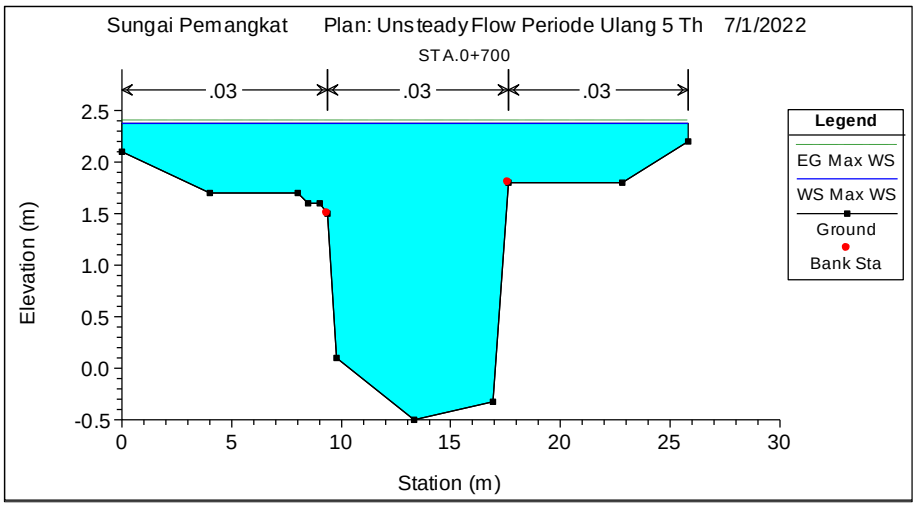

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+650
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+650
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

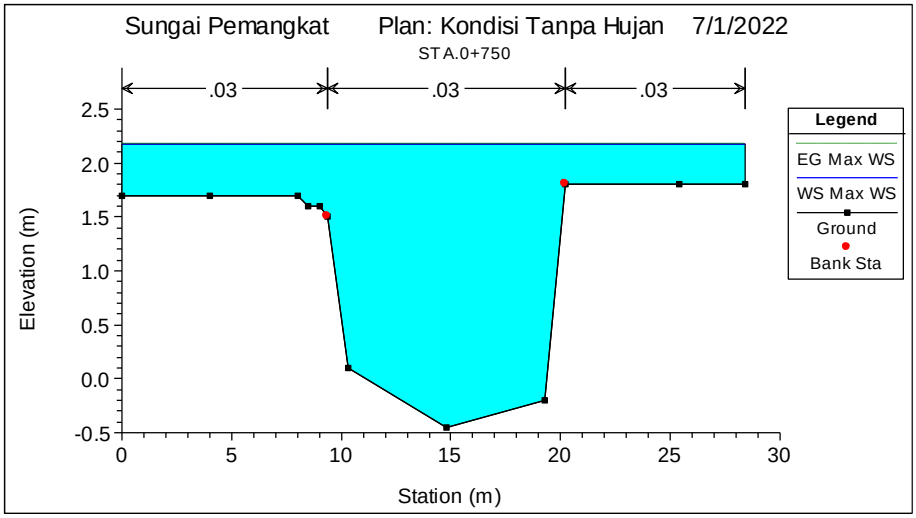
- STA. 0+700

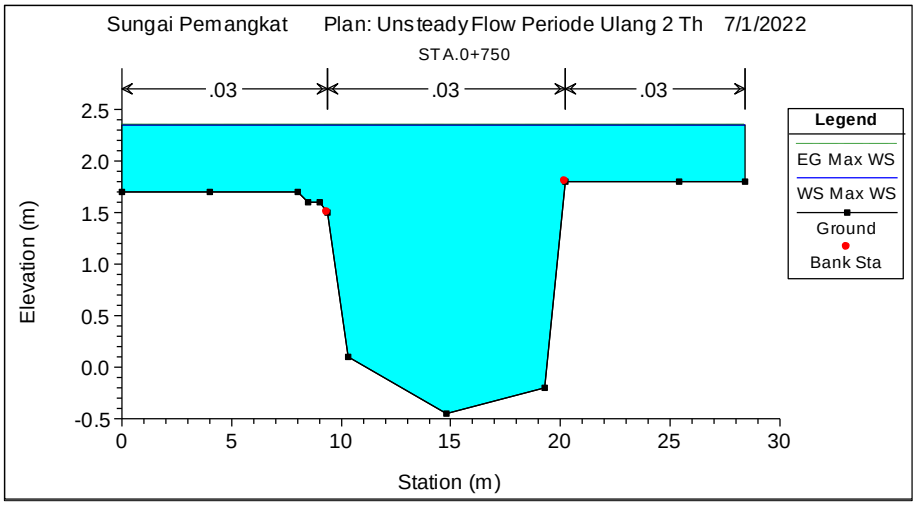

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+700
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
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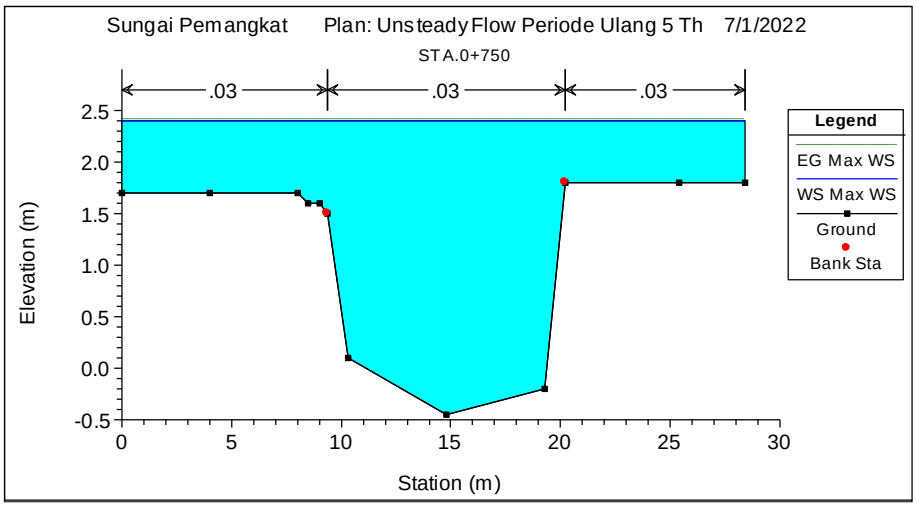

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+700
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
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Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+700
.03
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.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
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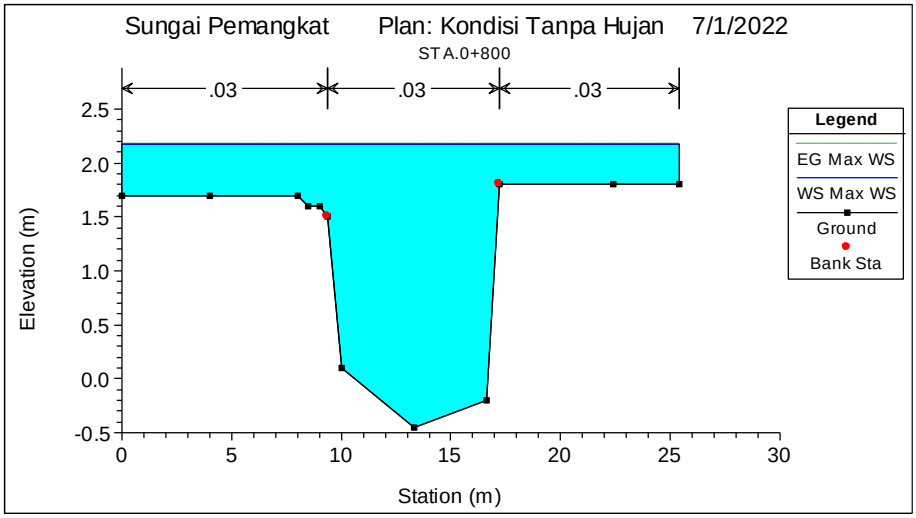
- STA. 0+750

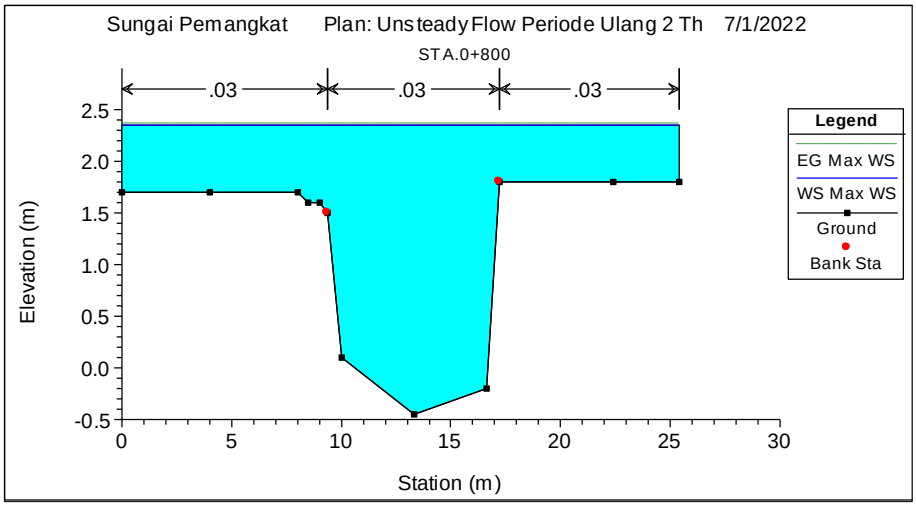

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+750
.03
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Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

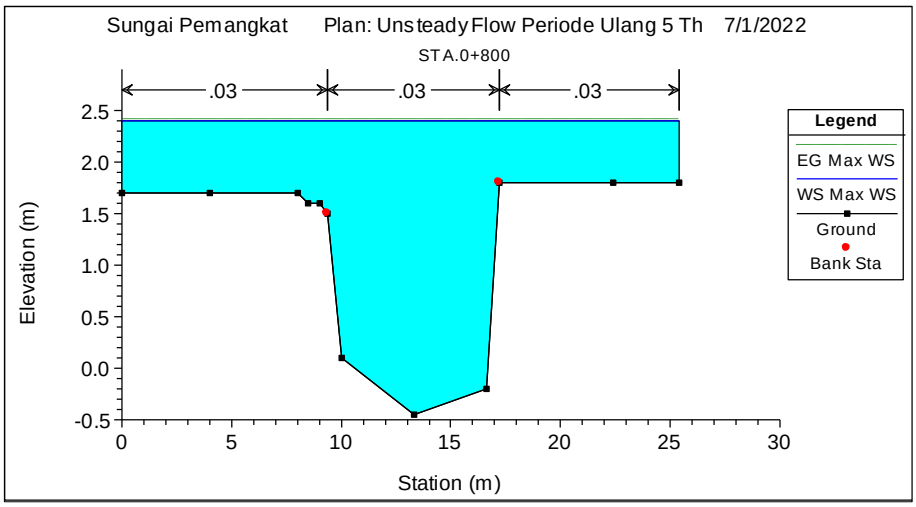

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+750
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+750
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

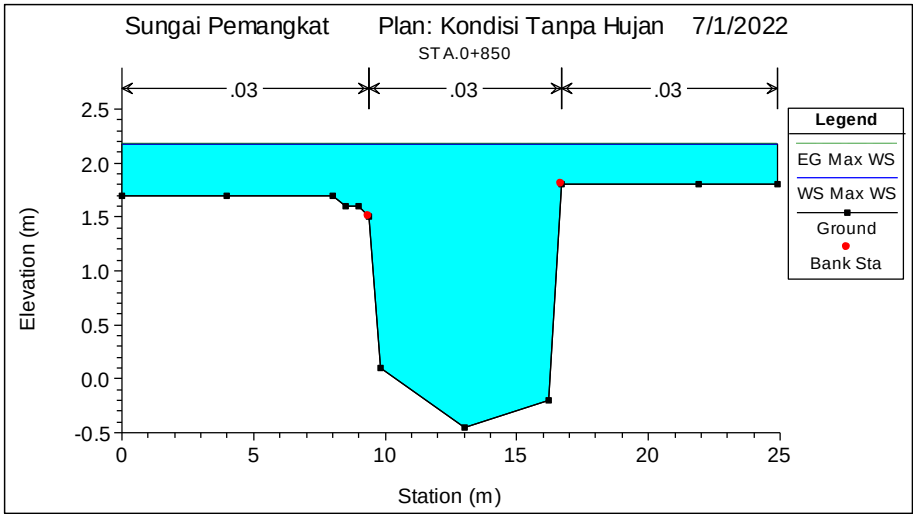
- STA. 0+800

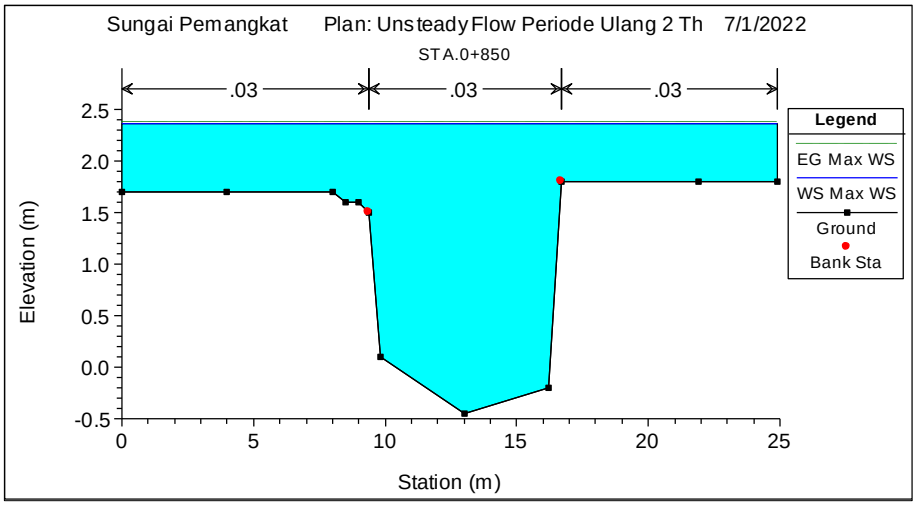

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+800
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
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1.5
1.0
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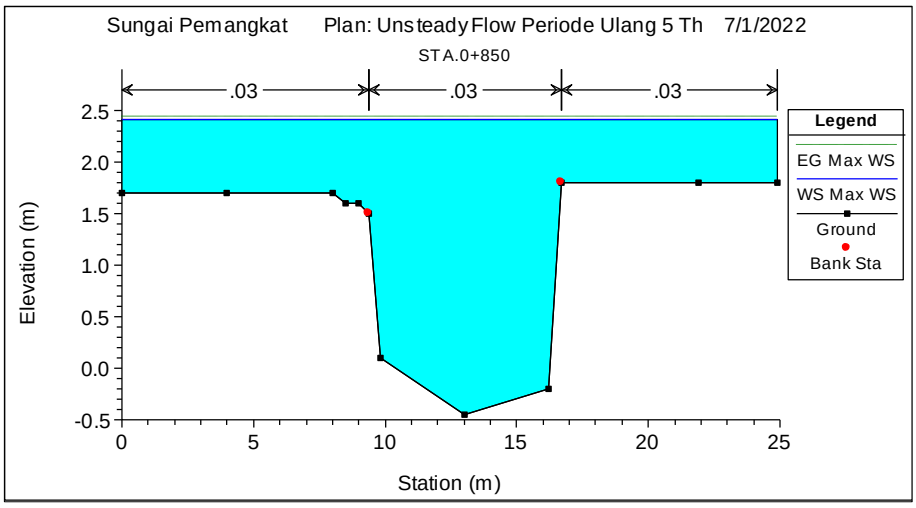

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+800
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
5
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15
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25
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Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+800
.03
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Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
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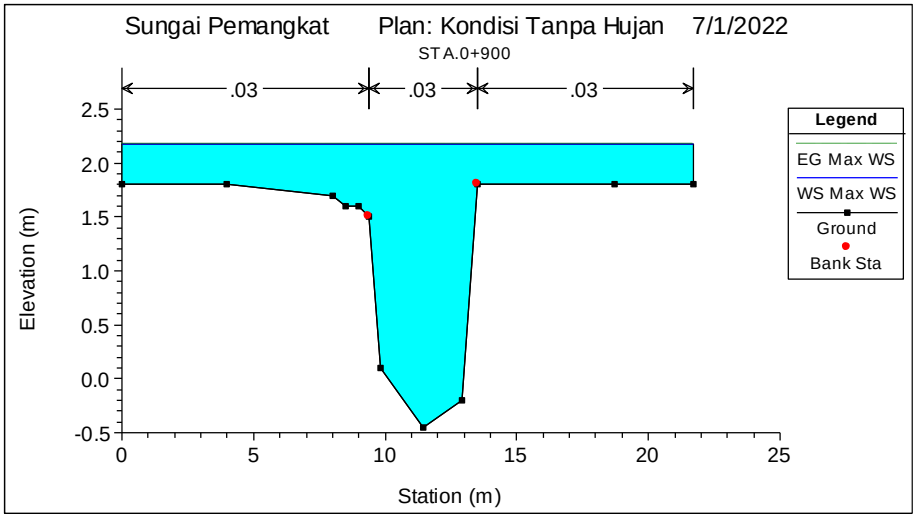
- STA. 0+850

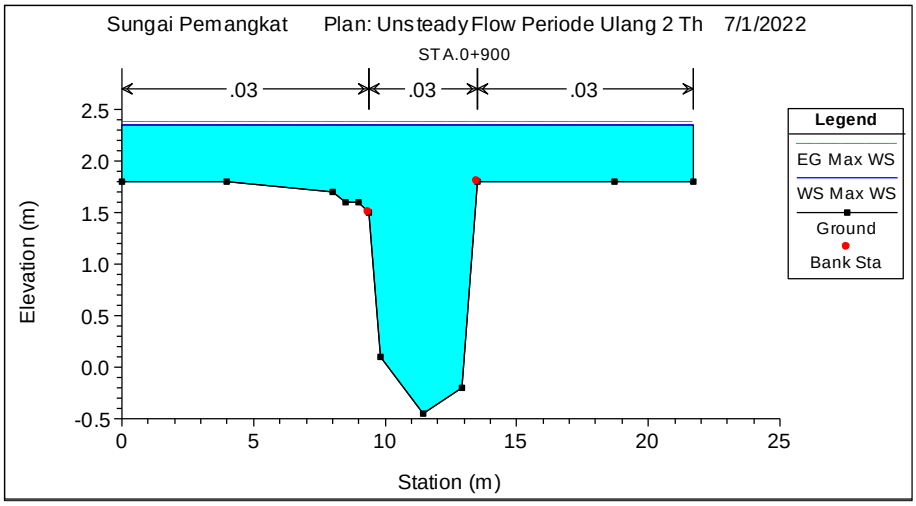

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+850
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
5
10
15
20
25

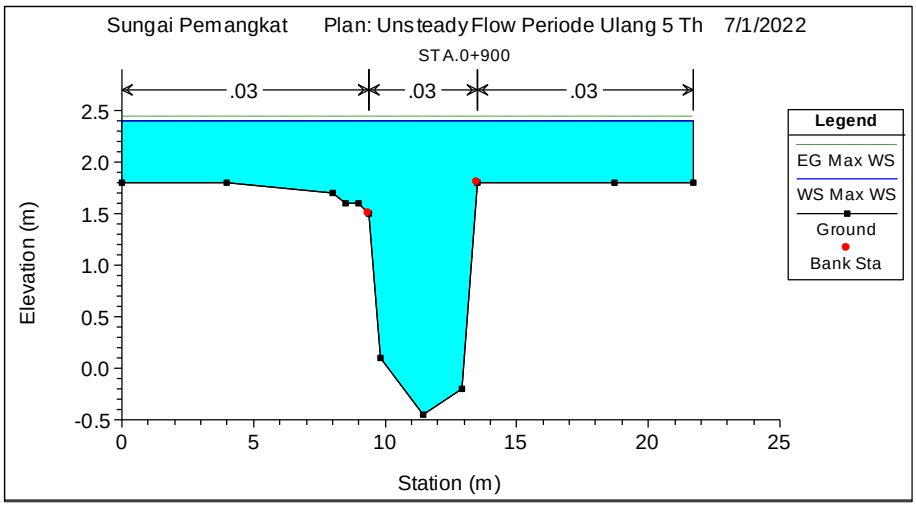

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+850
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
5
10
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20
25


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+850
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
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2.0
1.5
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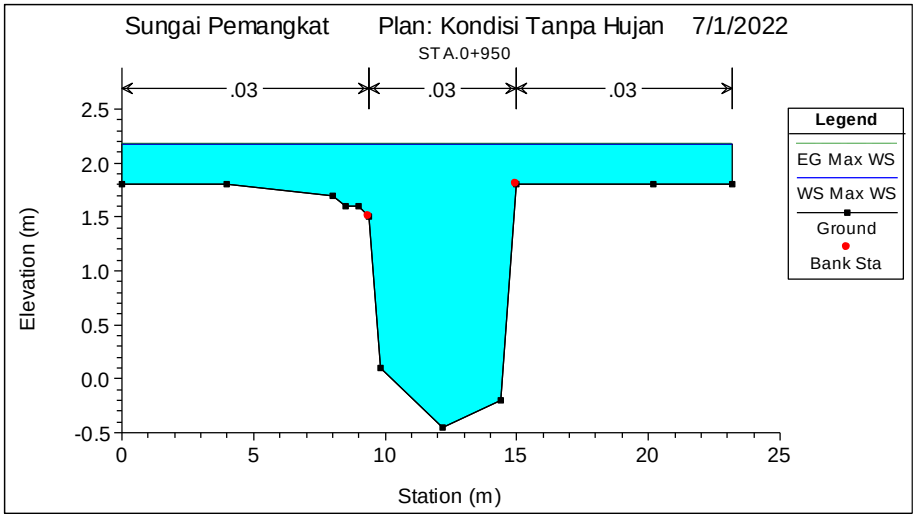
- STA. 0+900

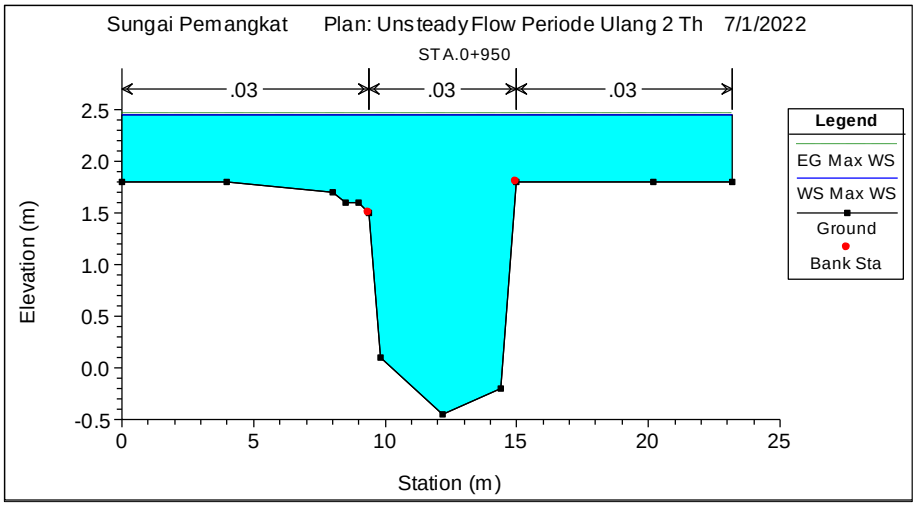

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+900
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
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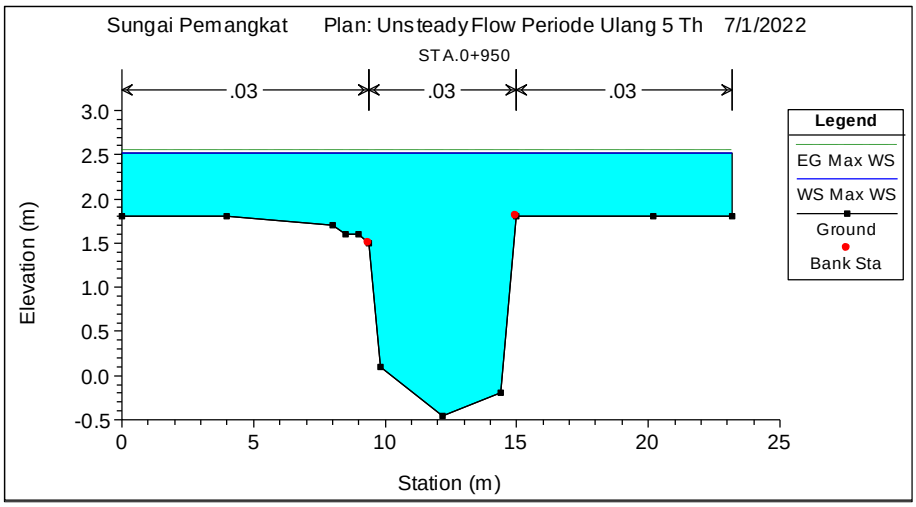

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+900
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
5
10
15
20
25


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+900
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
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2.0
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1.0
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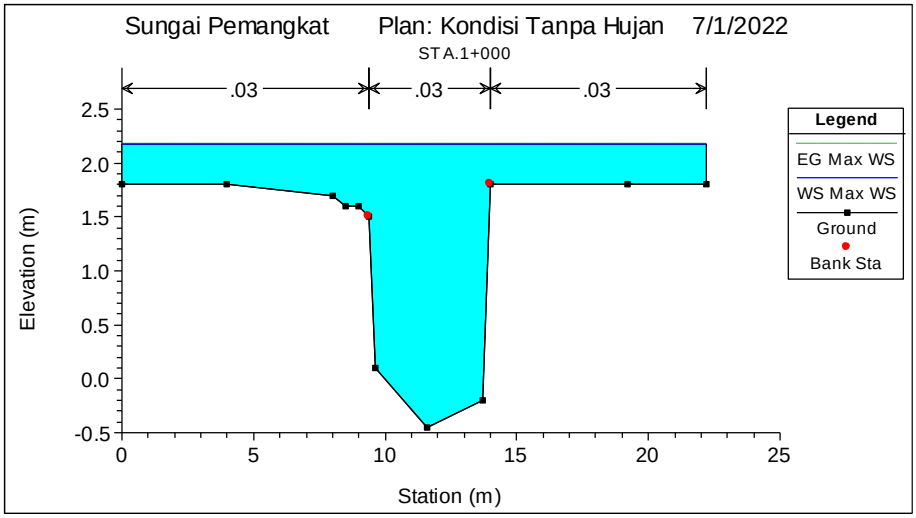
- STA. 0+950

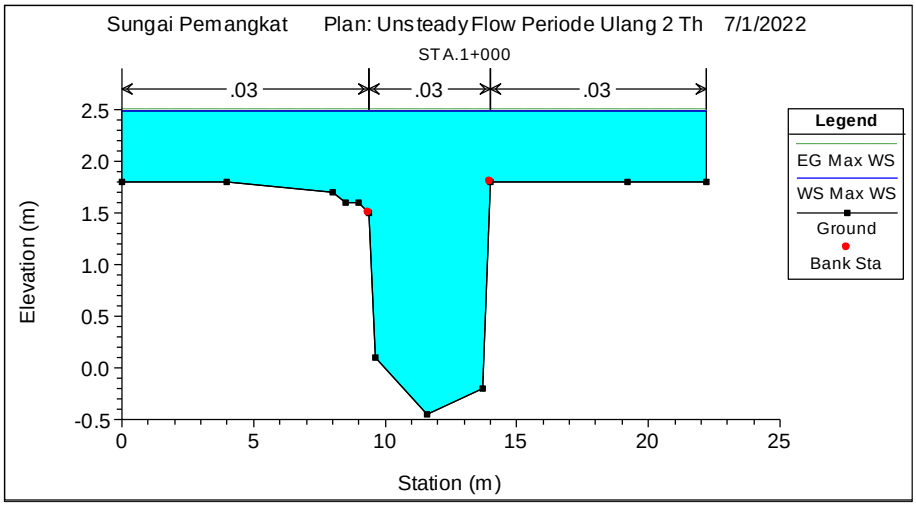

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.0+950
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
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-0.5
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10
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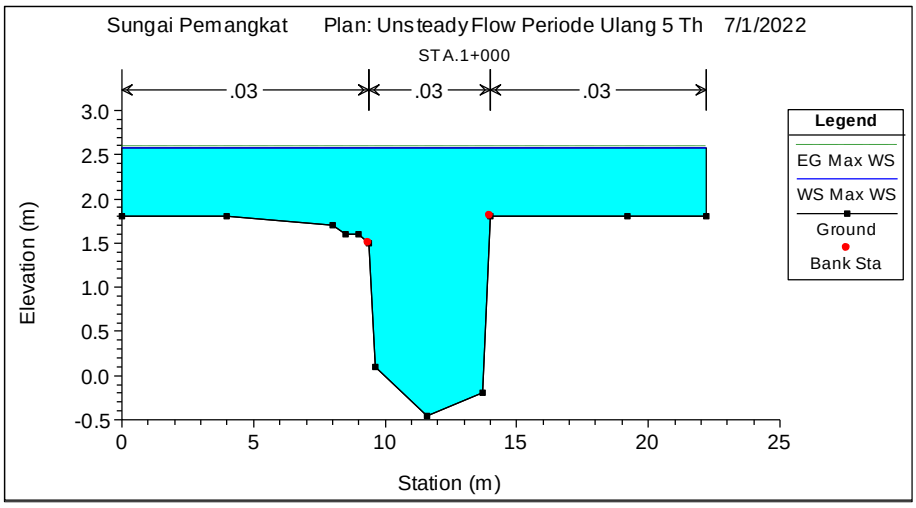

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.0+950
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
5
10
15
20
25


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.0+950
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
3.0
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2.0
1.5
1.0
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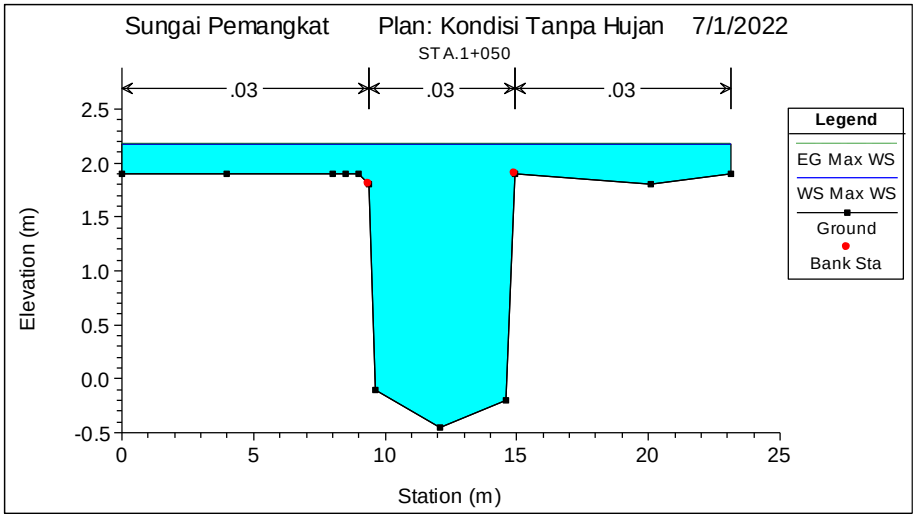
- STA. 1+000

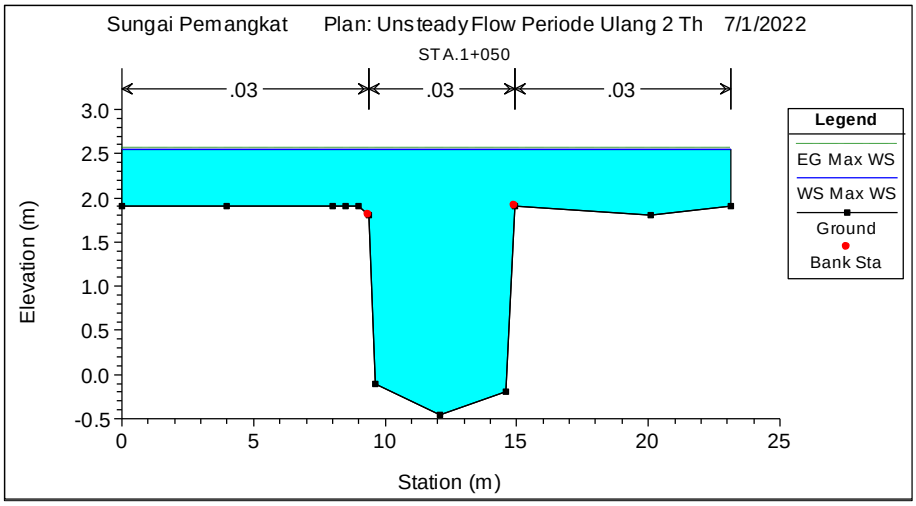

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.1+000
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

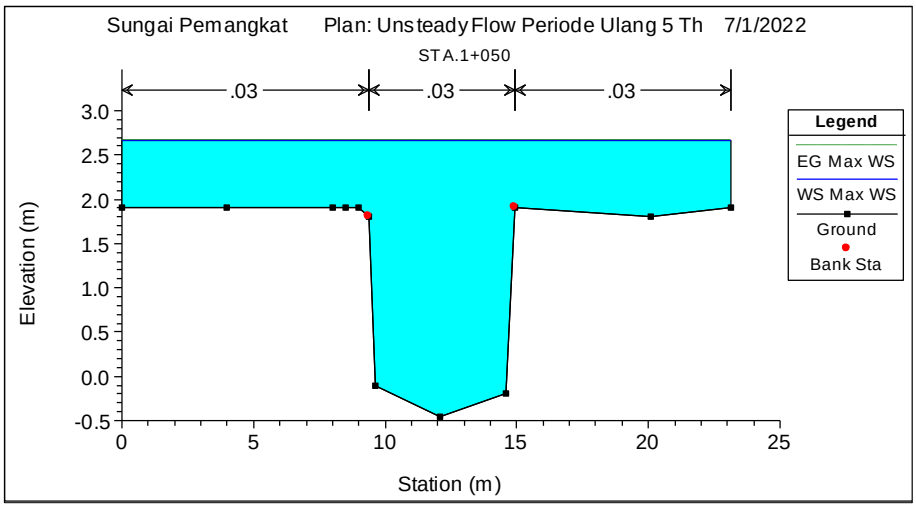

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.1+000
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.1+000
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

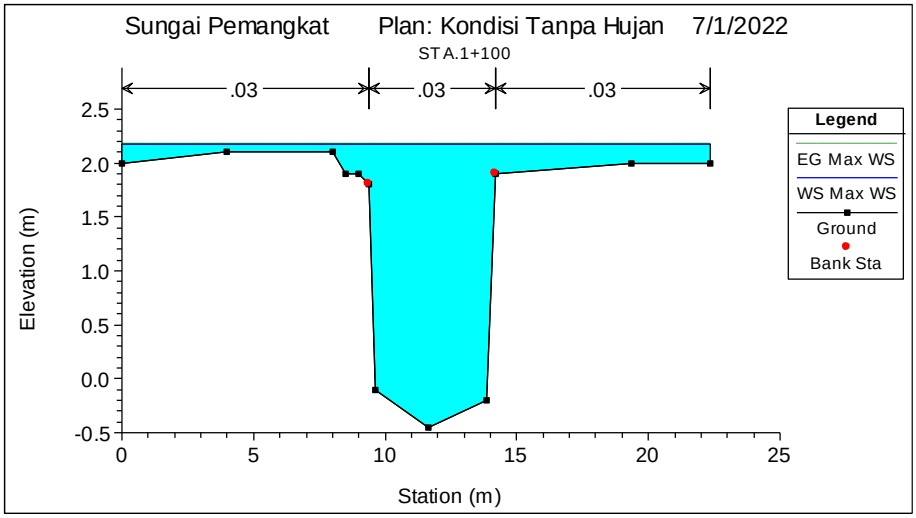
- STA. 1+050

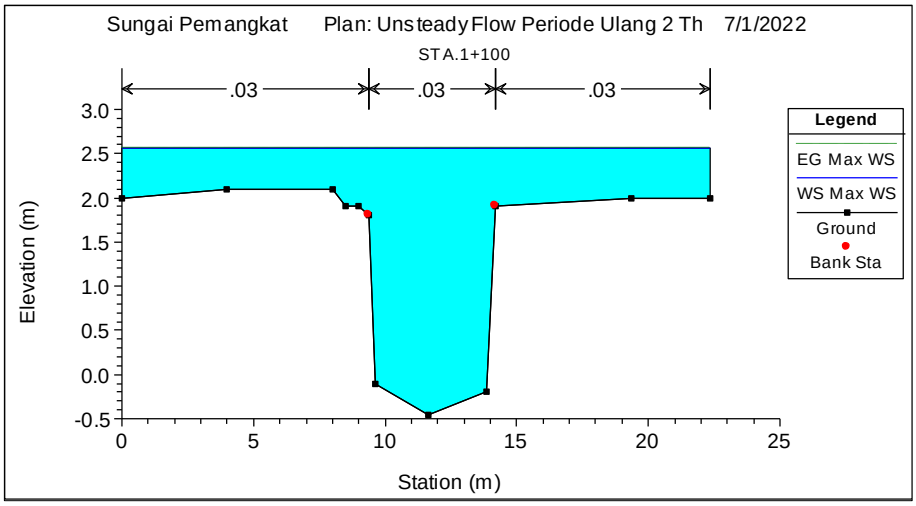

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.1+050
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
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2.0
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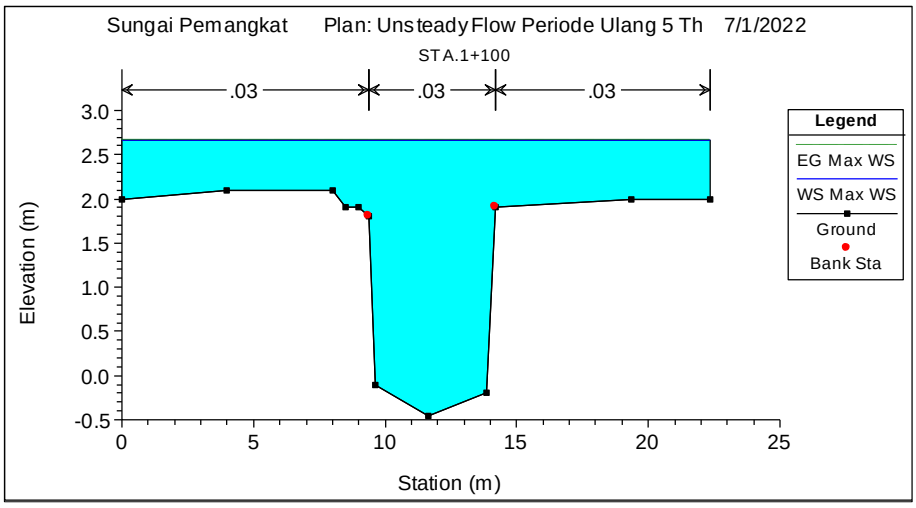

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.1+050
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
5
10
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25


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.1+050
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
3.0
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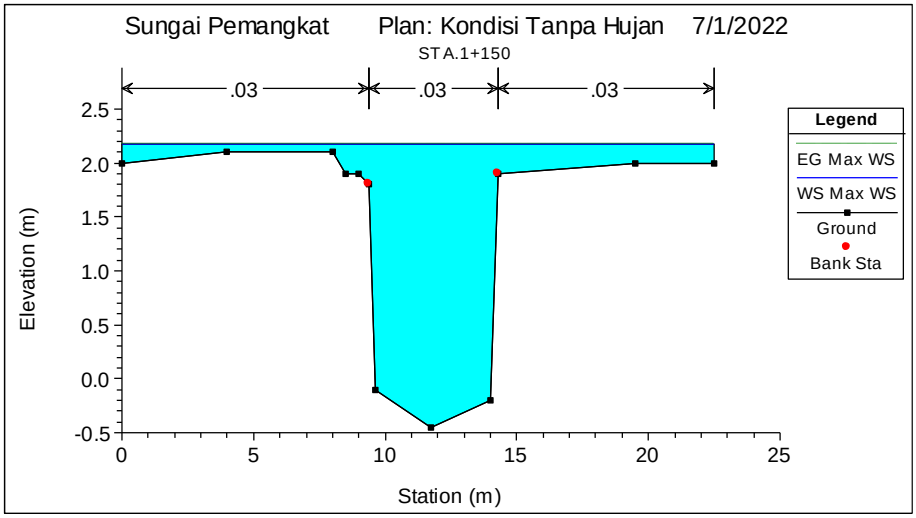
- STA. 1+100

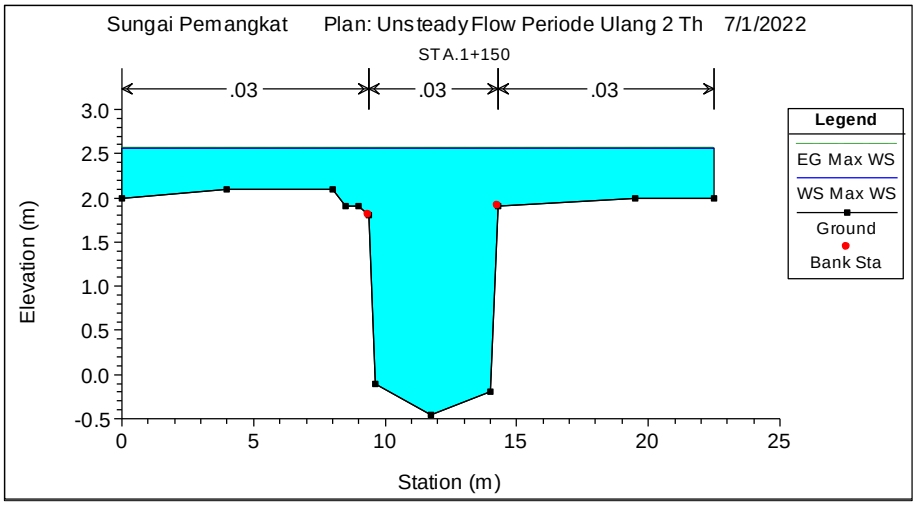

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.1+100
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

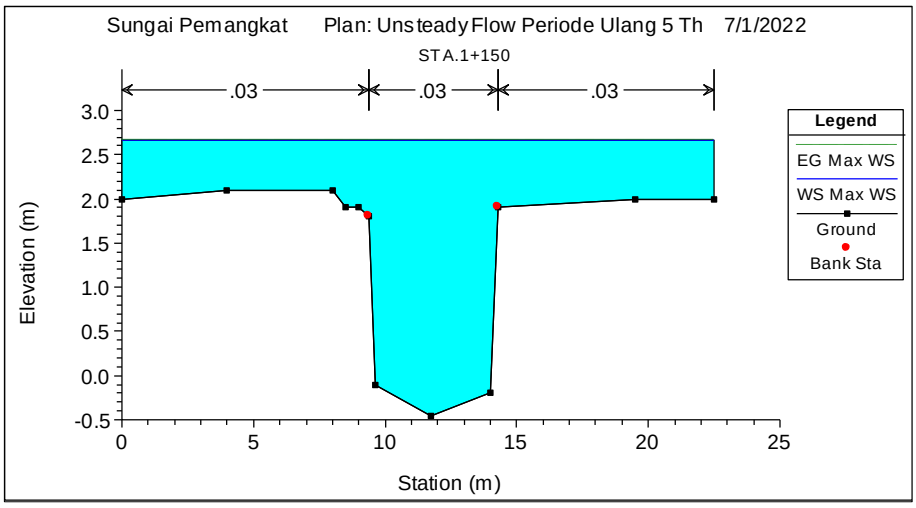

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.1+100
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.1+100
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

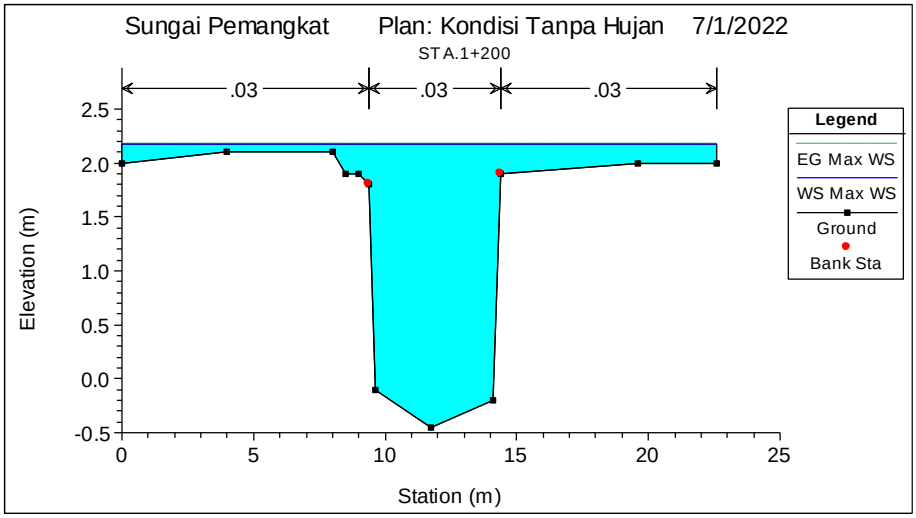
- STA. 1+150

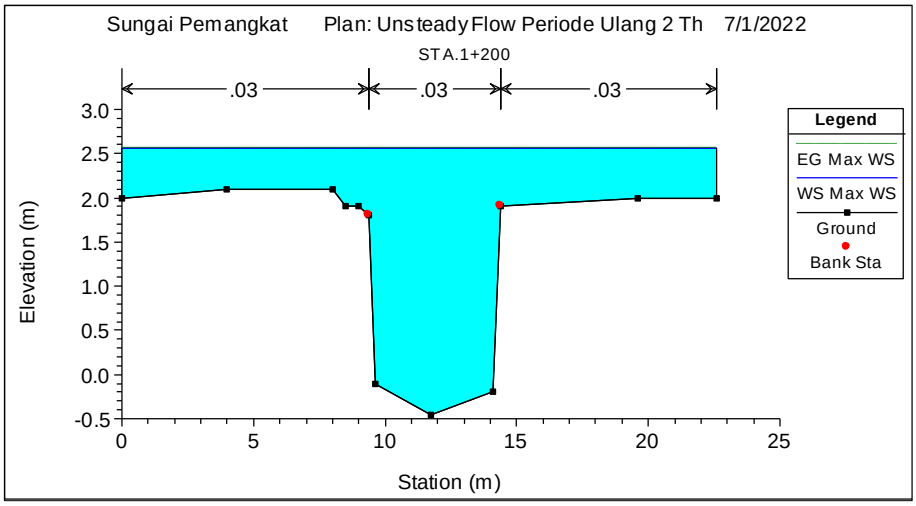

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.1+150
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

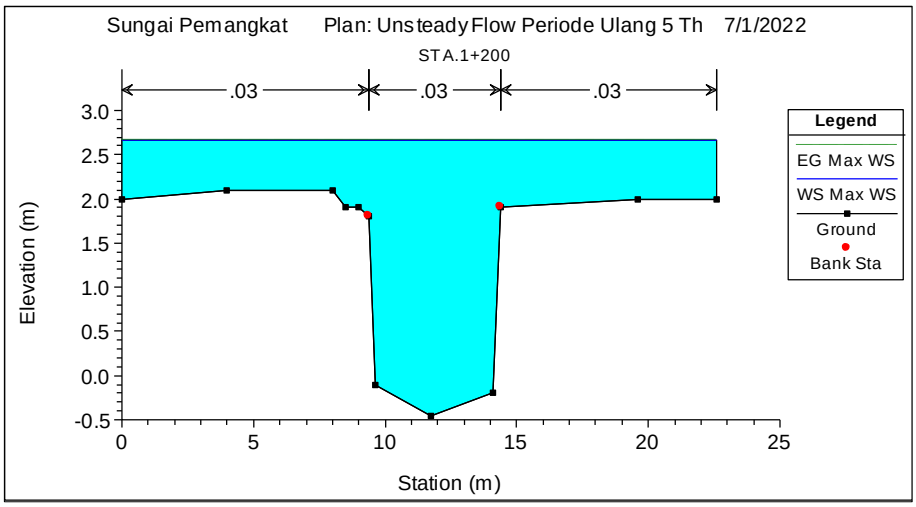

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.1+150
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.1+150
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

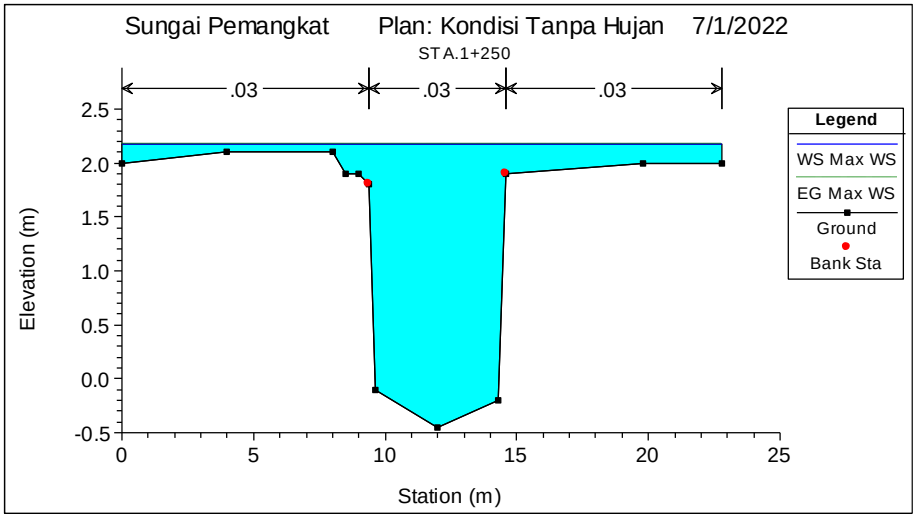
- STA. 1+200

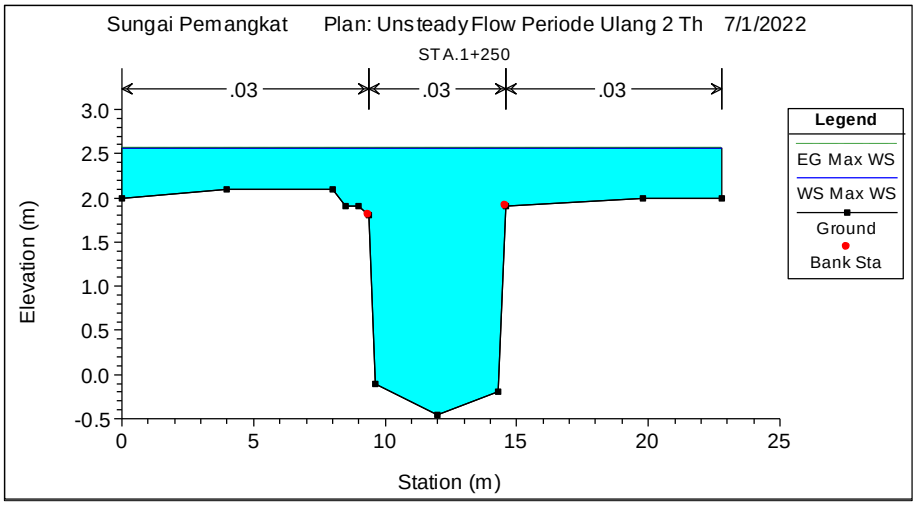

Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.1+200
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

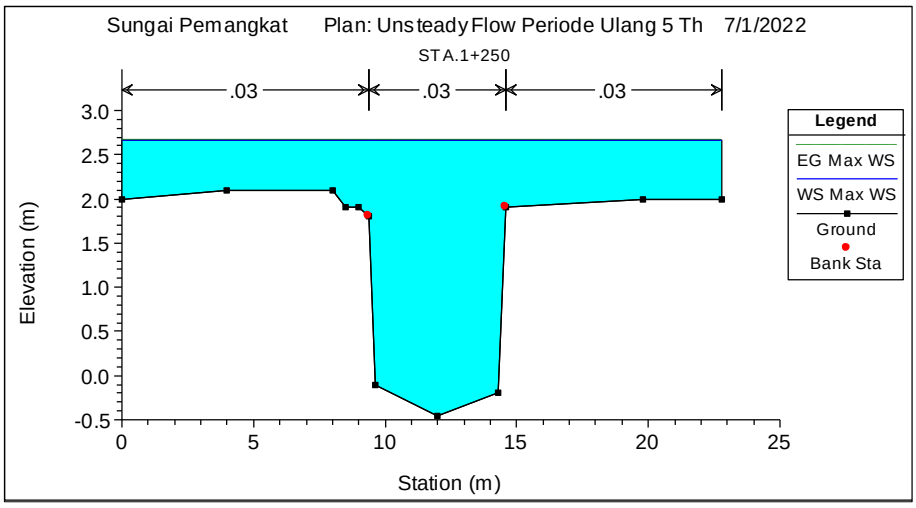

Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.1+200
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.1+200
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

- STA. 1+250


Sungai Pemangkat Plan: Kondisi Tanpa Hujan 7/1/2022
STA.1+250
.03
.03
.03
Legend
WS Max WS
EG Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 2 Th 7/1/2022
STA.1+250
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Unsteady Flow Periode Ulang 5 Th 7/1/2022
STA.1+250
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

Lampiran G-1 Data *Cross Section Output* Sungai Pemangkat

- STA. 0+000

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 0 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 0 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.		0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)			
W.S. Elev (m)	2.18	Flow Area (m2)		296.93	23.44
Crit W.S. (m)	-1.27	Area (m2)		296.93	23.44
E.G. Slope (m/m)	0.000000	Flow (m3/s)		-0.70	-0.03
Q Total (m3/s)	-0.72	Top Width (m)		106.82	25.20
Top Width (m)	132.02	Avg. Vel. (m/s)		0.00	0.00
Vel Total (m/s)	0.00	Hydr. Depth (m)		2.78	0.93
Max Chl Dpth (m)	3.48	Conv. (m3/s)		19516.8	727.7
Conv. Total (m3/s)	20244.5	Wetted Per. (m)		107.24	26.08
Length Wtd. (m)		Shear (N/m2)		0.00	0.00
Min Ch El (m)	-1.30	Stream Power (N/m s)	7622.16	0.00	0.00
Alpha	1.05	Cum Volume (1000 m3)			
Frctn Loss (m)		Cum SA (1000 m2)			
C & E Loss (m)					

Errors, Warnings and Notes

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 0 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 0 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.		0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)			
W.S. Elev (m)	2.18	Flow Area (m2)		296.93	23.44
Crit W.S. (m)	-1.02	Area (m2)		296.93	23.44
E.G. Slope (m/m)	0.000001	Flow (m3/s)		17.76	0.66
Q Total (m3/s)	18.43	Top Width (m)		106.82	25.20
Top Width (m)	132.02	Avg. Vel. (m/s)		0.06	0.03
Vel Total (m/s)	0.06	Hydr. Depth (m)		2.78	0.93
Max Chl Dpth (m)	3.48	Conv. (m3/s)		19516.8	727.7
Conv. Total (m3/s)	20244.5	Wetted Per. (m)		107.24	26.08
Length Wtd. (m)		Shear (N/m2)		0.02	0.01
Min Ch El (m)	-1.30	Stream Power (N/m s)	7622.16	0.00	0.00
Alpha	1.05	Cum Volume (1000 m3)			
Frctn Loss (m)		Cum SA (1000 m2)			
C & E Loss (m)					

Errors, Warnings and Notes

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 0 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 0 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.		0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)			
W.S. Elev (m)	2.18	Flow Area (m2)		296.93	23.44
Crit W.S. (m)	-0.99	Area (m2)		296.93	23.44
E.G. Slope (m/m)	0.000001	Flow (m3/s)		20.79	0.78
Q Total (m3/s)	21.57	Top Width (m)		106.82	25.20
Top Width (m)	132.02	Avg. Vel. (m/s)		0.07	0.03
Vel Total (m/s)	0.07	Hydr. Depth (m)		2.78	0.93
Max Chl Dpth (m)	3.48	Conv. (m3/s)		19516.8	727.7
Conv. Total (m3/s)	20244.5	Wetted Per. (m)		107.24	26.08
Length Wtd. (m)		Shear (N/m2)		0.03	0.01
Min Ch El (m)	-1.30	Stream Power (N/m s)	7622.16	0.00	0.00
Alpha	1.05	Cum Volume (1000 m3)			
Frctn Loss (m)		Cum SA (1000 m2)			
C & E Loss (m)					

Errors, Warnings and Notes

- STA. 0+050

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 50 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 50 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.		0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	51.49	50.00	54.82
W.S. Elev (m)	2.18	Flow Area (m2)		195.91	13.10
Crit W.S. (m)		Area (m2)		195.91	13.10
E.G. Slope (m/m)	0.000000	Flow (m3/s)		-0.58	-0.02
Q Total (m3/s)	-0.60	Top Width (m)		76.82	20.00
Top Width (m)	96.82	Avg. Vel. (m/s)		0.00	0.00
Vel Total (m/s)	0.00	Hydr. Depth (m)		2.55	0.66
Max Chl Dpth (m)	3.43	Conv. (m3/s)		12140.7	323.1
Conv. Total (m3/s)	12463.8	Wetted Per. (m)		77.29	20.58
Length Wtd. (m)	50.15	Shear (N/m2)		0.00	0.00
Min Ch El (m)	-1.25	Stream Power (N/m s)	5936.85	0.00	0.00
Alpha	1.06	Cum Volume (1000 m3)		12.32	1.00
Frctn Loss (m)	0.00	Cum SA (1000 m2)		4.59	1.24
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 50 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 50 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.		0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	51.49	50.00	54.82
W.S. Elev (m)	2.18	Flow Area (m2)		195.91	13.10
Crit W.S. (m)		Area (m2)		195.91	13.10
E.G. Slope (m/m)	0.000002	Flow (m3/s)		17.93	0.48
Q Total (m3/s)	18.40	Top Width (m)		76.82	20.00
Top Width (m)	96.82	Avg. Vel. (m/s)		0.09	0.04
Vel Total (m/s)	0.09	Hydr. Depth (m)		2.55	0.66
Max Chl Dpth (m)	3.43	Conv. (m3/s)		12140.7	323.1
Conv. Total (m3/s)	12463.8	Wetted Per. (m)		77.29	20.58
Length Wtd. (m)	50.15	Shear (N/m2)		0.05	0.01
Min Ch El (m)	-1.25	Stream Power (N/m s)	5936.85	0.00	0.00
Alpha	1.06	Cum Volume (1000 m3)		12.32	1.00
Frctn Loss (m)	0.00	Cum SA (1000 m2)		4.59	1.24
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 50 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 50 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.		0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	51.49	50.00	54.82
W.S. Elev (m)	2.18	Flow Area (m2)		195.91	13.10
Crit W.S. (m)		Area (m2)		195.91	13.10
E.G. Slope (m/m)	0.000003	Flow (m3/s)		20.96	0.56
Q Total (m3/s)	21.52	Top Width (m)		76.82	20.00
Top Width (m)	96.82	Avg. Vel. (m/s)		0.11	0.04
Vel Total (m/s)	0.10	Hydr. Depth (m)		2.55	0.66
Max Chl Dpth (m)	3.43	Conv. (m3/s)		12140.7	323.1
Conv. Total (m3/s)	12463.8	Wetted Per. (m)		77.29	20.58
Length Wtd. (m)	50.15	Shear (N/m2)		0.07	0.02
Min Ch El (m)	-1.25	Stream Power (N/m s)	5936.85	0.00	0.00
Alpha	1.06	Cum Volume (1000 m3)		12.32	1.00
Frctn Loss (m)	0.00	Cum SA (1000 m2)		4.59	1.24
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

- STA. 0+100

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 100 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 100 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	49.67	50.52	56.15
W.S. Elev (m)	2.18	Flow Area (m2)	4.47	126.01	13.10
Crit W.S. (m)		Area (m2)	4.47	126.01	13.10
E.G. Slope (m/m)	0.000000	Flow (m3/s)	-0.01	-0.47	-0.02
Q Total (m3/s)	-0.50	Top Width (m)	9.40	48.00	20.00
Top Width (m)	77.40	Avg. Vel. (m/s)	0.00	0.00	0.00
Vel Total (m/s)	0.00	Hydr. Depth (m)	0.48	2.63	0.66
Max Chl Dpth (m)	3.53	Conv. (m3/s)	90.1	7925.9	323.1
Conv. Total (m3/s)	8339.1	Wetted Per. (m)	9.52	48.61	20.58
Length Wtd. (m)	50.70	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-1.35	Stream Power (N/m s)	3705.75	0.00	0.00
Alpha	1.12	Cum Volume (1000 m3)	0.11	20.45	1.74
Frctn Loss (m)	0.00	Cum SA (1000 m2)	0.23	7.74	2.36
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 100 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 100 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	49.67	50.52	56.15
W.S. Elev (m)	2.18	Flow Area (m2)	4.47	126.00	13.09
Crit W.S. (m)		Area (m2)	4.47	126.00	13.09
E.G. Slope (m/m)	0.000005	Flow (m3/s)	0.20	17.40	0.71
Q Total (m3/s)	18.31	Top Width (m)	9.40	48.00	20.00
Top Width (m)	77.40	Avg. Vel. (m/s)	0.04	0.14	0.05
Vel Total (m/s)	0.13	Hydr. Depth (m)	0.48	2.62	0.65
Max Chl Dpth (m)	3.53	Conv. (m3/s)	90.0	7924.4	322.9
Conv. Total (m3/s)	8337.2	Wetted Per. (m)	9.52	48.61	20.58
Length Wtd. (m)	50.70	Shear (N/m2)	0.02	0.12	0.03
Min Ch El (m)	-1.35	Stream Power (N/m s)	3705.75	0.00	0.00
Alpha	1.12	Cum Volume (1000 m3)	0.11	20.45	1.74
Frctn Loss (m)	0.00	Cum SA (1000 m2)	0.23	7.74	2.36
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 100 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 100 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	49.67	50.52	56.15
W.S. Elev (m)	2.18	Flow Area (m2)	4.47	126.00	13.09
Crit W.S. (m)		Area (m2)	4.47	126.00	13.09
E.G. Slope (m/m)	0.000007	Flow (m3/s)	0.23	20.33	0.83
Q Total (m3/s)	21.39	Top Width (m)	9.40	48.00	20.00
Top Width (m)	77.40	Avg. Vel. (m/s)	0.05	0.16	0.06
Vel Total (m/s)	0.15	Hydr. Depth (m)	0.48	2.62	0.65
Max Chl Dpth (m)	3.53	Conv. (m3/s)	90.0	7924.4	322.9
Conv. Total (m3/s)	8337.2	Wetted Per. (m)	9.52	48.61	20.58
Length Wtd. (m)	50.70	Shear (N/m2)	0.03	0.17	0.04
Min Ch El (m)	-1.35	Stream Power (N/m s)	3705.75	0.00	0.00
Alpha	1.12	Cum Volume (1000 m3)	0.11	20.45	1.74
Frctn Loss (m)	0.00	Cum SA (1000 m2)	0.23	7.74	2.36
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

- STA. 0+150

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 150 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 150 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	51.53	50.00	58.76
W.S. Elev (m)	2.18	Flow Area (m2)	4.47	39.12	5.43
Crit W.S. (m)		Area (m2)	4.47	39.12	5.43
E.G. Slope (m/m)	0.000000	Flow (m3/s)	-0.02	-0.40	-0.02
Q Total (m3/s)	-0.44	Top Width (m)	9.40	14.50	8.20
Top Width (m)	32.10	Avg. Vel. (m/s)	0.00	-0.01	0.00
Vel Total (m/s)	-0.01	Hydr. Depth (m)	0.48	2.70	0.66
Max Chl Dpth (m)	3.43	Conv. (m3/s)	90.1	2335.5	131.2
Conv. Total (m3/s)	2556.8	Wetted Per. (m)	9.52	16.32	8.78
Length Wtd. (m)	50.42	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-1.25	Stream Power (N/m s)	1536.88	0.00	0.00
Alpha	1.21	Cum Volume (1000 m3)	0.34	24.58	2.28
Frctn Loss (m)	0.00	Cum SA (1000 m2)	0.72	9.31	3.19
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 150 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 150 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	51.53	50.00	58.76
W.S. Elev (m)	2.18	Flow Area (m2)	4.44	39.07	5.40
Crit W.S. (m)		Area (m2)	4.44	39.07	5.40
E.G. Slope (m/m)	0.000051	Flow (m3/s)	0.63	16.60	0.93
Q Total (m3/s)	18.15	Top Width (m)	9.40	14.50	8.20
Top Width (m)	32.10	Avg. Vel. (m/s)	0.14	0.42	0.17
Vel Total (m/s)	0.37	Hydr. Depth (m)	0.47	2.69	0.66
Max Chl Dpth (m)	3.43	Conv. (m3/s)	88.9	2330.3	130.0
Conv. Total (m3/s)	2549.2	Wetted Per. (m)	9.52	16.32	8.78
Length Wtd. (m)	50.43	Shear (N/m2)	0.23	1.19	0.31
Min Ch El (m)	-1.25	Stream Power (N/m s)	1536.88	0.00	0.00
Alpha	1.21	Cum Volume (1000 m3)	0.34	24.58	2.28
Frctn Loss (m)	0.00	Cum SA (1000 m2)	0.72	9.31	3.19
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 150 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 150 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.19	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	51.53	50.00	58.76
W.S. Elev (m)	2.17	Flow Area (m2)	4.42	39.05	5.38
Crit W.S. (m)		Area (m2)	4.42	39.05	5.38
E.G. Slope (m/m)	0.000069	Flow (m3/s)	0.74	19.39	1.08
Q Total (m3/s)	21.20	Top Width (m)	9.40	14.50	8.20
Top Width (m)	32.10	Avg. Vel. (m/s)	0.17	0.50	0.20
Vel Total (m/s)	0.43	Hydr. Depth (m)	0.47	2.69	0.66
Max Chl Dpth (m)	3.42	Conv. (m3/s)	88.5	2328.1	129.6
Conv. Total (m3/s)	2546.1	Wetted Per. (m)	9.52	16.32	8.78
Length Wtd. (m)	50.43	Shear (N/m2)	0.32	1.63	0.42
Min Ch El (m)	-1.25	Stream Power (N/m s)	1536.88	0.00	0.00
Alpha	1.21	Cum Volume (1000 m3)	0.34	24.58	2.28
Frctn Loss (m)	0.00	Cum SA (1000 m2)	0.72	9.31	3.19
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

- STA. 0+200

Kondisi Tanpa Hujan	File Type Options Help River: Pemangkat Profile: Max WS Reach: Laut Natuna RS: 200 Plan: Unsteady 1 Plan: Unsteady 1 Pemangkat Laut Natuna RS: 200 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	52.48	51.35	51.24
Crit W.S. (m)		Flow Area (m2)	0.75	53.70	5.43
E.G. Slope (m/m)	0.000000	Area (m2)	0.75	53.70	5.43
Q Total (m3/s)	-0.40	Flow (m3/s)	0.00	-0.39	-0.02
Top Width (m)	37.60	Top Width (m)	9.40	20.00	8.20
Vel Total (m/s)	-0.01	Avg. Vel. (m/s)	0.00	-0.01	0.00
Max Chl Dpth (m)	3.53	Hydr. Depth (m)	0.08	2.68	0.66
Conv. Total (m3/s)	3400.8	Conv. (m3/s)	4.6	3265.0	131.2
Length Wtd. (m)	51.37	Wetted Per. (m)	9.48	21.80	8.78
Min Ch El (m)	-1.35	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.11	Stream Power (N/m s)	1800.21	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.48	26.97	2.56
C & E Loss (m)		Cum SA (1000 m2)	1.21	10.19	3.61

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach: Laut Natuna RS: 200 Plan: Unsteady 2 Th Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 200 Profile: Max WS

E.G. Elev (m)	2.19	Element	Left OB	Channel	Right OB
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	52.48	51.35	51.24
Crit W.S. (m)		Flow Area (m2)	0.77	53.74	5.44
E.G. Slope (m/m)	0.000028	Area (m2)	0.77	53.74	5.44
Q Total (m3/s)	18.06	Flow (m3/s)	0.03	17.34	0.70
Top Width (m)	37.60	Top Width (m)	9.40	20.00	8.20
Vel Total (m/s)	0.30	Avg. Vel. (m/s)	0.03	0.32	0.13
Max Chl Dpth (m)	3.53	Hydr. Depth (m)	0.08	2.69	0.66
Conv. Total (m3/s)	3406.0	Conv. (m3/s)	4.8	3269.3	131.9
Length Wtd. (m)	51.37	Wetted Per. (m)	9.48	21.80	8.78
Min Ch El (m)	-1.35	Shear (N/m2)	0.02	0.68	0.17
Alpha	1.11	Stream Power (N/m s)	1800.21	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.48	26.96	2.56
C & E Loss (m)		Cum SA (1000 m2)	1.21	10.19	3.61

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

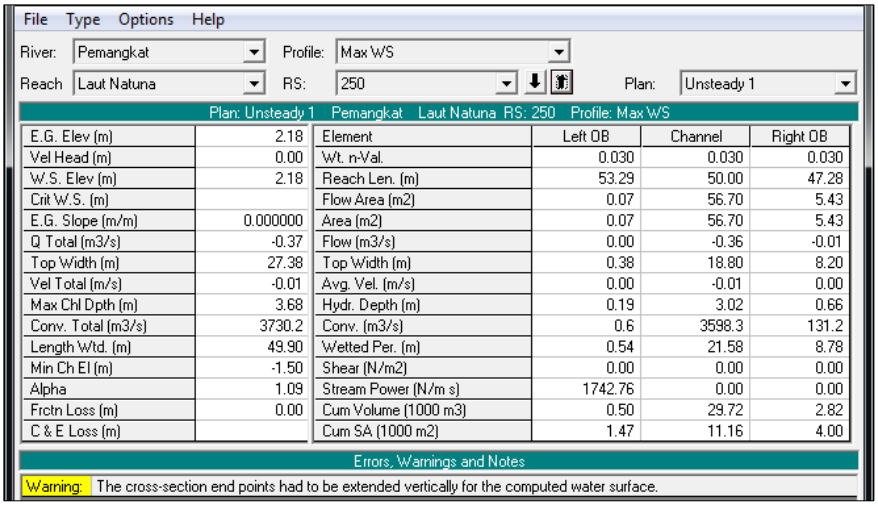
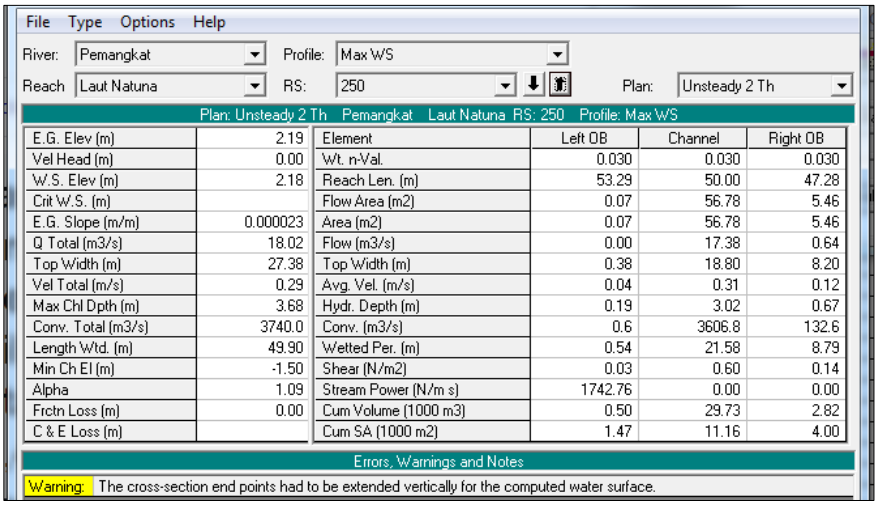
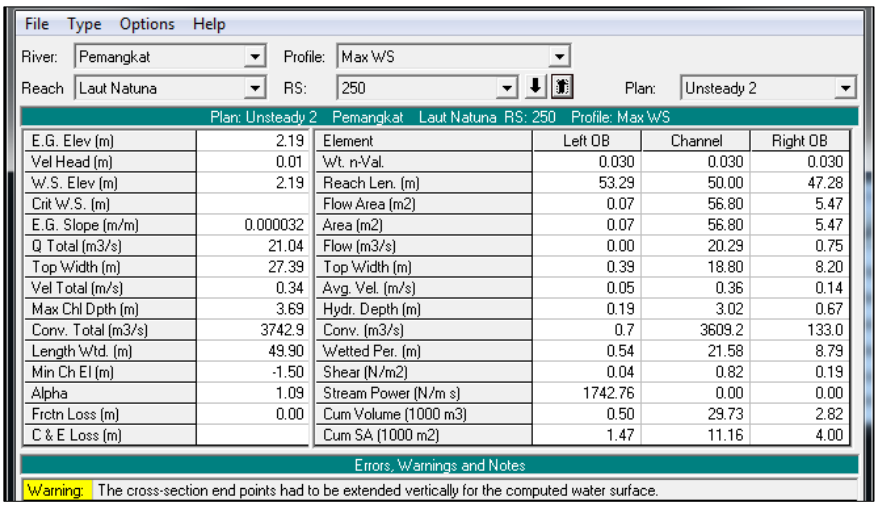
Akibat Hujan Periode Ulang 5 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach: Laut Natuna RS: 200 Plan: Unsteady 2 Plan: Unsteady 2 Pemangkat Laut Natuna RS: 200 Profile: Max WS

E.G. Elev (m)	2.19	Element	Left OB	Channel	Right OB
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	52.48	51.35	51.24
Crit W.S. (m)		Flow Area (m2)	0.77	53.75	5.45
E.G. Slope (m/m)	0.000038	Area (m2)	0.77	53.75	5.45
Q Total (m3/s)	21.09	Flow (m3/s)	0.03	20.24	0.82
Top Width (m)	37.60	Top Width (m)	9.40	20.00	8.20
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.04	0.38	0.15
Max Chl Dpth (m)	3.53	Hydr. Depth (m)	0.08	2.69	0.66
Conv. Total (m3/s)	3406.7	Conv. (m3/s)	4.9	3269.9	132.0
Length Wtd. (m)	51.37	Wetted Per. (m)	9.48	21.80	8.78
Min Ch El (m)	-1.35	Shear (N/m2)	0.03	0.93	0.23
Alpha	1.11	Stream Power (N/m s)	1800.21	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.48	26.96	2.56
C & E Loss (m)		Cum SA (1000 m2)	1.21	10.19	3.61

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 0+250

Kondisi Tanpa Hujan	
Akibat Hujan Periode Ulang 2 Tahun	
Akibat Hujan Periode Ulang 5 Tahun	

File Type Options Help

River: Pemangkat Profile: Max WS

Reach: Laut Natuna RS: 250 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 250 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	53.29	50.00	47.28
W.S. Elev (m)	2.18	Flow Area (m2)	0.07	56.70	5.43
Crit W.S. (m)		Area (m2)	0.07	56.70	5.43
E.G. Slope (m/m)	0.000000	Flow (m3/s)	0.00	-0.36	-0.01
Q Total (m3/s)	-0.37	Top Width (m)	0.38	18.80	8.20
Top Width (m)	27.38	Avg. Vel. (m/s)	0.00	-0.01	0.00
Vel Total (m/s)	-0.01	Hydr. Depth (m)	0.19	3.02	0.66
Max Chl Dpth (m)	3.68	Conv. (m3/s)	0.6	3598.3	131.2
Conv. Total (m3/s)	3730.2	Wetted Per. (m)	0.54	21.58	8.78
Length Wtd. (m)	49.90	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-1.50	Stream Power (N/m s)	1742.76	0.00	0.00
Alpha	1.09	Cum Volume (1000 m3)	0.50	29.72	2.82
Frctn Loss (m)	0.00	Cum SA (1000 m2)	1.47	11.16	4.00
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

File Type Options Help

River: Pemangkat Profile: Max WS

Reach: Laut Natuna RS: 250 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 250 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.19	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	53.29	50.00	47.28
W.S. Elev (m)	2.18	Flow Area (m2)	0.07	56.78	5.46
Crit W.S. (m)		Area (m2)	0.07	56.78	5.46
E.G. Slope (m/m)	0.000023	Flow (m3/s)	0.00	17.38	0.64
Q Total (m3/s)	18.02	Top Width (m)	0.38	18.80	8.20
Top Width (m)	27.38	Avg. Vel. (m/s)	0.04	0.31	0.12
Vel Total (m/s)	0.29	Hydr. Depth (m)	0.19	3.02	0.67
Max Chl Dpth (m)	3.68	Conv. (m3/s)	0.6	3606.8	132.6
Conv. Total (m3/s)	3740.0	Wetted Per. (m)	0.54	21.58	8.79
Length Wtd. (m)	49.90	Shear (N/m2)	0.03	0.60	0.14
Min Ch El (m)	-1.50	Stream Power (N/m s)	1742.76	0.00	0.00
Alpha	1.09	Cum Volume (1000 m3)	0.50	29.73	2.82
Frctn Loss (m)	0.00	Cum SA (1000 m2)	1.47	11.16	4.00
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

File Type Options Help

River: Pemangkat Profile: Max WS

Reach: Laut Natuna RS: 250 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 250 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.19	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	53.29	50.00	47.28
W.S. Elev (m)	2.19	Flow Area (m2)	0.07	56.80	5.47
Crit W.S. (m)		Area (m2)	0.07	56.80	5.47
E.G. Slope (m/m)	0.000032	Flow (m3/s)	0.00	20.29	0.75
Q Total (m3/s)	21.04	Top Width (m)	0.39	18.80	8.20
Top Width (m)	27.39	Avg. Vel. (m/s)	0.05	0.36	0.14
Vel Total (m/s)	0.34	Hydr. Depth (m)	0.19	3.02	0.67
Max Chl Dpth (m)	3.69	Conv. (m3/s)	0.7	3609.2	133.0
Conv. Total (m3/s)	3742.9	Wetted Per. (m)	0.54	21.58	8.79
Length Wtd. (m)	49.90	Shear (N/m2)	0.04	0.82	0.19
Min Ch El (m)	-1.50	Stream Power (N/m s)	1742.76	0.00	0.00
Alpha	1.09	Cum Volume (1000 m3)	0.50	29.73	2.82
Frctn Loss (m)	0.00	Cum SA (1000 m2)	1.47	11.16	4.00
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 0+300

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 300 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 300 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	54.55	50.60	46.75
W.S. Elev (m)	2.18	Flow Area (m2)	3.80	37.44	5.43
Crit W.S. (m)		Area (m2)	3.80	37.44	5.43
E.G. Slope (m/m)	0.000000	Flow (m3/s)	-0.01	-0.31	-0.02
Q Total (m3/s)	-0.34	Top Width (m)	9.40	12.65	8.20
Top Width (m)	30.25	Avg. Vel. (m/s)	0.00	-0.01	0.00
Vel Total (m/s)	-0.01	Hydr. Depth (m)	0.40	2.96	0.66
Max Chl Dpth (m)	3.58	Conv. (m3/s)	68.6	2245.4	131.2
Conv. Total (m3/s)	2445.2	Wetted Per. (m)	9.52	15.51	8.78
Length Wtd. (m)	50.49	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-1.40	Stream Power (N/m s)	1448.30	0.00	0.00
Alpha	1.22	Cum Volume (1000 m3)	0.61	32.11	3.07
Frctn Loss (m)	0.00	Cum SA (1000 m2)	1.74	11.96	4.38
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 300 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 300 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.19	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	54.55	50.60	46.75
W.S. Elev (m)	2.18	Flow Area (m2)	3.82	37.47	5.45
Crit W.S. (m)		Area (m2)	3.82	37.47	5.45
E.G. Slope (m/m)	0.000052	Flow (m3/s)	0.50	16.26	0.95
Q Total (m3/s)	17.71	Top Width (m)	9.40	12.65	8.20
Top Width (m)	30.25	Avg. Vel. (m/s)	0.13	0.43	0.18
Vel Total (m/s)	0.38	Hydr. Depth (m)	0.41	2.96	0.66
Max Chl Dpth (m)	3.58	Conv. (m3/s)	69.3	2248.9	132.1
Conv. Total (m3/s)	2450.3	Wetted Per. (m)	9.52	15.51	8.78
Length Wtd. (m)	50.49	Shear (N/m2)	0.21	1.24	0.32
Min Ch El (m)	-1.40	Stream Power (N/m s)	1448.30	0.00	0.00
Alpha	1.22	Cum Volume (1000 m3)	0.61	32.11	3.07
Frctn Loss (m)	0.00	Cum SA (1000 m2)	1.74	11.96	4.38
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 300 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 300 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.20	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	54.55	50.60	46.75
W.S. Elev (m)	2.18	Flow Area (m2)	3.83	37.48	5.46
Crit W.S. (m)		Area (m2)	3.83	37.48	5.46
E.G. Slope (m/m)	0.000071	Flow (m3/s)	0.59	18.97	1.12
Q Total (m3/s)	20.67	Top Width (m)	9.40	12.65	8.20
Top Width (m)	30.25	Avg. Vel. (m/s)	0.15	0.51	0.20
Vel Total (m/s)	0.44	Hydr. Depth (m)	0.41	2.96	0.67
Max Chl Dpth (m)	3.58	Conv. (m3/s)	69.6	2250.0	132.4
Conv. Total (m3/s)	2452.0	Wetted Per. (m)	9.53	15.51	8.79
Length Wtd. (m)	50.49	Shear (N/m2)	0.28	1.68	0.43
Min Ch El (m)	-1.40	Stream Power (N/m s)	1448.30	0.00	0.00
Alpha	1.22	Cum Volume (1000 m3)	0.61	32.11	3.07
Frctn Loss (m)	0.00	Cum SA (1000 m2)	1.74	11.96	4.38
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

- STA. 0+350

Kondisi Tanpa Hujan	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 350 Plan: Unsteady 1 Plan: Unsteady 1 Pemangkat Laut Natuna RS: 350 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	63.95	56.73	50.05
Crit W.S. (m)		Flow Area (m2)	5.47	30.51	5.43
E.G. Slope (m/m)	0.000000	Area (m2)	5.47	30.51	5.43
Q Total (m3/s)	-0.32	Flow (m3/s)	-0.02	-0.28	-0.02
Top Width (m)	27.92	Top Width (m)	9.40	10.32	8.20
Vel Total (m/s)	-0.01	Avg. Vel. (m/s)	0.00	-0.01	0.00
Max Chl Dpth (m)	3.68	Hydr. Depth (m)	0.58	2.96	0.66
Conv. Total (m3/s)	2025.9	Conv. (m3/s)	122.1	1772.6	131.2
Length Wtd. (m)	56.65	Wetted Per. (m)	9.99	13.26	8.78
Min Ch El (m)	-1.50	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.26	Stream Power (N/m s)	1336.75	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.90	34.03	3.34
C & E Loss (m)		Cum SA (1000 m2)	2.34	12.61	4.79

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 350 Plan: Unsteady 2 Th Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 350 Profile: Max WS

E.G. Elev (m)	2.19	Element	Left OB	Channel	Right OB
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	63.95	56.73	50.05
Crit W.S. (m)		Flow Area (m2)	5.48	30.52	5.44
E.G. Slope (m/m)	0.000075	Area (m2)	5.48	30.52	5.44
Q Total (m3/s)	17.60	Flow (m3/s)	1.06	15.40	1.14
Top Width (m)	27.92	Top Width (m)	9.40	10.32	8.20
Vel Total (m/s)	0.42	Avg. Vel. (m/s)	0.19	0.50	0.21
Max Chl Dpth (m)	3.68	Hydr. Depth (m)	0.58	2.96	0.66
Conv. Total (m3/s)	2027.9	Conv. (m3/s)	122.5	1773.8	131.6
Length Wtd. (m)	56.65	Wetted Per. (m)	9.99	13.26	8.78
Min Ch El (m)	-1.50	Shear (N/m2)	0.41	1.70	0.46
Alpha	1.26	Stream Power (N/m s)	1336.75	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.90	34.04	3.34
C & E Loss (m)		Cum SA (1000 m2)	2.34	12.61	4.79

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 350 Plan: Unsteady 2 Plan: Unsteady 2 Pemangkat Laut Natuna RS: 350 Profile: Max WS

E.G. Elev (m)	2.20	Element	Left OB	Channel	Right OB
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	63.95	56.73	50.05
Crit W.S. (m)		Flow Area (m2)	5.48	30.52	5.44
E.G. Slope (m/m)	0.000103	Area (m2)	5.48	30.52	5.44
Q Total (m3/s)	20.54	Flow (m3/s)	1.24	17.96	1.33
Top Width (m)	27.92	Top Width (m)	9.40	10.32	8.20
Vel Total (m/s)	0.50	Avg. Vel. (m/s)	0.23	0.59	0.25
Max Chl Dpth (m)	3.68	Hydr. Depth (m)	0.58	2.96	0.66
Conv. Total (m3/s)	2027.9	Conv. (m3/s)	122.5	1773.8	131.6
Length Wtd. (m)	56.65	Wetted Per. (m)	9.99	13.26	8.78
Min Ch El (m)	-1.50	Shear (N/m2)	0.55	2.32	0.62
Alpha	1.26	Stream Power (N/m s)	1336.75	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.90	34.04	3.34
C & E Loss (m)		Cum SA (1000 m2)	2.34	12.61	4.79

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 0+400

Kondisi Tanpa Hujan	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 400 Plan: Unsteady 1 Plan: Unsteady 1 Pemangkat Laut Natuna RS: 400 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	48.67	50.00	50.67
Crit W.S. (m)		Flow Area (m2)	4.47	18.87	5.43
E.G. Slope (m/m)	0.000000	Area (m2)	4.47	18.87	5.43
Q Total (m3/s)	-0.30	Flow (m3/s)	-0.02	-0.24	-0.03
Top Width (m)	24.52	Top Width (m)	9.40	6.92	8.20
Vel Total (m/s)	-0.01	Avg. Vel. (m/s)	-0.01	-0.01	-0.01
Max Chl Dpth (m)	3.40	Hydr. Depth (m)	0.48	2.73	0.66
Conv. Total (m3/s)	1193.5	Conv. (m3/s)	90.1	972.2	131.2
Length Wtd. (m)	49.97	Wetted Per. (m)	9.52	9.82	8.78
Min Ch El (m)	-1.22	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.31	Stream Power (N/m s)	1173.96	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	1.14	35.27	3.62
C & E Loss (m)		Cum SA (1000 m2)	2.80	13.04	5.21

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 2 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 400 Plan: Unsteady 2 Th Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 400 Profile: Max WS

E.G. Elev (m)	2.21	Element	Left OB	Channel	Right OB
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	48.67	50.00	50.67
Crit W.S. (m)		Flow Area (m2)	4.51	18.89	5.46
E.G. Slope (m/m)	0.000213	Area (m2)	4.51	18.89	5.46
Q Total (m3/s)	17.48	Flow (m3/s)	1.33	14.22	1.93
Top Width (m)	24.52	Top Width (m)	9.40	6.92	8.20
Vel Total (m/s)	0.61	Avg. Vel. (m/s)	0.30	0.75	0.35
Max Chl Dpth (m)	3.40	Hydr. Depth (m)	0.48	2.73	0.67
Conv. Total (m3/s)	1198.0	Conv. (m3/s)	91.2	974.4	132.4
Length Wtd. (m)	49.97	Wetted Per. (m)	9.53	9.82	8.79
Min Ch El (m)	-1.22	Shear (N/m2)	0.99	4.02	1.30
Alpha	1.31	Stream Power (N/m s)	1173.96	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	1.15	35.27	3.62
C & E Loss (m)		Cum SA (1000 m2)	2.80	13.04	5.21

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 400 Plan: Unsteady 2 Plan: Unsteady 2 Pemangkat Laut Natuna RS: 400 Profile: Max WS

E.G. Elev (m)	2.22	Element	Left OB	Channel	Right OB
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	48.67	50.00	50.67
Crit W.S. (m)		Flow Area (m2)	4.51	18.90	5.46
E.G. Slope (m/m)	0.000289	Area (m2)	4.51	18.90	5.46
Q Total (m3/s)	20.39	Flow (m3/s)	1.56	16.58	2.26
Top Width (m)	24.52	Top Width (m)	9.40	6.92	8.20
Vel Total (m/s)	0.71	Avg. Vel. (m/s)	0.34	0.88	0.41
Max Chl Dpth (m)	3.40	Hydr. Depth (m)	0.48	2.73	0.67
Conv. Total (m3/s)	1199.1	Conv. (m3/s)	91.5	975.0	132.7
Length Wtd. (m)	49.97	Wetted Per. (m)	9.53	9.82	8.79
Min Ch El (m)	-1.22	Shear (N/m2)	1.34	5.46	1.76
Alpha	1.31	Stream Power (N/m s)	1173.96	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	1.15	35.28	3.62
C & E Loss (m)		Cum SA (1000 m2)	2.80	13.04	5.21

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

- STA. 0+450

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 450 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 450 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	48.51	50.00	51.67
W.S. Elev (m)	2.18	Flow Area (m2)	3.85	14.15	3.89
Crit W.S. (m)		Area (m2)	3.85	14.15	3.89
E.G. Slope (m/m)	0.000000	Flow (m3/s)	-0.02	-0.22	-0.03
Q Total (m3/s)	-0.27	Top Width (m)	9.40	5.65	8.20
Top Width (m)	23.25	Avg. Vel. (m/s)	-0.01	-0.02	-0.01
Vel Total (m/s)	-0.01	Hydr. Depth (m)	0.41	2.50	0.47
Max Chl Dpth (m)	3.00	Conv. (m3/s)	70.1	667.4	76.6
Conv. Total (m3/s)	814.2	Wetted Per. (m)	9.52	8.40	8.59
Length Wtd. (m)	50.05	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-0.82	Stream Power (N/m s)	1113.17	0.00	0.00
Alpha	1.37	Cum Volume (1000 m3)	1.35	36.09	3.86
Frctn Loss (m)	0.00	Cum SA (1000 m2)	3.25	13.36	5.63
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 450 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 450 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.23	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.04	Reach Len. (m)	48.51	50.00	51.67
W.S. Elev (m)	2.19	Flow Area (m2)	3.93	14.19	3.96
Crit W.S. (m)		Area (m2)	3.93	14.19	3.96
E.G. Slope (m/m)	0.000441	Flow (m3/s)	1.52	14.09	1.66
Q Total (m3/s)	17.27	Top Width (m)	9.40	5.65	8.20
Top Width (m)	23.25	Avg. Vel. (m/s)	0.39	0.99	0.42
Vel Total (m/s)	0.78	Hydr. Depth (m)	0.42	2.51	0.48
Max Chl Dpth (m)	3.01	Conv. (m3/s)	72.5	671.2	78.9
Conv. Total (m3/s)	822.6	Wetted Per. (m)	9.53	8.40	8.60
Length Wtd. (m)	50.05	Shear (N/m2)	1.78	7.31	1.99
Min Ch El (m)	-0.82	Stream Power (N/m s)	1113.17	0.00	0.00
Alpha	1.36	Cum Volume (1000 m3)	1.35	36.10	3.86
Frctn Loss (m)	0.01	Cum SA (1000 m2)	3.25	13.36	5.63
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 450 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 450 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.25	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.06	Reach Len. (m)	48.51	50.00	51.67
W.S. Elev (m)	2.19	Flow Area (m2)	3.95	14.21	3.98
Crit W.S. (m)		Area (m2)	3.95	14.21	3.98
E.G. Slope (m/m)	0.000597	Flow (m3/s)	1.79	16.42	1.94
Q Total (m3/s)	20.14	Top Width (m)	9.40	5.65	8.20
Top Width (m)	23.25	Avg. Vel. (m/s)	0.45	1.16	0.49
Vel Total (m/s)	0.91	Hydr. Depth (m)	0.42	2.51	0.49
Max Chl Dpth (m)	3.01	Conv. (m3/s)	73.1	672.2	79.5
Conv. Total (m3/s)	824.7	Wetted Per. (m)	9.53	8.40	8.60
Length Wtd. (m)	50.05	Shear (N/m2)	2.42	9.89	2.71
Min Ch El (m)	-0.82	Stream Power (N/m s)	1113.17	0.00	0.00
Alpha	1.36	Cum Volume (1000 m3)	1.35	36.10	3.86
Frctn Loss (m)	0.02	Cum SA (1000 m2)	3.25	13.36	5.63
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

- STA. 0+500

Kondisi Tanpa Hujan	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 500 Plan: Unsteady 1 Plan: Unsteady 1 Pemangkat Laut Natuna RS: 500 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	49.48	49.49	49.52
Crit W.S. (m)		Flow Area (m2)	3.85	17.18	5.43
E.G. Slope (m/m)	0.000000	Area (m2)	3.85	17.18	5.43
Q Total (m3/s)	-0.25	Flow (m3/s)	-0.02	-0.20	-0.03
Top Width (m)	24.45	Top Width (m)	9.40	6.85	8.20
Vel Total (m/s)	-0.01	Avg. Vel. (m/s)	0.00	-0.01	-0.01
Max Chl Dpth (m)	3.03	Hydr. Depth (m)	0.41	2.51	0.66
Conv. Total (m3/s)	1054.8	Conv. (m3/s)	70.1	853.5	131.2
Length Wtd. (m)	49.49	Wetted Per. (m)	9.52	9.44	8.78
Min Ch El (m)	-0.85	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.32	Stream Power (N/m s)	1170.62	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	1.54	36.87	4.09
C & E Loss (m)		Cum SA (1000 m2)	3.72	13.66	6.04

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 500 Plan: Unsteady 2 Th Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 500 Profile: Max WS

E.G. Elev (m)	2.25	Element	Left OB	Channel	Right OB
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.22	Reach Len. (m)	49.48	49.49	49.52
Crit W.S. (m)		Flow Area (m2)	4.24	17.46	5.77
E.G. Slope (m/m)	0.000236	Area (m2)	4.24	17.46	5.77
Q Total (m3/s)	16.97	Flow (m3/s)	1.26	13.49	2.23
Top Width (m)	24.45	Top Width (m)	9.40	6.85	8.20
Vel Total (m/s)	0.62	Avg. Vel. (m/s)	0.30	0.77	0.39
Max Chl Dpth (m)	3.07	Hydr. Depth (m)	0.45	2.55	0.70
Conv. Total (m3/s)	1103.9	Conv. (m3/s)	82.1	877.1	144.7
Length Wtd. (m)	49.49	Wetted Per. (m)	9.56	9.44	8.82
Min Ch El (m)	-0.85	Shear (N/m2)	1.03	4.29	1.52
Alpha	1.31	Stream Power (N/m s)	1170.62	0.00	0.00
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1.55	36.88	4.10
C & E Loss (m)		Cum SA (1000 m2)	3.72	13.66	6.04

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 500 Plan: Unsteady 2 Plan: Unsteady 2 Pemangkat Laut Natuna RS: 500 Profile: Max WS

E.G. Elev (m)	2.27	Element	Left OB	Channel	Right OB
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.24	Reach Len. (m)	49.48	49.49	49.52
Crit W.S. (m)		Flow Area (m2)	4.37	17.56	5.88
E.G. Slope (m/m)	0.000312	Area (m2)	4.37	17.56	5.88
Q Total (m3/s)	19.79	Flow (m3/s)	1.52	15.63	2.64
Top Width (m)	24.45	Top Width (m)	9.40	6.85	8.20
Vel Total (m/s)	0.71	Avg. Vel. (m/s)	0.35	0.89	0.45
Max Chl Dpth (m)	3.09	Hydr. Depth (m)	0.46	2.56	0.72
Conv. Total (m3/s)	1120.9	Conv. (m3/s)	86.3	885.2	149.4
Length Wtd. (m)	49.49	Wetted Per. (m)	9.58	9.44	8.84
Min Ch El (m)	-0.85	Shear (N/m2)	1.39	5.69	2.03
Alpha	1.31	Stream Power (N/m s)	1170.62	0.00	0.00
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1.56	36.89	4.11
C & E Loss (m)		Cum SA (1000 m2)	3.72	13.66	6.04

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 0+550

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 550 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 550 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	50.28	49.81	49.40
W.S. Elev (m)	2.18	Flow Area (m2)	3.85	11.37	4.31
Crit W.S. (m)		Area (m2)	3.85	11.37	4.31
E.G. Slope (m/m)	0.000000	Flow (m3/s)	-0.02	-0.17	-0.03
Q Total (m3/s)	-0.22	Top Width (m)	9.40	5.00	8.20
Top Width (m)	22.60	Avg. Vel. (m/s)	-0.01	-0.01	-0.01
Vel Total (m/s)	-0.01	Hydr. Depth (m)	0.41	2.27	0.53
Max Chl Dpth (m)	2.68	Conv. (m3/s)	70.1	503.4	90.6
Conv. Total (m3/s)	664.1	Wetted Per. (m)	9.52	7.43	8.59
Length Wtd. (m)	49.80	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-0.50	Stream Power (N/m s)	1082.04	0.00	0.00
Alpha	1.37	Cum Volume (1000 m3)	1.73	37.58	4.33
Frctn Loss (m)	0.00	Cum SA (1000 m2)	4.19	13.96	6.44
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 550 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 550 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.27	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.04	Reach Len. (m)	50.28	49.81	49.40
W.S. Elev (m)	2.23	Flow Area (m2)	4.29	11.61	4.70
Crit W.S. (m)		Area (m2)	4.29	11.61	4.70
E.G. Slope (m/m)	0.000552	Flow (m3/s)	1.97	12.24	2.45
Q Total (m3/s)	16.66	Top Width (m)	9.40	5.00	8.20
Top Width (m)	22.60	Avg. Vel. (m/s)	0.46	1.05	0.52
Vel Total (m/s)	0.81	Hydr. Depth (m)	0.46	2.32	0.57
Max Chl Dpth (m)	2.73	Conv. (m3/s)	83.9	521.1	104.3
Conv. Total (m3/s)	709.3	Wetted Per. (m)	9.57	7.43	8.63
Length Wtd. (m)	49.80	Shear (N/m2)	2.43	8.45	2.94
Min Ch El (m)	-0.50	Stream Power (N/m s)	1082.04	0.00	0.00
Alpha	1.35	Cum Volume (1000 m3)	1.77	37.61	4.36
Frctn Loss (m)	0.02	Cum SA (1000 m2)	4.19	13.96	6.44
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 550 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 550 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.30	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.06	Reach Len. (m)	50.28	49.81	49.40
W.S. Elev (m)	2.24	Flow Area (m2)	4.45	11.69	4.83
Crit W.S. (m)		Area (m2)	4.45	11.69	4.83
E.G. Slope (m/m)	0.000718	Flow (m3/s)	2.38	14.12	2.92
Q Total (m3/s)	19.42	Top Width (m)	9.40	5.00	8.20
Top Width (m)	22.60	Avg. Vel. (m/s)	0.54	1.21	0.61
Vel Total (m/s)	0.93	Hydr. Depth (m)	0.47	2.34	0.59
Max Chl Dpth (m)	2.74	Conv. (m3/s)	88.8	527.1	109.1
Conv. Total (m3/s)	725.1	Wetted Per. (m)	9.59	7.43	8.65
Length Wtd. (m)	49.80	Shear (N/m2)	3.26	11.07	3.93
Min Ch El (m)	-0.50	Stream Power (N/m s)	1082.04	0.00	0.00
Alpha	1.34	Cum Volume (1000 m3)	1.78	37.62	4.37
Frctn Loss (m)	0.02	Cum SA (1000 m2)	4.19	13.96	6.44
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

- STA. 0+600

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 600 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 600 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	50.17	50.10	50.04
W.S. Elev (m)	2.18	Flow Area (m2)	3.85	11.48	4.31
Crit W.S. (m)		Area (m2)	3.85	11.48	4.31
E.G. Slope (m/m)	0.000000	Flow (m3/s)	-0.02	-0.15	-0.03
Q Total (m3/s)	-0.20	Top Width (m)	9.40	5.00	8.20
Top Width (m)	22.60	Avg. Vel. (m/s)	-0.01	-0.01	-0.01
Vel Total (m/s)	-0.01	Hydr. Depth (m)	0.41	2.30	0.53
Max Chl Dpth (m)	2.73	Conv. (m3/s)	70.1	510.0	90.6
Conv. Total (m3/s)	670.7	Wetted Per. (m)	9.52	7.46	8.59
Length Wtd. (m)	50.10	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-0.55	Stream Power (N/m s)	1082.04	0.00	0.00
Alpha	1.37	Cum Volume (1000 m3)	1.92	38.15	4.54
Frctn Loss (m)	0.00	Cum SA (1000 m2)	4.66	14.21	6.85
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 600 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 600 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.31	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.04	Reach Len. (m)	50.17	50.10	50.04
W.S. Elev (m)	2.27	Flow Area (m2)	4.66	11.91	5.02
Crit W.S. (m)		Area (m2)	4.66	11.91	5.02
E.G. Slope (m/m)	0.000468	Flow (m3/s)	2.08	11.74	2.51
Q Total (m3/s)	16.33	Top Width (m)	9.40	5.00	8.20
Top Width (m)	22.60	Avg. Vel. (m/s)	0.45	0.99	0.50
Vel Total (m/s)	0.76	Hydr. Depth (m)	0.50	2.38	0.61
Max Chl Dpth (m)	2.82	Conv. (m3/s)	96.0	542.6	116.2
Conv. Total (m3/s)	754.7	Wetted Per. (m)	9.61	7.46	8.67
Length Wtd. (m)	50.10	Shear (N/m2)	2.23	7.33	2.66
Min Ch El (m)	-0.55	Stream Power (N/m s)	1082.04	0.00	0.00
Alpha	1.33	Cum Volume (1000 m3)	1.99	38.20	4.60
Frctn Loss (m)	0.03	Cum SA (1000 m2)	4.66	14.21	6.85
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 600 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 600 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.35	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.05	Reach Len. (m)	50.17	50.10	50.04
W.S. Elev (m)	2.30	Flow Area (m2)	4.94	12.06	5.26
Crit W.S. (m)		Area (m2)	4.94	12.06	5.26
E.G. Slope (m/m)	0.000589	Flow (m3/s)	2.56	13.44	3.04
Q Total (m3/s)	19.03	Top Width (m)	9.40	5.00	8.20
Top Width (m)	22.60	Avg. Vel. (m/s)	0.52	1.11	0.58
Vel Total (m/s)	0.86	Hydr. Depth (m)	0.53	2.41	0.64
Max Chl Dpth (m)	2.85	Conv. (m3/s)	105.4	553.7	125.3
Conv. Total (m3/s)	784.4	Wetted Per. (m)	9.64	7.46	8.70
Length Wtd. (m)	50.10	Shear (N/m2)	2.96	9.34	3.49
Min Ch El (m)	-0.55	Stream Power (N/m s)	1082.04	0.00	0.00
Alpha	1.32	Cum Volume (1000 m3)	2.01	38.21	4.62
Frctn Loss (m)	0.03	Cum SA (1000 m2)	4.66	14.21	6.85
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 0+650

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 650 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 650 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	50.05	50.00	49.87
Crit W.S. (m)		Flow Area (m2)	3.85	12.79	2.76
E.G. Slope (m/m)	0.000000	Area (m2)	3.85	12.79	2.76
Q Total (m3/s)	-0.18	Flow (m3/s)	-0.02	-0.15	-0.01
Top Width (m)	23.20	Top Width (m)	9.40	5.60	8.20
Vel Total (m/s)	-0.01	Avg. Vel. (m/s)	0.00	-0.01	0.00
Max Chl Dpth (m)	2.68	Hydr. Depth (m)	0.41	2.28	0.34
Conv. Total (m3/s)	681.6	Conv. (m3/s)	70.1	568.0	43.5
Length Wtd. (m)	49.99	Wetted Per. (m)	9.52	8.31	8.48
Min Ch El (m)	-0.50	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.37	Stream Power (N/m s)	1110.76	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	2.12	38.76	4.72
C & E Loss (m)		Cum SA (1000 m2)	5.13	14.48	7.26

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 650 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 650 Profile: Max WS

E.G. Elev (m)	2.33	Element	Left OB	Channel	Right OB
Vel Head (m)	0.04	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.29	Reach Len. (m)	50.05	50.00	49.87
Crit W.S. (m)		Flow Area (m2)	4.89	13.41	3.67
E.G. Slope (m/m)	0.000412	Area (m2)	4.89	13.41	3.67
Q Total (m3/s)	15.98	Flow (m3/s)	2.10	12.47	1.41
Top Width (m)	23.20	Top Width (m)	9.40	5.60	8.20
Vel Total (m/s)	0.73	Avg. Vel. (m/s)	0.43	0.93	0.38
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.52	2.39	0.45
Conv. Total (m3/s)	787.5	Conv. (m3/s)	103.6	614.6	69.3
Length Wtd. (m)	49.99	Wetted Per. (m)	9.63	8.31	8.59
Min Ch El (m)	-0.50	Shear (N/m2)	2.05	6.51	1.72
Alpha	1.35	Stream Power (N/m s)	1110.76	0.00	0.00
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	2.23	38.83	4.82
C & E Loss (m)		Cum SA (1000 m2)	5.13	14.48	7.26

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 650 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 650 Profile: Max WS

E.G. Elev (m)	2.37	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.33	Reach Len. (m)	50.05	50.00	49.87
Crit W.S. (m)		Flow Area (m2)	5.22	13.60	3.96
E.G. Slope (m/m)	0.000511	Area (m2)	5.22	13.60	3.96
Q Total (m3/s)	18.62	Flow (m3/s)	2.61	14.24	1.77
Top Width (m)	23.20	Top Width (m)	9.40	5.60	8.20
Vel Total (m/s)	0.82	Avg. Vel. (m/s)	0.50	1.05	0.45
Max Chl Dpth (m)	2.83	Hydr. Depth (m)	0.56	2.43	0.48
Conv. Total (m3/s)	823.6	Conv. (m3/s)	115.4	629.8	78.4
Length Wtd. (m)	49.99	Wetted Per. (m)	9.67	8.31	8.63
Min Ch El (m)	-0.50	Shear (N/m2)	2.71	8.21	2.30
Alpha	1.33	Stream Power (N/m s)	1110.76	0.00	0.00
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	2.27	38.85	4.85
C & E Loss (m)		Cum SA (1000 m2)	5.13	14.48	7.26

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 0+700

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 700 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 700 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	50.78	50.68	50.66
W.S. Elev (m)	2.18	Flow Area (m2)	3.85	19.21	2.52
Crit W.S. (m)		Area (m2)	3.85	19.21	2.52
E.G. Slope (m/m)	0.000000	Flow (m3/s)	-0.01	-0.14	-0.01
Q Total (m3/s)	-0.15	Top Width (m)	9.40	8.20	8.05
Top Width (m)	25.65	Avg. Vel. (m/s)	0.00	-0.01	0.00
Vel Total (m/s)	-0.01	Hydr. Depth (m)	0.41	2.34	0.31
Max Chl Dpth (m)	2.68	Conv. (m3/s)	70.1	937.7	38.5
Conv. Total (m3/s)	1046.4	Wetted Per. (m)	9.52	10.84	8.07
Length Wtd. (m)	50.69	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-0.50	Stream Power (N/m s)	1235.25	0.00	0.00
Alpha	1.29	Cum Volume (1000 m3)	2.31	39.57	4.85
Frctn Loss (m)	0.00	Cum SA (1000 m2)	5.61	14.83	7.67
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 700 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 700 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.35	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.02	Reach Len. (m)	50.78	50.68	50.66
W.S. Elev (m)	2.33	Flow Area (m2)	5.27	20.46	3.76
Crit W.S. (m)		Area (m2)	5.27	20.46	3.76
E.G. Slope (m/m)	0.000154	Flow (m3/s)	1.45	12.91	0.91
Q Total (m3/s)	15.28	Top Width (m)	9.40	8.20	8.20
Top Width (m)	25.80	Avg. Vel. (m/s)	0.28	0.63	0.24
Vel Total (m/s)	0.52	Hydr. Depth (m)	0.56	2.49	0.46
Max Chl Dpth (m)	2.83	Conv. (m3/s)	117.2	1040.9	73.5
Conv. Total (m3/s)	1231.6	Wetted Per. (m)	9.67	10.84	8.36
Length Wtd. (m)	50.69	Shear (N/m2)	0.82	2.85	0.68
Min Ch El (m)	-0.50	Stream Power (N/m s)	1235.25	0.00	0.00
Alpha	1.29	Cum Volume (1000 m3)	2.49	39.69	5.01
Frctn Loss (m)	0.01	Cum SA (1000 m2)	5.61	14.83	7.68
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 700 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 700 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.40	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.02	Reach Len. (m)	50.78	50.68	50.66
W.S. Elev (m)	2.38	Flow Area (m2)	5.71	20.84	4.14
Crit W.S. (m)		Area (m2)	5.71	20.84	4.14
E.G. Slope (m/m)	0.000190	Flow (m3/s)	1.84	14.78	1.19
Q Total (m3/s)	17.81	Top Width (m)	9.40	8.20	8.20
Top Width (m)	25.80	Avg. Vel. (m/s)	0.32	0.71	0.29
Vel Total (m/s)	0.58	Hydr. Depth (m)	0.61	2.54	0.51
Max Chl Dpth (m)	2.88	Conv. (m3/s)	133.6	1073.8	86.1
Conv. Total (m3/s)	1293.5	Wetted Per. (m)	9.72	10.84	8.40
Length Wtd. (m)	50.69	Shear (N/m2)	1.09	3.57	0.92
Min Ch El (m)	-0.50	Stream Power (N/m s)	1235.25	0.00	0.00
Alpha	1.29	Cum Volume (1000 m3)	2.55	39.73	5.06
Frctn Loss (m)	0.02	Cum SA (1000 m2)	5.61	14.83	7.68
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

- STA. 0+750

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 750 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 750 Profile: Max WS

			Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Element			
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	57.55	50.00	46.84
Crit W.S. (m)		Flow Area (m2)	4.65	24.35	3.11
E.G. Slope (m/m)	0.000000	Area (m2)	4.65	24.35	3.11
Q Total (m3/s)	-0.13	Flow (m3/s)	-0.01	-0.12	0.00
Top Width (m)	28.40	Top Width (m)	9.40	10.80	8.20
Vel Total (m/s)	0.00	Avg. Vel. (m/s)	0.00	0.00	0.00
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	0.49	2.25	0.38
Conv. Total (m3/s)	1386.4	Conv. (m3/s)	93.6	1240.0	52.8
Length Wtd. (m)	50.39	Wetted Per. (m)	9.90	12.90	8.58
Min Ch El (m)	-0.45	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.26	Stream Power (N/m s)	1359.73	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	2.56	40.66	4.99
C & E Loss (m)		Cum SA (1000 m2)	6.15	15.30	8.05

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 750 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 750 Profile: Max WS

			Left OB	Channel	Right OB
E.G. Elev (m)	2.35	Element			
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.34	Reach Len. (m)	57.55	50.00	46.84
Crit W.S. (m)		Flow Area (m2)	6.19	26.12	4.46
E.G. Slope (m/m)	0.000080	Area (m2)	6.19	26.12	4.46
Q Total (m3/s)	14.69	Flow (m3/s)	1.34	12.50	0.85
Top Width (m)	28.40	Top Width (m)	9.40	10.80	8.20
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.22	0.48	0.19
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.66	2.42	0.54
Conv. Total (m3/s)	1638.0	Conv. (m3/s)	149.2	1394.0	94.9
Length Wtd. (m)	50.52	Wetted Per. (m)	10.07	12.90	8.74
Min Ch El (m)	-0.45	Shear (N/m2)	0.48	1.60	0.40
Alpha	1.26	Stream Power (N/m s)	1359.73	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	2.82	40.85	5.20
C & E Loss (m)		Cum SA (1000 m2)	6.15	15.30	8.06

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 750 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 750 Profile: Max WS

			Left OB	Channel	Right OB
E.G. Elev (m)	2.41	Element			
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.39	Reach Len. (m)	57.55	50.00	46.84
Crit W.S. (m)		Flow Area (m2)	6.66	26.66	4.87
E.G. Slope (m/m)	0.000099	Area (m2)	6.66	26.66	4.87
Q Total (m3/s)	17.12	Flow (m3/s)	1.67	14.36	1.09
Top Width (m)	28.40	Top Width (m)	9.40	10.80	8.20
Vel Total (m/s)	0.45	Avg. Vel. (m/s)	0.25	0.54	0.22
Max Chl Dpth (m)	2.84	Hydr. Depth (m)	0.71	2.47	0.59
Conv. Total (m3/s)	1719.7	Conv. (m3/s)	168.0	1442.3	109.4
Length Wtd. (m)	50.55	Wetted Per. (m)	10.12	12.90	8.79
Min Ch El (m)	-0.45	Shear (N/m2)	0.64	2.01	0.54
Alpha	1.26	Stream Power (N/m s)	1359.73	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	2.90	40.91	5.27
C & E Loss (m)		Cum SA (1000 m2)	6.15	15.30	8.06

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 0+800

Kondisi Tanpa Hujan	File Type Options Help River: Pemangkat Profile: Max WS Reach: Laut Natuna RS: 800 Plan: Unsteady 1 Plan: Unsteady 1 Pemangkat Laut Natuna RS: 800 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	51.09	50.00	49.27
Crit W.S. (m)		Flow Area (m2)	4.65	17.69	3.11
E.G. Slope (m/m)	0.000000	Area (m2)	4.65	17.69	3.11
Q Total (m3/s)	-0.11	Flow (m3/s)	-0.01	-0.09	-0.01
Top Width (m)	25.40	Top Width (m)	9.40	7.80	8.20
Vel Total (m/s)	0.00	Avg. Vel. (m/s)	0.00	-0.01	0.00
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	0.49	2.27	0.38
Conv. Total (m3/s)	994.1	Conv. (m3/s)	93.6	847.8	52.8
Length Wtd. (m)	50.05	Wetted Per. (m)	9.90	10.27	8.58
Min Ch El (m)	-0.45	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.32	Stream Power (N/m s)	1216.09	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	2.79	41.71	5.14
C & E Loss (m)		Cum SA (1000 m2)	6.63	15.77	8.46

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach: Laut Natuna RS: 800 Plan: Unsteady 2 Th Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 800 Profile: Max WS

E.G. Elev (m)	2.36	Element	Left OB	Channel	Right OB
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.34	Reach Len. (m)	51.09	50.00	49.27
Crit W.S. (m)		Flow Area (m2)	6.19	18.98	4.46
E.G. Slope (m/m)	0.000147	Area (m2)	6.19	18.98	4.46
Q Total (m3/s)	14.50	Flow (m3/s)	1.81	11.54	1.15
Top Width (m)	25.40	Top Width (m)	9.40	7.80	8.20
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.29	0.61	0.26
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.66	2.43	0.54
Conv. Total (m3/s)	1197.2	Conv. (m3/s)	149.4	952.7	95.0
Length Wtd. (m)	50.07	Wetted Per. (m)	10.07	10.27	8.74
Min Ch El (m)	-0.45	Shear (N/m2)	0.89	2.66	0.73
Alpha	1.30	Stream Power (N/m s)	1216.09	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	3.14	41.98	5.42
C & E Loss (m)		Cum SA (1000 m2)	6.63	15.77	8.47

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach: Laut Natuna RS: 800 Plan: Unsteady 2 Plan: Unsteady 2 Pemangkat Laut Natuna RS: 800 Profile: Max WS

E.G. Elev (m)	2.41	Element	Left OB	Channel	Right OB
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.39	Reach Len. (m)	51.09	50.00	49.27
Crit W.S. (m)		Flow Area (m2)	6.66	19.37	4.87
E.G. Slope (m/m)	0.000179	Area (m2)	6.66	19.37	4.87
Q Total (m3/s)	16.91	Flow (m3/s)	2.25	13.19	1.47
Top Width (m)	25.40	Top Width (m)	9.40	7.80	8.20
Vel Total (m/s)	0.55	Avg. Vel. (m/s)	0.34	0.68	0.30
Max Chl Dpth (m)	2.84	Hydr. Depth (m)	0.71	2.48	0.59
Conv. Total (m3/s)	1263.4	Conv. (m3/s)	168.2	985.6	109.6
Length Wtd. (m)	50.07	Wetted Per. (m)	10.12	10.27	8.79
Min Ch El (m)	-0.45	Shear (N/m2)	1.16	3.31	0.97
Alpha	1.29	Stream Power (N/m s)	1216.09	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	3.24	42.07	5.51
C & E Loss (m)		Cum SA (1000 m2)	6.63	15.77	8.47

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 0+850

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 850 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 850 Profile: Max WS

			Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Element			
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	46.17	50.65	54.89
Crit W.S. (m)		Flow Area (m2)	4.65	16.82	3.11
E.G. Slope (m/m)	0.000000	Area (m2)	4.65	16.82	3.11
Q Total (m3/s)	-0.09	Flow (m3/s)	-0.01	-0.08	-0.01
Top Width (m)	24.92	Top Width (m)	9.40	7.32	8.20
Vel Total (m/s)	0.00	Avg. Vel. (m/s)	0.00	0.00	0.00
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	0.49	2.30	0.38
Conv. Total (m3/s)	940.5	Conv. (m3/s)	93.6	794.1	52.8
Length Wtd. (m)	50.45	Wetted Per. (m)	9.90	9.98	8.58
Min Ch El (m)	-0.45	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.32	Stream Power (N/m s)	1193.12	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	3.01	42.58	5.31
C & E Loss (m)		Cum SA (1000 m2)	7.07	16.15	8.91

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 850 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 850 Profile: Max WS

			Left OB	Channel	Right OB
E.G. Elev (m)	2.38	Element			
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.36	Reach Len. (m)	46.17	50.65	54.89
Crit W.S. (m)		Flow Area (m2)	6.34	18.14	4.59
E.G. Slope (m/m)	0.000144	Area (m2)	6.34	18.14	4.59
Q Total (m3/s)	13.86	Flow (m3/s)	1.86	10.80	1.19
Top Width (m)	24.92	Top Width (m)	9.40	7.32	8.20
Vel Total (m/s)	0.48	Avg. Vel. (m/s)	0.29	0.60	0.26
Max Chl Dpth (m)	2.81	Hydr. Depth (m)	0.67	2.48	0.56
Conv. Total (m3/s)	1155.2	Conv. (m3/s)	155.1	900.5	99.5
Length Wtd. (m)	50.42	Wetted Per. (m)	10.08	9.98	8.76
Min Ch El (m)	-0.45	Shear (N/m2)	0.89	2.56	0.74
Alpha	1.29	Stream Power (N/m s)	1193.12	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	3.42	42.92	5.67
C & E Loss (m)		Cum SA (1000 m2)	7.07	16.15	8.92

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 850 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 850 Profile: Max WS

			Left OB	Channel	Right OB
E.G. Elev (m)	2.43	Element			
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.41	Reach Len. (m)	46.17	50.65	54.89
Crit W.S. (m)		Flow Area (m2)	6.85	18.54	5.04
E.G. Slope (m/m)	0.000174	Area (m2)	6.85	18.54	5.04
Q Total (m3/s)	16.16	Flow (m3/s)	2.32	12.31	1.52
Top Width (m)	24.92	Top Width (m)	9.40	7.32	8.20
Vel Total (m/s)	0.53	Avg. Vel. (m/s)	0.34	0.66	0.30
Max Chl Dpth (m)	2.86	Hydr. Depth (m)	0.73	2.53	0.61
Conv. Total (m3/s)	1225.1	Conv. (m3/s)	175.9	933.6	115.6
Length Wtd. (m)	50.41	Wetted Per. (m)	10.14	9.98	8.81
Min Ch El (m)	-0.45	Shear (N/m2)	1.15	3.17	0.97
Alpha	1.28	Stream Power (N/m s)	1193.12	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	3.55	43.02	5.78
C & E Loss (m)		Cum SA (1000 m2)	7.07	16.15	8.92

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 0+900

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 900 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 900 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	50.90	50.29	50.14
W.S. Elev (m)	2.18	Flow Area (m2)	4.05	8.93	3.11
Crit W.S. (m)		Area (m2)	4.05	8.93	3.11
E.G. Slope (m/m)	0.000000	Flow (m3/s)	-0.01	-0.06	-0.01
Q Total (m3/s)	-0.08	Top Width (m)	9.40	4.12	8.20
Top Width (m)	21.72	Avg. Vel. (m/s)	0.00	-0.01	0.00
Vel Total (m/s)	-0.01	Hydr. Depth (m)	0.43	2.17	0.38
Max Chl Dpth (m)	2.63	Conv. (m3/s)	74.8	358.5	52.8
Conv. Total (m3/s)	486.0	Wetted Per. (m)	9.80	6.76	8.58
Length Wtd. (m)	50.35	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-0.45	Stream Power (N/m s)	1039.91	0.00	0.00
Alpha	1.39	Cum Volume (1000 m3)	3.23	43.23	5.47
Frctn Loss (m)	0.00	Cum SA (1000 m2)	7.54	16.44	9.32
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 900 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 900 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.38	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.03	Reach Len. (m)	50.90	50.29	50.14
W.S. Elev (m)	2.35	Flow Area (m2)	5.63	9.63	4.50
Crit W.S. (m)		Area (m2)	5.63	9.63	4.50
E.G. Slope (m/m)	0.000466	Flow (m3/s)	2.77	8.77	2.08
Q Total (m3/s)	13.62	Top Width (m)	9.40	4.12	8.20
Top Width (m)	21.72	Avg. Vel. (m/s)	0.49	0.91	0.46
Vel Total (m/s)	0.69	Hydr. Depth (m)	0.60	2.34	0.55
Max Chl Dpth (m)	2.80	Conv. (m3/s)	128.3	406.2	96.3
Conv. Total (m3/s)	630.7	Wetted Per. (m)	9.97	6.76	8.75
Length Wtd. (m)	50.37	Shear (N/m2)	2.58	6.51	2.35
Min Ch El (m)	-0.45	Stream Power (N/m s)	1039.91	0.00	0.00
Alpha	1.30	Cum Volume (1000 m3)	3.73	43.62	5.90
Frctn Loss (m)	0.01	Cum SA (1000 m2)	7.54	16.44	9.33
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 900 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 900 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.44	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.04	Reach Len. (m)	50.90	50.29	50.14
W.S. Elev (m)	2.40	Flow Area (m2)	6.11	9.84	4.91
Crit W.S. (m)		Area (m2)	6.11	9.84	4.91
E.G. Slope (m/m)	0.000548	Flow (m3/s)	3.43	9.86	2.60
Q Total (m3/s)	15.88	Top Width (m)	9.40	4.12	8.20
Top Width (m)	21.72	Avg. Vel. (m/s)	0.56	1.00	0.53
Vel Total (m/s)	0.76	Hydr. Depth (m)	0.65	2.39	0.60
Max Chl Dpth (m)	2.85	Conv. (m3/s)	146.4	420.9	111.1
Conv. Total (m3/s)	678.4	Wetted Per. (m)	10.02	6.76	8.80
Length Wtd. (m)	50.38	Shear (N/m2)	3.28	7.82	3.00
Min Ch El (m)	-0.45	Stream Power (N/m s)	1039.91	0.00	0.00
Alpha	1.27	Cum Volume (1000 m3)	3.88	43.74	6.03
Frctn Loss (m)	0.01	Cum SA (1000 m2)	7.54	16.44	9.33
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

- STA. 0+950

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 950 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 950 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	51.09	50.85	50.71
Crit W.S. (m)		Flow Area (m2)	4.05	12.48	3.11
E.G. Slope (m/m)	0.000000	Area (m2)	4.05	12.48	3.11
Q Total (m3/s)	-0.07	Flow (m3/s)	-0.01	-0.06	-0.01
Top Width (m)	23.18	Top Width (m)	9.40	5.58	8.20
Vel Total (m/s)	0.00	Avg. Vel. (m/s)	0.00	0.00	0.00
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	0.43	2.24	0.38
Conv. Total (m3/s)	678.3	Conv. (m3/s)	74.8	550.8	52.8
Length Wtd. (m)	50.87	Wetted Per. (m)	9.80	8.19	8.58
Min Ch El (m)	-0.45	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.38	Stream Power (N/m s)	1109.81	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	3.44	43.78	5.62
C & E Loss (m)		Cum SA (1000 m2)	8.02	16.68	9.73

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 950 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 950 Profile: Max WS

E.G. Elev (m)	2.46	Element	Left OB	Channel	Right OB
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.45	Reach Len. (m)	51.09	50.85	50.71
Crit W.S. (m)		Flow Area (m2)	6.56	13.97	5.30
E.G. Slope (m/m)	0.000174	Area (m2)	6.56	13.97	5.30
Q Total (m3/s)	12.59	Flow (m3/s)	2.16	8.76	1.66
Top Width (m)	23.18	Top Width (m)	9.40	5.58	8.20
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.33	0.63	0.31
Max Chl Dpth (m)	2.90	Hydr. Depth (m)	0.70	2.50	0.65
Conv. Total (m3/s)	954.5	Conv. (m3/s)	164.1	664.7	125.7
Length Wtd. (m)	50.88	Wetted Per. (m)	10.07	8.19	8.85
Min Ch El (m)	-0.45	Shear (N/m2)	1.11	2.91	1.02
Alpha	1.29	Stream Power (N/m s)	1109.81	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	4.04	44.22	6.15
C & E Loss (m)		Cum SA (1000 m2)	8.02	16.68	9.74

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 950 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 950 Profile: Max WS

E.G. Elev (m)	2.54	Element	Left OB	Channel	Right OB
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.53	Reach Len. (m)	51.09	50.85	50.71
Crit W.S. (m)		Flow Area (m2)	7.29	14.41	5.95
E.G. Slope (m/m)	0.000197	Area (m2)	7.29	14.41	5.95
Q Total (m3/s)	14.68	Flow (m3/s)	2.74	9.82	2.12
Top Width (m)	23.18	Top Width (m)	9.40	5.58	8.20
Vel Total (m/s)	0.53	Avg. Vel. (m/s)	0.38	0.68	0.36
Max Chl Dpth (m)	2.98	Hydr. Depth (m)	0.78	2.58	0.73
Conv. Total (m3/s)	1046.3	Conv. (m3/s)	195.1	699.9	151.3
Length Wtd. (m)	50.88	Wetted Per. (m)	10.15	8.19	8.93
Min Ch El (m)	-0.45	Shear (N/m2)	1.39	3.39	1.29
Alpha	1.26	Stream Power (N/m s)	1109.81	0.00	0.00
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	4.23	44.35	6.31
C & E Loss (m)		Cum SA (1000 m2)	8.02	16.68	9.74

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

- STA. 1+000

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1000 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 1000 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	52.62	53.20	53.64
W.S. Elev (m)	2.18	Flow Area (m2)	4.05	10.67	3.11
Crit W.S. (m)		Area (m2)	4.05	10.67	3.11
E.G. Slope (m/m)	0.000000	Flow (m3/s)	-0.01	-0.05	-0.01
Q Total (m3/s)	-0.07	Top Width (m)	9.40	4.61	8.20
Top Width (m)	22.21	Avg. Vel. (m/s)	0.00	0.00	0.00
Vel Total (m/s)	0.00	Hydr. Depth (m)	0.43	2.32	0.38
Max Chl Dpth (m)	2.63	Conv. (m3/s)	74.8	445.1	52.8
Conv. Total (m3/s)	572.7	Wetted Per. (m)	9.80	7.63	8.58
Length Wtd. (m)	53.17	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-0.45	Stream Power (N/m s)	1063.36	0.00	0.00
Alpha	1.38	Cum Volume (1000 m3)	3.65	44.39	5.79
Frctn Loss (m)	0.00	Cum SA (1000 m2)	8.52	16.95	10.17
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1000 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 1000 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.50	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	52.62	53.20	53.64
W.S. Elev (m)	2.48	Flow Area (m2)	6.90	12.07	5.60
Crit W.S. (m)		Area (m2)	6.90	12.07	5.60
E.G. Slope (m/m)	0.000153	Flow (m3/s)	2.20	6.75	1.70
Q Total (m3/s)	10.65	Top Width (m)	9.40	4.61	8.20
Top Width (m)	22.21	Avg. Vel. (m/s)	0.32	0.56	0.30
Vel Total (m/s)	0.43	Hydr. Depth (m)	0.73	2.62	0.68
Max Chl Dpth (m)	2.93	Conv. (m3/s)	178.3	546.6	137.4
Conv. Total (m3/s)	862.3	Wetted Per. (m)	10.11	7.63	8.88
Length Wtd. (m)	53.15	Shear (N/m2)	1.02	2.37	0.94
Min Ch El (m)	-0.45	Stream Power (N/m s)	1063.36	0.00	0.00
Alpha	1.25	Cum Volume (1000 m3)	4.39	44.91	6.44
Frctn Loss (m)	0.01	Cum SA (1000 m2)	8.52	16.95	10.18
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1000 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 1000 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.59	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	52.62	53.20	53.64
W.S. Elev (m)	2.57	Flow Area (m2)	7.73	12.48	6.33
Crit W.S. (m)		Area (m2)	7.73	12.48	6.33
E.G. Slope (m/m)	0.000168	Flow (m3/s)	2.77	7.48	2.16
Q Total (m3/s)	12.42	Top Width (m)	9.40	4.61	8.20
Top Width (m)	22.21	Avg. Vel. (m/s)	0.36	0.60	0.34
Vel Total (m/s)	0.47	Hydr. Depth (m)	0.82	2.71	0.77
Max Chl Dpth (m)	3.02	Conv. (m3/s)	214.1	577.6	167.0
Conv. Total (m3/s)	958.8	Wetted Per. (m)	10.19	7.63	8.97
Length Wtd. (m)	53.15	Shear (N/m2)	1.25	2.69	1.16
Min Ch El (m)	-0.45	Stream Power (N/m s)	1063.36	0.00	0.00
Alpha	1.21	Cum Volume (1000 m3)	4.62	45.07	6.64
Frctn Loss (m)	0.01	Cum SA (1000 m2)	8.52	16.95	10.18
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 1+050

Kondisi Tanpa Hujan	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 1050 Plan: Unsteady 1 Plan: Unsteady 1 Pemangkat Laut Natuna RS: 1050 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	54.19	50.42	46.95
Crit W.S. (m)		Flow Area (m2)	2.65	13.08	2.70
E.G. Slope (m/m)	0.000000	Area (m2)	2.65	13.08	2.70
Q Total (m3/s)	-0.06	Flow (m3/s)	0.00	-0.05	0.00
Top Width (m)	23.11	Top Width (m)	9.40	5.51	8.20
Vel Total (m/s)	0.00	Avg. Vel. (m/s)	0.00	0.00	0.00
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	0.28	2.37	0.33
Conv. Total (m3/s)	635.8	Conv. (m3/s)	37.2	556.5	42.1
Length Wtd. (m)	50.51	Wetted Per. (m)	9.69	9.07	8.48
Min Ch El (m)	-0.45	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.36	Stream Power (N/m s)	1106.46	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	3.83	44.99	5.93
C & E Loss (m)		Cum SA (1000 m2)	9.03	17.21	10.56

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 1050 Plan: Unsteady 2 Th Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 1050 Profile: Max WS

E.G. Elev (m)	2.56	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.56	Reach Len. (m)	54.19	50.42	46.95
Crit W.S. (m)		Flow Area (m2)	6.18	15.15	5.78
E.G. Slope (m/m)	0.000006	Area (m2)	6.18	15.15	5.78
Q Total (m3/s)	2.47	Flow (m3/s)	0.37	1.75	0.36
Top Width (m)	23.11	Top Width (m)	9.40	5.51	8.20
Vel Total (m/s)	0.09	Avg. Vel. (m/s)	0.06	0.12	0.06
Max Chl Dpth (m)	3.01	Hydr. Depth (m)	0.66	2.75	0.71
Conv. Total (m3/s)	1004.4	Conv. (m3/s)	148.7	710.7	145.0
Length Wtd. (m)	50.62	Wetted Per. (m)	10.07	9.07	8.86
Min Ch El (m)	-0.45	Shear (N/m2)	0.04	0.10	0.04
Alpha	1.26	Stream Power (N/m s)	1106.46	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	4.75	45.60	6.71
C & E Loss (m)		Cum SA (1000 m2)	9.03	17.21	10.57

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 1050 Plan: Unsteady 2 Plan: Unsteady 2 Pemangkat Laut Natuna RS: 1050 Profile: Max WS

E.G. Elev (m)	2.66	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.66	Reach Len. (m)	54.19	50.42	46.95
Crit W.S. (m)		Flow Area (m2)	7.18	15.73	6.65
E.G. Slope (m/m)	0.000006	Area (m2)	7.18	15.73	6.65
Q Total (m3/s)	2.86	Flow (m3/s)	0.48	1.92	0.46
Top Width (m)	23.11	Top Width (m)	9.40	5.51	8.20
Vel Total (m/s)	0.10	Avg. Vel. (m/s)	0.07	0.12	0.07
Max Chl Dpth (m)	3.11	Hydr. Depth (m)	0.76	2.86	0.81
Conv. Total (m3/s)	1128.5	Conv. (m3/s)	189.6	757.1	181.8
Length Wtd. (m)	50.63	Wetted Per. (m)	10.17	9.07	8.96
Min Ch El (m)	-0.45	Shear (N/m2)	0.04	0.11	0.05
Alpha	1.23	Stream Power (N/m s)	1106.46	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	5.03	45.78	6.94
C & E Loss (m)		Cum SA (1000 m2)	9.03	17.21	10.57

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 1+100

Kondisi Tanpa Hujan	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 1100 Plan: Unsteady 1 Plan: Unsteady 1 Pemangkat Laut Natuna RS: 1100 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	47.31	49.40	51.50
Crit W.S. (m)		Flow Area (m2)	1.20	11.25	1.73
E.G. Slope (m/m)	0.000000	Area (m2)	1.20	11.25	1.73
Q Total (m3/s)	-0.05	Flow (m3/s)	0.00	-0.04	0.00
Top Width (m)	22.37	Top Width (m)	9.40	4.77	8.20
Vel Total (m/s)	0.00	Avg. Vel. (m/s)	0.00	0.00	0.00
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	0.13	2.36	0.21
Conv. Total (m3/s)	488.0	Conv. (m3/s)	10.0	457.8	20.2
Length Wtd. (m)	49.43	Wetted Per. (m)	9.63	8.34	8.38
Min Ch El (m)	-0.45	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.32	Stream Power (N/m s)	1071.02	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	3.92	45.59	6.04
C & E Loss (m)		Cum SA (1000 m2)	9.47	17.46	10.98

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 1100 Plan: Unsteady 2 Th Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 1100 Profile: Max WS

E.G. Elev (m)	2.56	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.56	Reach Len. (m)	47.31	49.40	51.50
Crit W.S. (m)		Flow Area (m2)	4.74	13.04	4.82
E.G. Slope (m/m)	0.000009	Area (m2)	4.74	13.04	4.82
Q Total (m3/s)	2.32	Flow (m3/s)	0.28	1.72	0.32
Top Width (m)	22.37	Top Width (m)	9.40	4.77	8.20
Vel Total (m/s)	0.10	Avg. Vel. (m/s)	0.06	0.13	0.07
Max Chl Dpth (m)	3.01	Hydr. Depth (m)	0.50	2.73	0.59
Conv. Total (m3/s)	789.9	Conv. (m3/s)	96.0	586.0	107.9
Length Wtd. (m)	49.41	Wetted Per. (m)	10.01	8.34	8.76
Min Ch El (m)	-0.45	Shear (N/m2)	0.04	0.13	0.05
Alpha	1.32	Stream Power (N/m s)	1071.02	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	5.01	46.29	6.98
C & E Loss (m)		Cum SA (1000 m2)	9.47	17.46	10.99

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 1100 Plan: Unsteady 2 Plan: Unsteady 2 Pemangkat Laut Natuna RS: 1100 Profile: Max WS

E.G. Elev (m)	2.66	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.66	Reach Len. (m)	47.31	49.40	51.50
Crit W.S. (m)		Flow Area (m2)	5.74	13.55	5.70
E.G. Slope (m/m)	0.000009	Area (m2)	5.74	13.55	5.70
Q Total (m3/s)	2.69	Flow (m3/s)	0.39	1.87	0.42
Top Width (m)	22.37	Top Width (m)	9.40	4.77	8.20
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.07	0.14	0.07
Max Chl Dpth (m)	3.11	Hydr. Depth (m)	0.61	2.84	0.69
Conv. Total (m3/s)	897.2	Conv. (m3/s)	131.2	624.6	141.4
Length Wtd. (m)	49.41	Wetted Per. (m)	10.12	8.34	8.86
Min Ch El (m)	-0.45	Shear (N/m2)	0.05	0.14	0.06
Alpha	1.28	Stream Power (N/m s)	1071.02	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	5.33	46.50	7.26
C & E Loss (m)		Cum SA (1000 m2)	9.47	17.46	10.99

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 1+150

Kondisi Tanpa Hujan	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 1150 Plan: Unsteady 1 Plan: Unsteady 1 Pemangkat Laut Natuna RS: 1150 Profile: Max WS

E.G. Elev (m)	2.18	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	49.36	50.00	50.55
Crit W.S. (m)		Flow Area (m2)	1.20	11.59	1.73
E.G. Slope (m/m)	0.000000	Area (m2)	1.20	11.59	1.73
Q Total (m3/s)	-0.03	Flow (m3/s)	0.00	-0.03	0.00
Top Width (m)	22.51	Top Width (m)	9.40	4.91	8.20
Vel Total (m/s)	0.00	Avg. Vel. (m/s)	0.00	0.00	0.00
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	0.13	2.36	0.21
Conv. Total (m3/s)	506.3	Conv. (m3/s)	10.0	476.1	20.2
Length Wtd. (m)	50.01	Wetted Per. (m)	9.63	8.48	8.38
Min Ch El (m)	-0.45	Shear (N/m2)	0.00	0.00	0.00
Alpha	1.31	Stream Power (N/m s)	1077.74	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	3.98	46.16	6.13
C & E Loss (m)		Cum SA (1000 m2)	9.94	17.70	11.40

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 1150 Plan: Unsteady 2 Th Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 1150 Profile: Max WS

E.G. Elev (m)	2.56	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.56	Reach Len. (m)	49.36	50.00	50.55
Crit W.S. (m)		Flow Area (m2)	4.75	13.44	4.83
E.G. Slope (m/m)	0.000007	Area (m2)	4.75	13.44	4.83
Q Total (m3/s)	2.21	Flow (m3/s)	0.26	1.65	0.29
Top Width (m)	22.51	Top Width (m)	9.40	4.91	8.20
Vel Total (m/s)	0.10	Avg. Vel. (m/s)	0.05	0.12	0.06
Max Chl Dpth (m)	3.01	Hydr. Depth (m)	0.51	2.74	0.59
Conv. Total (m3/s)	814.1	Conv. (m3/s)	96.2	609.6	108.2
Length Wtd. (m)	50.00	Wetted Per. (m)	10.01	8.48	8.76
Min Ch El (m)	-0.45	Shear (N/m2)	0.03	0.11	0.04
Alpha	1.32	Stream Power (N/m s)	1077.74	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	5.24	46.96	7.22
C & E Loss (m)		Cum SA (1000 m2)	9.94	17.70	11.40

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun	File Type Options Help River: Pemangkat Profile: Max WS Reach Laut Natuna RS: 1150 Plan: Unsteady 2 Plan: Unsteady 2 Pemangkat Laut Natuna RS: 1150 Profile: Max WS

E.G. Elev (m)	2.66	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.66	Reach Len. (m)	49.36	50.00	50.55
Crit W.S. (m)		Flow Area (m2)	5.75	13.97	5.71
E.G. Slope (m/m)	0.000008	Area (m2)	5.75	13.97	5.71
Q Total (m3/s)	2.56	Flow (m3/s)	0.37	1.80	0.39
Top Width (m)	22.51	Top Width (m)	9.40	4.91	8.20
Vel Total (m/s)	0.10	Avg. Vel. (m/s)	0.06	0.13	0.07
Max Chl Dpth (m)	3.11	Hydr. Depth (m)	0.61	2.85	0.70
Conv. Total (m3/s)	923.2	Conv. (m3/s)	131.6	649.8	141.8
Length Wtd. (m)	49.99	Wetted Per. (m)	10.12	8.48	8.87
Min Ch El (m)	-0.45	Shear (N/m2)	0.04	0.12	0.05
Alpha	1.28	Stream Power (N/m s)	1077.74	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	5.62	47.19	7.55
C & E Loss (m)		Cum SA (1000 m2)	9.94	17.70	11.40

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 1+200

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1200 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 1200 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	50.53	50.13	49.73
W.S. Elev (m)	2.18	Flow Area (m2)	1.20	11.84	1.73
Crit W.S. (m)		Area (m2)	1.20	11.84	1.73
E.G. Slope (m/m)	0.000000	Flow (m3/s)	0.00	-0.02	0.00
Q Total (m3/s)	-0.02	Top Width (m)	9.40	5.01	8.20
Top Width (m)	22.61	Avg. Vel. (m/s)	0.00	0.00	0.00
Vel Total (m/s)	0.00	Hydr. Depth (m)	0.13	2.36	0.21
Max Chl Dpth (m)	2.63	Conv. (m3/s)	10.0	489.6	20.2
Conv. Total (m3/s)	519.8	Wetted Per. (m)	9.63	8.57	8.38
Length Wtd. (m)	50.12	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-0.45	Stream Power (N/m s)	1082.52	0.00	0.00
Alpha	1.31	Cum Volume (1000 m3)	4.04	46.75	6.22
Frctn Loss (m)	0.00	Cum SA (1000 m2)	10.41	17.95	11.80
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1200 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 1200 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.56	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	50.53	50.13	49.73
W.S. Elev (m)	2.56	Flow Area (m2)	4.76	13.74	4.84
Crit W.S. (m)		Area (m2)	4.76	13.74	4.84
E.G. Slope (m/m)	0.000006	Flow (m3/s)	0.24	1.59	0.27
Q Total (m3/s)	2.11	Top Width (m)	9.40	5.01	8.20
Top Width (m)	22.61	Avg. Vel. (m/s)	0.05	0.12	0.06
Vel Total (m/s)	0.09	Hydr. Depth (m)	0.51	2.74	0.59
Max Chl Dpth (m)	3.01	Conv. (m3/s)	96.5	627.0	108.5
Conv. Total (m3/s)	832.0	Wetted Per. (m)	10.01	8.57	8.76
Length Wtd. (m)	50.12	Shear (N/m2)	0.03	0.10	0.03
Min Ch El (m)	-0.45	Stream Power (N/m s)	1082.52	0.00	0.00
Alpha	1.32	Cum Volume (1000 m3)	5.48	47.64	7.46
Frctn Loss (m)	0.00	Cum SA (1000 m2)	10.41	17.95	11.81
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1200 Plan: Unsteady 2

Plan: Unsteady 2 Pemangkat Laut Natuna RS: 1200 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.67	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	50.53	50.13	49.73
W.S. Elev (m)	2.67	Flow Area (m2)	5.76	14.27	5.71
Crit W.S. (m)		Area (m2)	5.76	14.27	5.71
E.G. Slope (m/m)	0.000007	Flow (m3/s)	0.34	1.74	0.37
Q Total (m3/s)	2.45	Top Width (m)	9.40	5.01	8.20
Top Width (m)	22.61	Avg. Vel. (m/s)	0.06	0.12	0.06
Vel Total (m/s)	0.10	Hydr. Depth (m)	0.61	2.85	0.70
Max Chl Dpth (m)	3.12	Conv. (m3/s)	132.0	668.3	142.1
Conv. Total (m3/s)	942.3	Wetted Per. (m)	10.12	8.57	8.87
Length Wtd. (m)	50.12	Shear (N/m2)	0.04	0.11	0.04
Min Ch El (m)	-0.45	Stream Power (N/m s)	1082.52	0.00	0.00
Alpha	1.29	Cum Volume (1000 m3)	5.91	47.90	7.83
Frctn Loss (m)	0.00	Cum SA (1000 m2)	10.41	17.95	11.81
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

- STA. 1+250

Kondisi Tanpa Hujan

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1250 Plan: Unsteady 1

Plan: Unsteady 1 Pemangkat Laut Natuna RS: 1250 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	52.85	52.48	51.98
W.S. Elev (m)	2.18	Flow Area (m2)	1.20	12.26	1.73
Crit W.S. (m)		Area (m2)	1.20	12.26	1.73
E.G. Slope (m/m)	0.000000	Flow (m3/s)	0.00	0.00	0.00
Q Total (m3/s)	0.00	Top Width (m)	9.40	5.20	8.20
Top Width (m)	22.80	Avg. Vel. (m/s)	0.00	0.00	0.00
Vel Total (m/s)	0.00	Hydr. Depth (m)	0.13	2.36	0.21
Max Chl Dpth (m)	2.63	Conv. (m3/s)	10.0	512.7	20.2
Conv. Total (m3/s)	542.9	Wetted Per. (m)	9.63	8.73	8.38
Length Wtd. (m)	52.47	Shear (N/m2)	0.00	0.00	0.00
Min Ch El (m)	-0.45	Stream Power (N/m s)	1091.61	0.00	0.00
Alpha	1.30	Cum Volume (1000 m3)	4.10	47.38	6.31
Frctn Loss (m)	0.00	Cum SA (1000 m2)	10.91	18.22	12.23
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 2 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1250 Plan: Unsteady 2 Th

Plan: Unsteady 2 Th Pemangkat Laut Natuna RS: 1250 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.56	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	52.85	52.48	51.98
W.S. Elev (m)	2.56	Flow Area (m2)	4.76	14.23	4.84
Crit W.S. (m)		Area (m2)	4.76	14.23	4.84
E.G. Slope (m/m)	0.000007	Flow (m3/s)	0.25	1.68	0.28
Q Total (m3/s)	2.20	Top Width (m)	9.40	5.20	8.20
Top Width (m)	22.80	Avg. Vel. (m/s)	0.05	0.12	0.06
Vel Total (m/s)	0.09	Hydr. Depth (m)	0.51	2.74	0.59
Max Chl Dpth (m)	3.01	Conv. (m3/s)	96.7	657.2	108.7
Conv. Total (m3/s)	862.6	Wetted Per. (m)	10.01	8.73	8.76
Length Wtd. (m)	52.46	Shear (N/m2)	0.03	0.10	0.04
Min Ch El (m)	-0.45	Stream Power (N/m s)	1091.61	0.00	0.00
Alpha	1.32	Cum Volume (1000 m3)	5.73	48.37	7.72
Frctn Loss (m)	0.00	Cum SA (1000 m2)	10.91	18.22	12.24
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Akibat Hujan Periode Ulang 5 Tahun

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1250 Plan: Unsteady 2

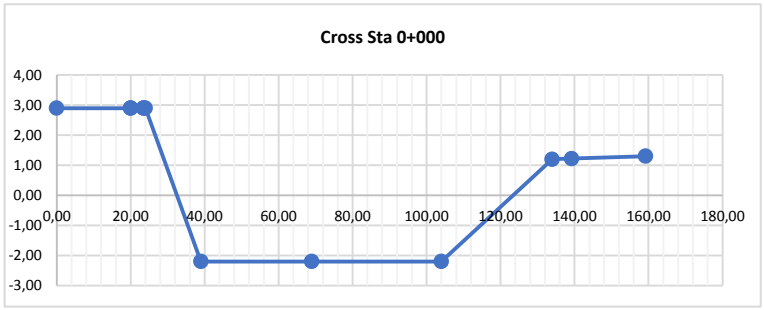
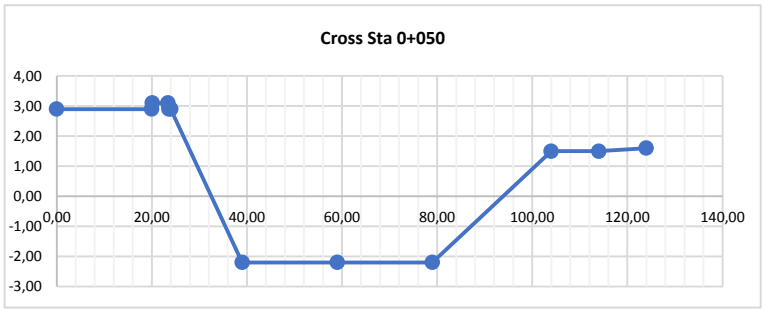
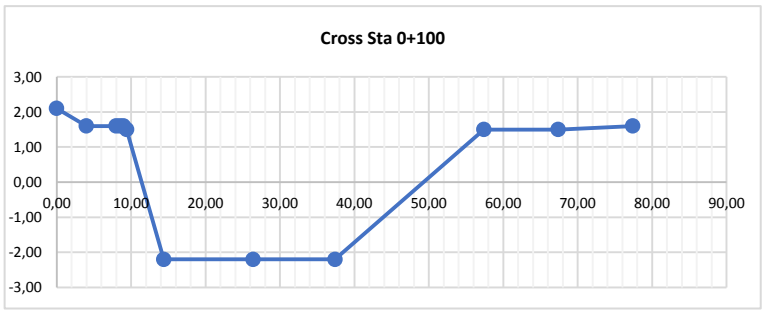
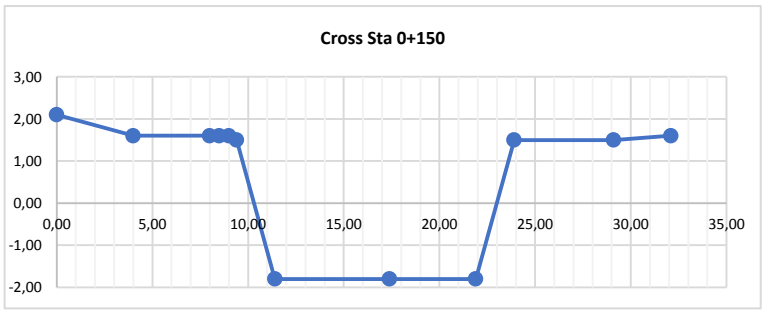
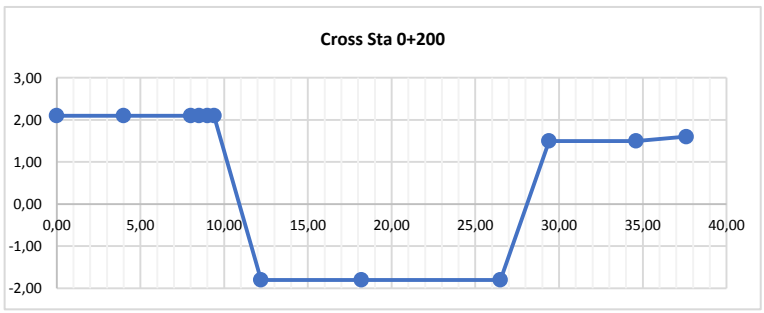
Plan: Unsteady 2 Pemangkat Laut Natuna RS: 1250 Profile: Max WS

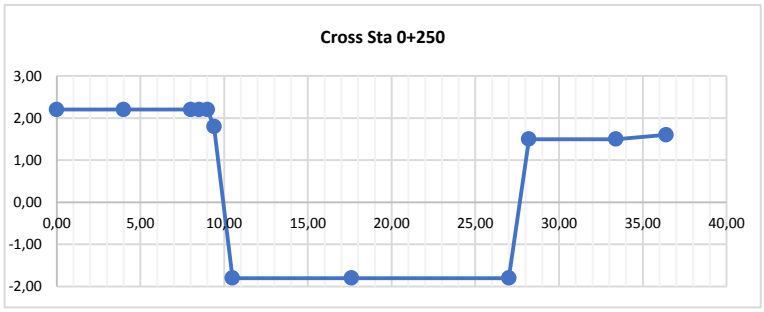
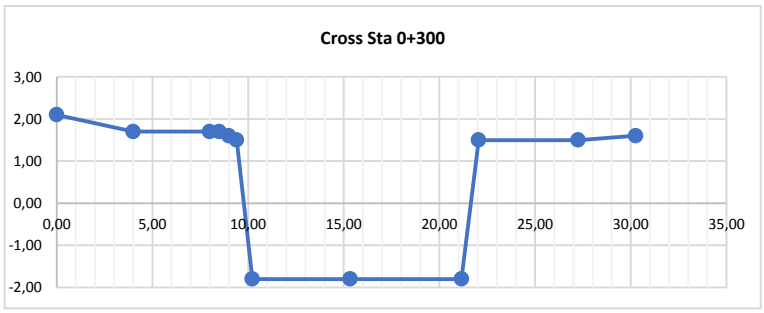
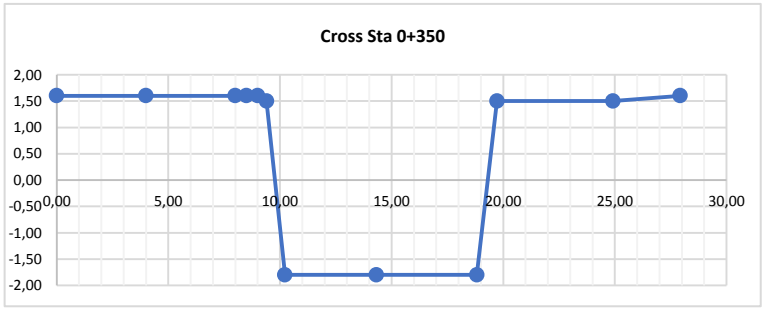
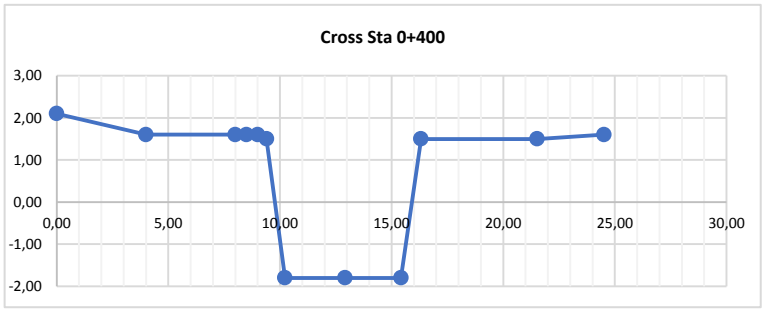
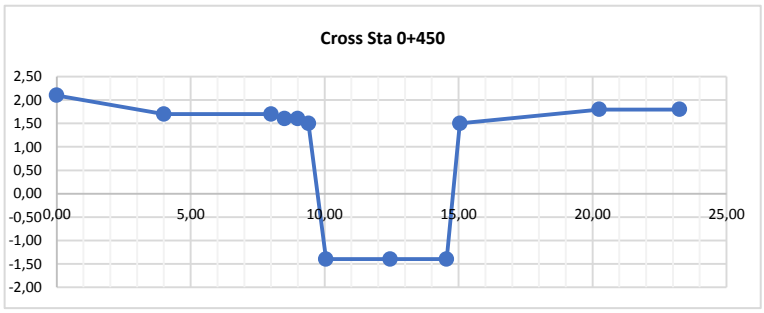
		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.67	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	52.85	52.48	51.98
W.S. Elev (m)	2.67	Flow Area (m2)	5.77	14.79	5.72
Crit W.S. (m)		Area (m2)	5.77	14.79	5.72
E.G. Slope (m/m)	0.000007	Flow (m3/s)	0.35	1.85	0.38
Q Total (m3/s)	2.57	Top Width (m)	9.40	5.20	8.20
Top Width (m)	22.80	Avg. Vel. (m/s)	0.06	0.12	0.07
Vel Total (m/s)	0.10	Hydr. Depth (m)	0.61	2.84	0.70
Max Chl Dpth (m)	3.12	Conv. (m3/s)	132.3	700.7	142.4
Conv. Total (m3/s)	975.4	Wetted Per. (m)	10.12	8.73	8.87
Length Wtd. (m)	52.46	Shear (N/m2)	0.04	0.12	0.04
Min Ch El (m)	-0.45	Stream Power (N/m s)	1091.61	0.00	0.00
Alpha	1.29	Cum Volume (1000 m3)	6.21	48.66	8.13
Frctn Loss (m)	0.00	Cum SA (1000 m2)	10.91	18.22	12.24
C & E Loss (m)					

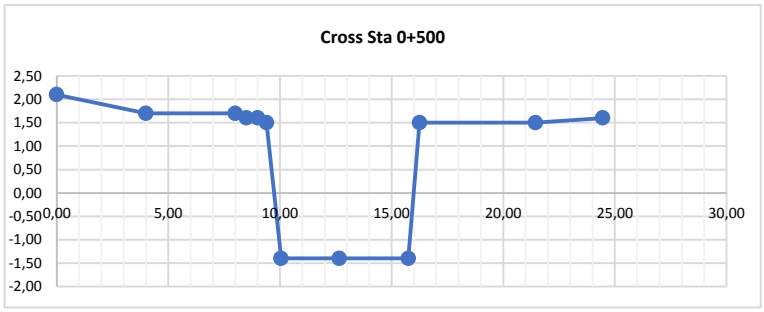
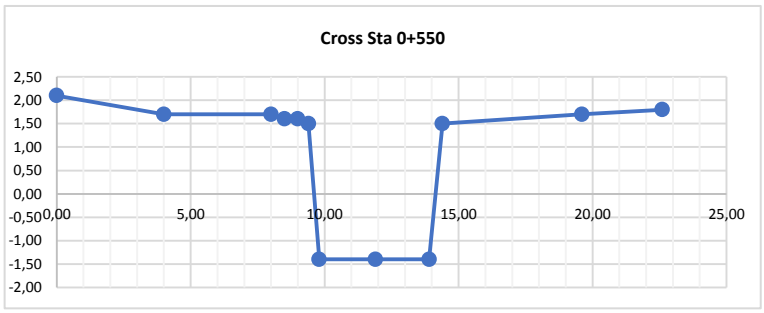
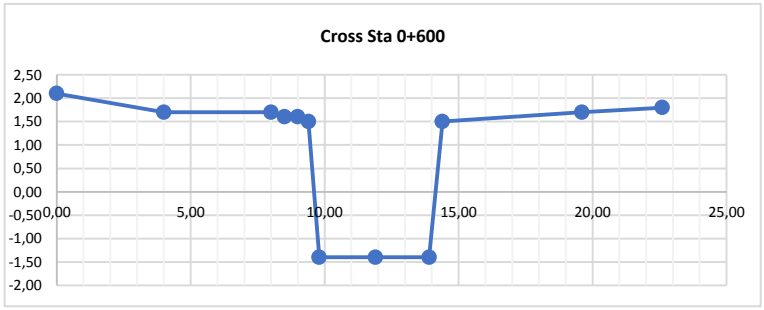
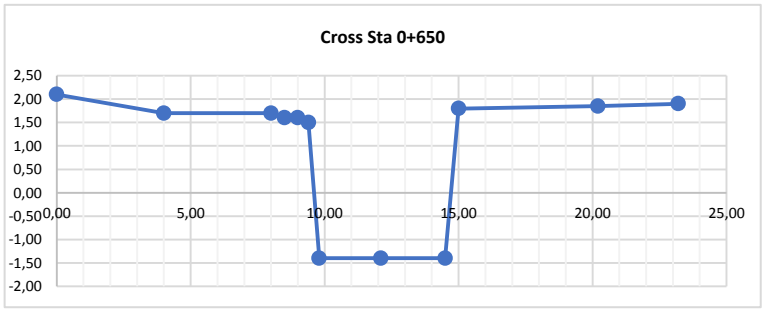
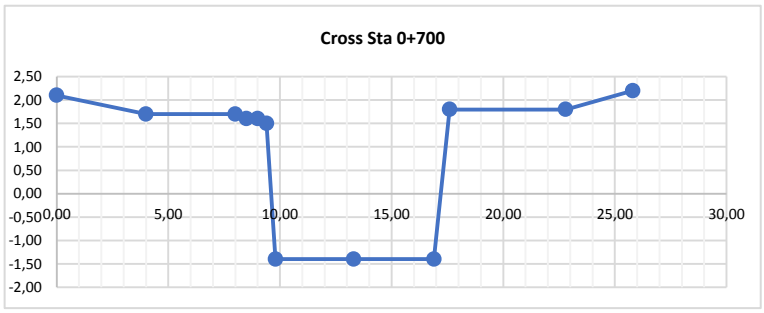
Errors, Warnings and Notes

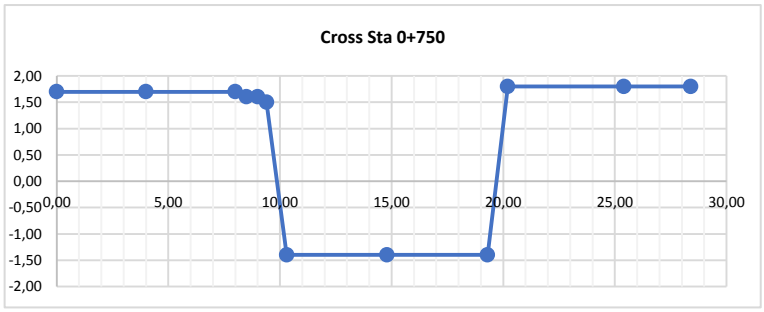
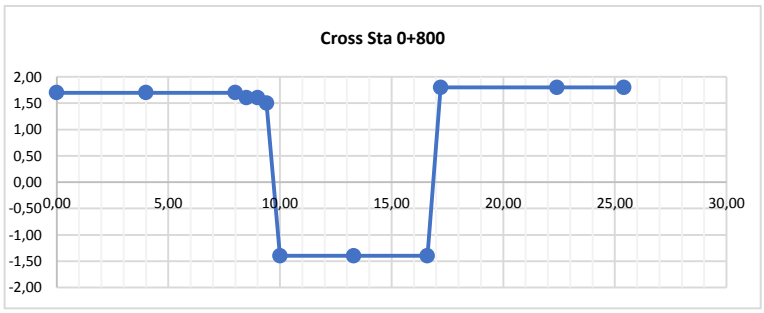
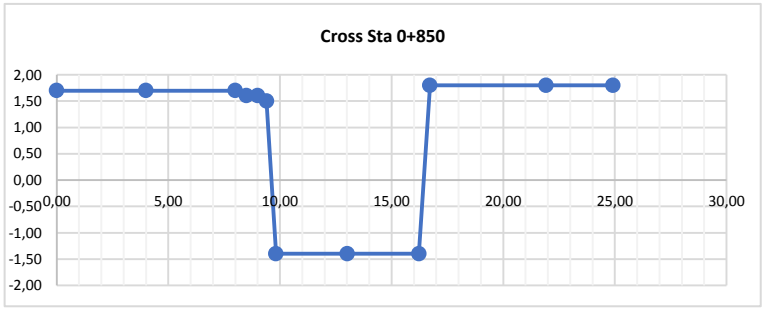
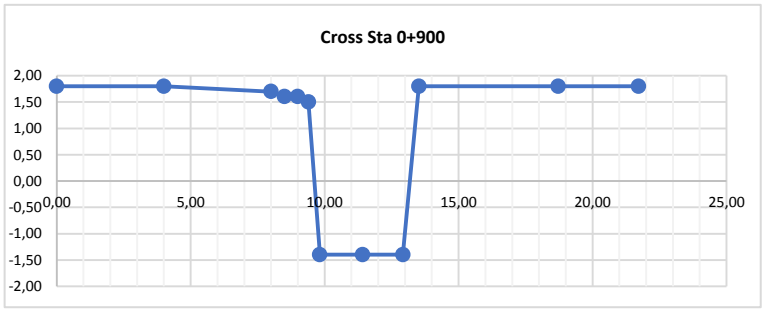
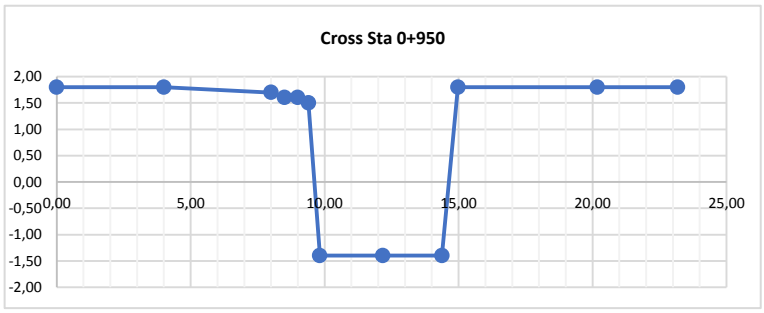
Warning: The cross-section end points had to be extended vertically for the computed water surface.

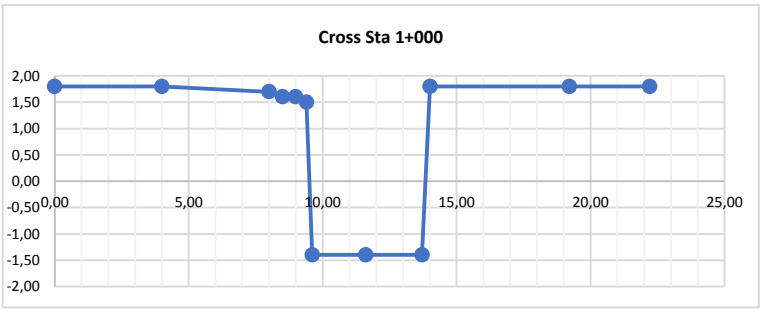
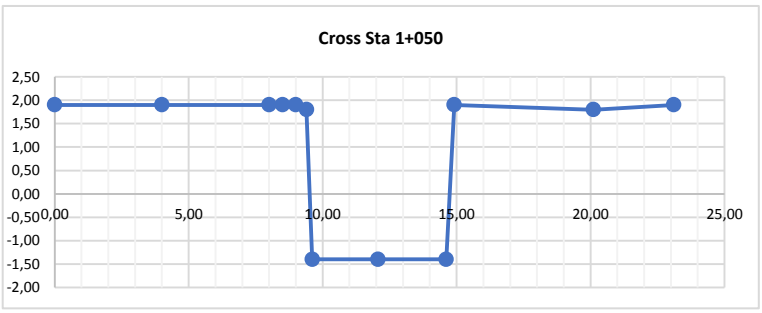
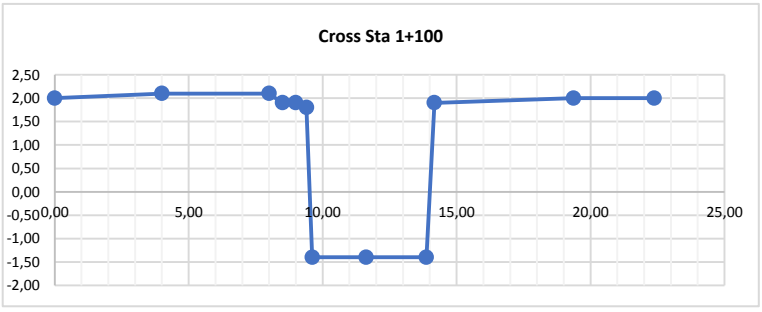
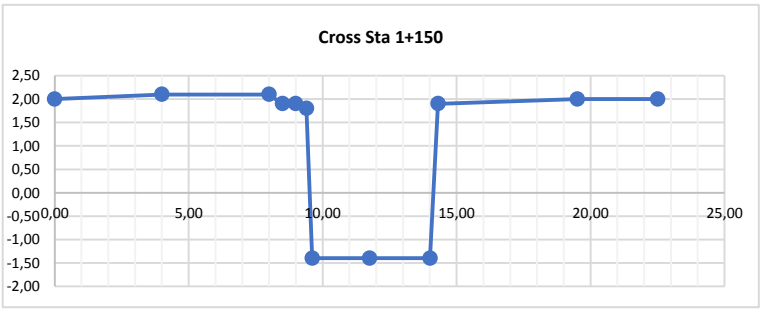
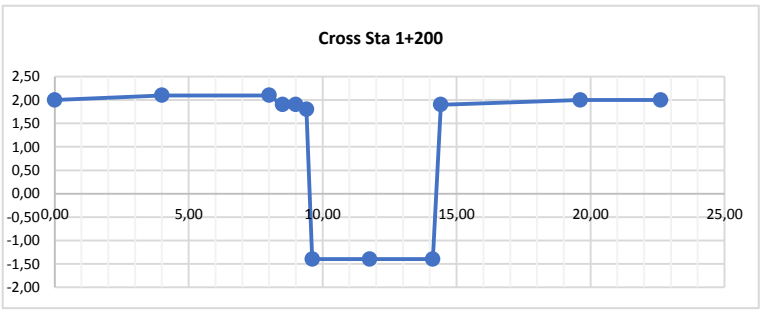
Lampiran H-1 Data *Cross Section* Hasil Analisis Dimensi Rencana

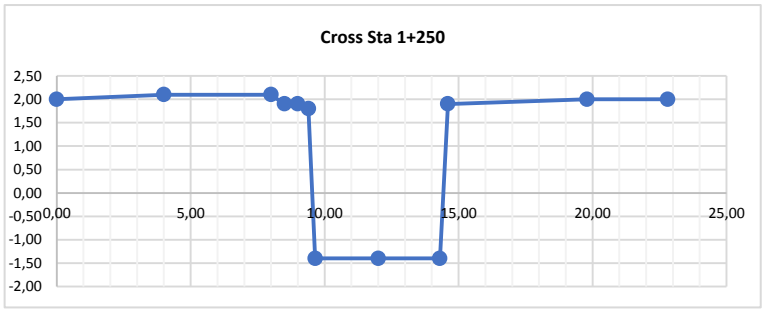
X	Y	Dimensi Rencana *Cross Section* Sungai Pemangkat
0.00	2.90	
20.00	2.90	
20.10	2.90	
23.40	2.90	
23.60	2.90	
24.00	2.90	
39.00	-2.20	
69.00	-2.20	
104.00	-2.20	
134.00	1.20	
139.20	1.22	
159.20	1.30	
0.00	2.90	
20.00	2.90	
20.10	3.10	
23.40	3.10	
23.60	2.90	
24.00	2.90	
39.00	-2.20	
59.00	-2.20	
79.00	-2.20	
104.00	1.50	
114.00	1.50	
124.00	1.60	
0.00	2.10	
4.00	1.60	
8.00	1.60	
8.50	1.60	
9.00	1.60	
9.40	1.50	
14.40	-2.20	
26.40	-2.20	
37.40	-2.20	
57.40	1.50	
67.40	1.50	
77.40	1.60	
0.00	2.10	
4.00	1.60	
8.00	1.60	
8.50	1.60	
9.00	1.60	
9.40	1.50	
11.40	-1.80	
17.40	-1.80	
21.90	-1.80	
23.90	1.50	
29.10	1.50	
32.10	1.60	
0.00	2.10	
4.00	2.10	
8.00	2.10	
8.50	2.10	
9.00	2.10	
9.40	2.10	
12.20	-1.80	
18.20	-1.80	
26.50	-1.80	
29.40	1.50	
34.60	1.50	
37.60	1.60	

X	Y	Dimensi Rencana *Cross Section* Sungai Pemangkat
0.00	2.20	
4.00	2.20	
8.00	2.20	
8.50	2.20	
9.00	2.20	
9.40	1.80	
10.50	-1.80	
17.60	-1.80	
27.00	-1.80	
28.20	1.50	
33.40	1.50	
36.40	1.60	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.70	
9.00	1.60	
9.40	1.50	
10.22	-1.80	
15.33	-1.80	
21.15	-1.80	
22.05	1.50	
27.25	1.50	
30.25	1.60	
0.00	1.60	
4.00	1.60	
8.00	1.60	
8.50	1.60	
9.00	1.60	
9.40	1.50	
10.22	-1.80	
14.32	-1.80	
18.82	-1.80	
19.72	1.50	
24.92	1.50	
27.92	1.60	
0.00	2.10	
4.00	1.60	
8.00	1.60	
8.50	1.60	
9.00	1.60	
9.40	1.50	
10.22	-1.80	
12.92	-1.80	
15.42	-1.80	
16.32	1.50	
21.52	1.50	
24.52	1.60	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
10.05	-1.40	
12.45	-1.40	
14.55	-1.40	
15.05	1.50	
20.25	1.80	
23.25	1.80	

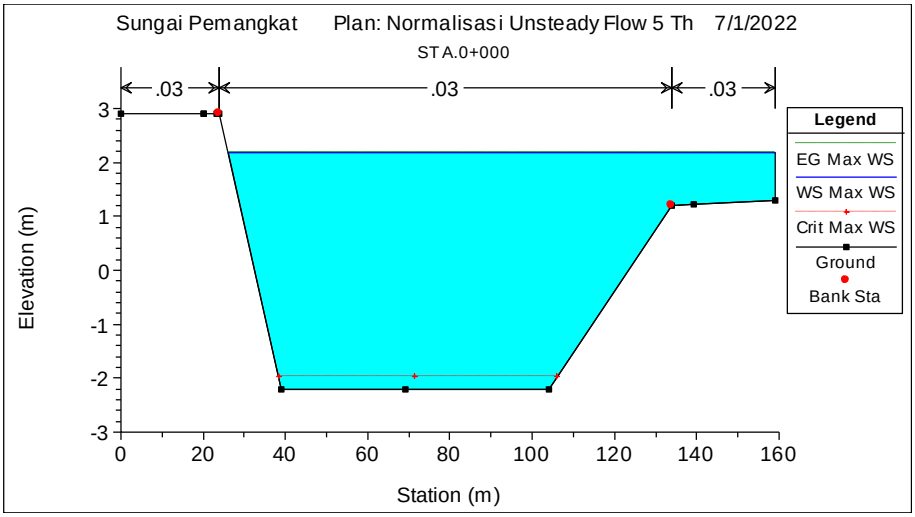
X	Y	Dimensi Rencana *Cross Section* Sungai Pemangkat
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
10.05	-1.40	
12.65	-1.40	
15.75	-1.40	
16.25	1.50	
21.45	1.50	
24.45	1.60	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.80	-1.40	
11.90	-1.40	
13.90	-1.40	
14.40	1.50	
19.60	1.70	
22.60	1.80	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.80	-1.40	
11.90	-1.40	
13.90	-1.40	
14.40	1.50	
19.60	1.70	
22.60	1.80	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.80	-1.40	
12.10	-1.40	
14.50	-1.40	
15.00	1.80	
20.20	1.85	
23.20	1.90	
0.00	2.10	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.80	-1.40	
13.30	-1.40	
16.90	-1.40	
17.60	1.80	
22.80	1.80	
25.80	2.20	

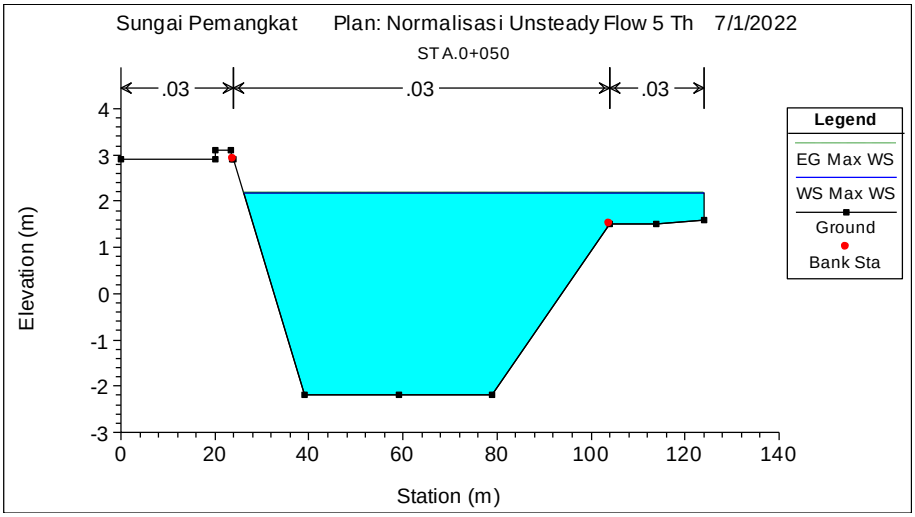
X	Y	Dimensi Rencana *Cross Section* Sungai Pemangkat
0.00	1.70	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
10.30	-1.40	
14.80	-1.40	
19.30	-1.40	
20.20	1.80	
25.40	1.80	
28.40	1.80	
0.00	1.70	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
10.00	-1.40	
13.30	-1.40	
16.60	-1.40	
17.20	1.80	
22.40	1.80	
25.40	1.80	
0.00	1.70	
4.00	1.70	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.82	-1.40	
13.02	-1.40	
16.22	-1.40	
16.72	1.80	
21.92	1.80	
24.92	1.80	
0.00	1.80	
4.00	1.80	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.82	-1.40	
11.42	-1.40	
12.92	-1.40	
13.52	1.80	
18.72	1.80	
21.72	1.80	
0.00	1.80	
4.00	1.80	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.82	-1.40	
12.17	-1.40	
14.38	-1.40	
14.98	1.80	
20.18	1.80	
23.18	1.80	

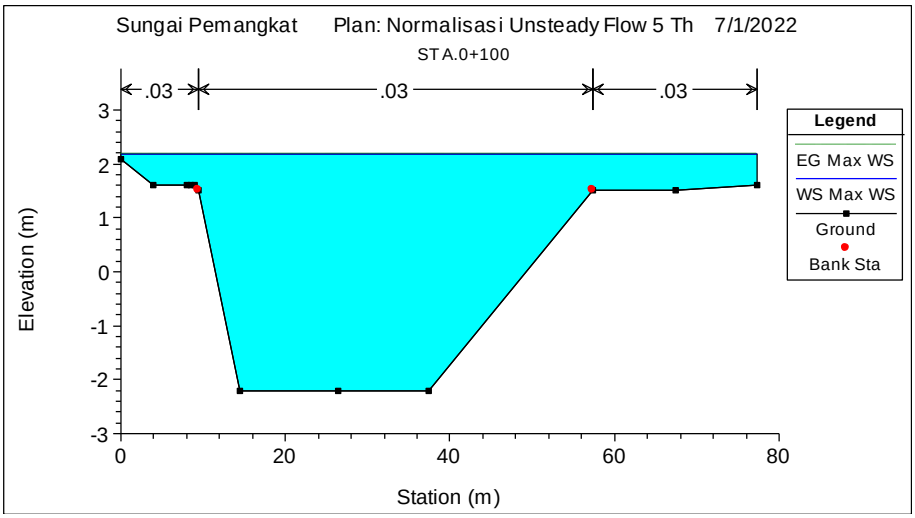
X	Y	Dimensi Rencana *Cross Section* Sungai Pemangkat
0.00	1.80	
4.00	1.80	
8.00	1.70	
8.50	1.60	
9.00	1.60	
9.40	1.50	
9.61	-1.40	
11.61	-1.40	
13.71	-1.40	
14.01	1.80	
19.21	1.80	
22.21	1.80	
0.00	1.90	
4.00	1.90	
8.00	1.90	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.61	-1.40	
12.06	-1.40	
14.61	-1.40	
14.91	1.90	
20.11	1.80	
23.11	1.90	
0.00	2.00	
4.00	2.10	
8.00	2.10	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.61	-1.40	
11.62	-1.40	
13.87	-1.40	
14.17	1.90	
19.37	2.00	
22.37	2.00	
0.00	2.00	
4.00	2.10	
8.00	2.10	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.61	-1.40	
11.76	-1.40	
14.01	-1.40	
14.31	1.90	
19.51	2.00	
22.51	2.00	
0.00	2.00	
4.00	2.10	
8.00	2.10	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.61	-1.40	
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14.41	1.90	
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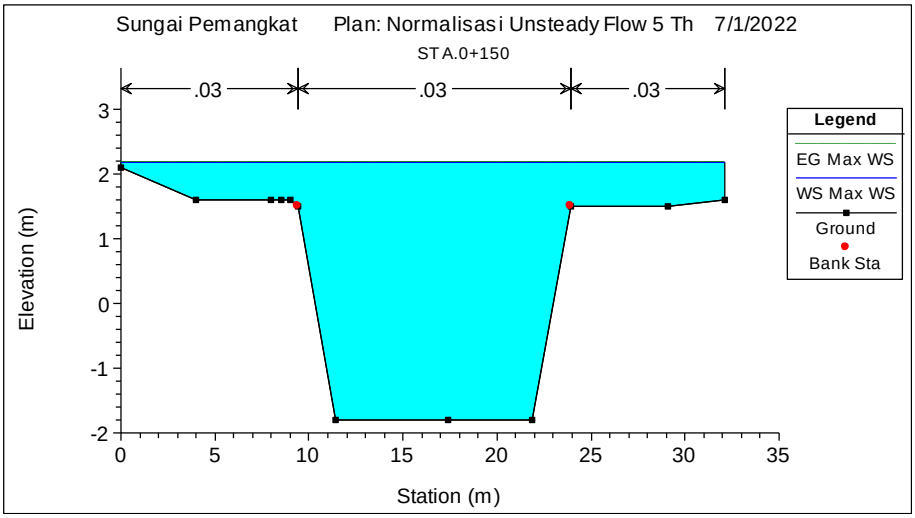
X	Y	Dimensi Rencana *Cross Section* Sungai Pemangkat
0.00	2.00	
4.00	2.10	
8.00	2.10	
8.50	1.90	
9.00	1.90	
9.40	1.80	
9.65	-1.40	
12.00	-1.40	
14.30	-1.40	
14.60	1.90	
19.80	2.00	
22.80	2.00	

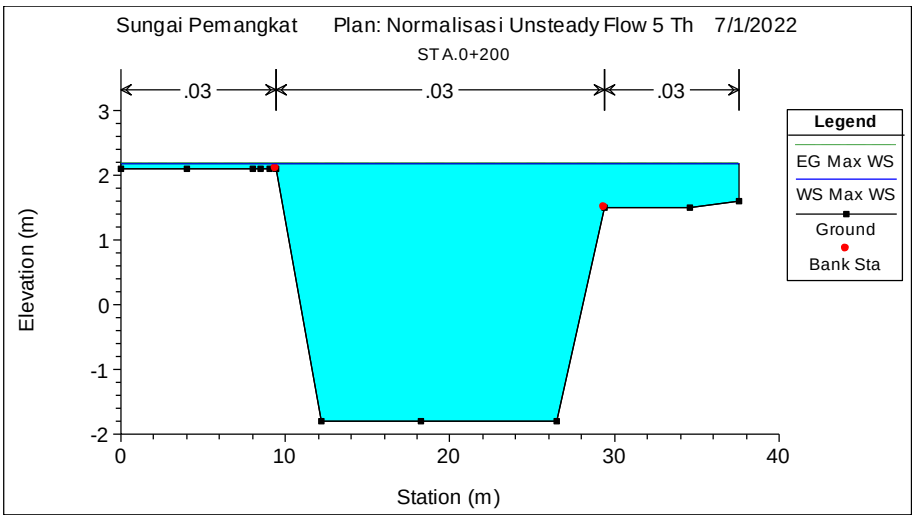
Lampiran I-1 Simulasi *Cross Section* Setelah Normalisasi

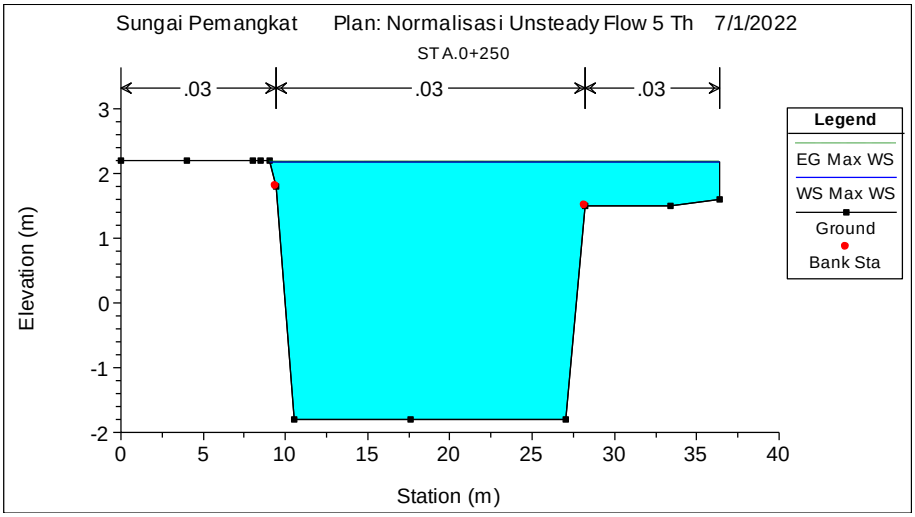


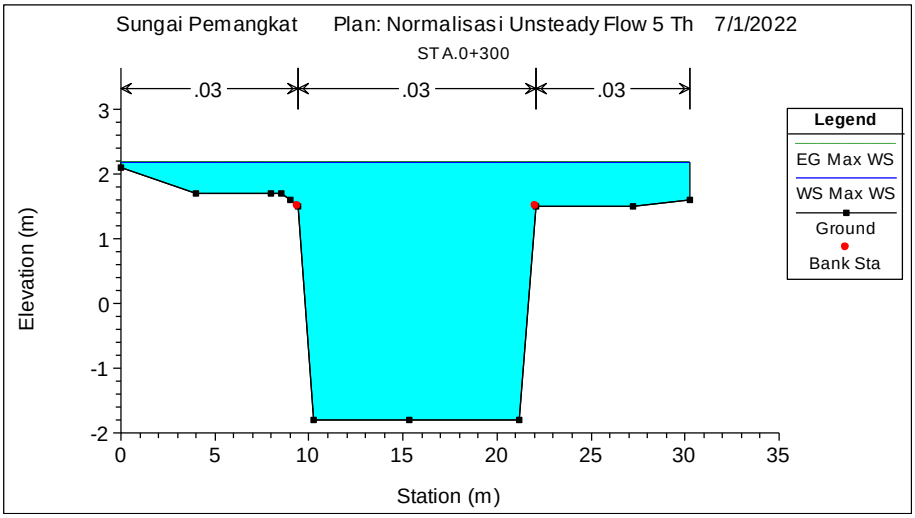


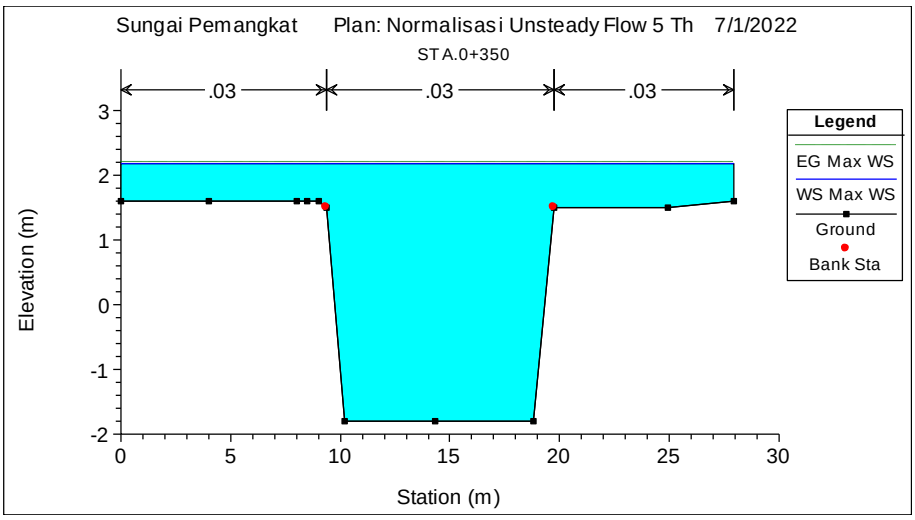


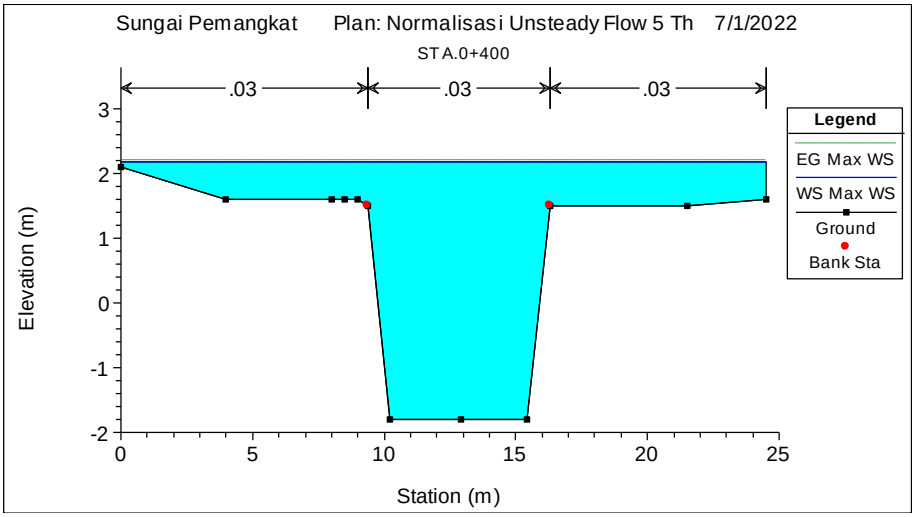

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+150
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

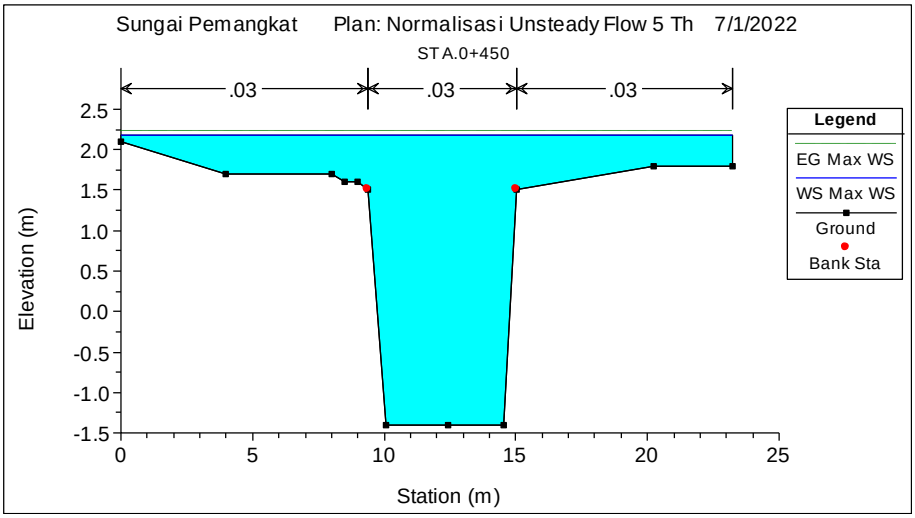

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+200
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

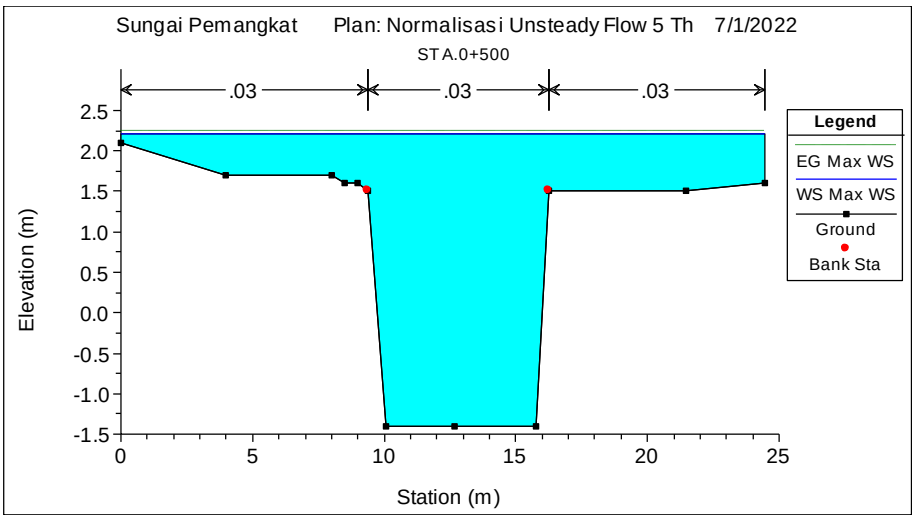

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+250
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

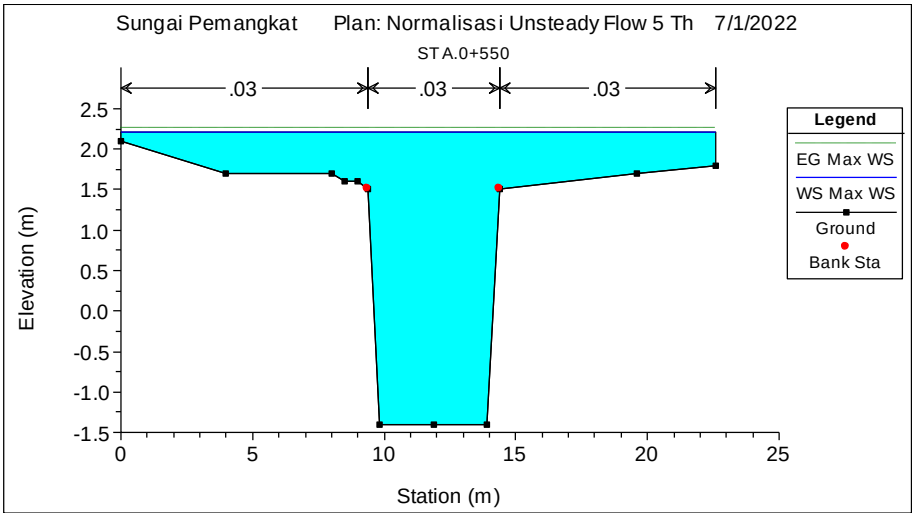

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+300
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

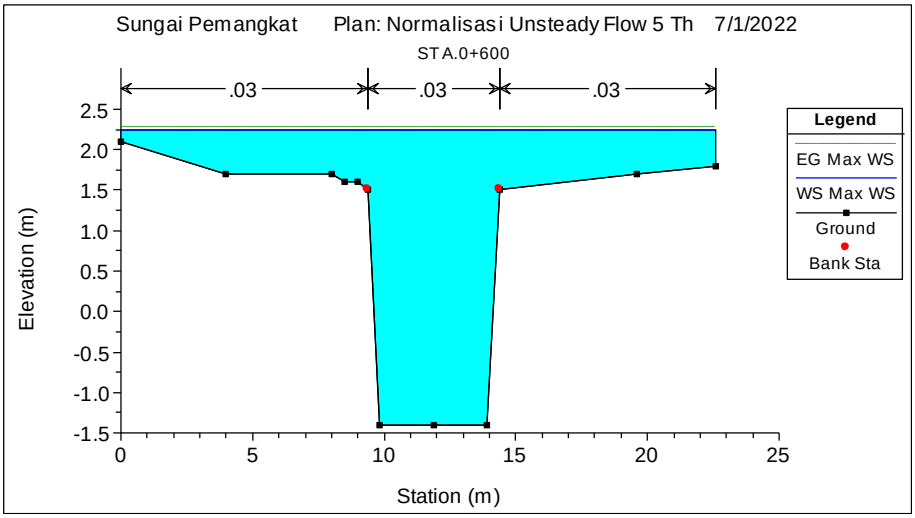

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+350
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

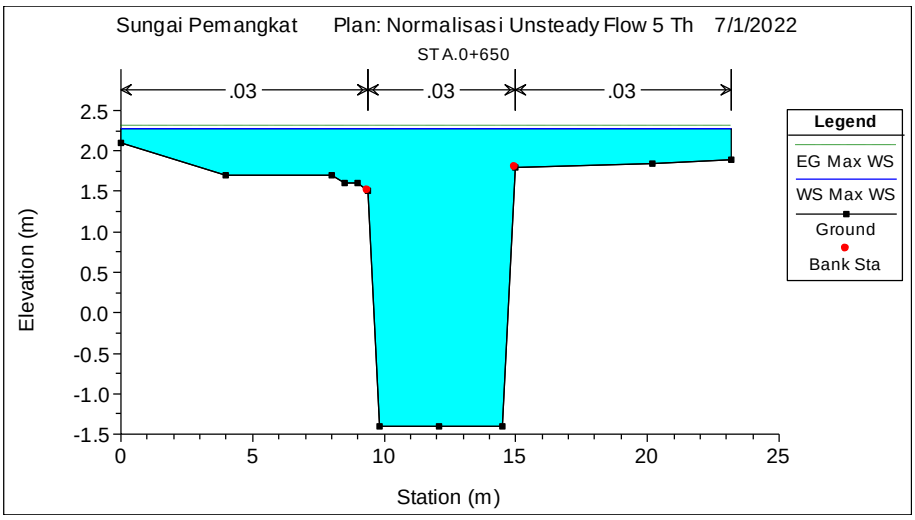

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+400
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

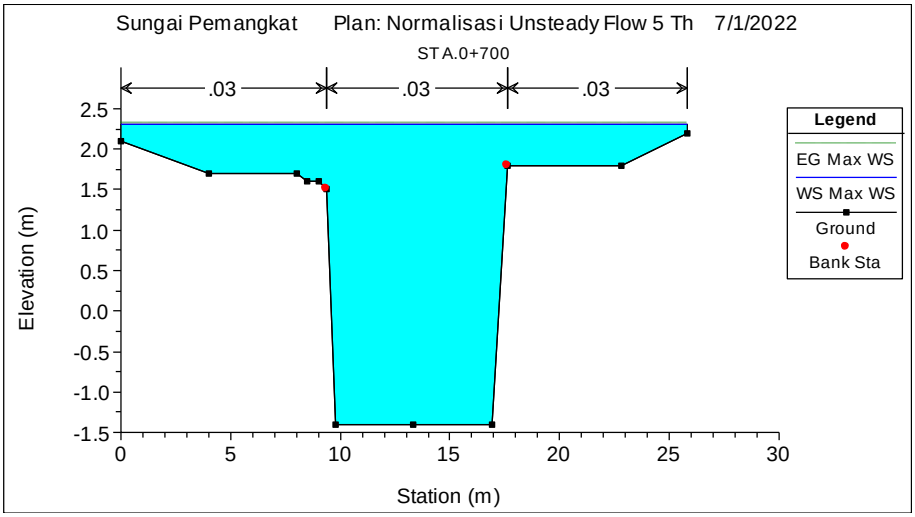

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+450
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

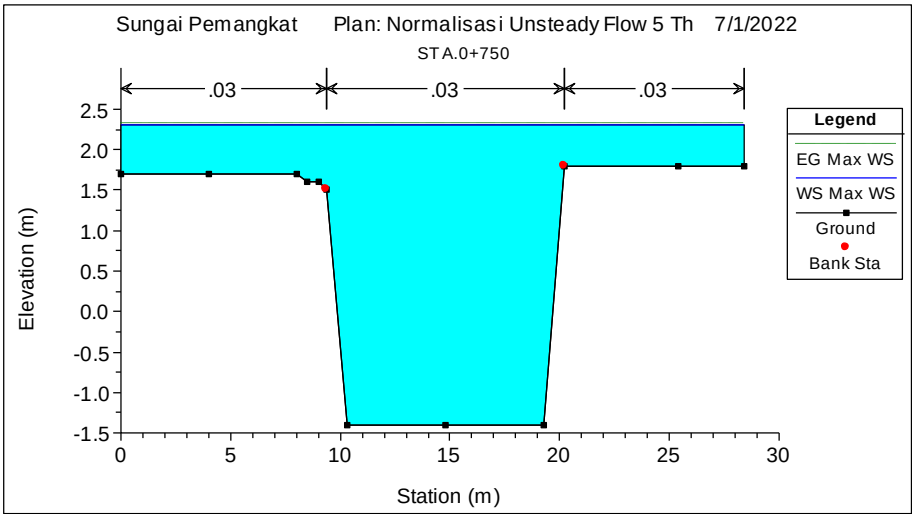

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+500
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

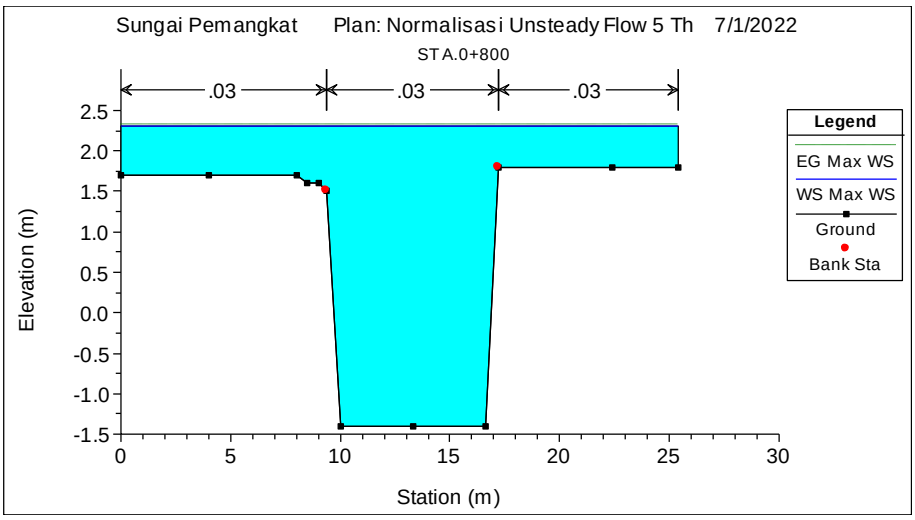

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+550
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

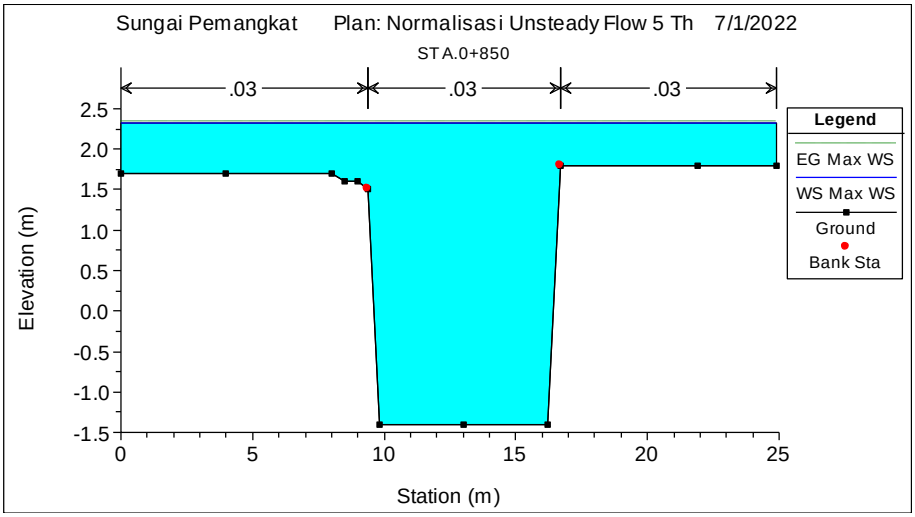

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+600
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

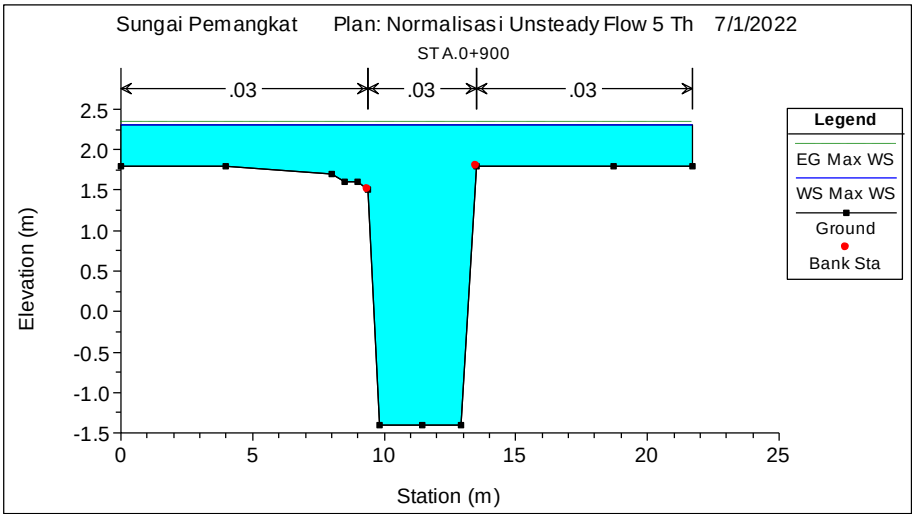

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+650
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

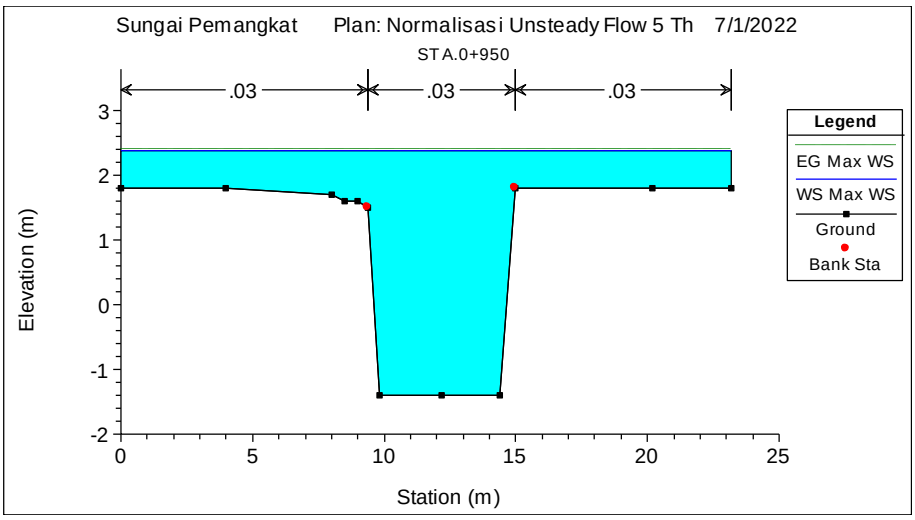

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+700
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

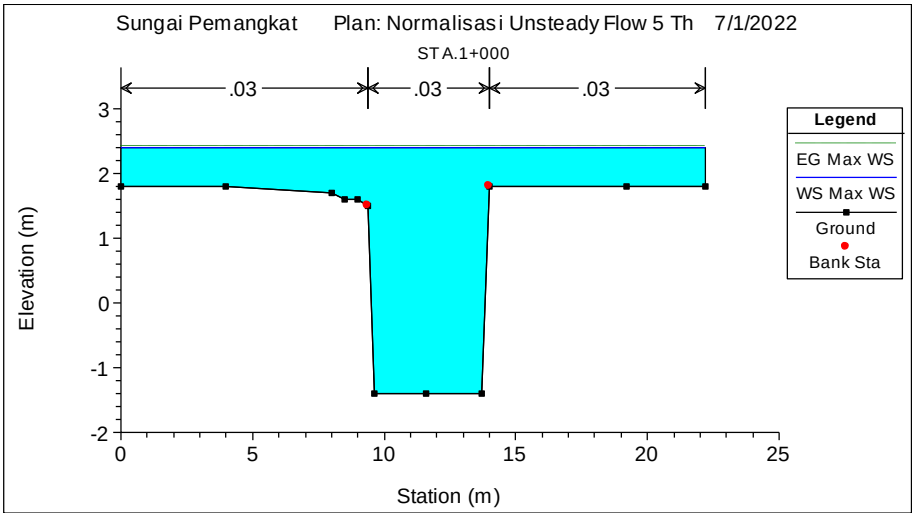

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+750
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

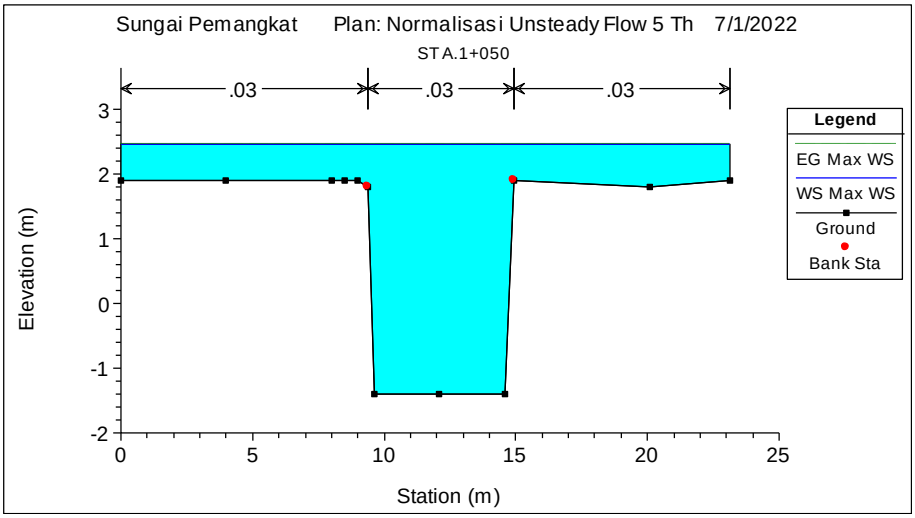

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+800
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

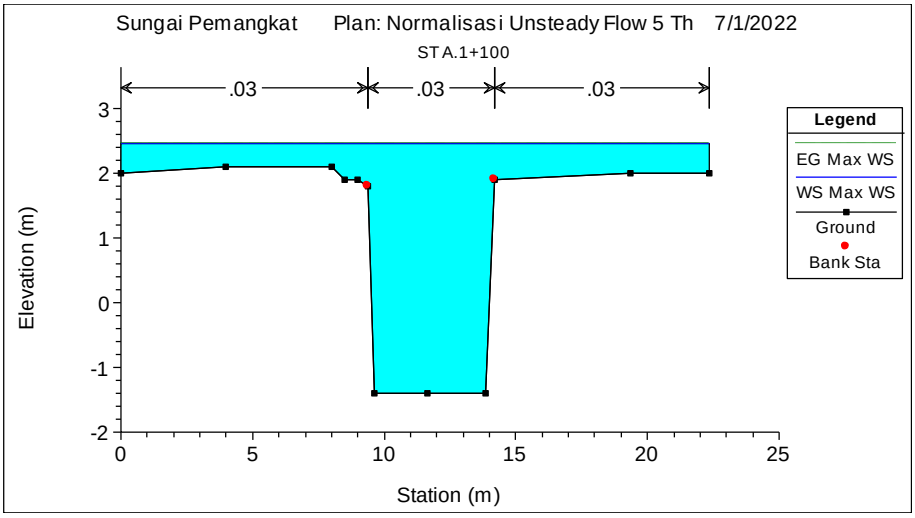

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+850
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

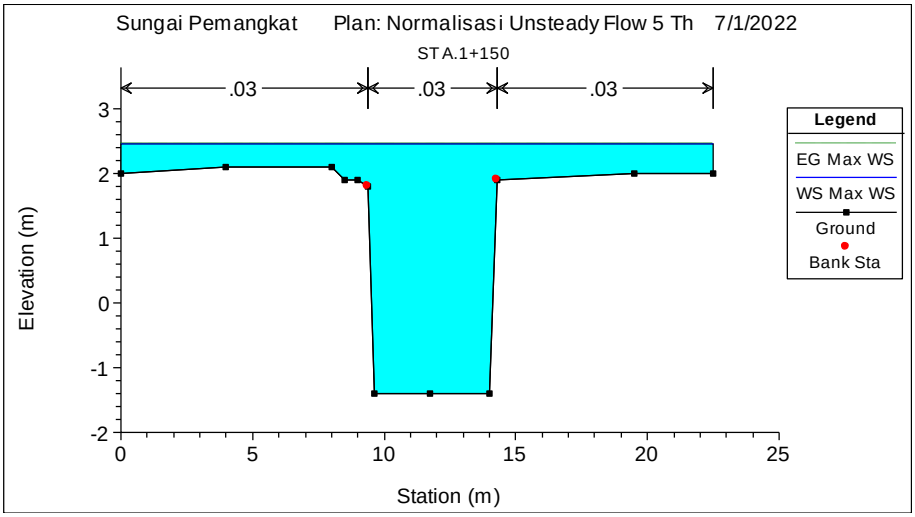

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+900
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

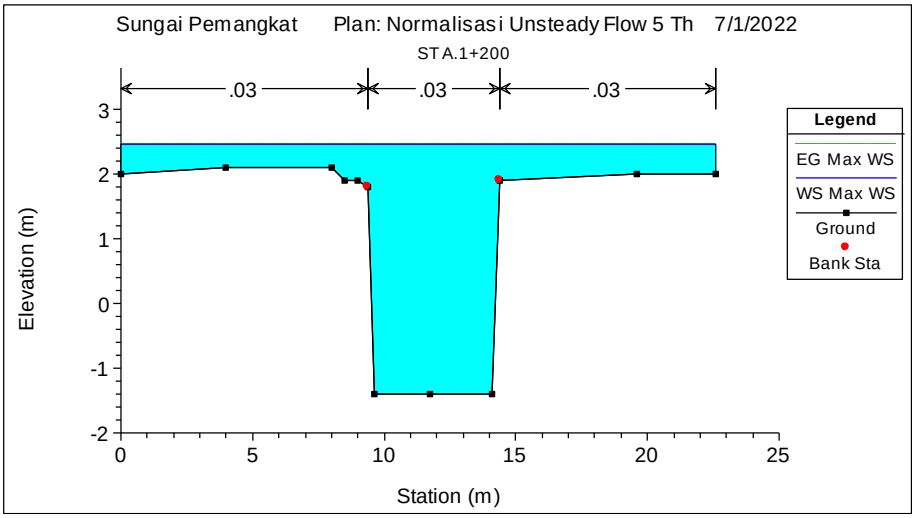

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.0+950
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

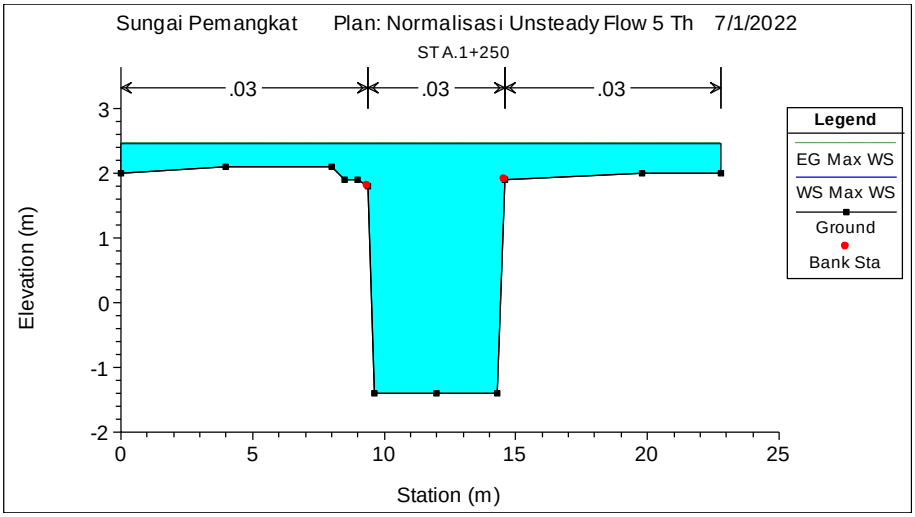

Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.1+000
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta


Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.1+050
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.1+100
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.1+150
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.1+200
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta


Sungai Pemangkat Plan: Normalisasi Unsteady Flow 5 Th 7/1/2022
STA.1+250
.03
.03
.03
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

Lampiran J-1 Data *Cross Section Output* Setelah Normalisasi

STA. 0+000

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 0 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 0 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18				
Vel Head (m)	0.00	Wt. n-Val.		0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)			
Crit W.S. (m)	-1.98	Flow Area (m2)		393.31	23.44
E.G. Slope (m/m)	0.000000	Area (m2)		393.31	23.44
Q Total (m3/s)	22.05	Flow (m3/s)		21.54	0.51
Top Width (m)	133.08	Top Width (m)		107.88	25.20
Vel Total (m/s)	0.05	Avg. Vel. (m/s)		0.05	0.02
Max Chl Dpth (m)	4.38	Hydr. Depth (m)		3.65	0.93
Conv. Total (m3/s)	31608.4	Conv. (m3/s)		30880.7	727.7
Length Wtd. (m)		Wetted Per. (m)		108.80	26.08
Min Ch El (m)	-2.20	Shear (N/m2)		0.02	0.00
Alpha	1.05	Stream Power (N/m s)	7622.16	0.00	0.00
Frctn Loss (m)		Cum Volume (1000 m3)			
C & E Loss (m)		Cum SA (1000 m2)			

Errors, Warnings and Notes

STA. 0+050

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 50 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 50 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18				
Vel Head (m)	0.00	Wt. n-Val.		0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	51.49	50.00	54.82
Crit W.S. (m)		Flow Area (m2)		266.66	13.10
E.G. Slope (m/m)	0.000001	Area (m2)		266.66	13.10
Q Total (m3/s)	22.00	Flow (m3/s)		21.65	0.35
Top Width (m)	97.88	Top Width (m)		77.88	20.00
Vel Total (m/s)	0.08	Avg. Vel. (m/s)		0.08	0.03
Max Chl Dpth (m)	4.38	Hydr. Depth (m)		3.42	0.66
Conv. Total (m3/s)	20345.0	Conv. (m3/s)		20021.8	323.1
Length Wtd. (m)	50.09	Wetted Per. (m)		78.88	20.58
Min Ch El (m)	-2.20	Shear (N/m2)		0.04	0.01
Alpha	1.05	Stream Power (N/m s)	5936.85	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		16.50	1.00
C & E Loss (m)		Cum SA (1000 m2)		4.64	1.24

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+100

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 100 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 100 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.18	Reach Len. (m)	49.67	50.52	56.15
Crit W.S. (m)		Flow Area (m2)	4.47	163.97	13.09
E.G. Slope (m/m)	0.000003	Area (m2)	4.47	163.97	13.09
Q Total (m3/s)	21.88	Flow (m3/s)	0.16	21.16	0.56
Top Width (m)	77.40	Top Width (m)	9.40	48.00	20.00
Vel Total (m/s)	0.12	Avg. Vel. (m/s)	0.04	0.13	0.04
Max Chl Dpth (m)	4.38	Hydr. Depth (m)	0.48	3.42	0.65
Conv. Total (m3/s)	12549.2	Conv. (m3/s)	90.0	12136.3	322.9
Length Wtd. (m)	50.64	Wetted Per. (m)	9.52	49.56	20.58
Min Ch El (m)	-2.20	Shear (N/m2)	0.01	0.10	0.02
Alpha	1.11	Stream Power (N/m s)	3705.75	0.00	0.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.11	27.38	1.74
C & E Loss (m)		Cum SA (1000 m2)	0.23	7.82	2.36

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+150

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 150 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 150 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.18	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	51.53	50.00	58.76
W.S. Elev (m)	2.18	Flow Area (m2)	4.44	51.06	5.40
Crit W.S. (m)		Area (m2)	4.44	51.06	5.40
E.G. Slope (m/m)	0.000036	Flow (m3/s)	0.54	20.37	0.78
Q Total (m3/s)	21.68	Top Width (m)	9.40	14.50	8.20
Top Width (m)	32.10	Avg. Vel. (m/s)	0.12	0.40	0.15
Vel Total (m/s)	0.36	Hydr. Depth (m)	0.47	3.52	0.66
Max Chl Dpth (m)	3.98	Conv. (m3/s)	88.9	3383.1	130.0
Conv. Total (m3/s)	3602.1	Wetted Per. (m)	9.52	18.22	8.78
Length Wtd. (m)	50.29	Shear (N/m2)	0.17	1.00	0.22
Min Ch El (m)	-1.80	Stream Power (N/m s)	1536.88	0.00	0.00
Alpha	1.19	Cum Volume (1000 m3)	0.34	32.75	2.28
Frctn Loss (m)	0.00	Cum SA (1000 m2)	0.72	9.39	3.19
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+200

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 200 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 200 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.19	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	52.48	51.35	51.24
W.S. Elev (m)	2.18	Flow Area (m2)	0.76	69.38	5.44
Crit W.S. (m)		Area (m2)	0.76	69.38	5.44
E.G. Slope (m/m)	0.000019	Flow (m3/s)	0.02	20.97	0.58
Q Total (m3/s)	21.57	Top Width (m)	9.40	20.00	8.20
Top Width (m)	37.60	Avg. Vel. (m/s)	0.03	0.30	0.11
Vel Total (m/s)	0.29	Hydr. Depth (m)	0.08	3.47	0.66
Max Chl Dpth (m)	3.98	Conv. (m3/s)	4.7	4760.3	131.6
Conv. Total (m3/s)	4896.6	Wetted Per. (m)	9.48	23.49	8.78
Length Wtd. (m)	51.36	Shear (N/m2)	0.02	0.56	0.12
Min Ch El (m)	-1.80	Stream Power (N/m s)	1800.21	0.00	0.00
Alpha	1.09	Cum Volume (1000 m3)	0.48	35.85	2.56
Frctn Loss (m)	0.00	Cum SA (1000 m2)	1.21	10.27	3.61
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 0+250

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 250 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 250 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.19	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	53.29	50.00	47.28
W.S. Elev (m)	2.18	Flow Area (m2)	0.07	70.92	5.45
Crit W.S. (m)		Area (m2)	0.07	70.92	5.45
E.G. Slope (m/m)	0.000018	Flow (m3/s)	0.00	20.95	0.57
Q Total (m3/s)	21.52	Top Width (m)	0.38	18.80	8.20
Top Width (m)	27.38	Avg. Vel. (m/s)	0.04	0.30	0.10
Vel Total (m/s)	0.28	Hydr. Depth (m)	0.19	3.77	0.66
Max Chl Dpth (m)	3.98	Conv. (m3/s)	0.6	4898.9	132.2
Conv. Total (m3/s)	5031.7	Wetted Per. (m)	0.54	23.78	8.78
Length Wtd. (m)	49.93	Shear (N/m2)	0.02	0.53	0.11
Min Ch El (m)	-1.80	Stream Power (N/m s)	1742.76	0.00	0.00
Alpha	1.08	Cum Volume (1000 m3)	0.50	39.35	2.82
Frctn Loss (m)	0.00	Cum SA (1000 m2)	1.47	11.24	4.00
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 0+300

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 300 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 300 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.19	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	54.55	50.60	46.75
W.S. Elev (m)	2.18	Flow Area (m2)	3.81	47.53	5.44
Crit W.S. (m)		Area (m2)	3.81	47.53	5.44
E.G. Slope (m/m)	0.000042	Flow (m3/s)	0.45	19.84	0.85
Q Total (m3/s)	21.15	Top Width (m)	9.40	12.65	8.20
Top Width (m)	30.25	Avg. Vel. (m/s)	0.12	0.42	0.16
Vel Total (m/s)	0.37	Hydr. Depth (m)	0.41	3.76	0.66
Max Chl Dpth (m)	3.98	Conv. (m3/s)	68.9	3054.5	131.6
Conv. Total (m3/s)	3255.0	Wetted Per. (m)	9.52	17.75	8.78
Length Wtd. (m)	50.52	Shear (N/m2)	0.17	1.11	0.26
Min Ch El (m)	-1.80	Stream Power (N/m s)	1448.30	0.00	0.00
Alpha	1.19	Cum Volume (1000 m3)	0.61	42.35	3.07
Frctn Loss (m)	0.00	Cum SA (1000 m2)	1.74	12.04	4.38
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+350

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 350 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 350 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.19	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	63.95	56.73	50.05
W.S. Elev (m)	2.18	Flow Area (m2)	5.47	38.24	5.43
Crit W.S. (m)		Area (m2)	5.47	38.24	5.43
E.G. Slope (m/m)	0.000066	Flow (m3/s)	0.99	18.96	1.07
Q Total (m3/s)	21.02	Top Width (m)	9.40	10.32	8.20
Top Width (m)	27.92	Avg. Vel. (m/s)	0.18	0.50	0.20
Vel Total (m/s)	0.43	Hydr. Depth (m)	0.58	3.71	0.66
Max Chl Dpth (m)	3.98	Conv. (m3/s)	122.1	2334.9	131.2
Conv. Total (m3/s)	2588.2	Wetted Per. (m)	9.99	15.42	8.78
Length Wtd. (m)	56.67	Shear (N/m2)	0.35	1.60	0.40
Min Ch El (m)	-1.80	Stream Power (N/m s)	1336.75	0.00	0.00
Alpha	1.23	Cum Volume (1000 m3)	0.90	44.78	3.34
Frctn Loss (m)	0.00	Cum SA (1000 m2)	2.34	12.69	4.79
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 0+400

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 400 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 400 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.20	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.02	Reach Len. (m)	48.67	50.00	50.67
W.S. Elev (m)	2.18	Flow Area (m2)	4.47	24.70	5.42
Crit W.S. (m)		Area (m2)	4.47	24.70	5.42
E.G. Slope (m/m)	0.000181	Flow (m3/s)	1.21	17.90	1.76
Q Total (m3/s)	20.87	Top Width (m)	9.40	6.92	8.20
Top Width (m)	24.52	Avg. Vel. (m/s)	0.27	0.72	0.33
Vel Total (m/s)	0.60	Hydr. Depth (m)	0.48	3.57	0.66
Max Chl Dpth (m)	3.98	Conv. (m3/s)	89.9	1330.7	131.0
Conv. Total (m3/s)	1551.6	Wetted Per. (m)	9.52	12.02	8.78
Length Wtd. (m)	49.98	Shear (N/m2)	0.83	3.65	1.10
Min Ch El (m)	-1.80	Stream Power (N/m s)	1173.96	0.00	0.00
Alpha	1.27	Cum Volume (1000 m3)	1.14	46.36	3.62
Frctn Loss (m)	0.01	Cum SA (1000 m2)	2.80	13.12	5.21
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+450

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 450 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 450 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.22	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.04	Reach Len. (m)	48.51	50.00	51.67
W.S. Elev (m)	2.18	Flow Area (m2)	3.84	18.56	3.89
Crit W.S. (m)		Area (m2)	3.84	18.56	3.89
E.G. Slope (m/m)	0.000382	Flow (m3/s)	1.37	17.76	1.50
Q Total (m3/s)	20.62	Top Width (m)	9.40	5.65	8.20
Top Width (m)	23.25	Avg. Vel. (m/s)	0.36	0.96	0.38
Vel Total (m/s)	0.78	Hydr. Depth (m)	0.41	3.28	0.47
Max Chl Dpth (m)	3.58	Conv. (m3/s)	70.0	909.2	76.6
Conv. Total (m3/s)	1055.7	Wetted Per. (m)	9.52	10.41	8.59
Length Wtd. (m)	50.04	Shear (N/m2)	1.51	6.67	1.70
Min Ch El (m)	-1.40	Stream Power (N/m s)	1113.17	0.00	0.00
Alpha	1.31	Cum Volume (1000 m3)	1.35	47.44	3.86
Frctn Loss (m)	0.01	Cum SA (1000 m2)	3.25	13.44	5.63
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+500

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 500 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 500 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.24	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.02	Reach Len. (m)	49.48	49.49	49.52
W.S. Elev (m)	2.21	Flow Area (m2)	4.17	23.09	5.70
Crit W.S. (m)		Area (m2)	4.17	23.09	5.70
E.G. Slope (m/m)	0.000198	Flow (m3/s)	1.12	17.14	2.00
Q Total (m3/s)	20.26	Top Width (m)	9.40	6.85	8.20
Top Width (m)	24.45	Avg. Vel. (m/s)	0.27	0.74	0.35
Vel Total (m/s)	0.61	Hydr. Depth (m)	0.44	3.37	0.70
Max Chl Dpth (m)	3.61	Conv. (m3/s)	79.8	1216.6	142.2
Conv. Total (m3/s)	1438.6	Wetted Per. (m)	9.56	11.61	8.82
Length Wtd. (m)	49.49	Shear (N/m2)	0.85	3.87	1.26
Min Ch El (m)	-1.40	Stream Power (N/m s)	1170.62	0.00	0.00
Alpha	1.28	Cum Volume (1000 m3)	1.54	48.47	4.09
Frctn Loss (m)	0.01	Cum SA (1000 m2)	3.72	13.74	6.04
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 0+550

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 550 Plan: simulasi 1

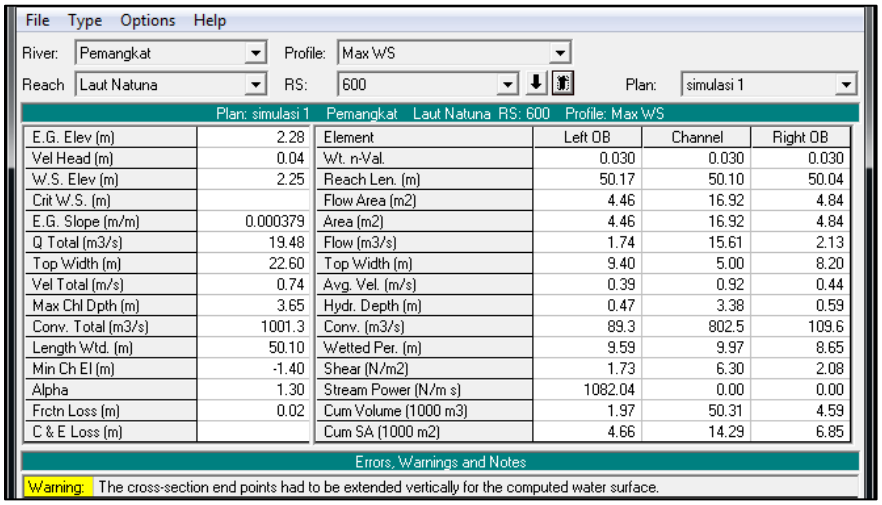
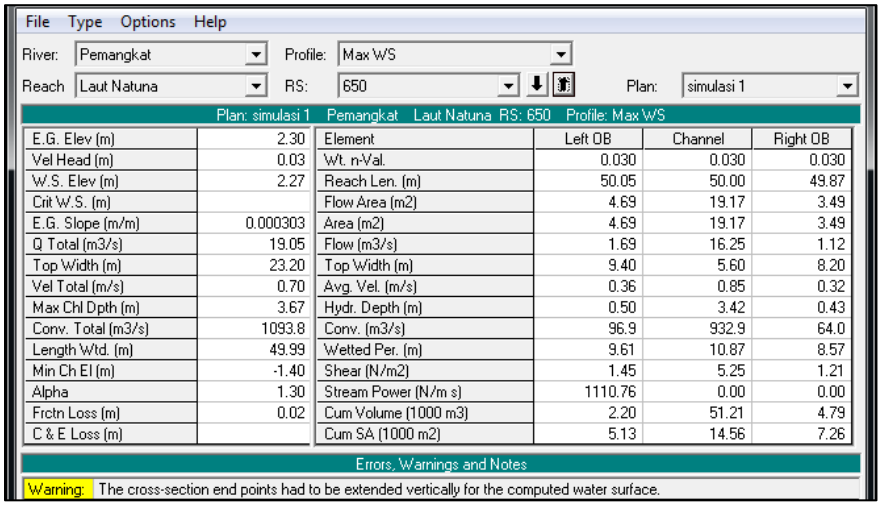
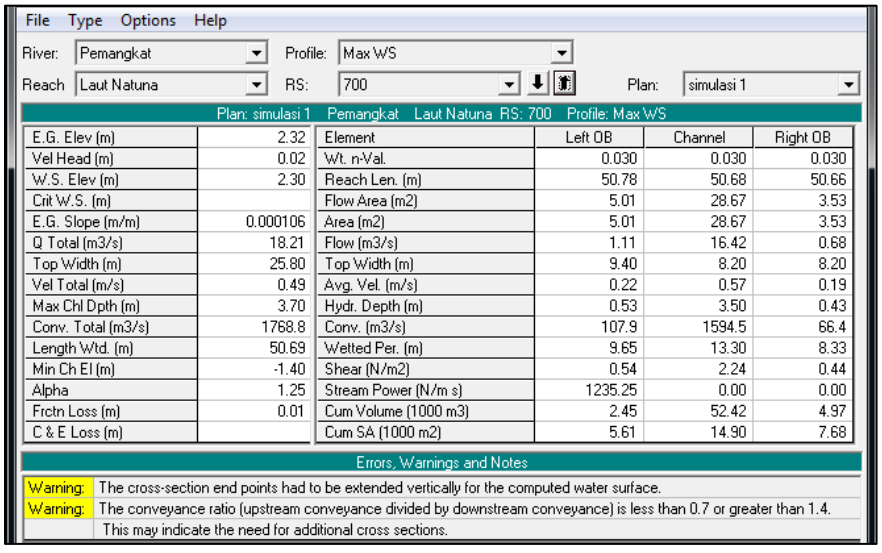
Plan: simulasi 1 Pemangkat Laut Natuna RS: 550 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.26	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.04	Reach Len. (m)	50.28	49.81	49.40
W.S. Elev (m)	2.22	Flow Area (m2)	4.20	16.78	4.61
Crit W.S. (m)		Area (m2)	4.20	16.78	4.61
E.G. Slope (m/m)	0.000417	Flow (m3/s)	1.65	16.17	2.07
Q Total (m3/s)	19.89	Top Width (m)	9.40	5.00	8.20
Top Width (m)	22.60	Avg. Vel. (m/s)	0.39	0.96	0.45
Vel Total (m/s)	0.78	Hydr. Depth (m)	0.45	3.36	0.56
Max Chl Dpth (m)	3.62	Conv. (m3/s)	80.8	791.4	101.3
Conv. Total (m3/s)	973.5	Wetted Per. (m)	9.56	9.97	8.62
Length Wtd. (m)	49.80	Shear (N/m2)	1.80	6.89	2.19
Min Ch El (m)	-1.40	Stream Power (N/m s)	1082.04	0.00	0.00
Alpha	1.31	Cum Volume (1000 m3)	1.75	49.46	4.35
Frctn Loss (m)	0.01	Cum SA (1000 m2)	4.19	14.04	6.44
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+600	
STA. 0+650	
STA. 0+700	

STA. 0+750

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 750 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 750 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.32	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	57.55	50.00	46.84
W.S. Elev (m)	2.31	Flow Area (m2)	5.91	37.37	4.22
Crit W.S. (m)		Area (m2)	5.91	37.37	4.22
E.G. Slope (m/m)	0.000050	Flow (m3/s)	0.98	15.91	0.61
Q Total (m3/s)	17.50	Top Width (m)	9.40	10.80	8.20
Top Width (m)	28.40	Avg. Vel. (m/s)	0.17	0.43	0.15
Vel Total (m/s)	0.37	Hydr. Depth (m)	0.63	3.46	0.51
Max Chl Dpth (m)	3.71	Conv. (m3/s)	138.5	2253.5	86.7
Conv. Total (m3/s)	2478.8	Wetted Per. (m)	10.04	15.36	8.71
Length Wtd. (m)	50.33	Shear (N/m2)	0.29	1.19	0.24
Min Ch El (m)	-1.40	Stream Power (N/m s)	1359.73	0.00	0.00
Alpha	1.23	Cum Volume (1000 m3)	2.76	54.07	5.15
Frctn Loss (m)	0.00	Cum SA (1000 m2)	6.15	15.38	8.06
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+800

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 800 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 800 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.33	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	51.09	50.00	49.27
W.S. Elev (m)	2.31	Flow Area (m2)	5.90	27.13	4.21
Crit W.S. (m)		Area (m2)	5.90	27.13	4.21
E.G. Slope (m/m)	0.000101	Flow (m3/s)	1.39	15.00	0.87
Q Total (m3/s)	17.26	Top Width (m)	9.40	7.80	8.20
Top Width (m)	25.40	Avg. Vel. (m/s)	0.24	0.55	0.21
Vel Total (m/s)	0.46	Hydr. Depth (m)	0.63	3.48	0.51
Max Chl Dpth (m)	3.71	Conv. (m3/s)	138.0	1491.0	86.3
Conv. Total (m3/s)	1715.3	Wetted Per. (m)	10.04	12.82	8.71
Length Wtd. (m)	50.04	Shear (N/m2)	0.58	2.10	0.48
Min Ch El (m)	-1.40	Stream Power (N/m s)	1216.09	0.00	0.00
Alpha	1.27	Cum Volume (1000 m3)	3.06	55.68	5.36
Frctn Loss (m)	0.00	Cum SA (1000 m2)	6.63	15.84	8.47
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+850

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 850 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 850 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.34	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.01	Reach Len. (m)	46.17	50.65	54.89
W.S. Elev (m)	2.32	Flow Area (m2)	5.99	25.84	4.28
Crit W.S. (m)		Area (m2)	5.99	25.84	4.28
E.G. Slope (m/m)	0.000103	Flow (m3/s)	1.44	14.15	0.90
Q Total (m3/s)	16.49	Top Width (m)	9.40	7.32	8.20
Top Width (m)	24.92	Avg. Vel. (m/s)	0.24	0.55	0.21
Vel Total (m/s)	0.46	Hydr. Depth (m)	0.64	3.53	0.52
Max Chl Dpth (m)	3.72	Conv. (m3/s)	141.4	1392.6	88.9
Conv. Total (m3/s)	1622.9	Wetted Per. (m)	10.04	12.57	8.72
Length Wtd. (m)	50.50	Shear (N/m2)	0.60	2.08	0.50
Min Ch El (m)	-1.40	Stream Power (N/m s)	1193.12	0.00	0.00
Alpha	1.27	Cum Volume (1000 m3)	3.34	57.03	5.59
Frctn Loss (m)	0.01	Cum SA (1000 m2)	7.07	16.23	8.92
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 0+900

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 900 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 900 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.34				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.31	Reach Len. (m)	50.90	50.29	50.14
Crit W.S. (m)		Flow Area (m2)	5.26	13.71	4.17
E.G. Slope (m/m)	0.000418	Area (m2)	5.26	13.71	4.17
Q Total (m3/s)	16.21	Flow (m3/s)	2.35	12.12	1.74
Top Width (m)	21.72	Top Width (m)	9.40	4.12	8.20
Vel Total (m/s)	0.70	Avg. Vel. (m/s)	0.45	0.88	0.42
Max Chl Dpth (m)	3.71	Hydr. Depth (m)	0.56	3.33	0.51
Conv. Total (m3/s)	792.4	Conv. (m3/s)	114.7	592.6	85.1
Length Wtd. (m)	50.35	Wetted Per. (m)	9.93	9.29	8.71
Min Ch El (m)	-1.40	Shear (N/m2)	2.17	6.06	1.96
Alpha	1.29	Stream Power (N/m s)	1039.91	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	3.62	58.02	5.81
C & E Loss (m)		Cum SA (1000 m2)	7.54	16.52	9.33

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 0+950

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 950 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 950 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.39				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.38	Reach Len. (m)	51.09	50.85	50.71
Crit W.S. (m)		Flow Area (m2)	5.90	19.51	4.73
E.G. Slope (m/m)	0.000153	Area (m2)	5.90	19.51	4.73
Q Total (m3/s)	14.99	Flow (m3/s)	1.71	11.98	1.29
Top Width (m)	23.18	Top Width (m)	9.40	5.58	8.20
Vel Total (m/s)	0.50	Avg. Vel. (m/s)	0.29	0.61	0.27
Max Chl Dpth (m)	3.78	Hydr. Depth (m)	0.63	3.50	0.58
Conv. Total (m3/s)	1210.0	Conv. (m3/s)	138.2	967.5	104.4
Length Wtd. (m)	50.87	Wetted Per. (m)	10.00	10.75	8.78
Min Ch El (m)	-1.40	Shear (N/m2)	0.89	2.73	0.81
Alpha	1.28	Stream Power (N/m s)	1109.81	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	3.91	58.86	6.03
C & E Loss (m)		Cum SA (1000 m2)	8.02	16.76	9.74

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

STA. 1+000

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1000 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 1000 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.42				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (m)	2.40	Reach Len. (m)	52.62	53.20	53.64
Crit W.S. (m)		Flow Area (m2)	6.13	16.74	4.93
E.G. Slope (m/m)	0.000151	Area (m2)	6.13	16.74	4.93
Q Total (m3/s)	12.71	Flow (m3/s)	1.81	9.53	1.37
Top Width (m)	22.21	Top Width (m)	9.40	4.61	8.20
Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.30	0.57	0.28
Max Chl Dpth (m)	3.80	Hydr. Depth (m)	0.65	3.63	0.60
Conv. Total (m3/s)	1034.5	Conv. (m3/s)	147.3	775.4	111.8
Length Wtd. (m)	53.17	Wetted Per. (m)	10.03	10.22	8.80
Min Ch El (m)	-1.40	Shear (N/m2)	0.91	2.43	0.83
Alpha	1.26	Stream Power (N/m s)	1063.36	0.00	0.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	4.22	59.83	6.29
C & E Loss (m)		Cum SA (1000 m2)	8.52	17.03	10.18

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 1+050

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1050 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 1050 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.45	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	54.19	50.42	46.95
W.S. Elev (m)	2.45	Flow Area (m2)	5.21	20.40	4.94
Crit W.S. (m)		Area (m2)	5.21	20.40	4.94
E.G. Slope (m/m)	0.000007	Flow (m3/s)	0.29	2.57	0.29
Q Total (m3/s)	3.16	Top Width (m)	9.40	5.51	8.20
Top Width (m)	23.11	Avg. Vel. (m/s)	0.06	0.13	0.06
Vel Total (m/s)	0.10	Hydr. Depth (m)	0.55	3.70	0.60
Max Chl Dpth (m)	3.85	Conv. (m3/s)	112.8	994.9	112.4
Conv. Total (m3/s)	1220.0	Wetted Per. (m)	9.96	11.52	8.75
Length Wtd. (m)	50.56	Shear (N/m2)	0.03	0.12	0.04
Min Ch El (m)	-1.40	Stream Power (N/m s)	1106.46	0.00	0.00
Alpha	1.27	Cum Volume (1000 m3)	4.53	60.76	6.52
Frctn Loss (m)	0.00	Cum SA (1000 m2)	9.03	17.29	10.57
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 1+100

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1100 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 1100 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.45	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	47.31	49.40	51.50
W.S. Elev (m)	2.45	Flow Area (m2)	3.77	17.55	3.97
Crit W.S. (m)		Area (m2)	3.77	17.55	3.97
E.G. Slope (m/m)	0.000009	Flow (m3/s)	0.20	2.49	0.24
Q Total (m3/s)	2.94	Top Width (m)	9.40	4.77	8.20
Top Width (m)	22.37	Avg. Vel. (m/s)	0.05	0.14	0.06
Vel Total (m/s)	0.12	Hydr. Depth (m)	0.40	3.68	0.48
Max Chl Dpth (m)	3.85	Conv. (m3/s)	65.9	809.4	78.8
Conv. Total (m3/s)	954.2	Wetted Per. (m)	9.91	10.78	8.65
Length Wtd. (m)	49.41	Shear (N/m2)	0.04	0.15	0.04
Min Ch El (m)	-1.40	Stream Power (N/m s)	1071.02	0.00	0.00
Alpha	1.31	Cum Volume (1000 m3)	4.74	61.70	6.75
Frctn Loss (m)	0.00	Cum SA (1000 m2)	9.47	17.54	10.99
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 1+150

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1150 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 1150 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.45	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	49.36	50.00	50.55
W.S. Elev (m)	2.45	Flow Area (m2)	3.78	18.09	3.98
Crit W.S. (m)		Area (m2)	3.78	18.09	3.98
E.G. Slope (m/m)	0.000008	Flow (m3/s)	0.18	2.33	0.22
Q Total (m3/s)	2.74	Top Width (m)	9.40	4.91	8.20
Top Width (m)	22.51	Avg. Vel. (m/s)	0.05	0.13	0.05
Vel Total (m/s)	0.11	Hydr. Depth (m)	0.40	3.68	0.49
Max Chl Dpth (m)	3.85	Conv. (m3/s)	66.3	844.4	79.2
Conv. Total (m3/s)	989.9	Wetted Per. (m)	9.91	10.92	8.66
Length Wtd. (m)	50.00	Shear (N/m2)	0.03	0.12	0.03
Min Ch El (m)	-1.40	Stream Power (N/m s)	1077.74	0.00	0.00
Alpha	1.30	Cum Volume (1000 m3)	4.93	62.59	6.95
Frctn Loss (m)	0.00	Cum SA (1000 m2)	9.94	17.78	11.40
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 1+200

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1200 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 1200 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.46	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	50.53	50.13	49.73
W.S. Elev (m)	2.46	Flow Area (m2)	3.79	18.48	3.99
Crit W.S. (m)		Area (m2)	3.79	18.48	3.99
E.G. Slope (m/m)	0.000006	Flow (m3/s)	0.17	2.18	0.20
Q Total (m3/s)	2.54	Top Width (m)	9.40	5.01	8.20
Top Width (m)	22.61	Avg. Vel. (m/s)	0.04	0.12	0.05
Vel Total (m/s)	0.10	Hydr. Depth (m)	0.40	3.69	0.49
Max Chl Dpth (m)	3.86	Conv. (m3/s)	66.6	869.8	79.5
Conv. Total (m3/s)	1015.9	Wetted Per. (m)	9.91	11.02	8.66
Length Wtd. (m)	50.12	Shear (N/m2)	0.02	0.10	0.03
Min Ch El (m)	-1.40	Stream Power (N/m s)	1082.52	0.00	0.00
Alpha	1.30	Cum Volume (1000 m3)	5.12	63.51	7.15
Frctn Loss (m)	0.00	Cum SA (1000 m2)	10.41	18.03	11.81
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

STA. 1+250

File Type Options Help

River: Pemangkat Profile: Max WS

Reach Laut Natuna RS: 1250 Plan: simulasi 1

Plan: simulasi 1 Pemangkat Laut Natuna RS: 1250 Profile: Max WS

		Element	Left OB	Channel	Right OB
E.G. Elev (m)	2.46	Wt. n-Val.	0.030	0.030	0.030
Vel Head (m)	0.00	Reach Len. (m)	52.85	52.48	51.98
W.S. Elev (m)	2.46	Flow Area (m2)	3.80	19.16	4.00
Crit W.S. (m)		Area (m2)	3.80	19.16	4.00
E.G. Slope (m/m)	0.000006	Flow (m3/s)	0.16	2.22	0.19
Q Total (m3/s)	2.57	Top Width (m)	9.40	5.20	8.20
Top Width (m)	22.80	Avg. Vel. (m/s)	0.04	0.12	0.05
Vel Total (m/s)	0.10	Hydr. Depth (m)	0.40	3.68	0.49
Max Chl Dpth (m)	3.86	Conv. (m3/s)	66.8	914.7	79.7
Conv. Total (m3/s)	1061.1	Wetted Per. (m)	9.91	11.17	8.66
Length Wtd. (m)	52.47	Shear (N/m2)	0.02	0.10	0.03
Min Ch El (m)	-1.40	Stream Power (N/m s)	1091.61	0.00	0.00
Alpha	1.30	Cum Volume (1000 m3)	5.32	64.50	7.36
Frctn Loss (m)	0.00	Cum SA (1000 m2)	10.91	18.30	12.24
C & E Loss (m)					

Errors, Warnings and Notes

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Lampiran K-1 Dokumentasi Penelitian

1		Pengambilan data geometri (*corss section* dan elevasi antar STA.) Sungai Pemangkat menggunakan pesawat *theodolite*
2		
3		
4		

5	 	Pengambilan data pasang surut menggunakan bak/rambu ukur
6		Kondisi STA. 0+000
7		Kondisi STA. 0+200

8		Kondisi STA. 0+300
9		Kondisi STA. 0+500
10		Kondisi STA. 0+600
11		Kondisi STA. 0+700

12		Kondisi STA. 0+800
13		Kondisi STA. 0+900
14		Kondisi STA. 1+000
15		Kondisi STA. 1+100