

LAMPIRAN 1

DATA MEKANIKA TANAH



Lampiran 1 Data Mekanika Tanah

1. Analisis Saringan

**KEMENTERIAN PEKERJAAN UMUM
BADAN PENELITIAN DAN PENGEMBANGAN
PUSAT PENELITIAN DAN PENGEMBANGAN SUMBER DAYA AIR
LABORATORIUM SABO**
Sopalan, Maguwoharjo, Depok, Sleman, Yogyakarta 55282
Telp. (0274) 886350, 886351 Fax. (0274) 885431, email : lab_sabo@yahoo.com

RKM - T/5.10/11 - 4 B

HASIL UJI METODE PENGUJIAN TENTANG ANALISIS SARINGAN AGREGAT HALUS DAN KASAR

Metode uji : SNI 03 - 1968 -1990
No. Contoh uji : 13. 1/LS - ADM / 25 / VIII - 2014
Tanggal diterima : 25 Agustus 2014
Tanggal diuji : 18 September 2014
Tanggal diselesaikan : 18 September 2014
Diuji / diperiksa : 1. Paryana, 2. Suparmin, 3. Heri S., 4. Wijiasih, 5. Susila


Suhu udara : 28.4 °C
Kelembaban udara : 73 %
Berat kering contoh uji : 509.21 gram


Diameter	Saringan		Berat tertahan	Jumlah		
	Berat	Dengan contoh		berat tertahan	Tertahan	Lewat
mm	gram	gram	gram	gram	%	%
1	2	3	4	5	6	7
76.20	-	-	-	-	-	100.00
63.50	-	-	-	-	-	100.00
40.00	-	-	-	-	-	100.00
30.00	-	-	-	-	-	100.00
25.40	-	-	-	-	-	100.00
19.10	-	-	-	-	-	100.00
15.00	-	-	-	-	-	100.00
9.52	-	-	-	-	-	100.00
4.75	-	-	-	-	-	100.00
2.36	581.00	602.70	21.70	21.70	4.26	95.74
1.18	574.00	634.93	60.93	82.63	16.23	83.77
0.60	426.00	548.16	122.16	204.79	40.22	59.78
0.30	428.00	558.08	130.08	334.87	65.76	34.24
0.15	434.00	524.80	90.80	426.67	83.59	16.41
0.075	574.00	620.17	46.17	471.84	92.66	7.34
0	574.00	574.00	-	-	-	-


Rumus

4 = 3 - 2
5 = 5(n-1) + 4(n) 6 = $\frac{5}{\text{Berat bahan kering}} \times 100$ 7 = 100 - 6

Yogyakarta, 19 September 2014

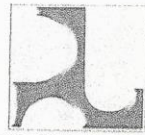
Manajer / Deputi Teknik

F. TATA YUNITA

Penyelia Lab.

Paryana

Teknisi

HERI S.

YKAN
Kantor Akademi Nasional
Pusat Penelitian dan Pengembangan
2010-2011

Gambar L1- 1 Analisa Saringan Agregat Halus



KEMENTERIAN PEKERJAAN UMUM
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RKM - T/5.10/1-4B

HASIL UJI METODE PENGUJIAN TENTANG ANALISIS SARINGAN AGREGAT HALUS DAN KASAR

Metode uji : SNI 03 - 1968 - 1990
No. Contoh uji : 13. 1/LS-ADM/25/VIII-2014
Tanggal diterima : 25 Agustus 2014
Tanggal diuji : 4 September 2014
Tanggal diselesaikan : 8 September 2014
Diuji / diperiksa : 1. Paryana
2. Suparmin
3. Heri S.
4. Wijiasih
5. Susila

Suhu udara : 27,7 °C
Kelembaban udara : 65 %
Berat kering contoh uji : 20600 gram
Pekerjaan : Kali Putih

Diameter	Saringan		Berat tertahan	Jumlah		
	Berat	Dengan contoh		berat tertahan	Tertahan	Lewat
mm	gram	gram	gram	gram	%	%
	2	3	4	5	6	7
76.20	-	-	-	-	-	100.00
63.50	-	-	-	-	-	100.00
40.00	434.00	2075.00	1641.00	1641.00	7.97	92.03
30.00	414.00	1478.00	1064.00	2705.00	13.13	86.87
25.40	561.00	1246.00	685.00	3390.00	16.46	83.54
19.10	561.00	1334.00	773.00	4163.00	20.21	79.79
15.00	561.00	1387.00	826.00	4989.00	24.22	75.78
9.52	574.00	1323.00	749.00	5738.00	27.85	72.15
4.75	428.00	1063.00	635.00	6373.00	30.94	69.06
2.36	581.00	1531.00	950.00	7323.00	35.55	64.45
1.18	574.00	1947.00	1373.00	8696.00	42.21	57.79
0.60	426.00	4589.00	4163.00	12859.00	62.42	37.58
0.30	428.00	3118.00	2690.00	15549.00	75.48	24.52
0.15	434.00	3519.00	3085.00	18634.00	90.46	9.54
0.075	574.00	1977.00	1403.00	20037.00	97.27	2.73
0	574.00	1135.00	561.00	20598.00	99.99	0.01

Rumus		
$4 = 3 - 2$	$6 = \frac{5}{\text{Berat bahan kering}} \times 100$	$7 = 100 - 6$
$5 = 5(n-1) + 4(n)$		

Yogyakarta, 8 September 2014

Manajer / Deputi Teknik

F. TATA SUNITA

Penyelia Lab.

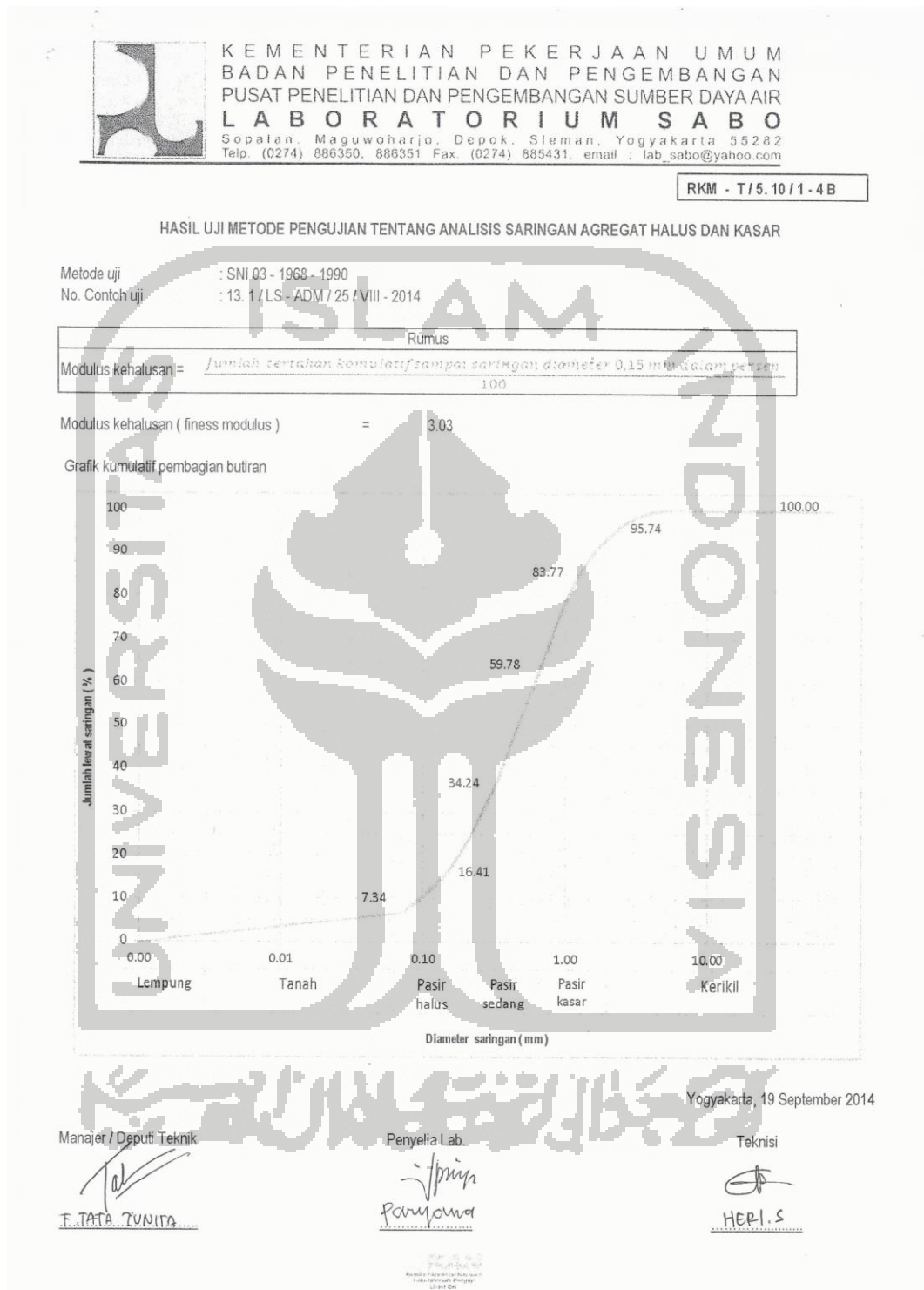
Paryana

Teknisi

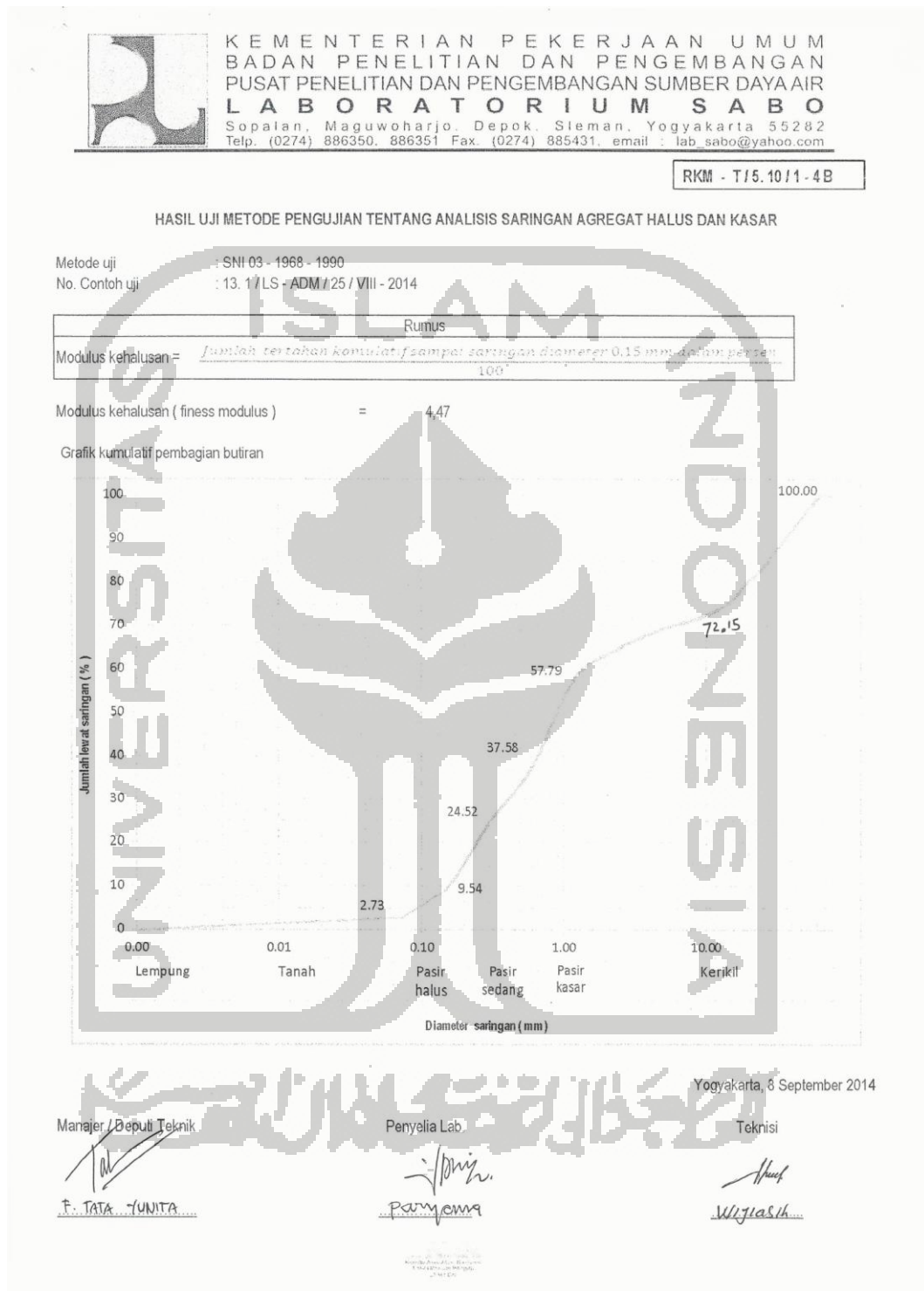
Heri S.

YKAN
Kantor Balai Kota Yogyakarta
Jl. Sultan Hamid II No. 10
55132 Yogyakarta

Gambar L1- 2 Analisa Saringan Agregat Halus dan Kasar



Gambar L1- 3 Grafik Kumulatif Pembagian Butiran Agregat Halus



Gambar L1- 4 Grafik Kumulatif Pembagian Butiran Agregat Halus dan Agregat Kasar

2. Uji Berat Jenis dan Penyerapan Air

RKM - T/5.10/1 - 1

HASIL UJI BERAT JENIS DAN PENYERAPAN AIR AGREGAT HALUS

Metode uji	: SNI 1970 : 2008	Kemasan contoh uji	: Plastik
No. Contoh uji	: 13. 1/LS - ADM / 25 / VIII - 2014	Suhu udara	: 26,6 °C
Tanggal diterima	: 25 Agustus 2014	Kelembaban udara	: 63 %
Tanggal diuji	: 8 September 2014	Jenis contoh uji	: Pasir
Tanggal diselesaikan	: 11 September 2014	Jumlah contoh uji	: 1 kg
Dibuat untuk	: Penelitian di Kali Putih		
Diuji / diperiksa	: 1. Paryana 2. Suparmin 3. Heri S. 4. Wijiasih 5. Susila		

Pengujian		I	II
2	Berat contoh uji jenuh kering permukaan ; gram	500	500
3	Berat contoh uji kering ; gram	495.0	494.8
4	Berat piknometer berisi air ; gram	681.9	679.3
5	Berat piknometer dengan contoh uji dan air ; gram	999.0	996.7

Perhitungan		I	II	Rata - rata
b	Berat jenis curah kering ; Sd	2.71	2.71	2.71
c	Berat jenis curah jenuh kering permukaan ; Ss	2.73	2.74	2.74
d	Berat jenis semu ; Sa	2.78	2.79	2.79
e	Penyerapan air ; Sw ; %	1.01	1.05	1.03

Rumus

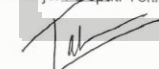


$$b = \frac{2}{4 + 2 - 5}$$

$$c = \frac{3}{4 + 2 - 5}$$

$$d = \frac{3}{4 + 3 - 5}$$

$$e = \left[\frac{2 - 3}{3} \right] \times 100$$

Yogyakarta, 11 September 2014

Manajer / Deputi Teknik	Penyelia Lab.	Teknisi
 T. TATA JUNITA	 Paryama	 Wijiasih

Gambar L1- 5 Hasil Uji Berat Jenis dan Penyerapan Air Agregat Halus

RKM - T/5.10/1-2

HASIL UJI BERAT JENIS DAN PENYERAPAN AIR AGREGAT KASAR

Metode uji	: SNI 1969 : 2008	Kemasan contoh uji	: Plastik
No. Contoh uji	: 13.6/LS - ADM / 25 / VIII - 2014	Suhu udara	: 27.6 °C
Tanggal diterima	: 25 Agustus 2014	Kelembaban udara	: 66 %
Tanggal diuji	: 17 September 2014	Jenis contoh uji	: Pasir
Tanggal diselesaikan	: 19 September 2014	Jumlah contoh uji	: 10 kg
Dibuat untuk	: Penelitian di Kali Putih		
Diuji / diperiksa	: 1. Paryana 2. Suparmin 3. Heri S. 4. Wijiasih 5. Susila		

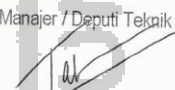
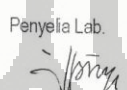

1	Pengujian	I	II	
2	Berat contoh uji kering ; gram	4967.9	4965.6	
3	Berat contoh uji jenuh kering permukaan ; gram	5130.0	5139.7	
4	Berat contoh uji dalam air ; gram	3062.9	3068.7	


Perhitungan				
a		I	II	Rata - Rata
b	Berat jenis curah kering ; Sd	2.40	2.40	2.40
c	Berat jenis curah jenuh kering permukaan ; Ss	2.48	2.48	2.48
d	Berat jenis semu ; Sa	2.61	2.62	2.61
e	Penyerapan air ; Sw ; %	3.26	3.51	3.38

Rumus

$$d = \frac{2}{3 - 4} \quad c = \frac{3}{3 - 4} \quad e = \frac{2}{2 - 4} \quad f = \left[\frac{3 - 2}{2} \right] \times 100$$

Yogyakarta, 19 September 2014

Manajer / Deputi Teknik	Penyelia Lab.	Teknisi
		
T. TATA YUNITA	Paryana	HERI S



Gambar L1- 6 Hasil Uji Berat Jenis dan Penyerapan Air Agregat Kasar

3. Uji Bobot Isi dan Rongga Udara

Tabel L1- 1 Hasil Uji Bobot Isi dan Rongga Udara

No	Metode Cara	Berat Contoh Uji (kg)	Ukuran Agregat (mm)	Volume Penakar (m ³)	Berat Penakar (kg)	Berat Jenis Agregat	Bobot Isi (kg/m ³)	Pengauapan Air	Rongga Udara (%)
1	Tusuk	2,91	25	0,002	1,43	2,50	2587		29,88
2	Tusuk	2,93	25	0,002	1,43	2,50	2597		29,40

4. Uji Geser Langsung

Tabel L1- 2 Hasil Uji Geser Langsung

	SATUAN	I	II	III
Beban (kg)		0.5	1	1.5
Tegangan Normal	kg/cm ²	0.19519	0.38445	0.6182
Tegangan geser Max.	kg/cm ²	0.18266	0.37339	0.55313

LAMPIRAN 2

PETA TOPOGRAFI

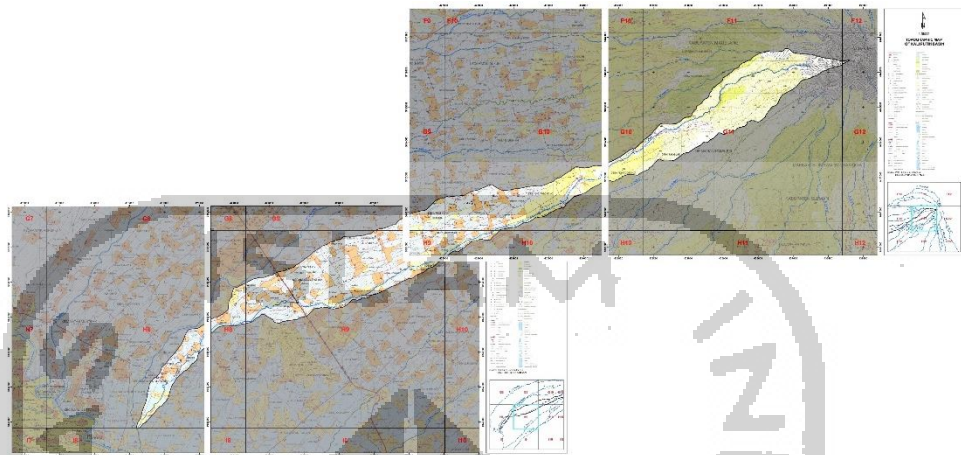


Lampiran 2 Peta Topografi



Gambar L2- 1 Peta DEM

جامعة الإسلام في إندونيسيا



Gambar L2- 2 Peta RBI

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LAMPIRAN 3

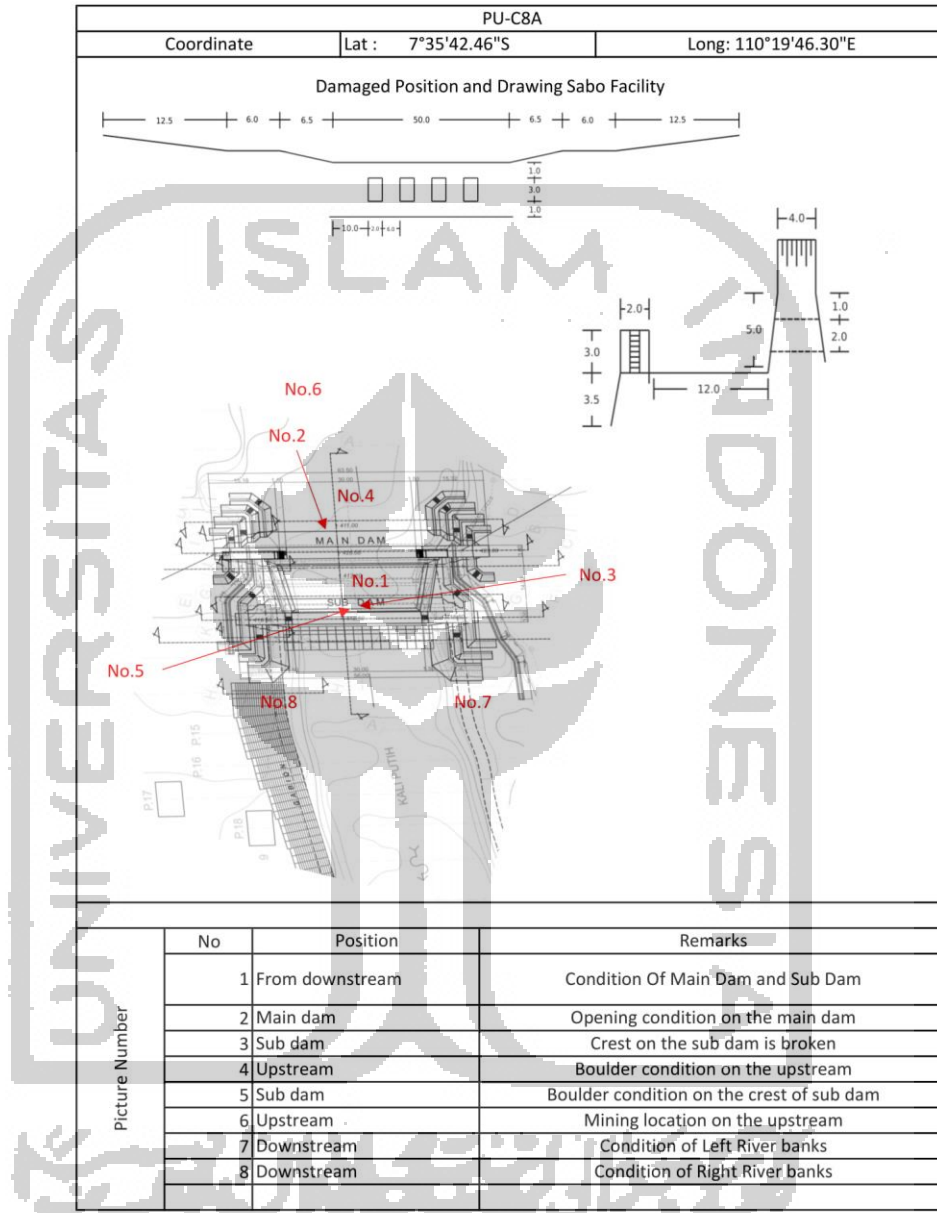
DATA SABO EKSISTING

Lampiran 3 Data Sabo Eksisting

1. Sabo PU-C8A

Survey Result				
			Survey Date	11/08/2016
Name of Sabo Facility			Surveyor Company	
PU-C8A			Yachiyo Engineering co, LTD	
River Name	Putih	Adress	Srumbung	
Damaged condition of Sabo facility	1. Main dam is abrasion 2. Railing on the main dam is missing 3. Opening on the main dam bunged up/abrasion 4. Sub dam is broken, giant boulder exist on the crest of sub dam			
Condition of both river bank	Left River Bank 1. High \pm 15 m 2. Tilt approx. 70 deg 3. Dyke broken			
	Right River Bank 1. Tilt approx. 80 deg 2. Unstable land			
Condition of sediment storage area	1. Present height of sediment = 2 m 2. Height of pocket = 4.5 m 3. Effective height of Dam = 4,5 m 4. Maximum boulder size at upstream = \pm 2 m 5. Maximum boulder size at downstream = \pm 5 m 6. Traditional mining exist at downstream and upstream			
Condition of				

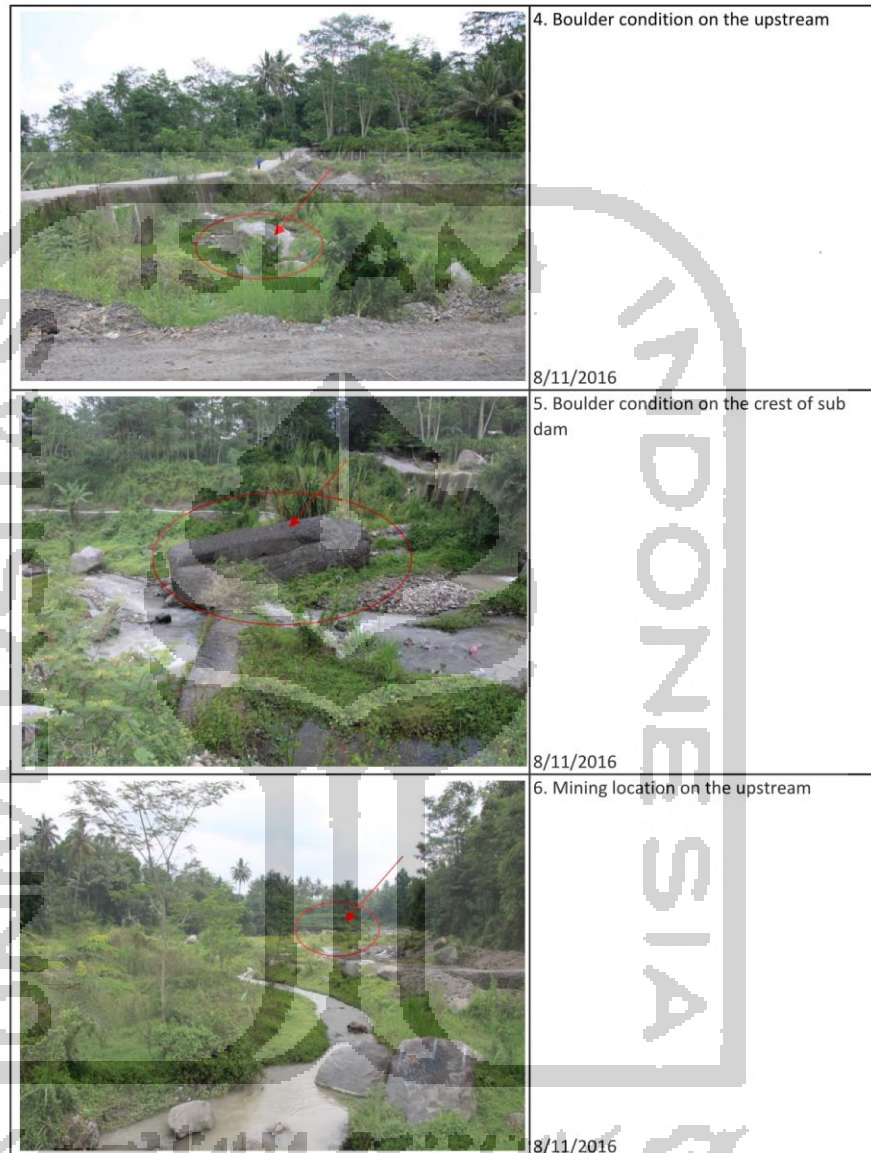
Gambar L3- 1 Data Sabo PU-C8A






Gambar L3- 2 Data Sabo PU-C8A



Gambar L3- 3 Data Sabo PU-C8A



Gambar L3- 4 Data Sabo PU-C8A

 <p>± 70 deg ± 15 m</p>	<p>7. Condition of Left River banks</p> <p>8/11/2016</p>
 <p>± 80 deg</p>	<p>8. Condition of Right River banks</p> <p>8/11/2016</p>
	<p>Condition 2011 from upstream</p> <p>21/2/2011</p>

Gambar L3- 5 Data Sabo PU-C8A

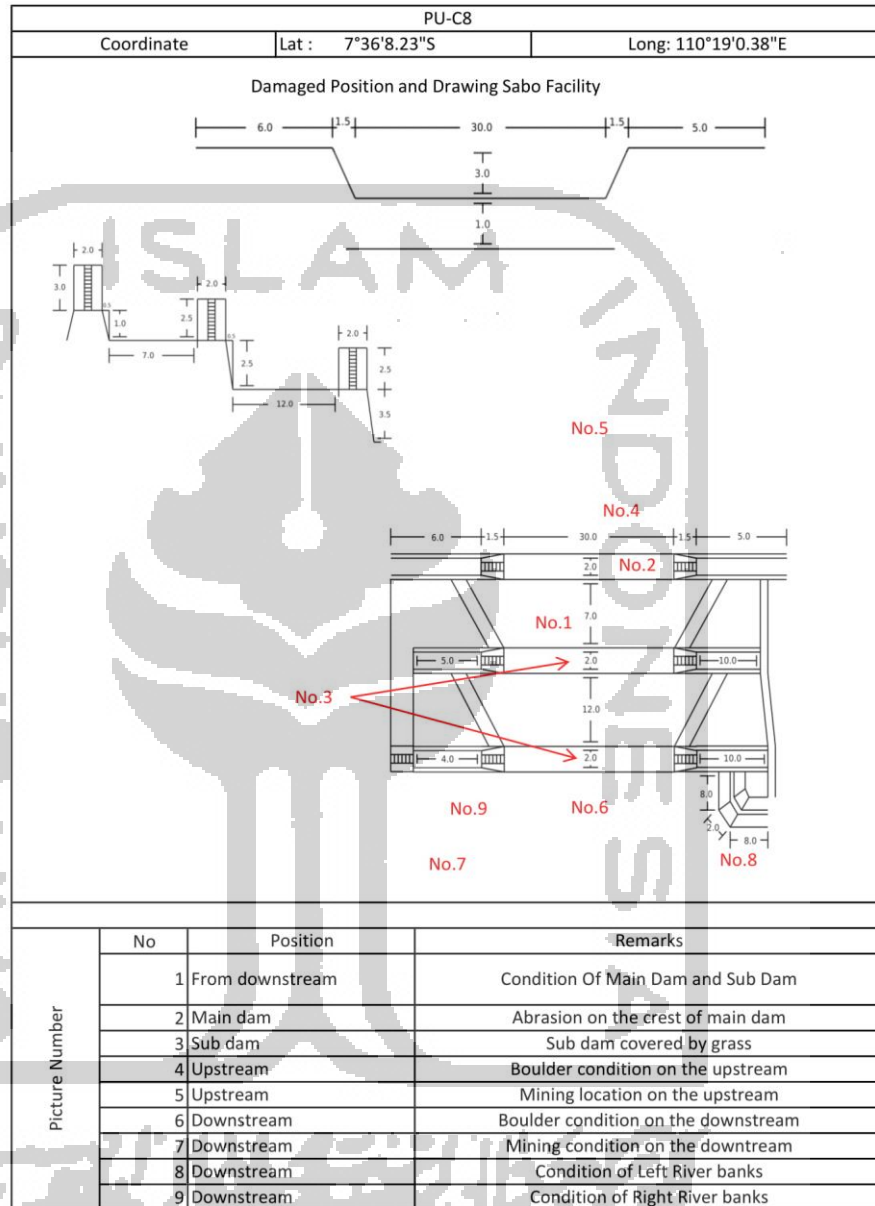


Gambar L3- 6 Data Sabo PU-C8A

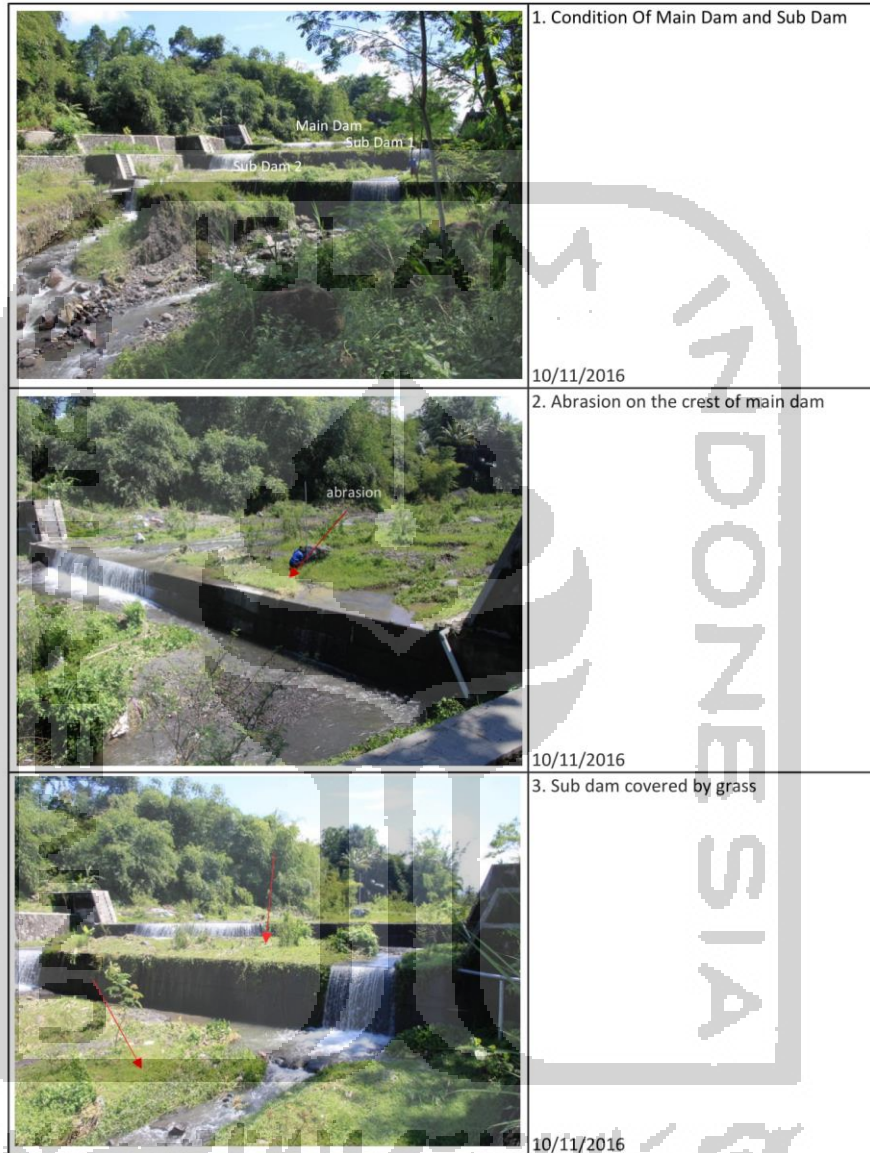
2. Sabo PU-C8

Survey Result			
		Survey Date	11/10/2016
Name of Sabo Facility			Surveyor Company
PU-C8			Yachiyo Engineering co, LTD
River Name	Putih	Adress	Ngaglik
Damaged condition of Sabo facility	1. Main dam is in good condition 2. Small abrasion on the crest of main dam 3. Sub dam covered by grass		
Condition of both river bank	Left River Bank 1. High \pm 30 m 2. Tilt approx. 45 deg		
	Right River Bank 1. High \pm 30 m 2. Tilt approx. 80 deg		
Condition of sediment storage area	1. Present height of sediment = 9 m 2. Height of pocket = 0 m 3. Effective height of Dam = 7 m 4. Maximum boulder size = \pm 1-2 m 5. Traditional mining exist at the upstream and downstream		

Gambar L3- 7 Data Sabo PU-C8



Gambar L3- 8 Data Sabo PU-C8



Gambar L3- 9 Data Sabo PU-C8



Gambar L3- 10 Data Sabo PU-C8

	<p>7. Mining location on the downstream</p> <p>10/11/2016</p>
	<p>8. Condition of Left River banks</p> <p>10/11/2016</p>
	<p>9. Condition of Right River banks</p> <p>10/11/2016</p>

Gambar L3- 11 Data Sabo PU-C8

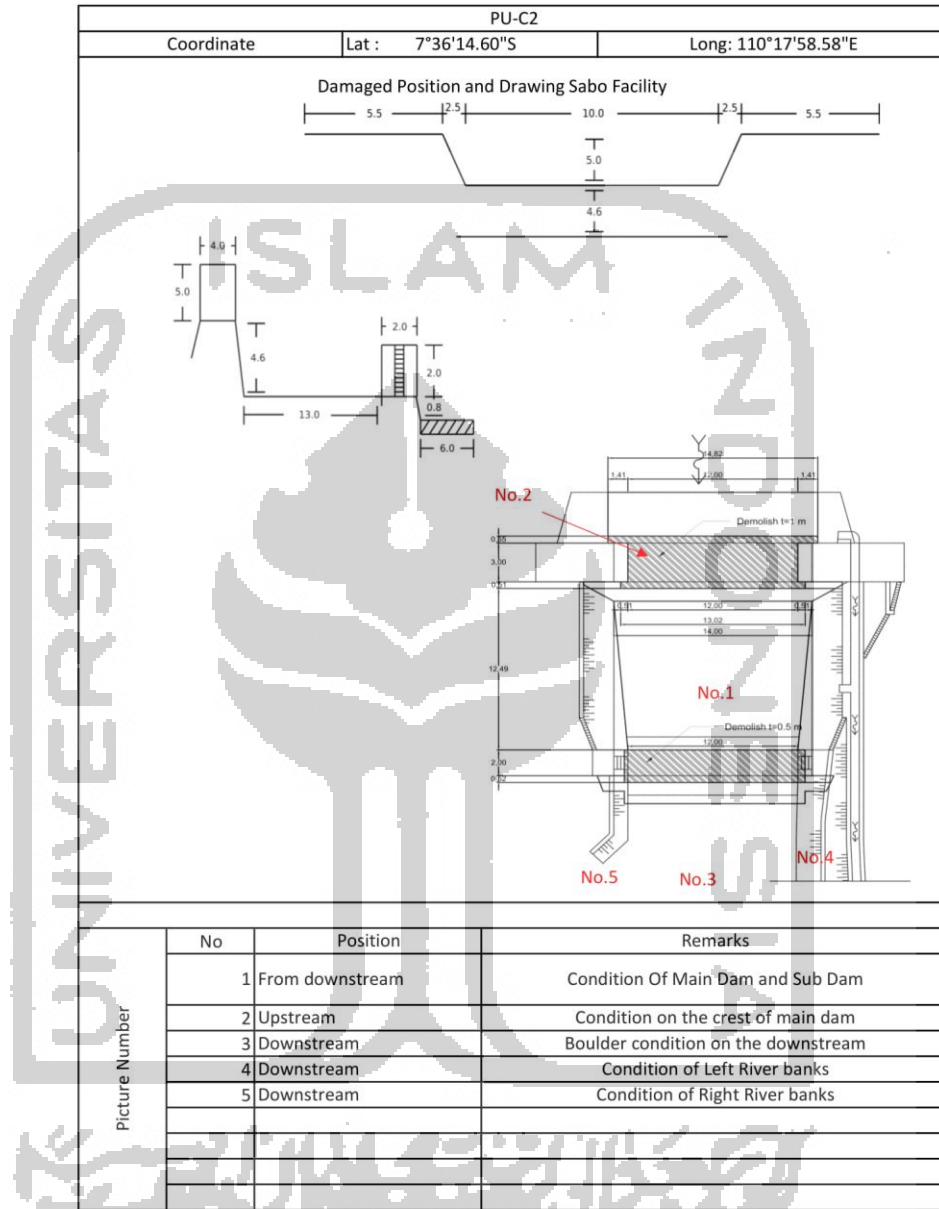


Gambar L3- 11 Data Sabo PU-C8

3. Sabo PU-C2

Survey Result			
		Survey Date	11/10/2016
Name of Sabo Facility		Surveyor Company	
PU-C2		Yachiyo Engineering co, LTD	
River Name	Putih	Adress	Gempol
Damaged condition of Sabo facility	1. Main dam is in good condition 2. Crest on the main dam is abrasion 3. Sub dam is in good condition		
Condition of both river bank	Left River Bank 1. High \pm 20 m 2. Tilt approx. 80 deg 3. Dyke exist		
	Right River Bank 1. High \pm 15 m 2. Tilt approx. 70 deg		
Condition of sediment storage area	1. Present height of sediment = 7.5 m 2. Height of pocket = 0 m 3. Effective height of Dam = 4.6 m 4. Maximum boulder size at downstream = \pm 1-2 m 5. Mining activity not exist		

Gambar L3- 11 Data Sabo PU-C2





Gambar L3- 12 Data Sabo PU-C2



Gambar L3- 13 Data Sabo PU-C2

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	<p>4. Condition of Left River banks</p> <p>10/11/2016</p>
	<p>5. Condition of Right River banks</p> <p>10/11/2016</p>
	<p>Condition 2011 to upstream</p> <p>1/3/2011</p>

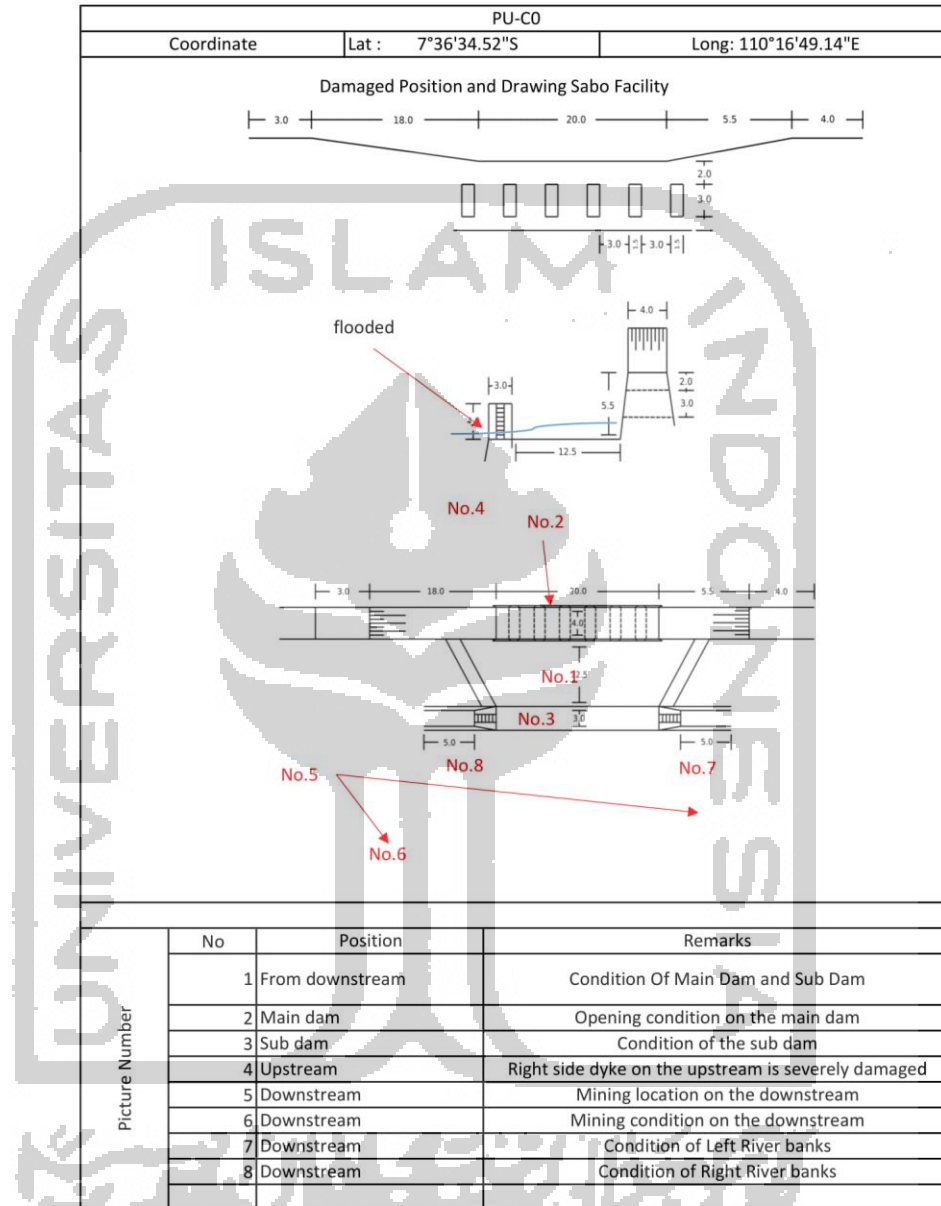
Gambar L3- 14 Data Sabo PU-C2



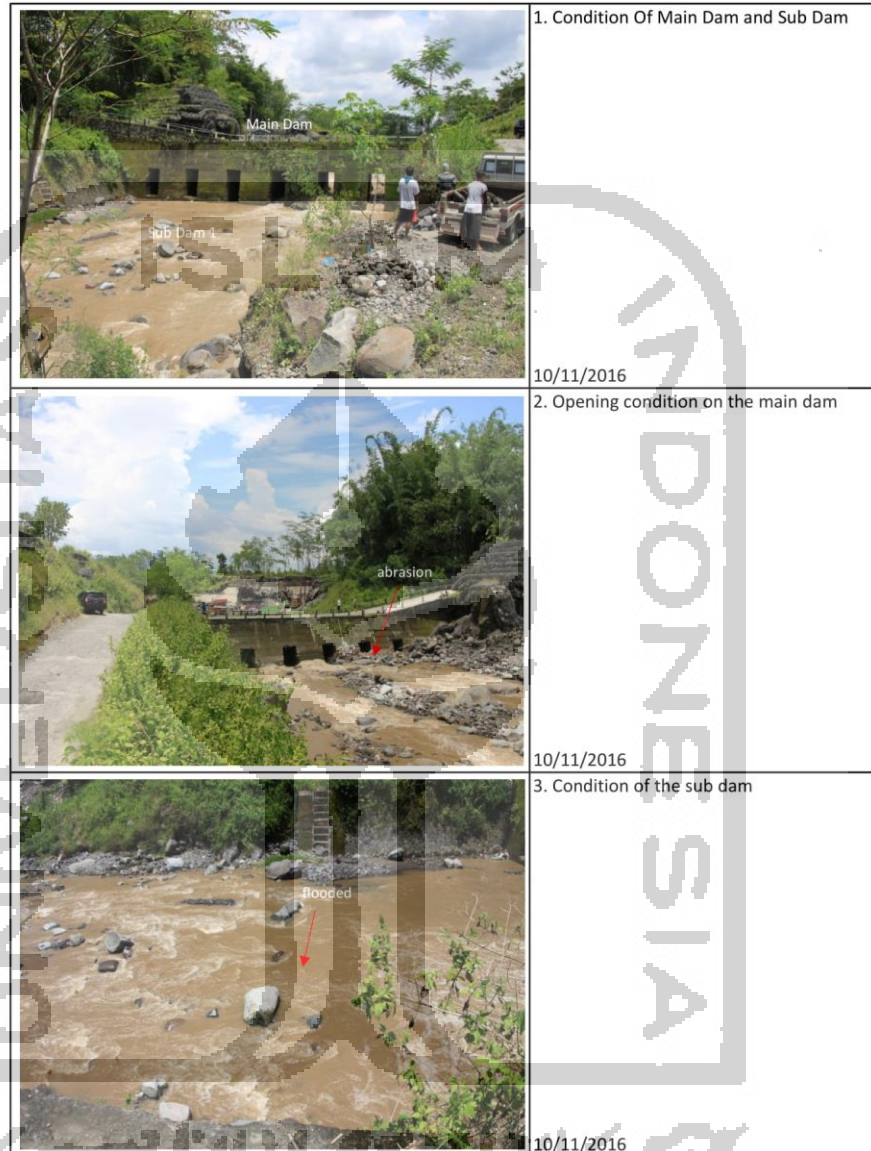
Gambar L3- 15 Data Sabo PU-C2

Survey Result			
		Survey Date	11/10/2016
Name of Sabo Facility		Surveyor Company	
PU-C0		Yachiyo Engineering co, LTD	
River Name	Putih	Adress	Sukowati
Damaged condition of Sabo facility	1. Crest on the main dam is abrasion 2. Opening on the main dam is abrasion 3. Sub dam flooded 4. Right side dyke on the upstream is severely damaged 5. Left side dyke is partially damaged		
Condition of both river bank	Left River Bank 1. High \pm 15 m 2. Tilt approx. 70 deg 3. Dyke exist		
	Right River Bank 1. High \pm 15 m 2. Tilt approx. 90 deg 3. Dyke exist 4. Mining exist by digging		
Condition of sediment storage area	1. Present height of sediment = 2 m 2. Height of pocket = 7.5 m 3. Effective height of Dam = 7.5 m 4. Maximum boulder size = \pm 2 m 5. Mining activity exist until the dyke		

Gambar L3- 16 Data Sabo PU-C0



Gambar L3- 17 Data Sabo PU-C0



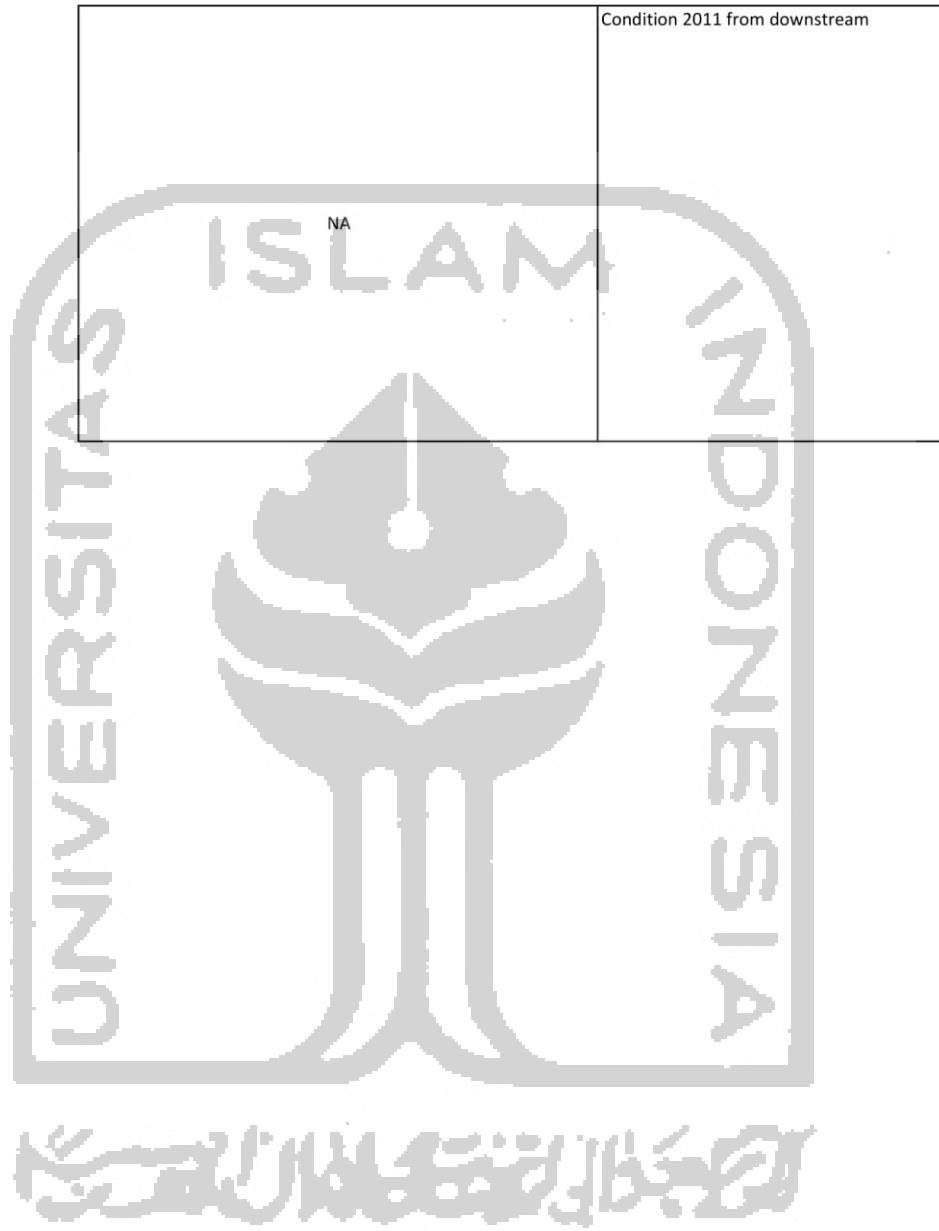
Gambar L3- 18 Data Sabo PU-C0



Gambar L3- 19 Data Sabo PU-C0

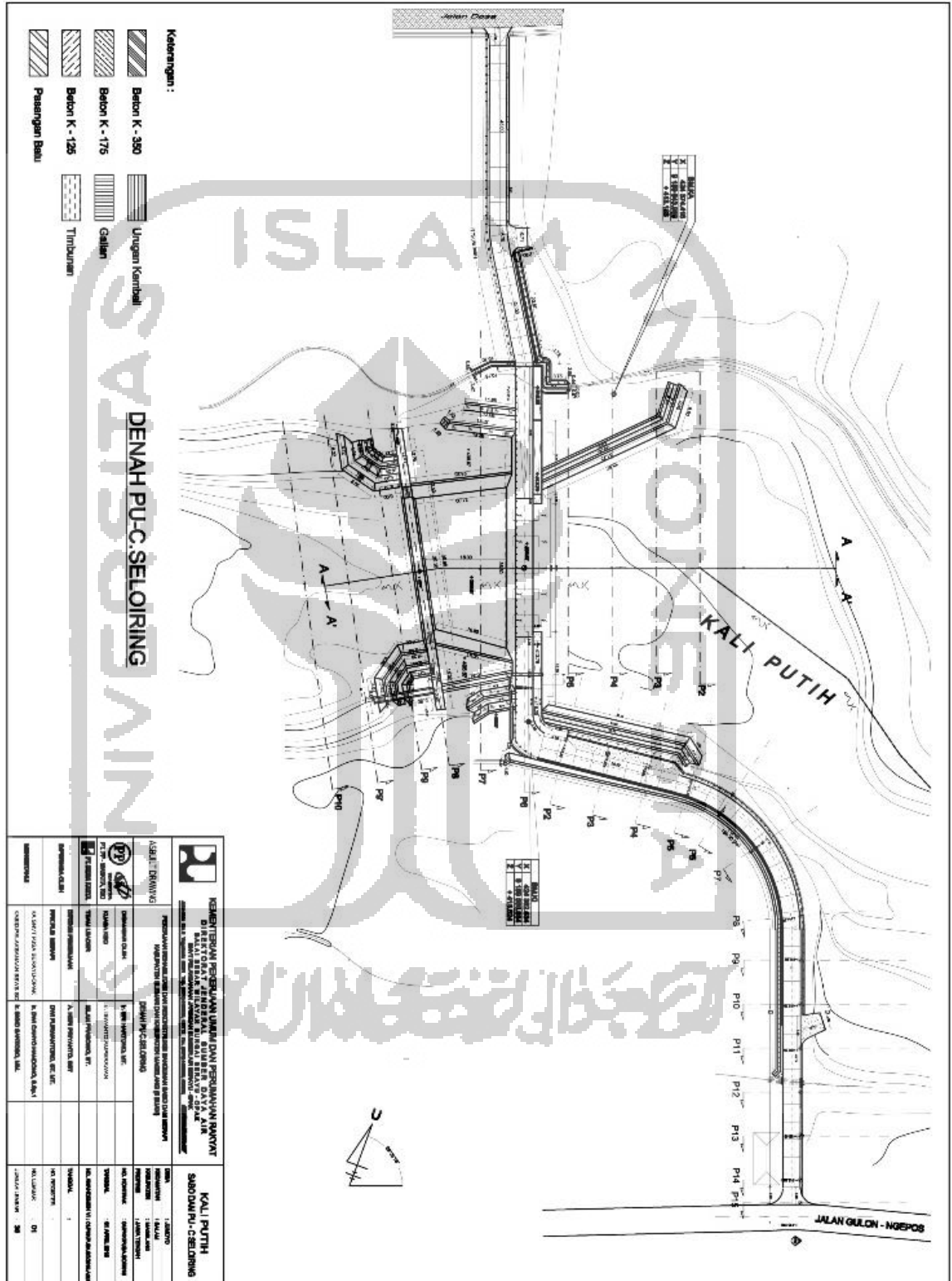


Gambar L3- 20 Data Sabo PU-C0

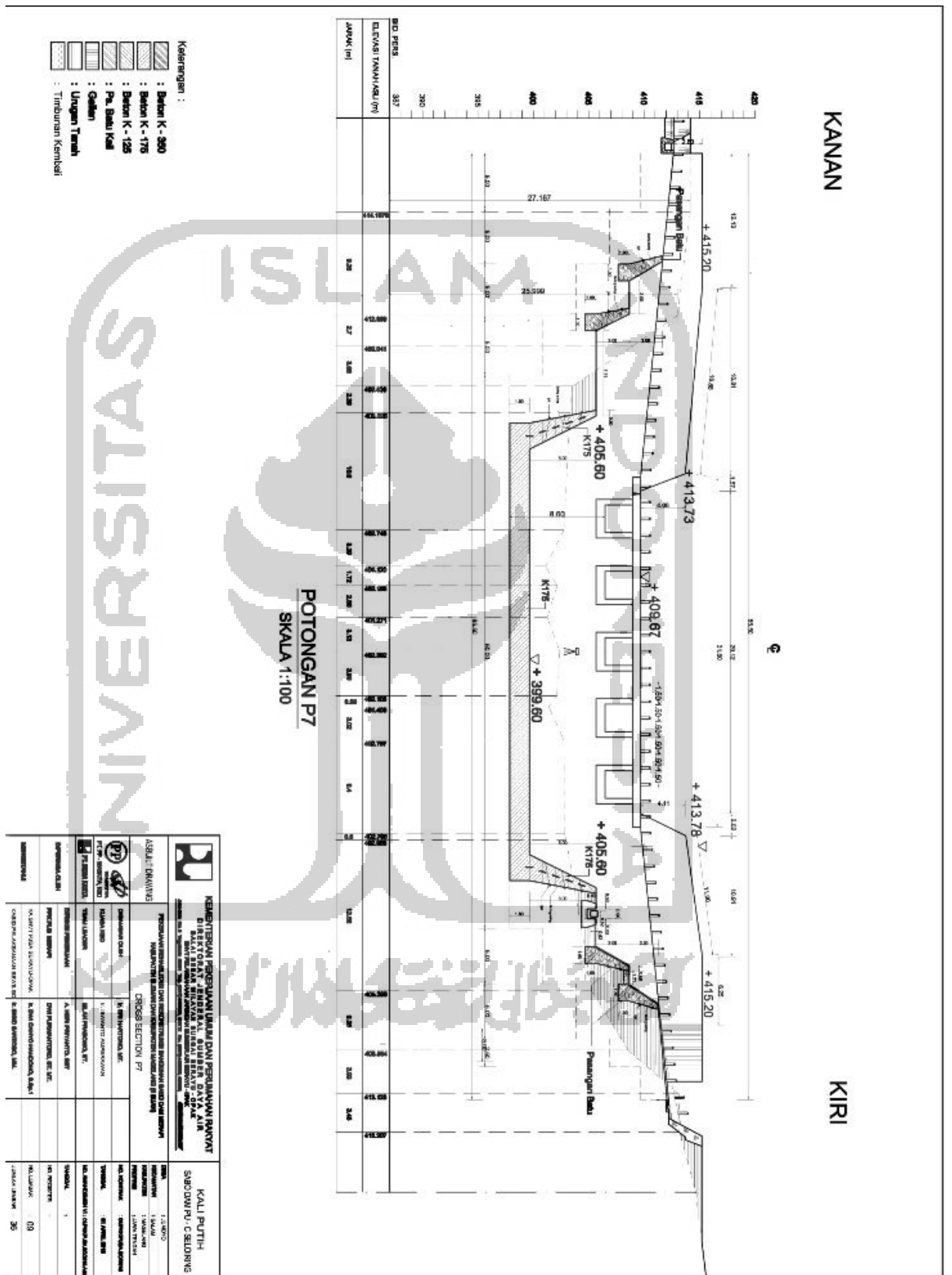


Gambar L3- 21 Data Sabo PU-C0

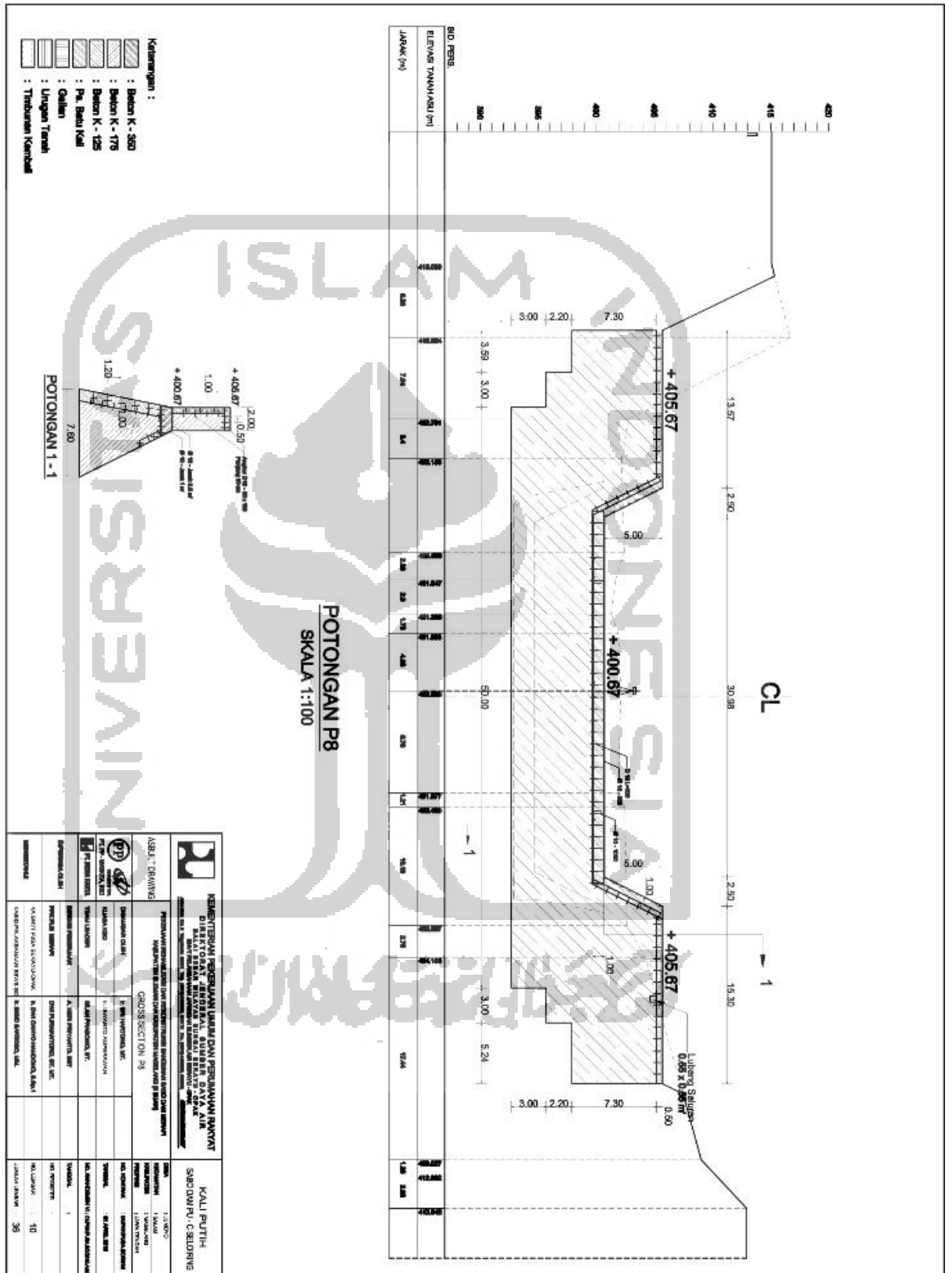
4. Sabo PU-Cseloiring



Gambar L3- 22 Data Sabo PU-Cseloiring



Gambar L3- 24 Data Sabo PU-CSeloiring



Gambar L3- 25 Data Sabo PU-Cseloiring

