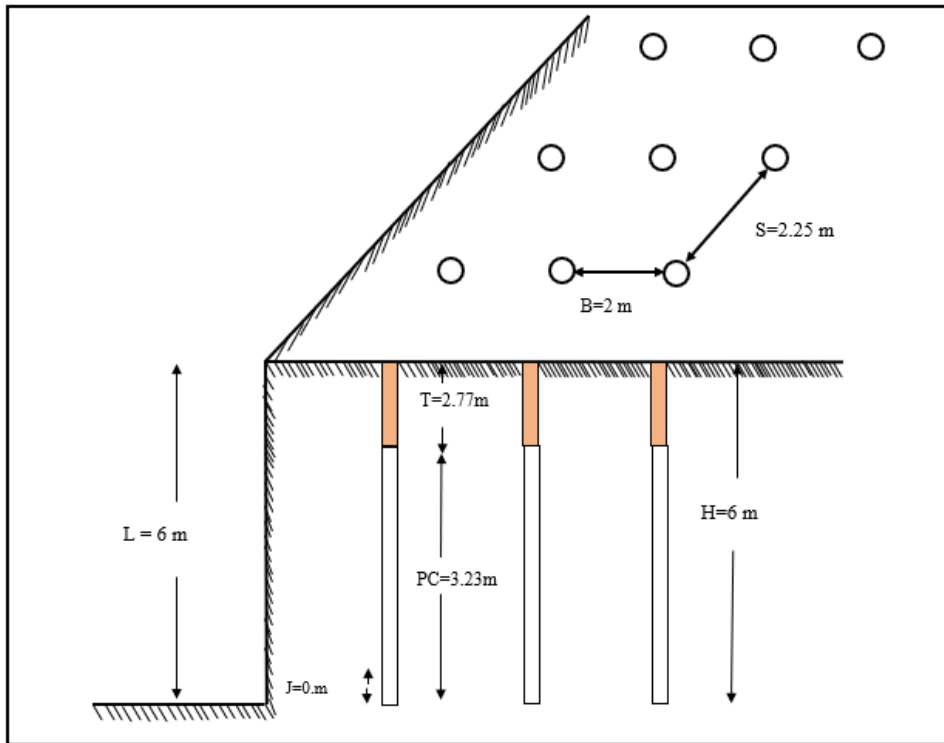


**LAMPIRAN A**  
**PERHITUNGAN RATA-RATA GEOMETRI PELEDAKAN AKTUAL DI LAPANGAN**

Tabel A.1 Geometri Peledakan Aktual di Lapangan

Peledakan Ke-	<i>Burden</i> (B)	<i>Spasi</i> (S)	<i>Stemming</i> (T)	Kedalaman Lubang Bor (H)	Tinggi Jenjang (L)	Kolom Isian (PC)	<i>Subdrilling</i> (J)	Jumlah Lubang Bor (n)	<i>Powder Factor</i> (PF)	De (inch)	E/Lubang (Kg/m)	<i>Volume</i> (m <sup>3</sup> )
1	2	2	3	6	6	3	0	14	0.32	2.5	7.59	24
2	2	2.5	2.5	6	6	3.5	0	10	0.3	2.5	8.86	30
3	2	2.5	3	6	6	3	0	10	0.25	2.5	7.59	30
4	2	2.5	2.75	6	6	3.25	0	10	0.27	2.5	8.22	30
5	2	2.5	2.75	6	6	3.25	0	20	0.27	2.5	8.22	30
6	2	2.5	2.75	6	6	3.25	0	36	0.27	2.5	8.22	30
7	2	2	2.75	6	6	3.25	0	30	0.34	2.5	8.22	24
8	2	2	2.75	6	6	3.25	0	46	0.34	2.5	8.22	24
9	2	2	2.75	6	6	3.25	0	30	0.34	2.5	8.22	24
10	2	2	2.75	6	6	3.25	0	30	0.34	2.5	8.22	24
Jumlah	20	22.5	27.75	60	60	32.25	0	236	3.04	25	81.59	270
Rata-Rata	2	2.25	2.775	6	6	3.23	0	23.6	0.304	2.5	8.16	27



Gambar A1. Rangkaian Geometri Peledakan Rata-Rata Aktual di Lapangan

## LAMPIRAN B

### FAKTOR BATUAN

Tabel B.1 Nilai Rock Factor pada lokasi peledakan

Parameter	Pembobotan	Nilai
<b>1. Rock Mass Description (RMD)</b>		
<i>Powdery / friable</i>	10	50
<i>Blocky</i>	20	
<i>Totally Massive</i>	50	
<b>2. Joint Plane Spacing (JPS)</b>		
<i>Close ( Spasi &lt; 0.1 m)</i>	10	50
<i>Intermediate ( Spasi 0.1 - 1 m)</i>	20	
<i>Wide ( Spasi &gt; 1 m)</i>	50	
<b>3. Joint Plane Orientation (JPO)</b>		
<i>Horizontal</i>	10	30
<i>Dip Out Of Face</i>	20	
<i>Strike Normal to Face</i>	30	
<i>Dip Into Face</i>	40	
<b>4. Specific Gravity Influence ( SGI)</b>	$SGI = 25 \times SG - 50$	28.75
<b>5. Hardness (H) dalam Skala Mohs</b>	(1-10)	5

Diketahui :

RMD : 50

JPS : 50

JPO : 30

SGI : 28.75

H : 5

*Blastability Index* (BI) :  $0.5 \times (RMD + JPS + JPO + SGI + H)$   
:  $0.5 \times (50 + 50 + 30 + 28.75 + 5)$   
: 81.88

Faktor Batuan (RF) :  $BI \times 0.12$   
:  $81.88 \times 0.12$   
: 9.83

## LAMPIRAN C

### GEOMETRI PELEDAKAN USULAN MENURUT C.J KONYA

Tabel C.1 Geometri Peledakan Usulan C.J Konya

Geometri peledakan	Nilai
<i>Burden</i> (B)	1.58 M
<i>Spasi</i> (S)	2.13 m
Kedalaman Lubang Bor (H)	6.5 m
Tinggi Jenjang (L)	6 m
Panjang Kolom Isian (PC)	5.368
<i>Subdrilling</i> (J)	0.474 m
<i>Stemming</i> (T)	1.106 m
De ( <i>inchi</i> )	2.5
De (mm)	63.55
Banyak Bahan Peledak	2.54
Banyak Bahan Peledak/Lubang	13.22
<i>Volume</i> (bcm)	21.79
<i>Powder Factor</i> (Kg/bcm)	0.6642

Diketahui :

SGr Batuan	: 2.564 ton
SGe ANFO	: 0.80 gr/cc
De	: 2.5 inchi (63.75 mm)
Relative bulk strength ANFO	: 100
Kr	: 1
Kd	: 1
Ks	: 0.95

#### Perhitungan Geometri Peledakan Berdasarkan C.J Konya B1

1. *Burden* (B)

$$B1 = 3.15 \times De \times \left(\frac{SGe}{SGr}\right)^{0.33}$$

$$= 3.15 \times 2.5 \times \left(\frac{0.80}{2.564}\right)^{0.33}$$

$$= 5.362 \text{ ft}$$

$$\begin{aligned} \text{B terkoreksi} &= \text{B awal} \times K_r \times K_d \times K_s \\ &= 5.362 \times 1 \times 1 \times 0.95 \\ &= 5.0939 \text{ ft} \times 0.3048 \\ &= 1.55 \text{ meter} \end{aligned}$$

2. *Spasi (S)*

$$\begin{aligned} S &= (L+7B) / 8 \\ &= (6 + 7 \times 1.55) / 8 \\ &= 2.106 \text{ meter} \end{aligned}$$

3. *Stemming (T)*

$$\begin{aligned} T &= 0.7 \times B \\ &= 0.7 \times 1.55 \\ &= 1.085 \text{ meter} \end{aligned}$$

4. *Subdrilling (J)*

$$\begin{aligned} J &= 0.3 \times B \\ &= 0.3 \times 1.55 \\ &= 0.465 \text{ meter} \end{aligned}$$

5. Tinggi Jenjang (L)

Tinggi jenjang tidak di rubah, sehingga tinggi jenjang sama dengan tinggi jenjang saat ini di lapangan yakni sebesar 6 meter termasuk dalam nilai *stiffnes ratio* baik.

6. Kedalaman Lubang Bor (H)

$$\begin{aligned} H &= L + J \\ &= 6 + 0.465 \\ &= 6.465 \text{ meter} \end{aligned}$$

7. Panjang Kolom Isian (PC)

$$\begin{aligned} PC &= H - T \\ &= 6.465 - 1.085 \\ &= 5.38 \text{ meter} \end{aligned}$$

8. *Loading Density* (de)

$$\begin{aligned} De &= 0.508 \times Sge \times De^2 \\ &= 0.508 \times 0.80 \times 2.5^2 \\ &= 2.54 \text{ meter} \end{aligned}$$

9. Berat Bahan Peledak (E)

$$\begin{aligned} E &= de \times PC \\ &= 2.5 \times 5.38 \\ &= 13.45 \text{ kg} \end{aligned}$$

$$\text{Berat Power Gel} = 200 \text{ gr} = 0.20 \text{ kg}$$

Berat Bahan Peledak Perlubang

$$\begin{aligned} E &= 13.45 \text{ kg} - 0.20 \text{ kg} \\ &= 13.25 \text{ kg/lubang} \end{aligned}$$

10. *Volume* (V)

$$\begin{aligned} V &= B \times S \times L \\ &= 1.55 \times 2.106 \times 6 \\ &= 19.5858 \text{ m}^3 \end{aligned}$$

11. *Powder Factor* (PF)

$$\begin{aligned} PF &= E / V \\ &= 13.45 / 19.5858 \\ &= 0.6867 \text{ kg/m}^3 \end{aligned}$$

**Perhitungan Geometri Peledakan Berdasarkan C.J Konya B2**

1. *Burden* (B)

$$\begin{aligned} B2 &= \left( 2 \times \left( \frac{SGe}{SGr} \right) + 1.50 \right) \times De \\ &= \left( 2 \times \frac{0.80}{2.564} + 1.50 \right) \times 2.5 \\ &= 5.408 \text{ ft} \end{aligned}$$

$$\begin{aligned} B \text{ terkoreksi} &= B \text{ awal} \times Kr \times Kd \times Ks \\ &= 5.408 \times 1 \times 1 \times 0.95 \\ &= 5.376 \text{ ft} \times 0.3048 \\ &= 1.57 \text{ meter} \end{aligned}$$

2. *Spasi* (S)

$$\begin{aligned} S &= (L+7B) / 8 \\ &= (6 + 7 \times 1.57) / 8 \\ &= 2.124 \text{ meter} \end{aligned}$$

3. *Stemming* (T)

$$\begin{aligned} T &= 0.7 \times B \\ &= 0.7 \times 1.57 \\ &= 1.099 \text{ meter} \end{aligned}$$

4. *Subdrilling*

$$\begin{aligned} J &= 0.3 \times B \\ &= 0.3 \times 1.57 \\ &= 0.471 \text{ meter} \end{aligned}$$

5. Tinggi Jenjang (L)

Tinggi jenjang tidak di rubah, sehingga tinggi jenjang sama dengan tinggi jenjang saat ini di lapangan yakni sebesar 6 meter termasuk dalam nilai *stiffnes ratio* baik.

6. Kedalaman Lubang Bor (H)

$$\begin{aligned} H &= L + J \\ &= 6 + 0.471 \\ &= 6.471 \end{aligned}$$

7. Panjang Kolom Isian (PC)

$$\begin{aligned} PC &= H - T \\ &= 6.471 - 1.099 \\ &= 5.372 \text{ meter} \end{aligned}$$

8. *Loading Density* (de)

$$\begin{aligned} De &= 0.508 \times Sge \times De^2 \\ &= 0.508 \times 0.80 \times 2.5^2 \\ &= 2.54 \text{ meter} \end{aligned}$$

9. Berat Bahan Peledak (E)

$$\begin{aligned} E &= de \times PC \\ &= 2.5 \times 5.371 \end{aligned}$$

$$= 13.43 \text{ kg}$$

$$\text{Berat Power Gel} = 200 \text{ gr} = 0.20 \text{ kg}$$

Berat Bahan Peledak Perlubang

$$E = 13.43 \text{ kg} - 0.20 \text{ kg}$$

$$= 13.23 \text{ kg/lubang}$$

10. *Volume* (V)

$$V = B \times S \times L$$

$$= 1.57 \times 2.124 \times 6$$

$$= 20 \text{ m}^3$$

11. *Powder Factor* (PF)

$$\text{PF} = E / V$$

$$= 13.45/20$$

$$= 0.6715 \text{ kg/m}^3$$

### **Perhitungan Geometri Peledakan Berdasarkan C.J Konya B3**

1. *Burden* (B)

$$B3 = 0.67 \times De \times \left(\frac{STv}{SGr}\right)^{0.33}$$

$$= 0.67 \times 2.5 \times \left(\frac{100}{2.564}\right)^{0.33}$$

$$= 5.611 \text{ ft}$$

$$\text{B terkoreksi} = B \text{ awal} \times Kr \times Kd \times Ks$$

$$= 5.611 \times 1 \times 1 \times 0.95$$

$$= 5.33 \text{ ft} \times 0.3048$$

$$= 1.62 \text{ meter}$$

2. *Spasi* (S)

$$S = (L+7B) / 8$$

$$= (6 + 7 \times 1.62) / 8$$

$$= 2.17 \text{ meter}$$

3. *Stemming* (T)

$$T = 0.7 \times B$$

$$= 0.7 \times 1.52$$

$$= 1.134 \text{ meter}$$



4. *Subdrilling*

$$\begin{aligned} J &= 0.3 \times B \\ &= 0.3 \times 1.62 \\ &= 0.486 \text{ meter} \end{aligned}$$

5. Tinggi Jenjang (L)

Tinggi jenjang tidak di rubah, sehingga tinggi jenjang sama dengan tinggi jenjang saat ini di lapangan yakni sebesar 6 meter termasuk dalam nilai *stiffnes ratio* baik.

6. Kedalaman Lubang Bor (H)

$$\begin{aligned} H &= L + J \\ &= 6 + 0.486 \\ &= 6.486 \end{aligned}$$

7. Panjang Kolom Isian (PC)

$$\begin{aligned} PC &= H - T \\ &= 6.486 - 1.134 \\ &= 5.352 \text{ meter} \end{aligned}$$

8. *Loading Density* (de)

$$\begin{aligned} De &= 0.508 \times Sge \times De^2 \\ &= 0.508 \times 0.80 \times 2.5^2 \\ &= 2.54 \text{ meter} \end{aligned}$$

9. Berat Bahan Peledak (E)

$$\begin{aligned} E &= de \times PC \\ &= 2.5 \times 5.352 \\ &= 13.38 \text{ kg} \end{aligned}$$

Berat Power Gel = 200 gr = 0.20 kg

Berat Bahan Peledak Perlubang

$$\begin{aligned} E &= 13.38 \text{ kg} - 0.20 \text{ kg} \\ &= 13.18 \text{ kg/lubang} \end{aligned}$$

10. *Volume* (V)

$$\begin{aligned} V &= B \times S \times L \\ &= 1.62 \times 2.17 \times 6 \end{aligned}$$

$$= 21.0924 \text{ m}^3$$

11. *Powder Factor* (PF)

$$\begin{aligned} \text{PF} &= E / V \\ &= 13.38/21.0924 \\ &= 0.6344 \text{ kg/m}^3 \end{aligned}$$

**Perhitungan Geometri Peledakan Rata-Rata**

1. *Burden* (B)  $= B1 + B2 + B3 / 3$   
 $= 1.55 + 1.57 + 1.62 / 3$   
 $= 1.58 \text{ meter}$
2. *Spasi* (S)  $= S1 + S2 + S3 / 3$   
 $= 2.106 + 2.124 + 2.17 / 3$   
 $= 2.13 \text{ meter}$
3. *Stemming* (T)  $= T1 + T2 + T3 / 3$   
 $= 1.085 + 1.099 + 1.134 / 3$   
 $= 1.106 \text{ meter}$
4. *Subdrilling* (J)  $= J1 + J2 + J3 / 3$   
 $= 0.465 + 0.481 + 0.486 / 3$   
 $= 0.474 \text{ meter}$
5. *Tinggi Jenjang* (L)  $= 6 \text{ meter}$
6. *Kedalaman Lubang Bor*  $= H1 + H2 + H3 / 3$   
 $= 6.465 + 6.471 + 6.486 / 3$   
 $= 6.474 \text{ meter}$
7. *Panjang Kolom Isian* (PC)  $= PC 1 + PC 2 + PC3 / 3$   
 $= 5.38 + 5.372 + 5.352 / 3$   
 $= 5.368 \text{ meter}$
8. *Loading Density* (de)  $= 2.54$
9. *Berat Bahan Peledak* (E)  $= E1 + E2 + E3 / 3$   
 $= 13.45 + 13.43 + 13.38 / 3$   
 $= 13.42 \text{ kg}$
10. *Volume Terbongkar* (V)  $= V1 + V2 + V3 / 3$   
 $= 19.59 + 20 + 21.09 / 3$

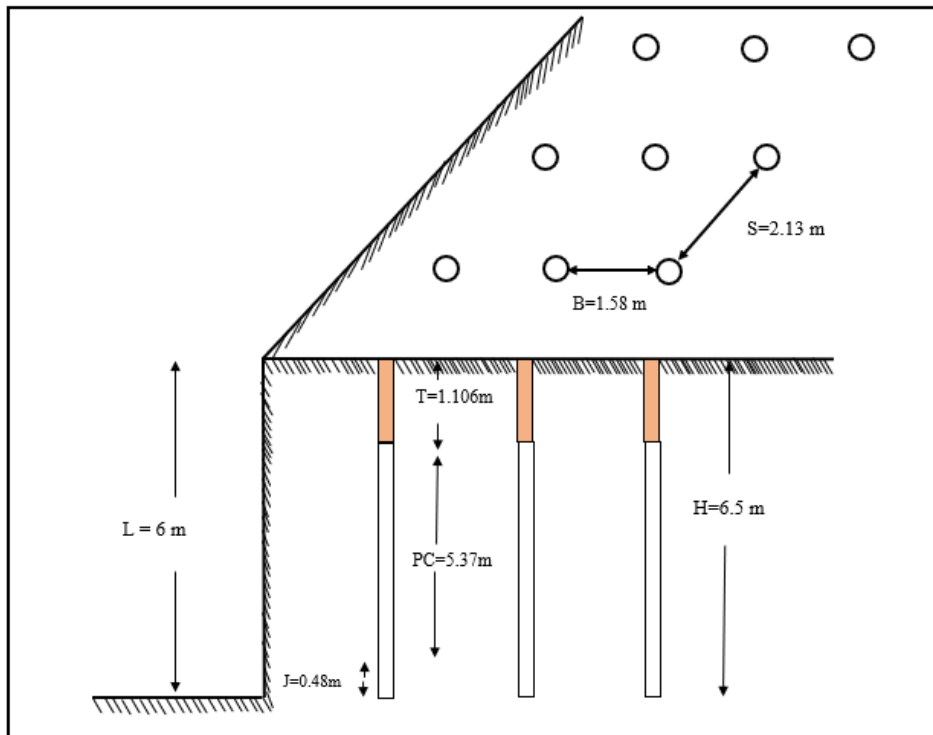
$$= 21.79 \text{ m}^3$$

11. Powder Factor (PF)

$$= \text{PF1} + \text{PF2} + \text{PF3} / 3$$

$$= 0.6867 + 0.6715 + 0.6344 / 3$$

$$= 0.6642 \text{ kg/m}^3$$



Gambar C.1. Rangkaian Geometri Peledakan Usulan C.J Konya

**LAMPIRAN D**

**HASIL PERHITUNGAN AKTUAL TEORITIS MENGGUNAKAN PERSAMAAN KUZ-RAM**

Tabel D.1 Hasil Perhitungan Ukuran Rata-Rata Fragmentasi (X), Indeks Keseragaman (n) dan Karakteristik Ukuran (Xc)

A	$V/Q^{0,8}$	$Q^{0,17}$	$(E/115)^{0,63}$	X	2,2-14 B/De	$1+A'/2^{0,5}$	$1-*W/B$	PC/L	n	Xc
9.83	2.51	7.59	1.09	38.05	1.759	1.225	1	0.50	1.08	53.49
9.83	2.65	8.86	1.09	41.27	1.759	1.275	1	0.58	1.31	54.62
9.83	3.00	7.59	1.09	45.49	1.759	1.275	1	0.50	1.12	63.09
9.83	2.82	8.22	1.09	43.26	1.759	1.275	1	0.54	1.21	58.51
9.83	2.82	8.22	1.09	43.26	1.759	1.275	1	0.54	1.21	58.51
9.83	2.82	8.22	1.09	43.26	1.759	1.275	1	0.54	1.21	58.51
9.83	2.36	8.22	1.09	36.19	1.759	1.225	1	0.54	1.17	49.55
9.83	2.36	8.22	1.09	36.19	1.759	1.225	1	0.54	1.17	49.55
9.83	2.36	8.22	1.09	36.19	1.759	1.225	1	0.54	1.17	49.55
9.83	2.36	8.22	1.09	36.19	1.759	1.225	1	0.54	1.17	49.55

Tabel D.2 Hasil Perhitungan Fragmentasi Aktual

Peledakan Ke	UKURAN FRAGMENTASI (cm)															
	10		20		30		40		50		60		70		80	
	Tertahan %	Lolos %	Tertahan %	Lolos %	Tertahan %	Lolos %	Tertahan %	Lolos %	Tertahan %	Lolos %	Tertahan %	Lolos %	Tertahan %	Lolos %	Tertahan %	Lolos %
1	84.85	15.15	70.71	29.29	58.49	41.51	48.13	51.87	39.46	60.54	32.25	67.75	26.29	73.71	21.38	78.62
2	89.72	10.28	76.44	23.56	63.34	36.66	51.41	48.59	41.03	58.97	32.28	67.72	25.07	74.93	19.26	80.74
3	88.09	11.91	75.90	24.10	64.76	35.24	54.89	45.11	46.28	53.72	38.86	61.14	32.51	67.49	27.12	72.88
4	88.96	11.04	76.23	23.77	64.13	35.87	53.26	46.74	43.77	56.23	35.67	64.33	28.84	71.16	23.17	76.83
5	88.96	11.04	76.23	23.77	64.13	35.87	53.26	46.74	43.77	56.23	35.67	64.33	28.84	71.16	23.17	76.83
6	88.96	11.04	76.23	23.77	64.13	35.87	53.26	46.74	43.77	56.23	35.67	64.33	28.84	71.16	23.17	76.83
7	85.69	14.31	70.69	29.31	57.31	42.69	45.89	54.11	36.40	63.60	28.65	71.35	22.39	77.61	17.40	82.60
8	85.69	14.31	70.69	29.31	57.31	42.69	45.89	54.11	36.40	63.60	28.65	71.35	22.39	77.61	17.40	82.60
9	85.69	14.31	70.69	29.31	57.31	42.69	45.89	54.11	36.40	63.60	28.65	71.35	22.39	77.61	17.40	82.60
10	85.69	14.31	70.69	29.31	57.31	42.69	45.89	54.11	36.40	63.60	28.65	71.35	22.39	77.61	17.40	82.60

**LAMPIRAN E**  
**PERHITUNGAN FRAGMENTASI USULAN DENGAN**  
**METODE KUZ-RAM**

Perhitungan Fragmentasi Usulan Berdasarkan Teori C.J Konya dan Teori Kuz-Ram

Perhitungan Fragmentasi Hasil Peledakan dengan Jenis Material Batuanandesit

Diketahui :

<i>Burden (B)</i>	: 1.58 meter
<i>Spasi (S)</i>	: 2.13 meter
Tinggi Jenjang	: 6 meter
Panjang Isian Bahan Peledak	: 5.368 m
Diameter Lubang Ledak	: 2.5 inchi
Volume Terbongkar	: 21.79 bcm
Jumlah Handak/Lubang	: 13.22 kg
RMD	: 50
JPS	: 50
JPO	: 30
RWS ANFO	: 100

Mencari nilai rata-rata ukuran fragmentasi (X)

$$X = A \times \left(\frac{V}{Q}\right)^{0.8} \times Q^{0.17} \times \left(\frac{E}{115}\right)^{-0.63}$$

$$X = 9.83 \times \left(\frac{21.79}{13.22}\right)^{0.8} \times 13.22^{0.17} \times \left(\frac{100}{115}\right)^{-0.63}$$

$$X = 24.83$$

Mencari nilai indeks keseragaman (n)

$$n = ((2.2 - 14 B/De)) \times \left(1 + \frac{A'}{2}\right)^{0.5} \times (1 - W/B) \times (PC/L)$$

$$n = (2.2 - 14 \left(\frac{1.58}{63.5}\right)) \times \left(1 + \frac{1.35}{2}\right)^{0.5} \times (1 - 0/2) \times (5.368/6)$$

$$n = 1.80$$

Mencari nilai Karakteristik ukuran

$$Xc = \frac{X}{0.693}^{1/n}$$

$$Xc = \frac{24.83^{1/1.80}}{0.693}$$

$$Xc = 30.44$$

$$R_{50} = e^{-\left(\frac{x}{xc}\right)^n}$$

$$R_{50} = e^{-\left(\frac{50}{30.44}\right)^{1.80}}$$

$$R_{50} = 8.69 \% (\text{Fragmentasi} \geq 50 \text{ cm})$$

$$91.31 \% (\text{Fragmentasi} \leq 50 \text{ cm})$$

**LAMPIRAN F**  
**SPESIFIKASI PERALATAN DAN PERLENGKAPAN**  
**PELEDAKAN CV. JATI KENCANA**

*1. Ammonium Nitrat*



Gambar F.1 *Ammonium Nitrate*

Tabel F.1 Spesifikasi *Ammonium Nitrate*

Produsen	PT. Multi Nitroma Kimia Cikampek, Indonesia
Merk	MNK ANFO
Berat Jenis	0.85 gr/cc
Kadar Air Maksimum	0.23 %
Ketahanan Terhadap Air	6 %
Bulk Density	0.76 – 0.84 Kg/dm
Berat Per Zak	25 kg



## 2. Dynamit Powergel



Gambar F.2. Power Gel

Tabel F.2 Spesifikasi Power Gel

Merk	Dayagel Magnum 101
Buatan	Perum Dahana Tasikmalaya
Kecepatan Detonasi	4.500 m/detik
Berat Jenis	1.23 gr/cm <sup>3</sup>
Berat Dodol	0.5 kg/batang
Isi Per Peti	110 batang
Berat Per Peti Netto	55 kg
Case Size	32 x 200 mm

## 3. Electric Detonator



Gambar F.3 *Electric Detonator*

Tabel F.3 Spesifikasi *Electric Detonator*

Merk	<i>Orica Aluminium Short Delay Detonator</i>
Buatan	India
Lead Wire Length	4.5
Number of Bundles	1
Numbers/Bundle	25
Total Number of Detonators	25
No Fire Current	180 MA for 5 Minutes
Minimum Single Firing Current	0.8 AMPS for 4 MS
Minimum Series Firing Current	1.2 AMPS for 4 MS
Fuse Head Resistance	1.6 to 2.0 OHMS
No Delay	1-10

4. Blasting Machnic



Gambar F.4 *Blasting Machine*

Tabel F.4 Spesifikasi *Blasting Machine*

Merk dan Type	Kobla BL-100
Buatan	Korea Electronic
Voltage	1200 Volt

## 5. Ohm Meter



Gambar F.5 *Ohm* Meter

Tabel F.5 Spesifikasi *Ohm* meter

Merk dan type	Kobla XR III
Kapasitas	0-2000 ohm
Produsen	Korea Electronics
Output Voltage	0.5 V

**LAMPIRAN G**  
**SPESIFIKASI ALAT BOR FURUKAWA**



Gambar G.1 Alat Bor Furukawa

Tabel G.1 Spesifikasi Alat Bor Furukawa

Merk	Furukawa
Type	PCR 200
Panjang Keseluruhan	5.400 mm
Lebar Keseluruhan	2.390 mm
Tinggi posisi bom mendatar	1.200 mm
Tekanan pada dasar	0.67 MPC
Panjang track keseluruhan	2.850 mm
Sudut putar	15
Kecepatan berpindah	0 – 3.2 km/jam
Kemiringan lapangan yang dilalui	35
Sudut dibentuk boom posisi turun	25
Sudut dibentuk boom posisi terangkat	45
Sudut putar boom kekiri dan kekanan	45
Panjang boom	2.000 mm
Konsumsi udara saat kerja	16 m <sup>3</sup> /menit
Berat total	5000 kg

**LAMPIRAN H**  
**SPESIFIKASI ALAT KOMPRESOR AIRMAN TYPE PDS 655S**



Gambar H.1 Airman PDS 655S

Tabel H.1 Spesifikasi Airman PDS 655S

Merk dan Type	Airman PDS 655S
Pressusre	100 – 150 psi
Jumlah Silinder	4 buah
Rate Output	2600 rpm

## LAMPIRAN I

### SPESIFIKASI ALAT GALI MUAT



Gambar I.1 Hyundai 330

Tabel I.1 Spesifikasi Hyundai 330

Merk dan Type	Hyundai 330
Operation Weight	33750 Kg
Engine Model	Cummins L9
Engine Power	242 kW
Bucket Capacity	1.44 m <sup>3</sup> - 2.10 m <sup>3</sup>

**LAMPIRAN J**  
**SPESIFIKASI ALAT ANGKUT**



Gambar J.1 Hino Dutro 130 HD

Tabel J.1 Spesifikasi Hino Dutro 130 HD

Merk dan Type	Hino Dutro 130 HD
Panjang Keseluruhan	6026 mm
Tinggi Keseluruhan	2165 mm
Lebar Keseluruhan	1945 mm
Wheelbase	3380 mm
Tangki Bahan Bakar	100 L
Berat Kotor	8250 kg
Mengekang Berat	2355 kg
Jumlah Silinder	4
Kecepatan Maksimum	103
Teaga Maksimum	130
Kapasitan	4009 kg
RPT at Max Power	2700
Max Torque	373 mm

**LAMPIRAN K**  
**DATA CURAH HUJAN**

Tabel K.1 Data Curah Hujan

Bulan	Rata-rata Curah Hujan dan Banyaknya Curah Hujan Menurut Bulan di Kabupaten Semarang								
	Rata-Rata Curah Hujan (Mm)			Jumlah Hari Hujan (Hari)			Banyaknya Curah Hujan (Mm)		
	2020	2021	2022	2020	2021	2022	2020	2021	2022
Januari	237	382	520	12	18	24	3791	5725	7807
Februari	296	419	365	14	19	22	4741	6292	5469
Maret	274	410	446	13	17	22	4385	6147	6696
April	261	352	265	12	16	13	4179	5276	3980
Mei	41	310	167	3	14	9	652	4643	2510
Juni	1	39	252	0	3	13	18	589	3784
Juli	2	42	27	1	2	2	26	637	404
Agustus	0	37	53	0	4	5	0	556	802
September	1	59	105	0	4	7	13	885	1579
Oktober	15	200	93	2	12	7	242	3000	1398
November	62	190	357	5	14	16	986	2843	5358
Desember	293	493	355	13	22	22	4681	7393	5320

(Sumber: Dinas Pertanian, Perikanan dan Pangan Kabupaten Semarang)



