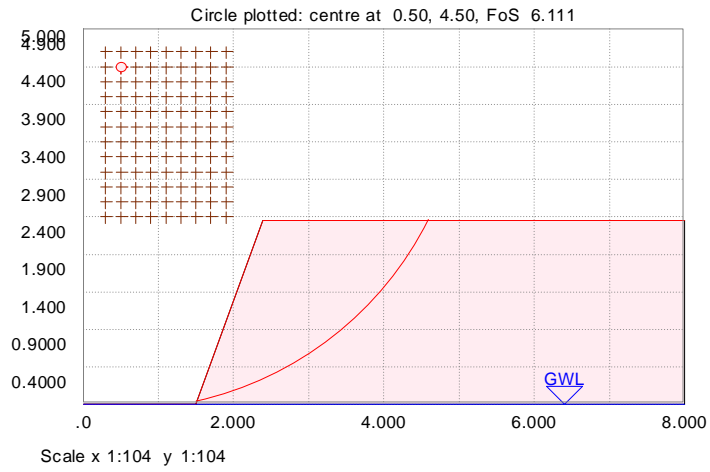
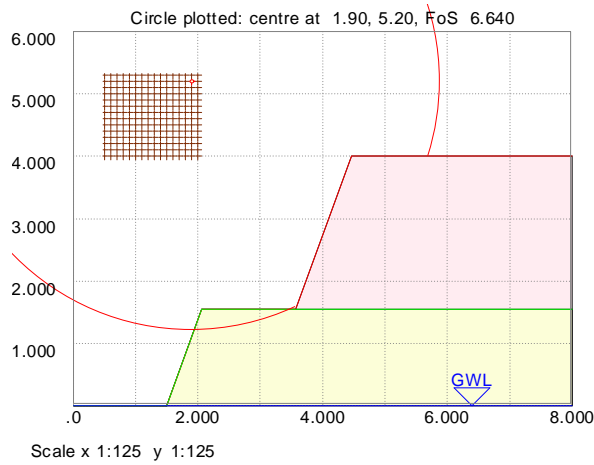


# A. Dengan Gempa

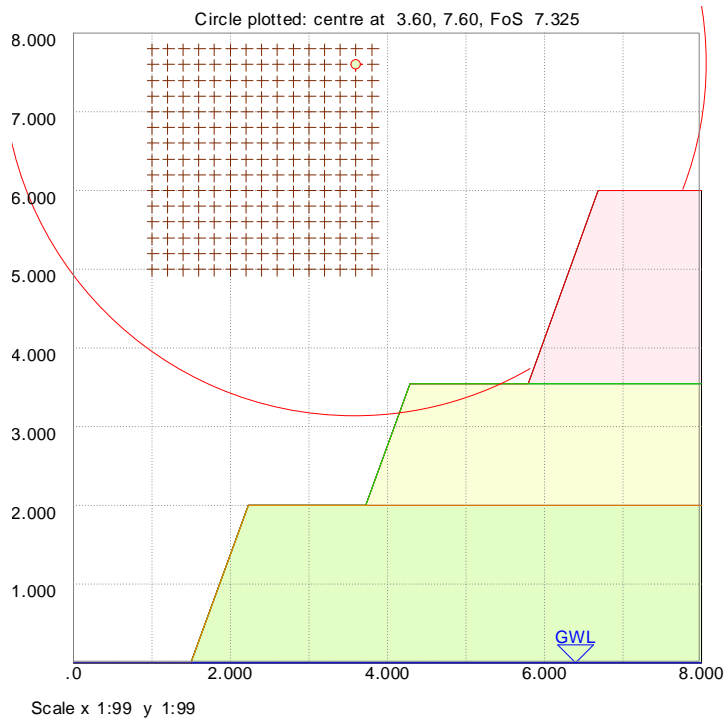
## 1. Tahap 1



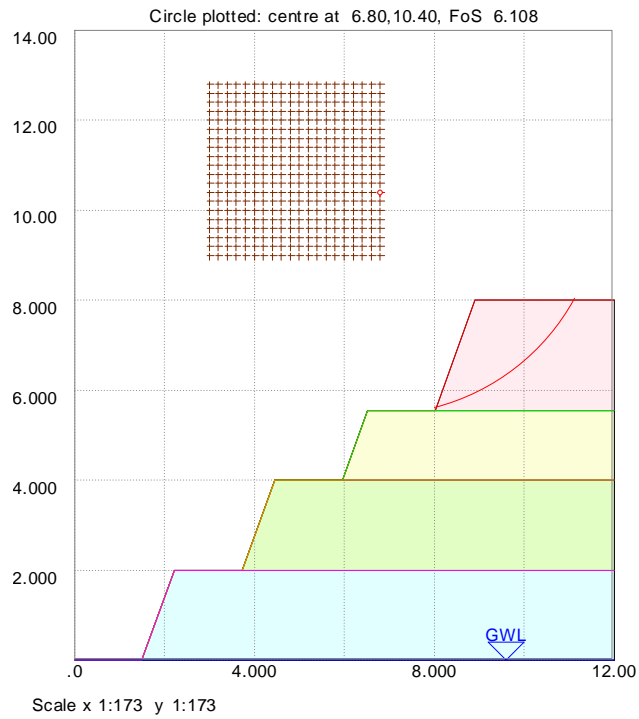
## 2. Tahap 2



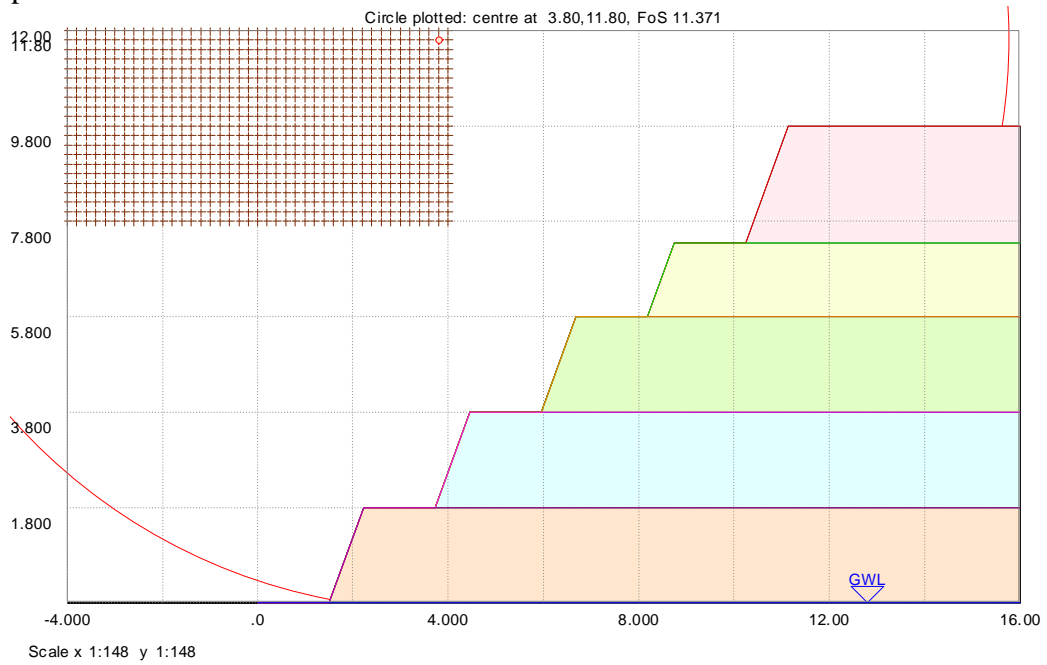
## 3. Tahap 3



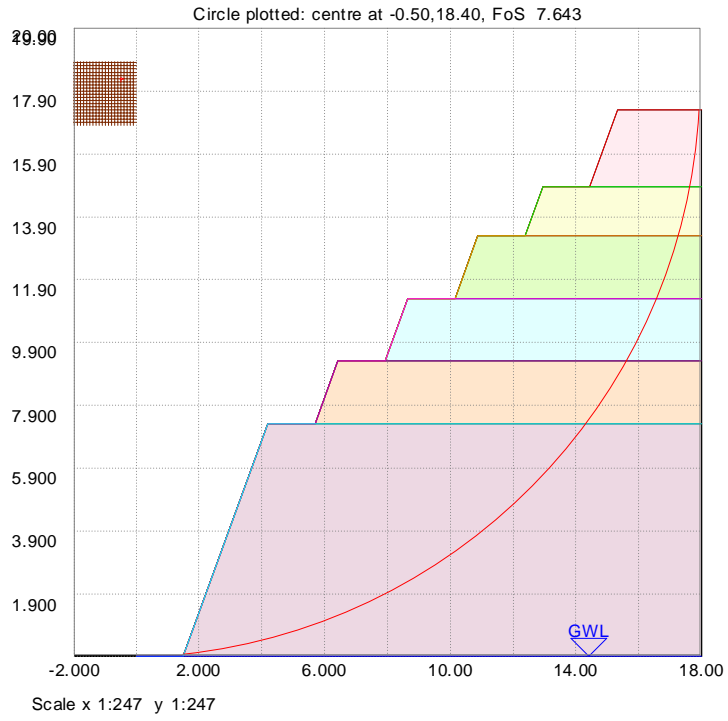
#### 4. Tahap 4



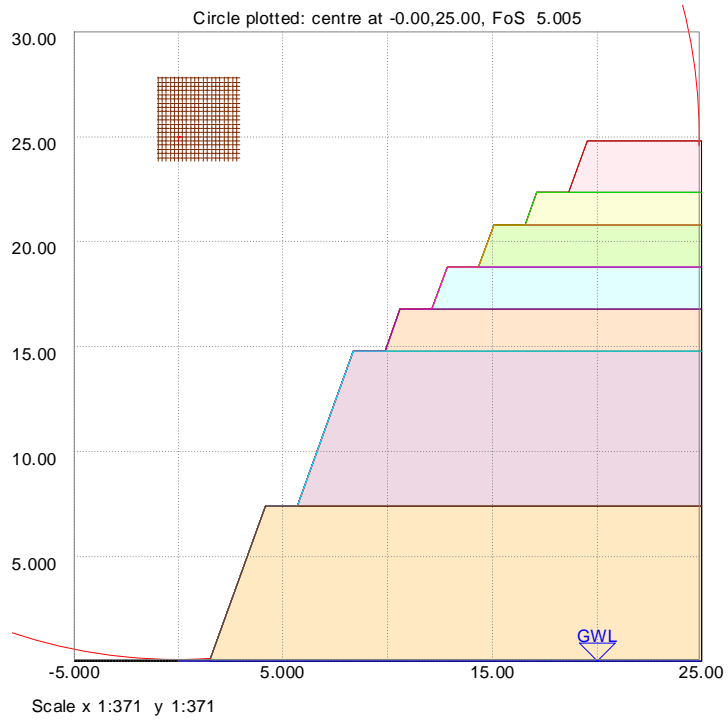
#### 5. Tahap 5



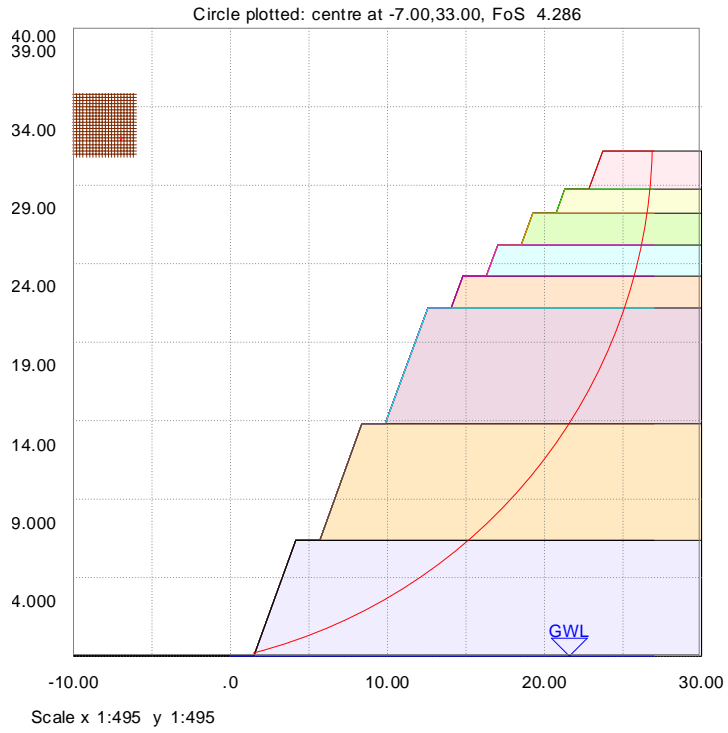
### 6. Tahap 6.1



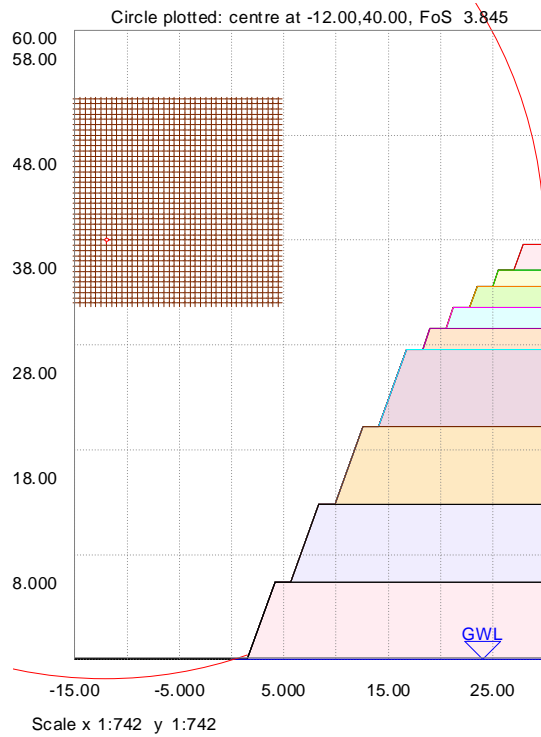
### 7. Tahap 6.2



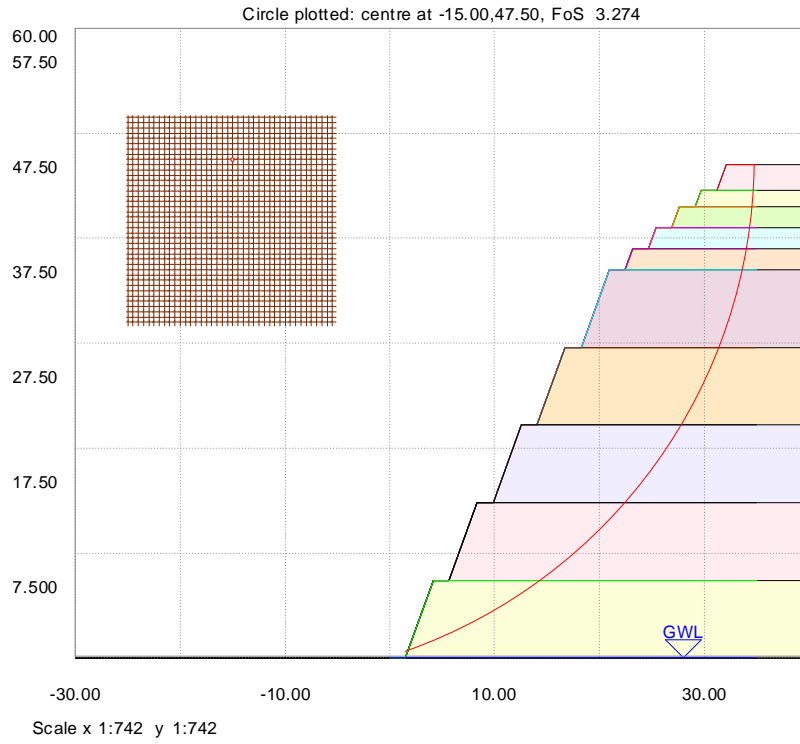
### 8. Tahap 6.3



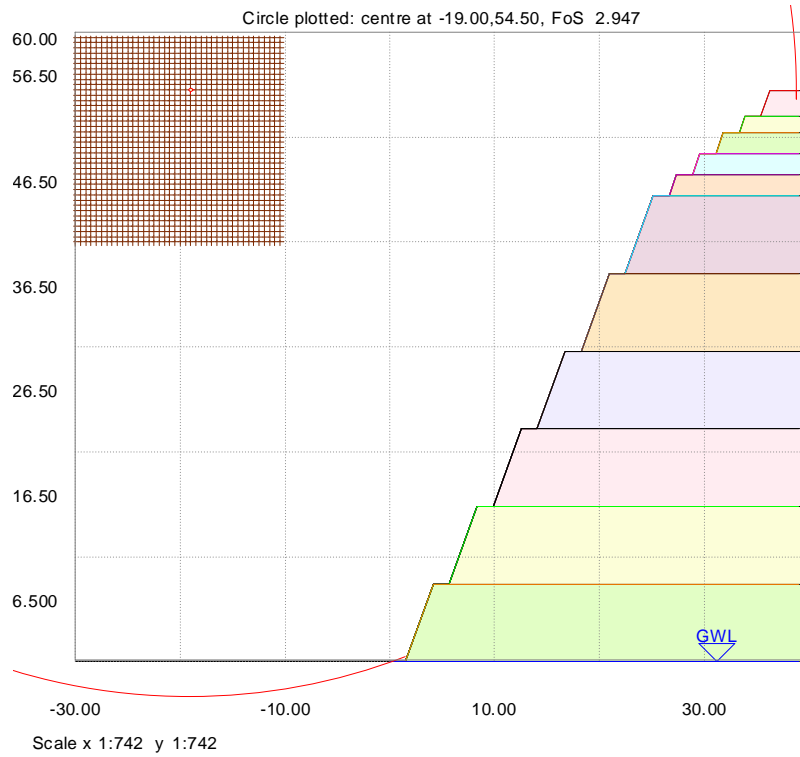
### 9. Tahap 6.4



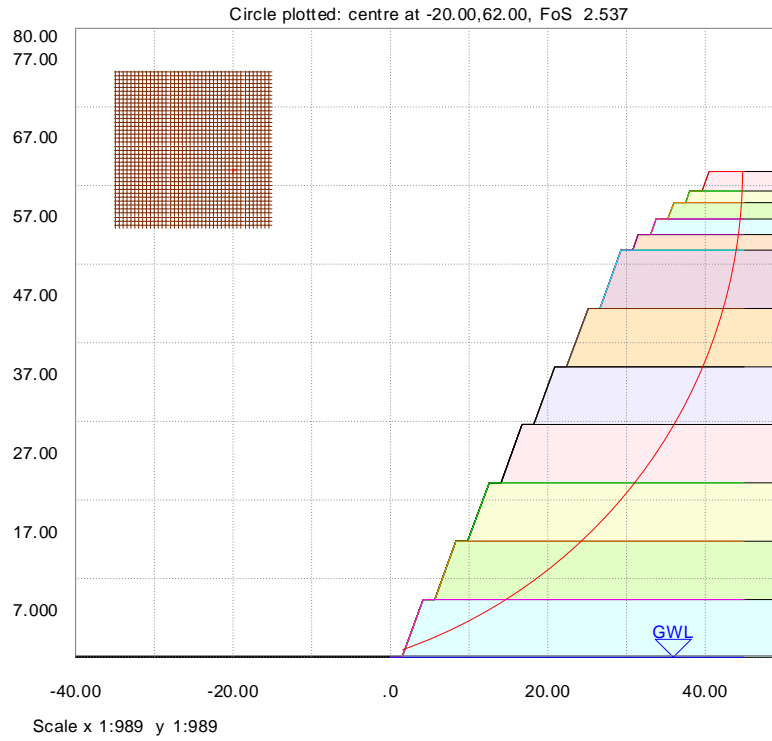
### 10. Tahap 6.5



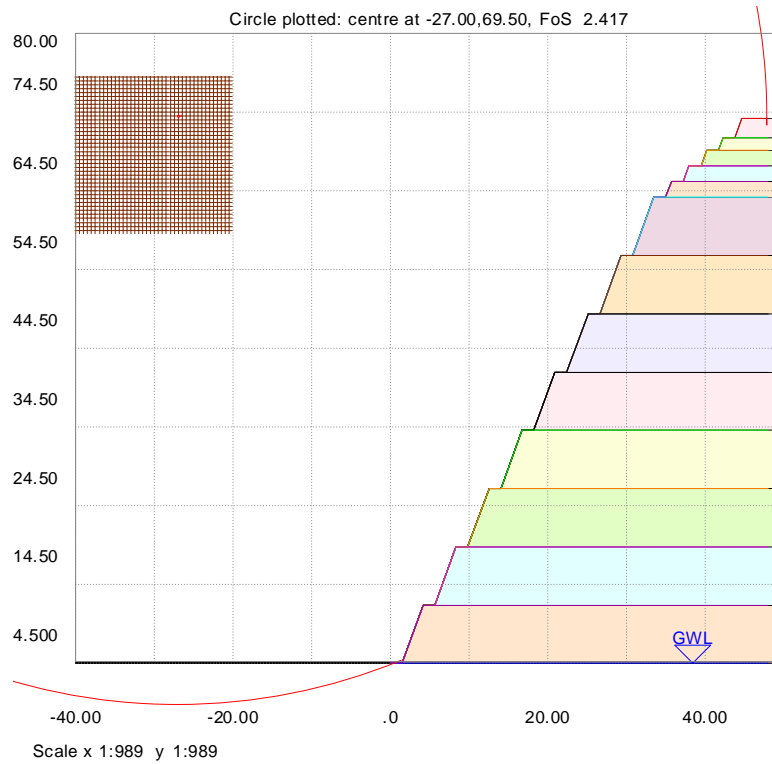
### 11. Tahap 6.6



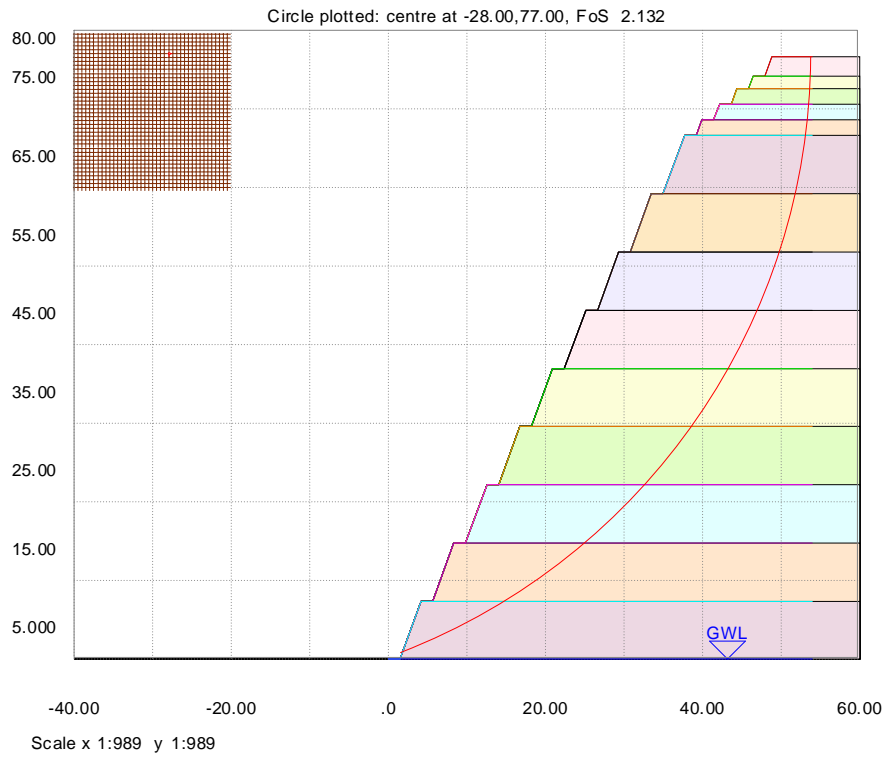
### 12. Tahap 6.7



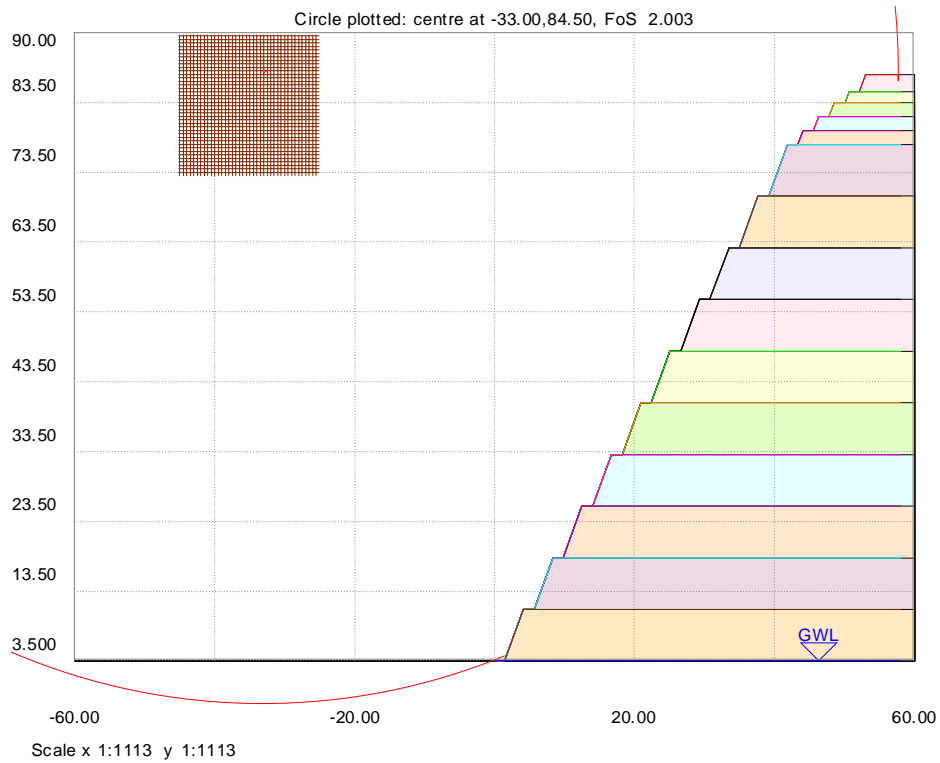
### 13. Tahap 6.8



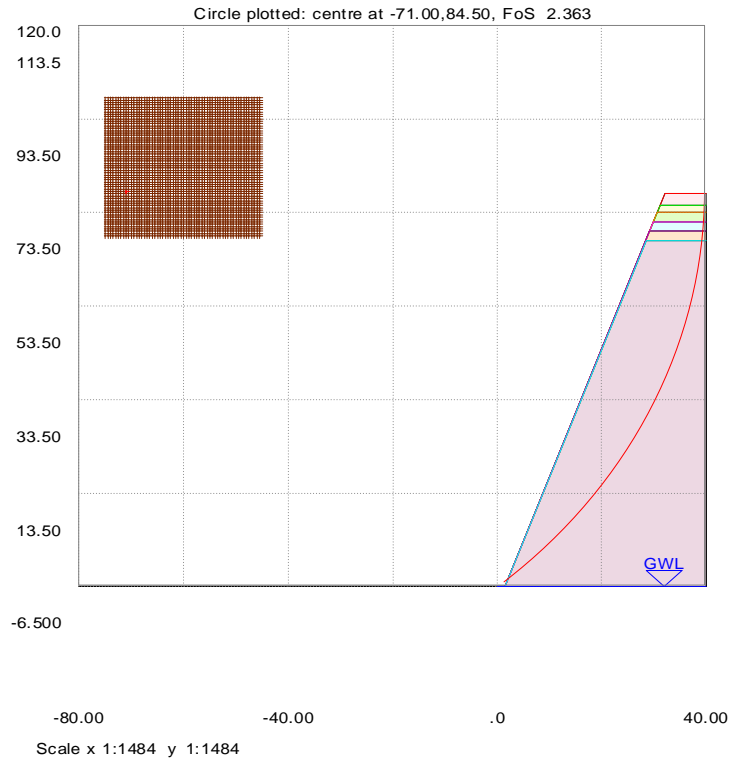
### 14. Tahap 6.9



### 15. Tahap 6.10

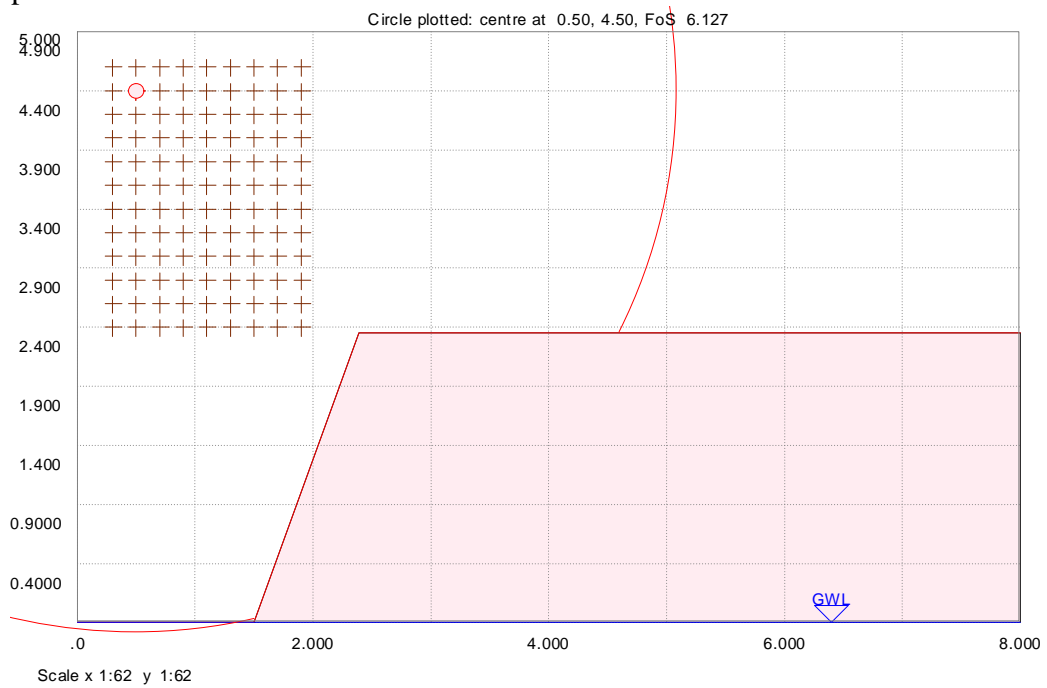


## 16. Tahap 7



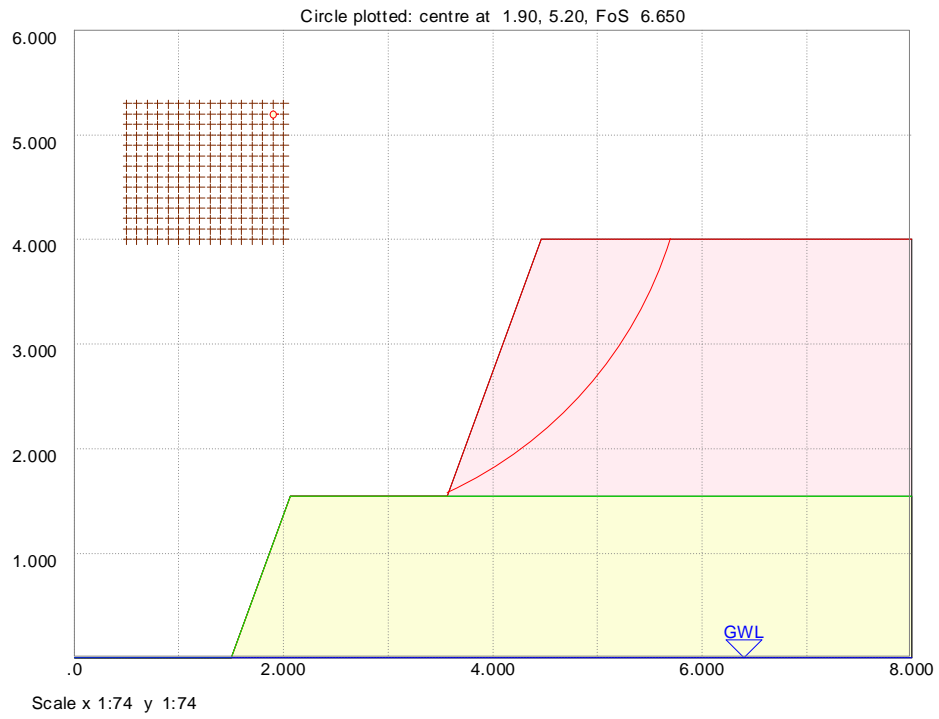
## B. Tanpa Gempa

### 1. Tahap 1

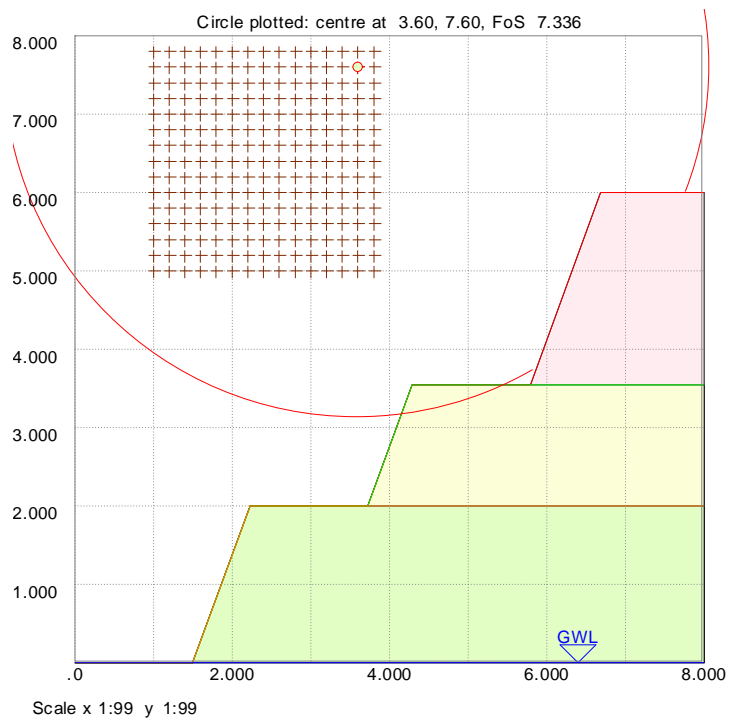




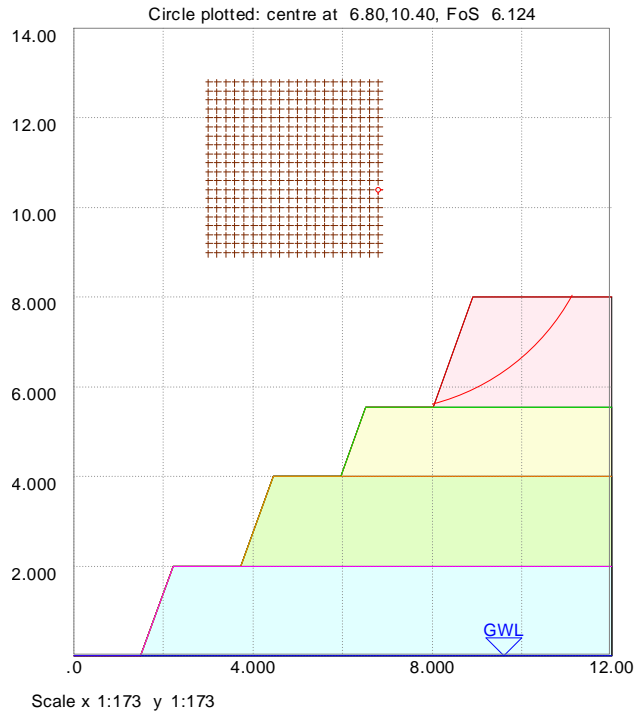
## 2. Tahap 2



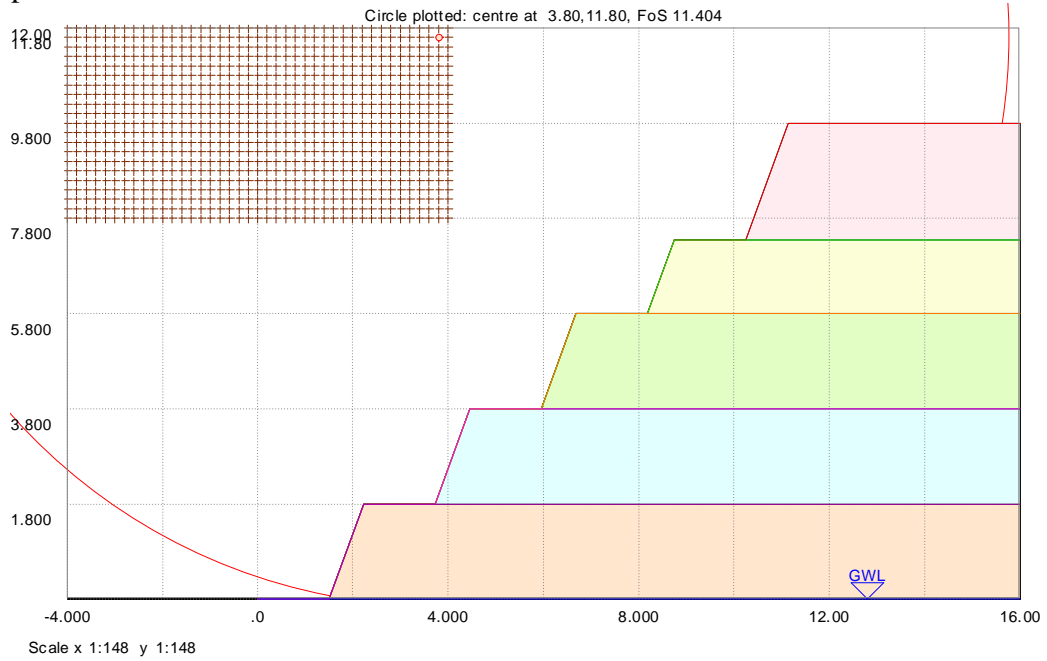
## 3. Tahap 3



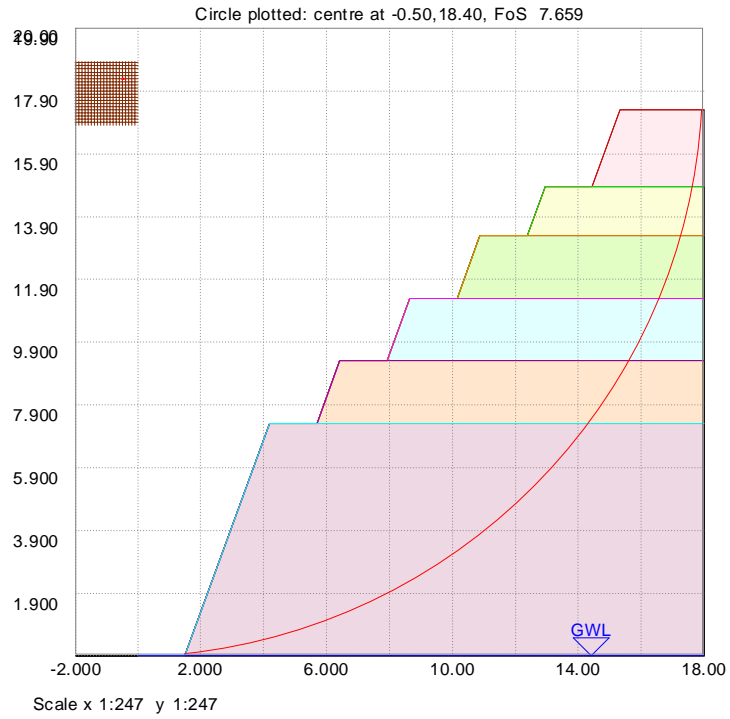
#### 4. Tahap 4



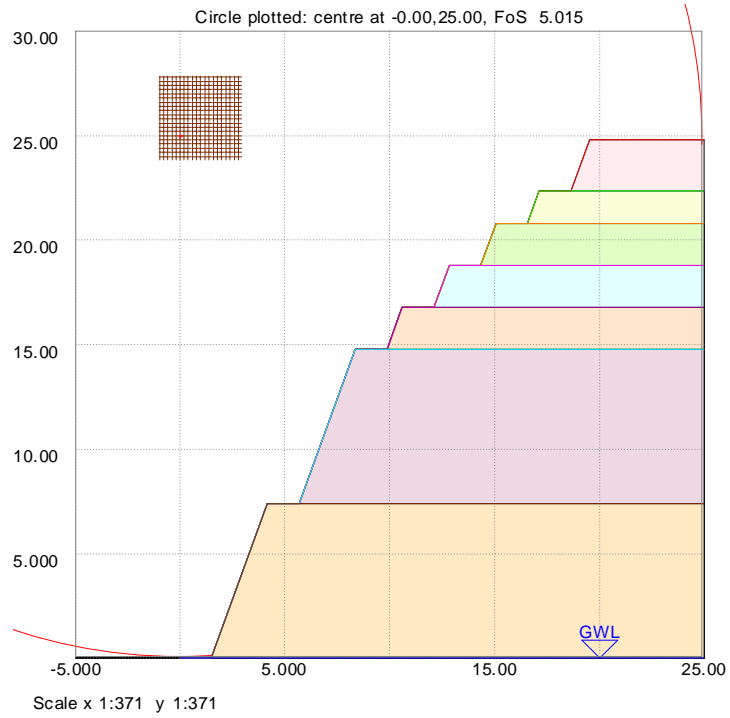
#### 5. Tahap 5



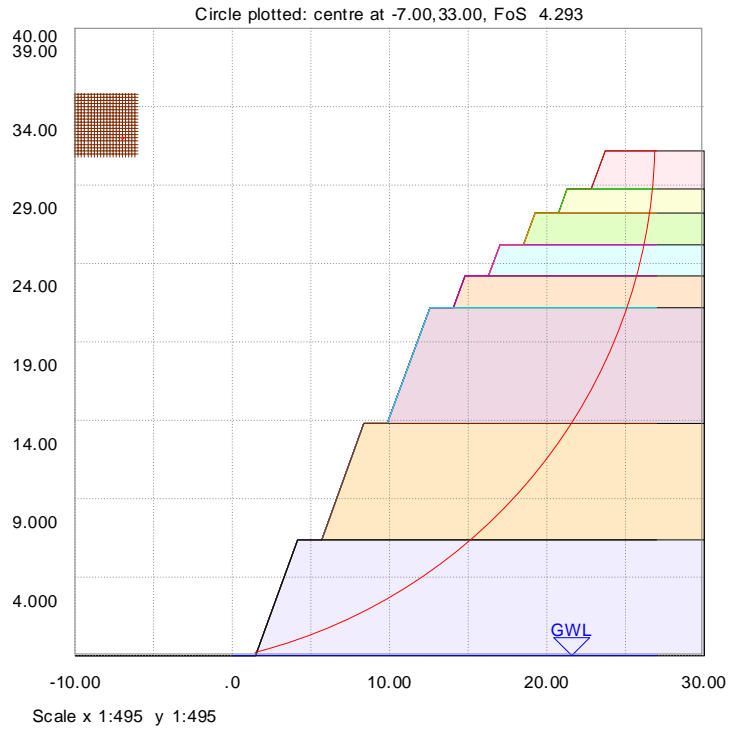
### 6. Tahap 6.1



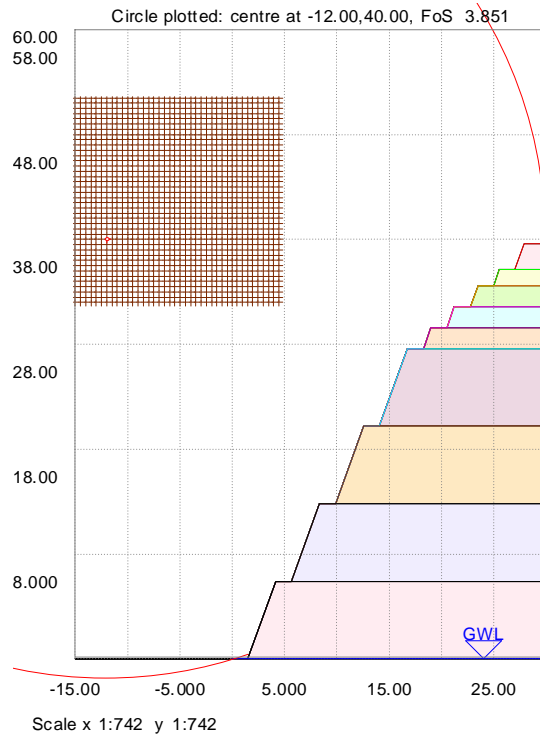
### 7. Tahap 6.2



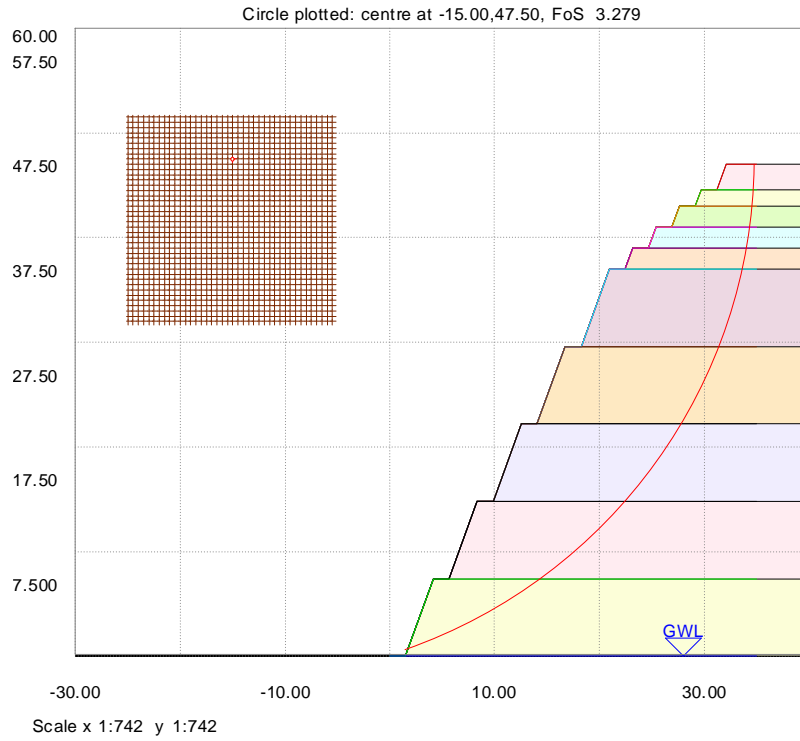
### 8. Tahap 6.3



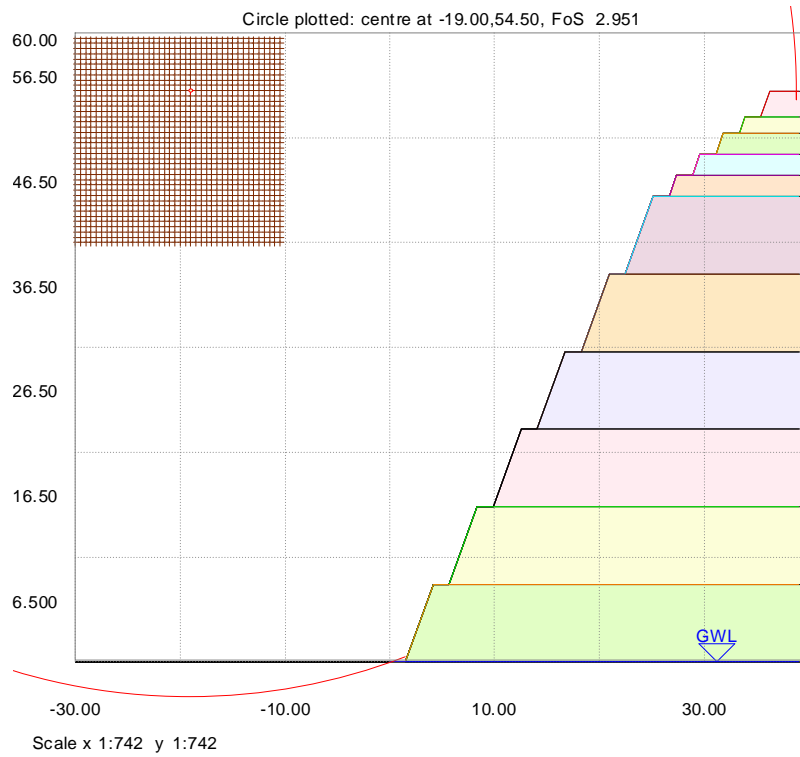
### 9. Tahap 6.4



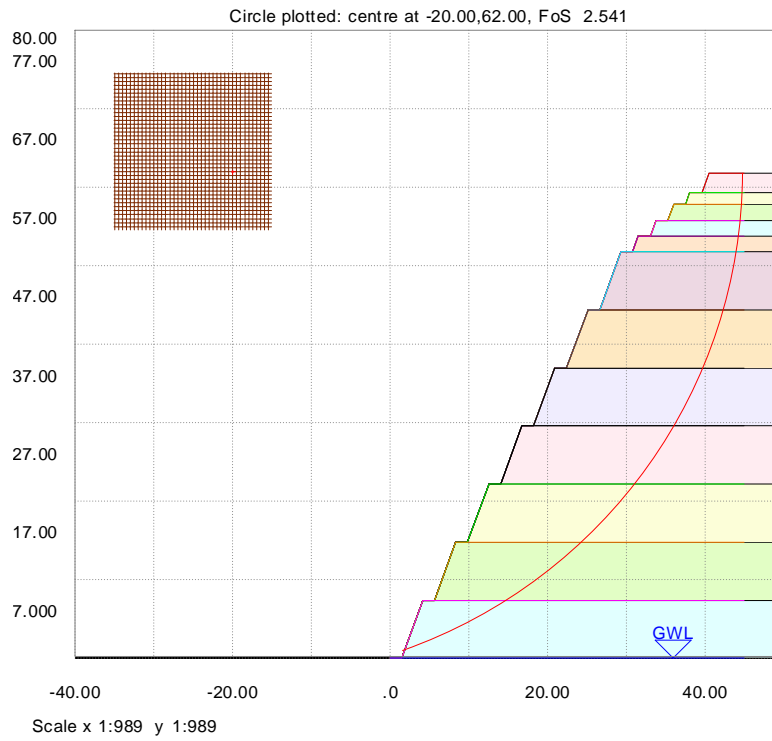
### 10. Tahap 6.5



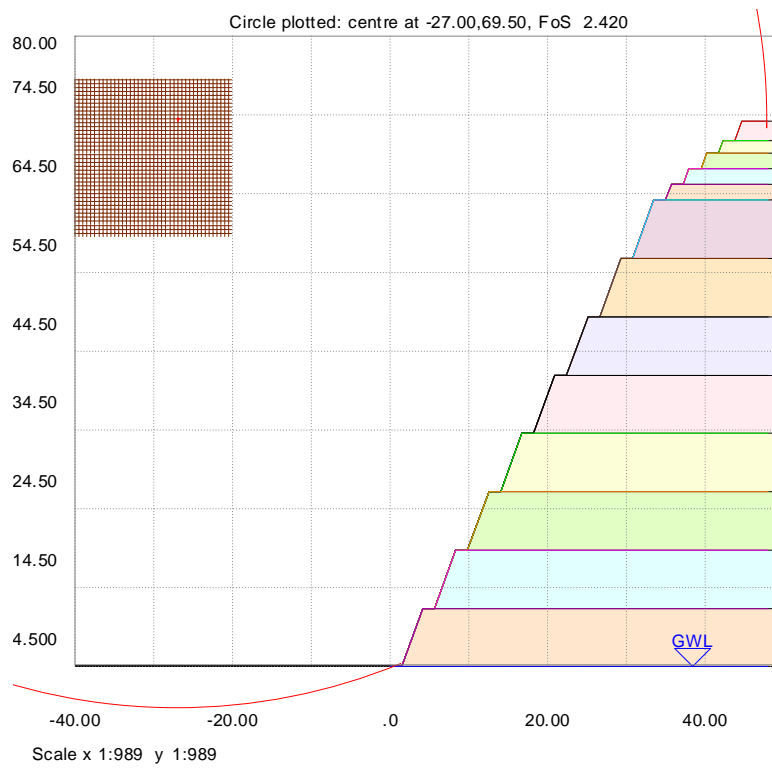
### 11. Tahap 6.6



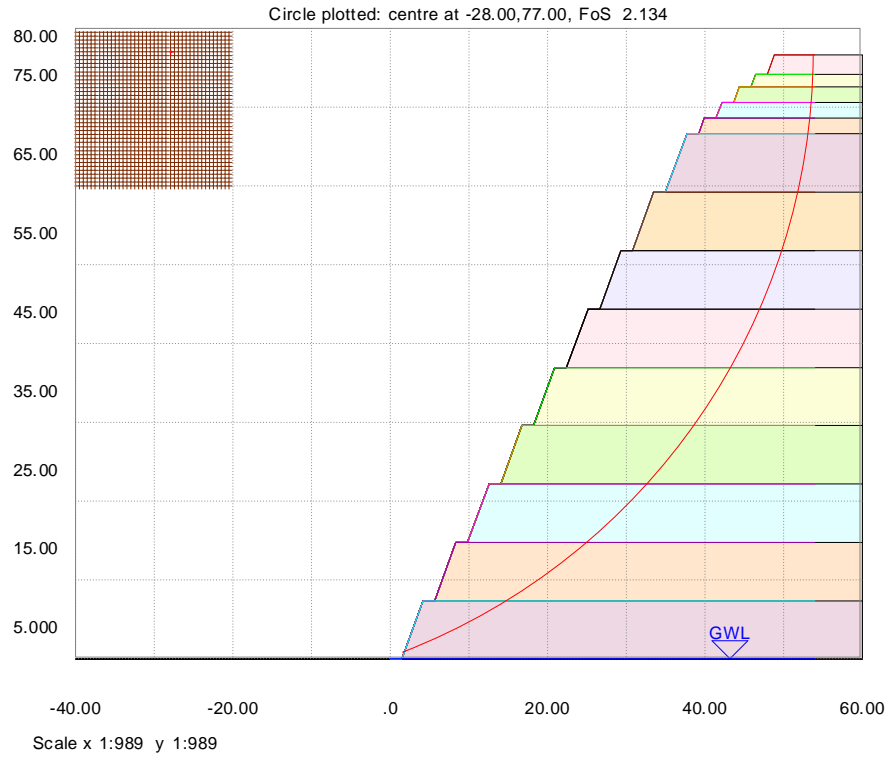
### 12. Tahap 6.7



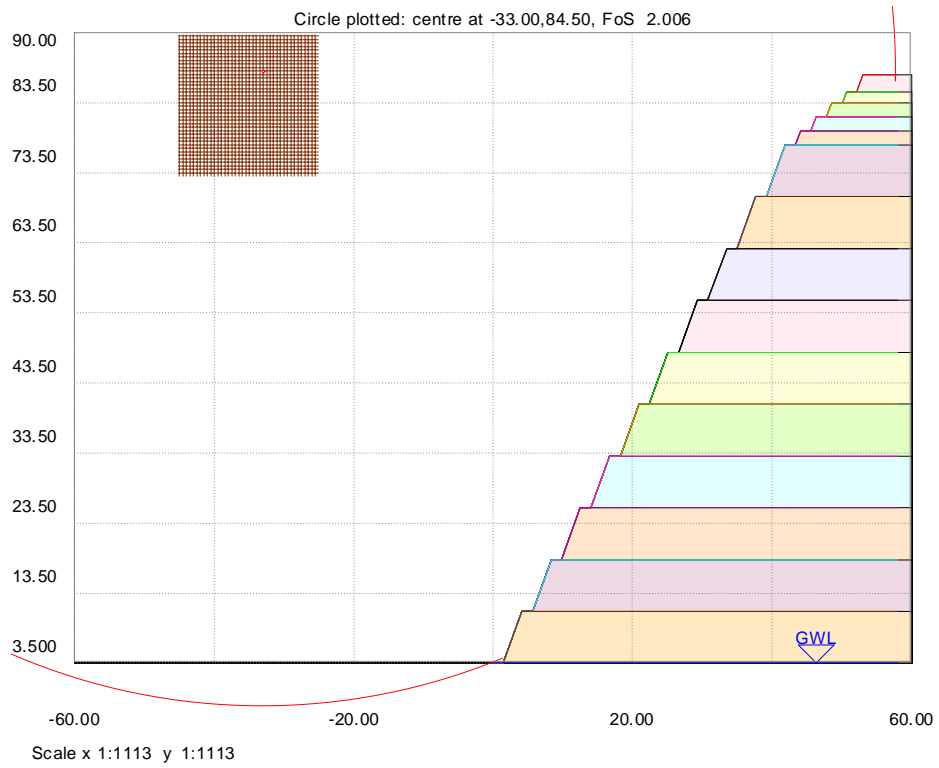
### 13. Tahap 6.8



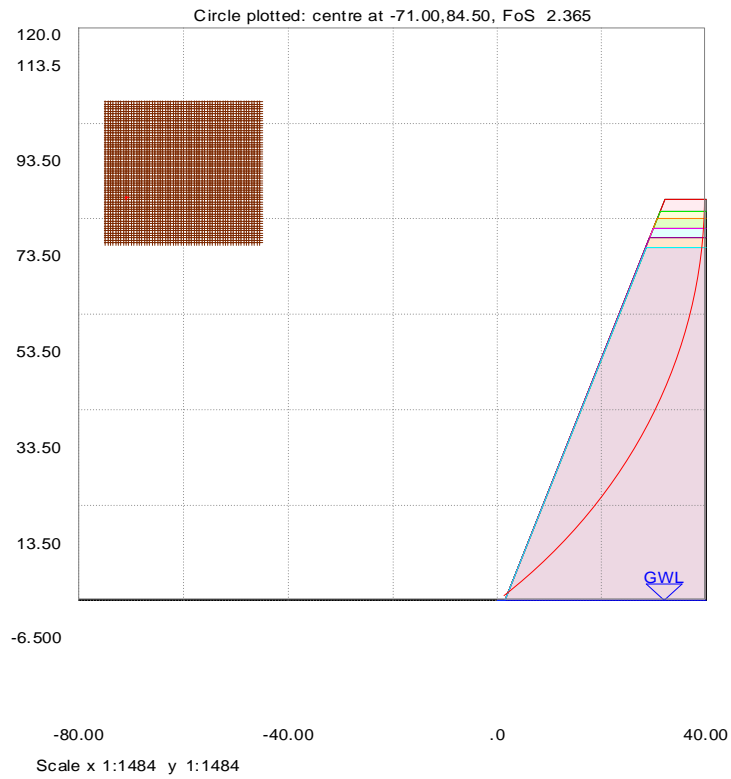
### 14. Tahap 6.9



### 15. Tahap 6.10

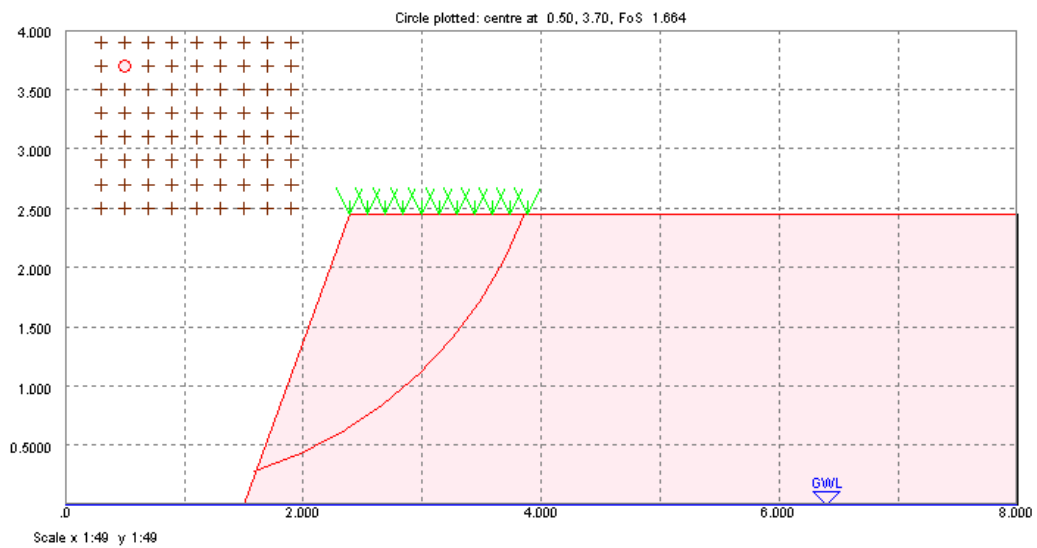


## 16. Tahap 7



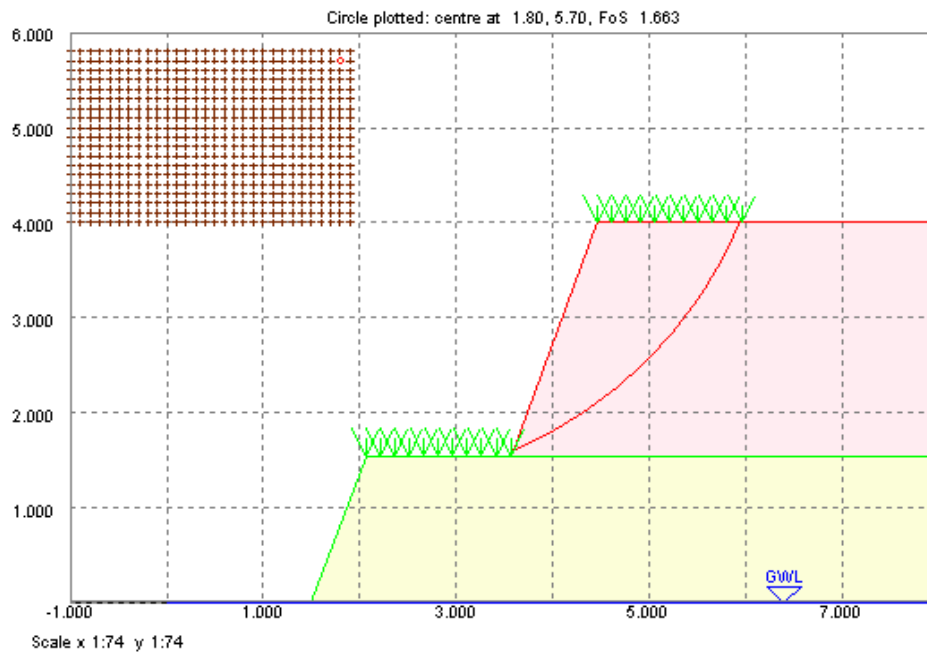
## C. Beban Kendaraan

### 1. Tahap 1

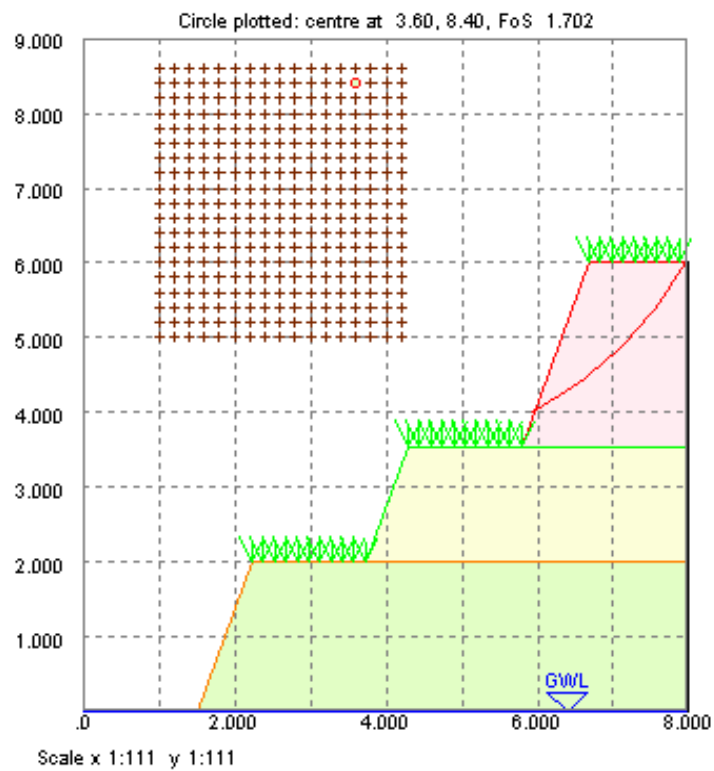




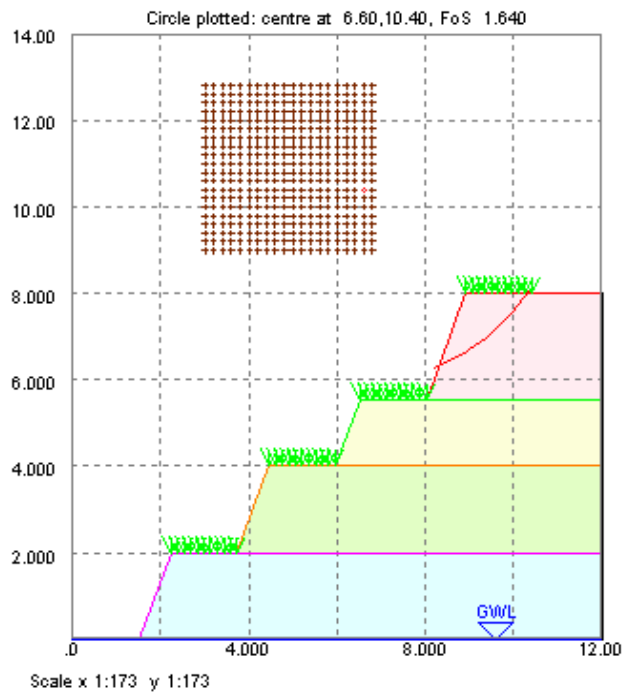
## 2. Tahap 2



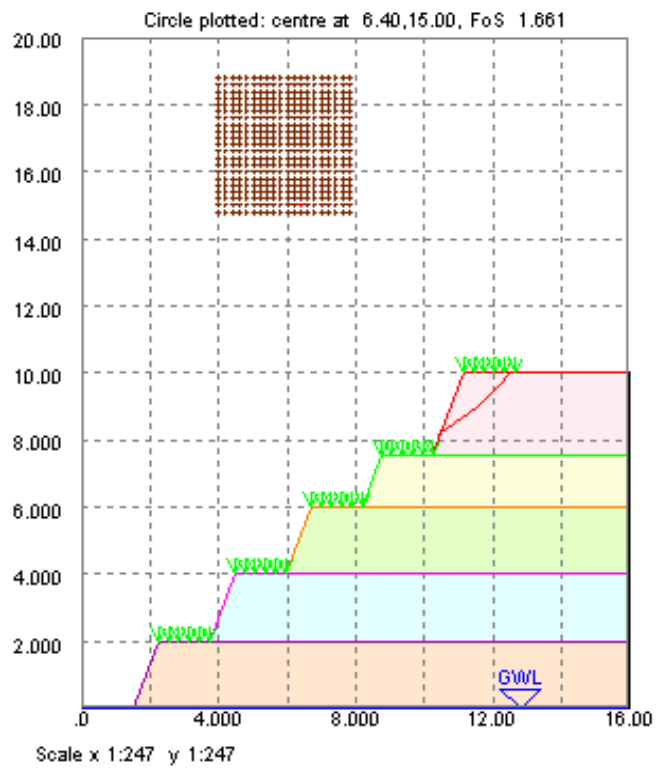
## 3. Tahap 3



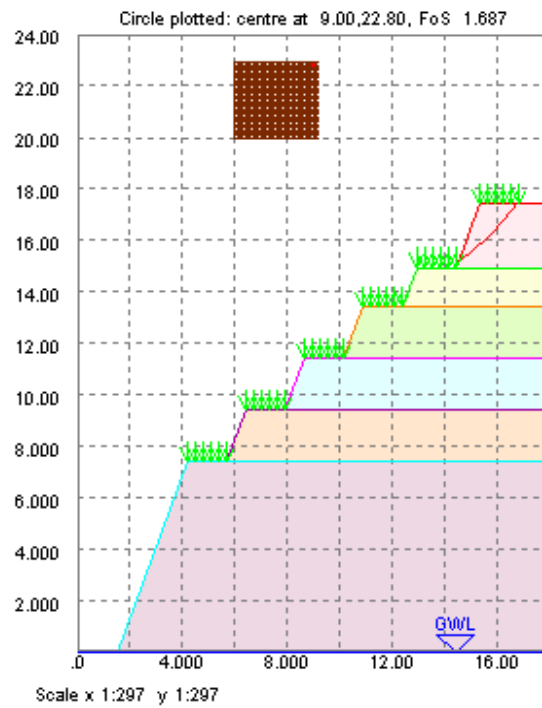
#### 4. Tahap 4



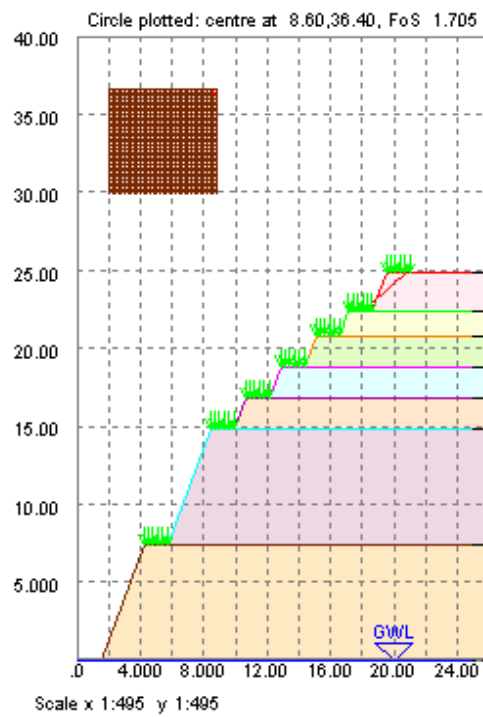
#### 5. Tahap 5



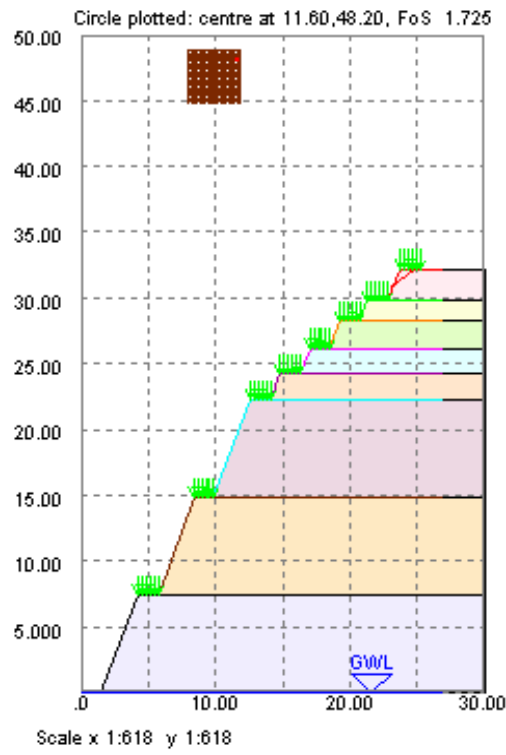
## 6. Tahap 6.1



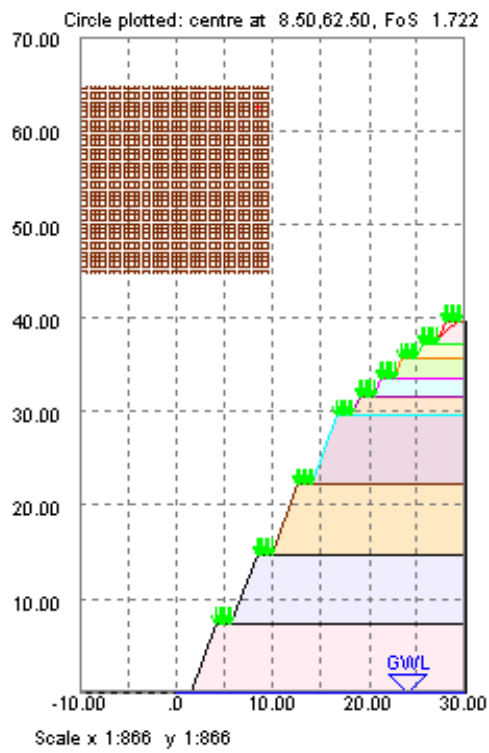
## 7. Tahap 6.2



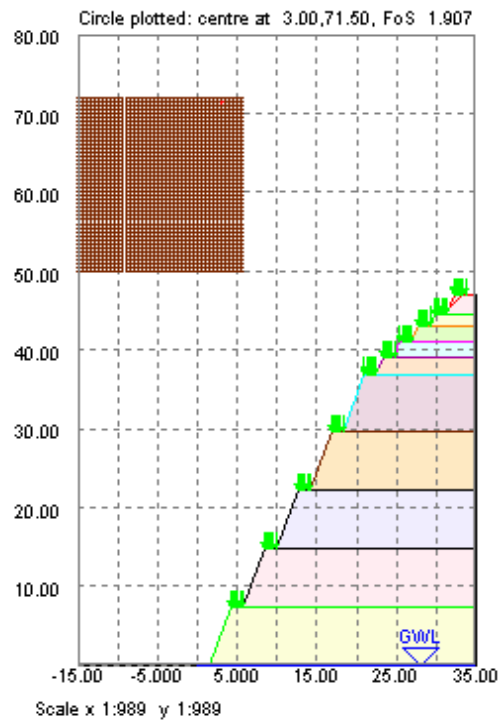
### 8. Tahap 6.3



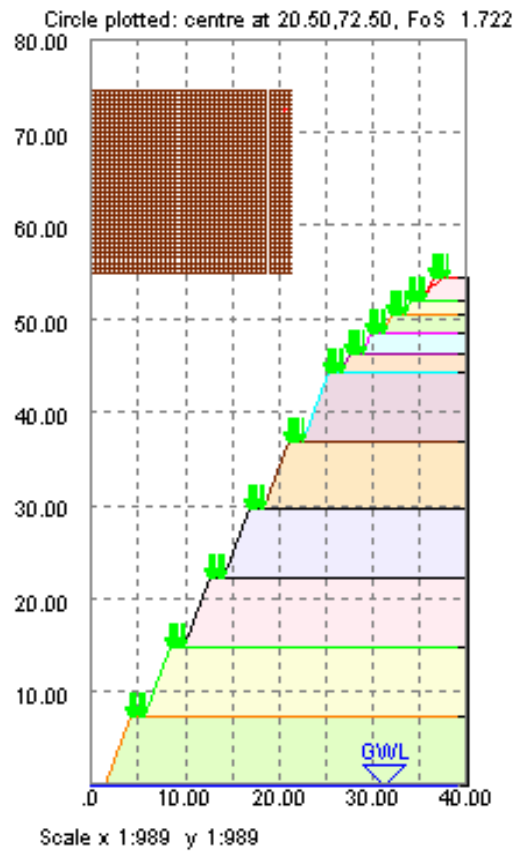
### 9. Tahap 6.4



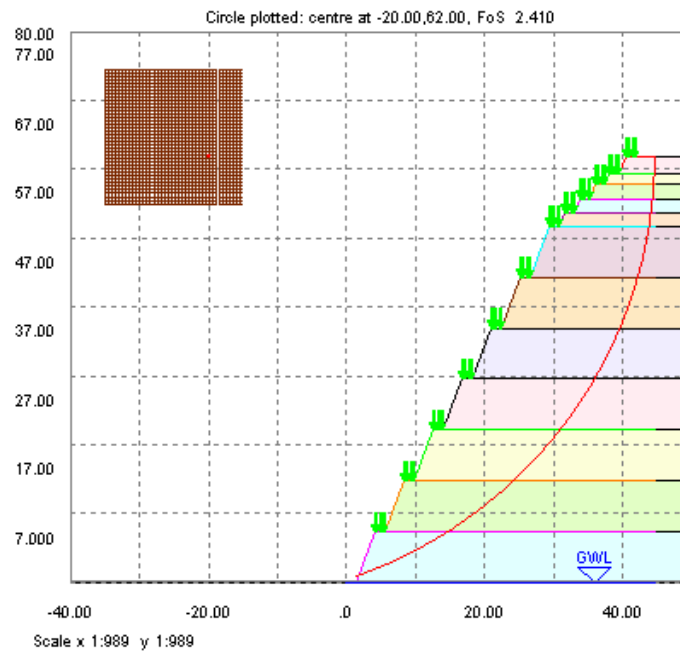
10. Tahap 6.5



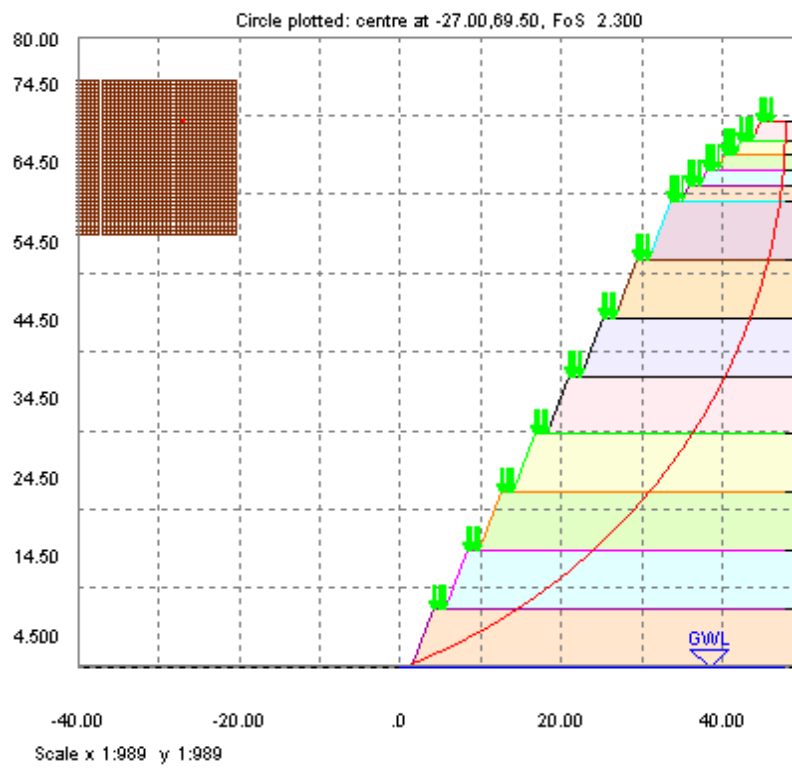
11. Tahap 6.6



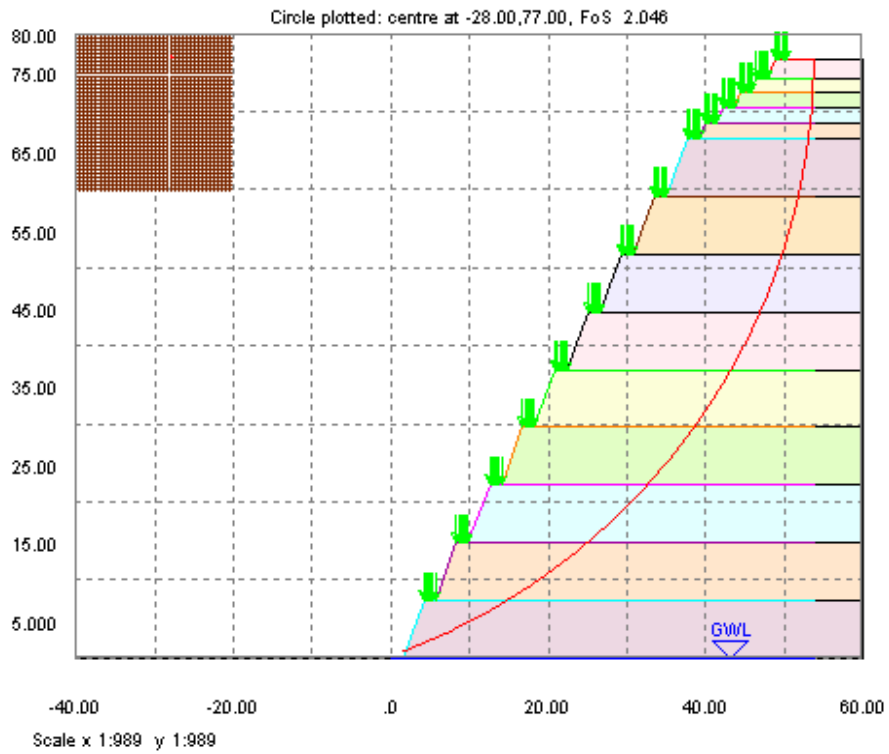
### 12. Tahap 6.7



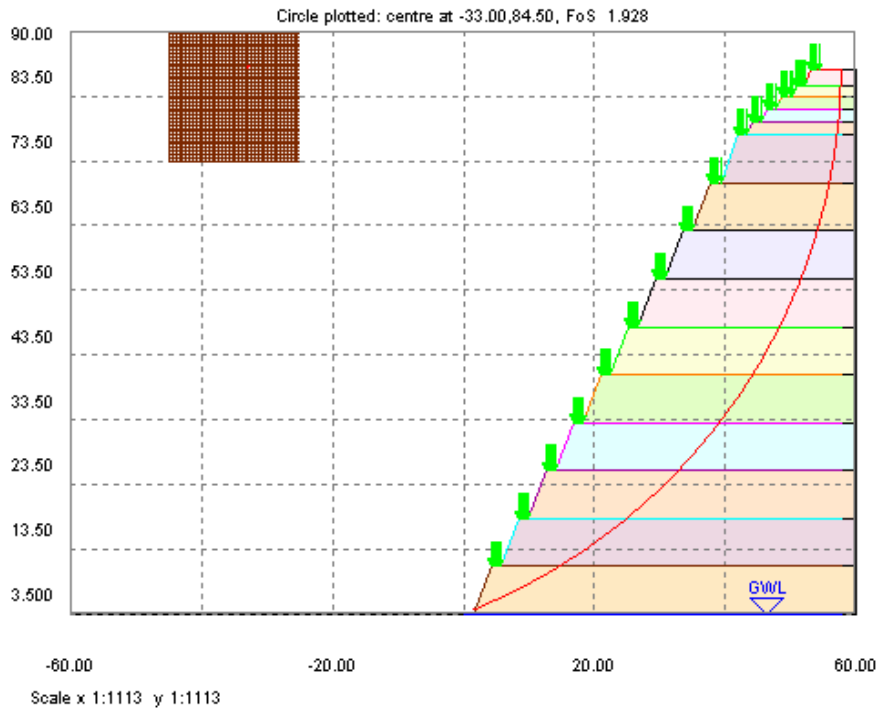
### 13. Tahap 6.8



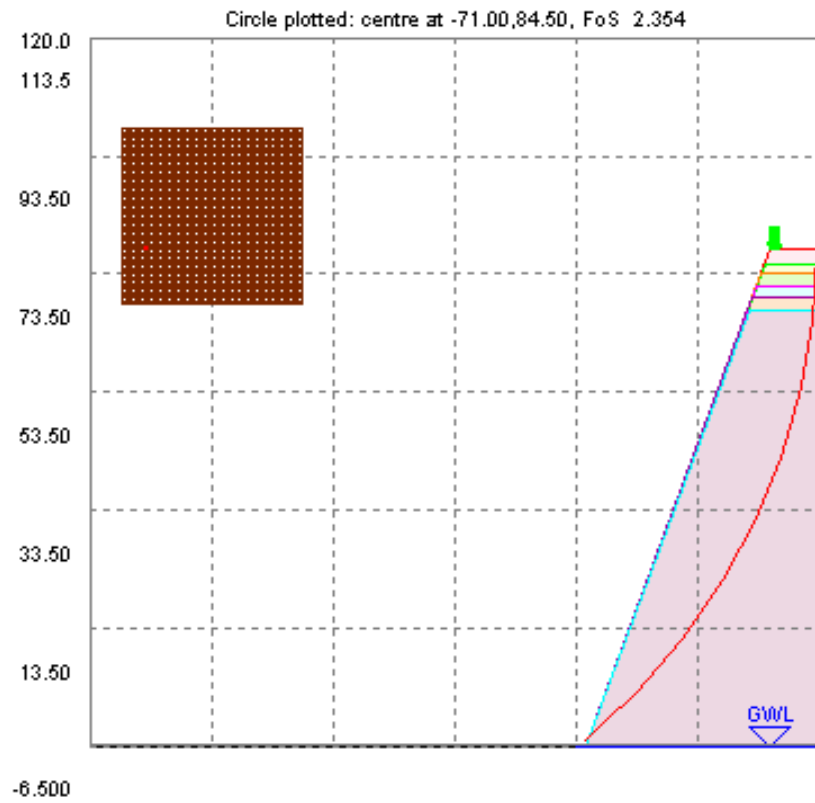
### 14. Tahap 6.9



### 15. Tahap 6.10



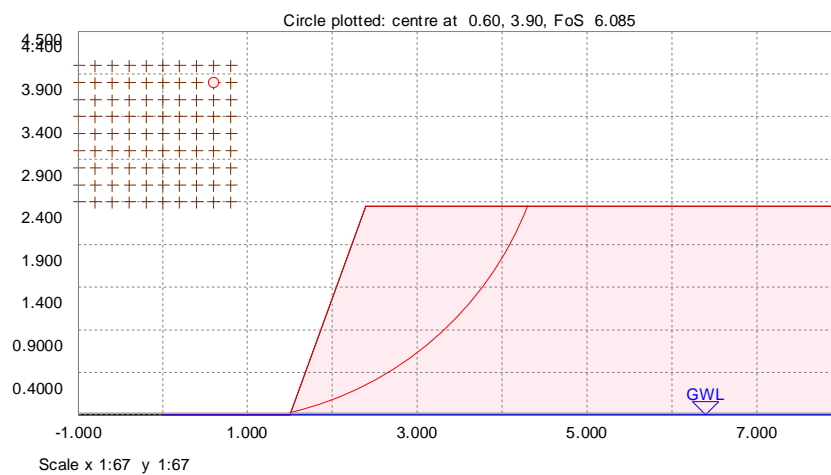
## 16. Tahap 7



## Output Metode Janbu

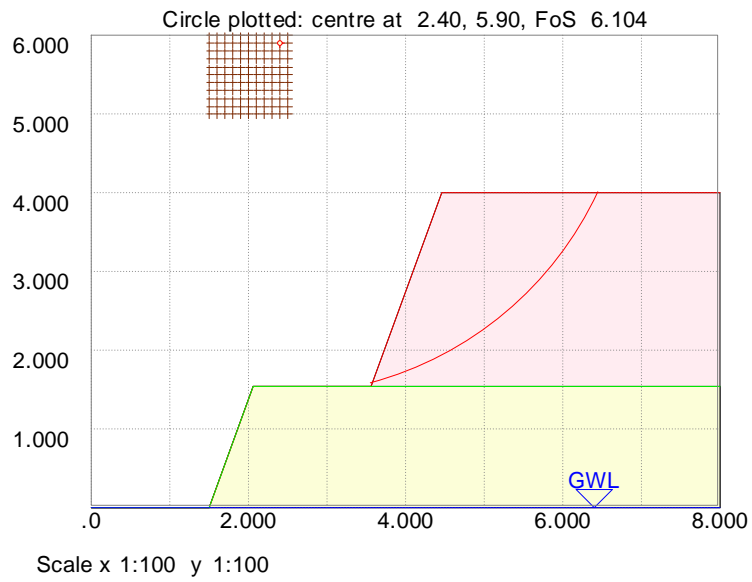
### A. Dengan Gempa

#### 1. Tahap 1

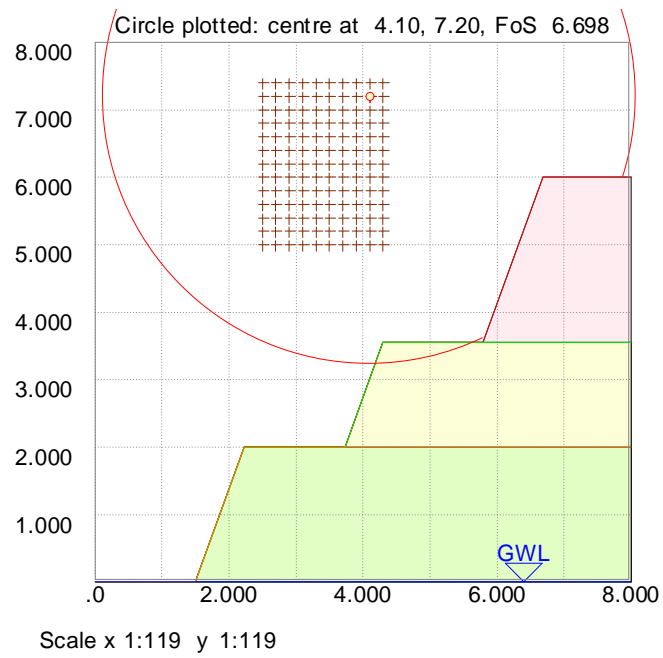




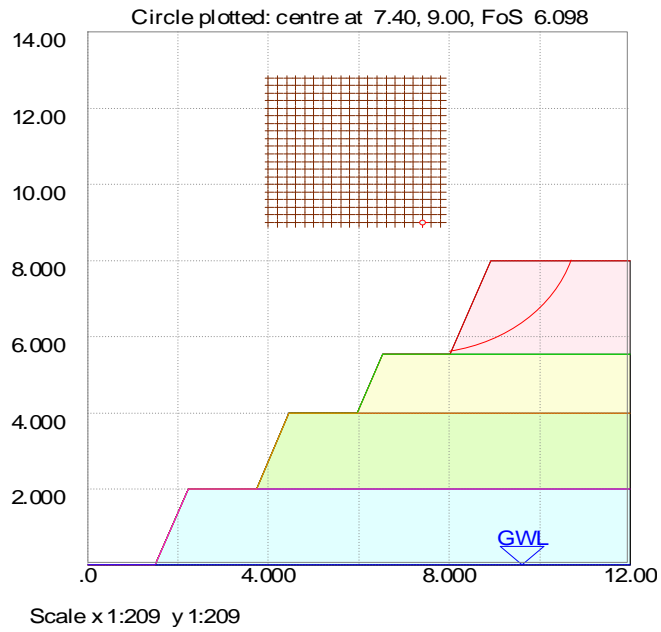
## 2. Tahap 2



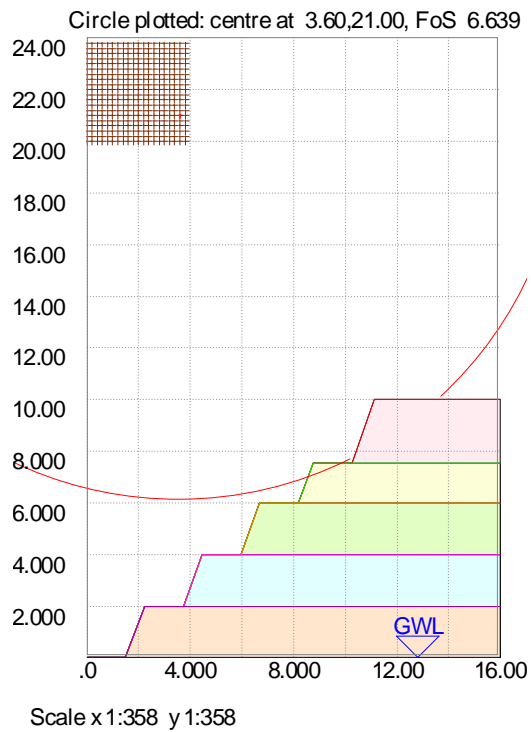
## 3. Tahap 3



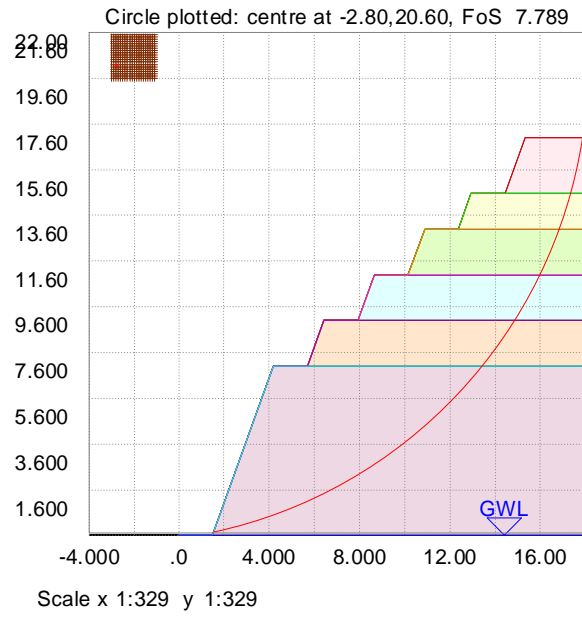
#### 4. Tahap 4



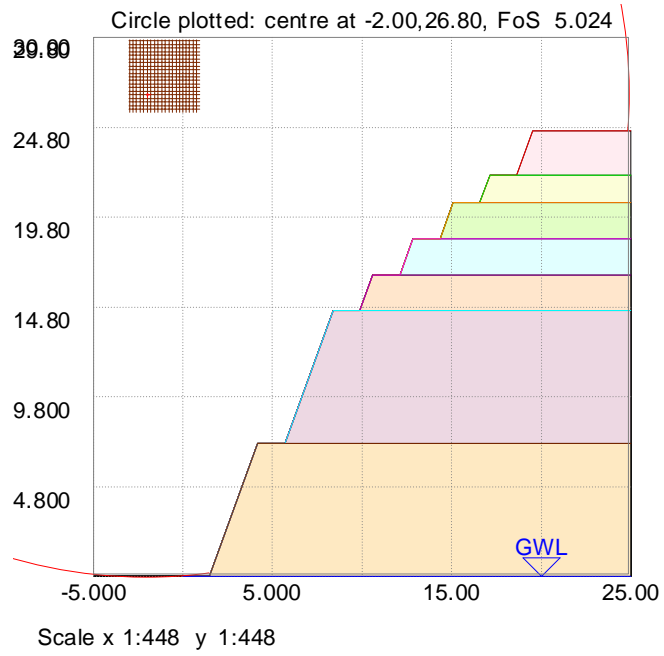
#### 5. Tahap 5



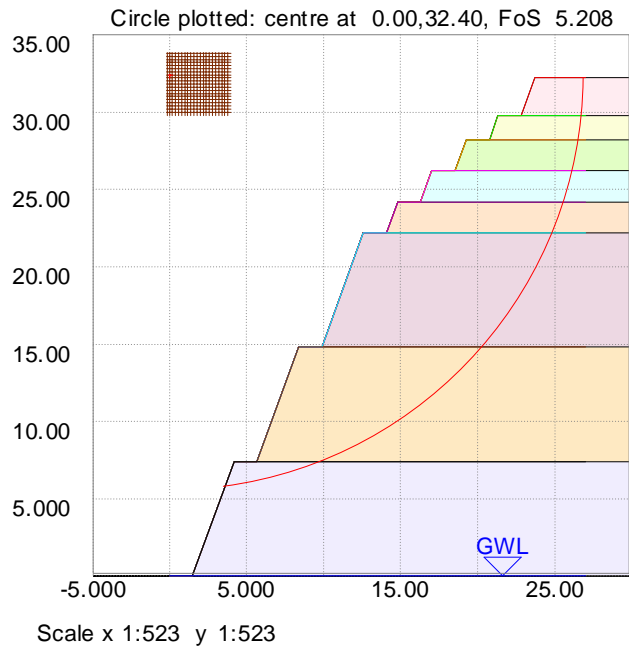
6. Tahap 6.1



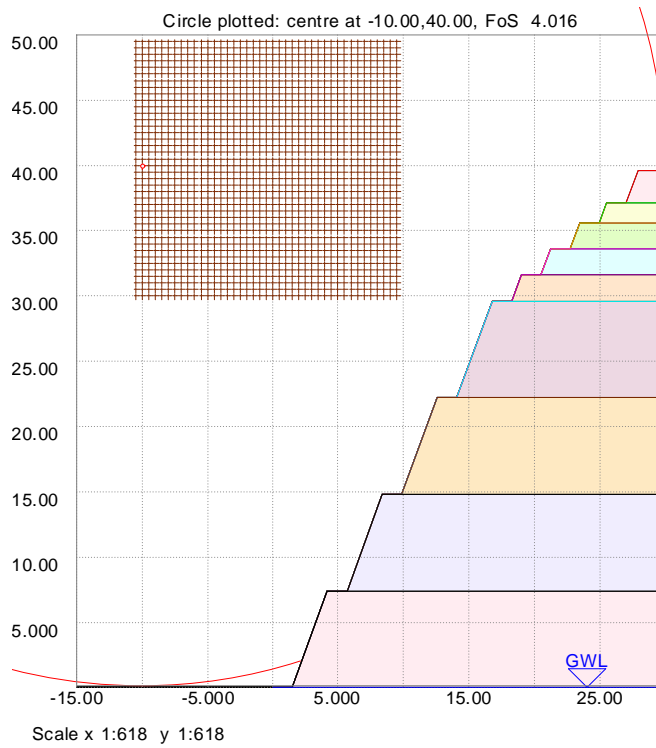
7. Tahap 6.2



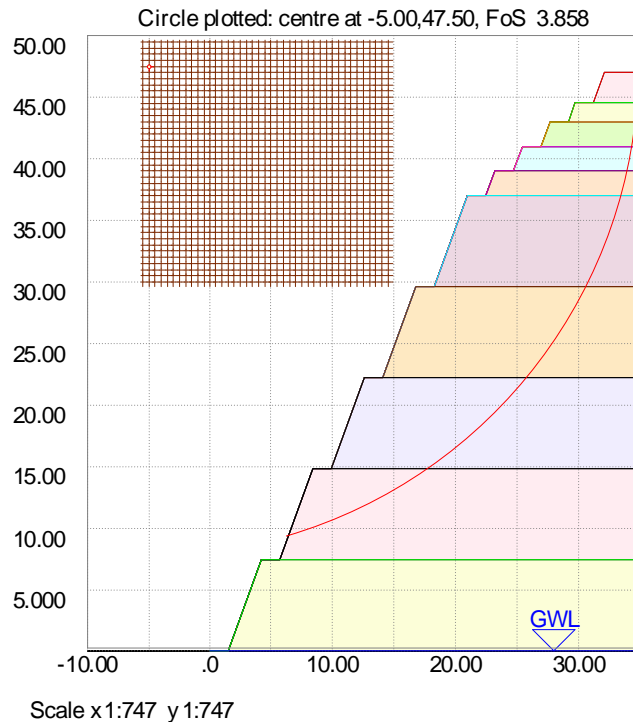
### 8. Tahap 6.3



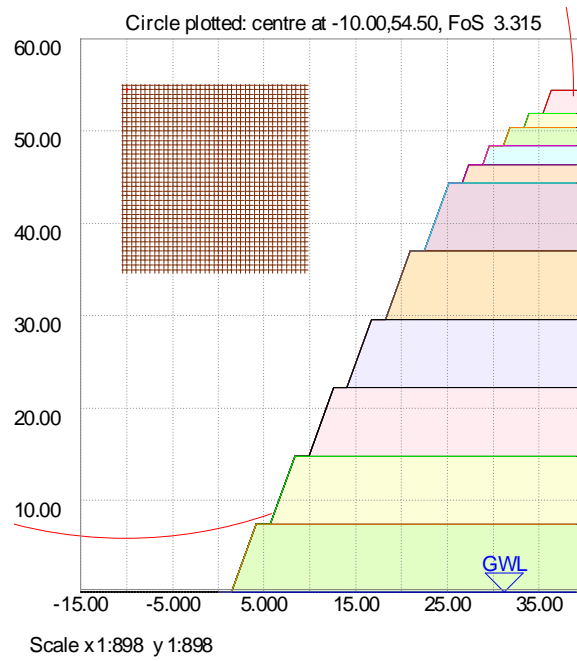
### 9. Tahap 6.4



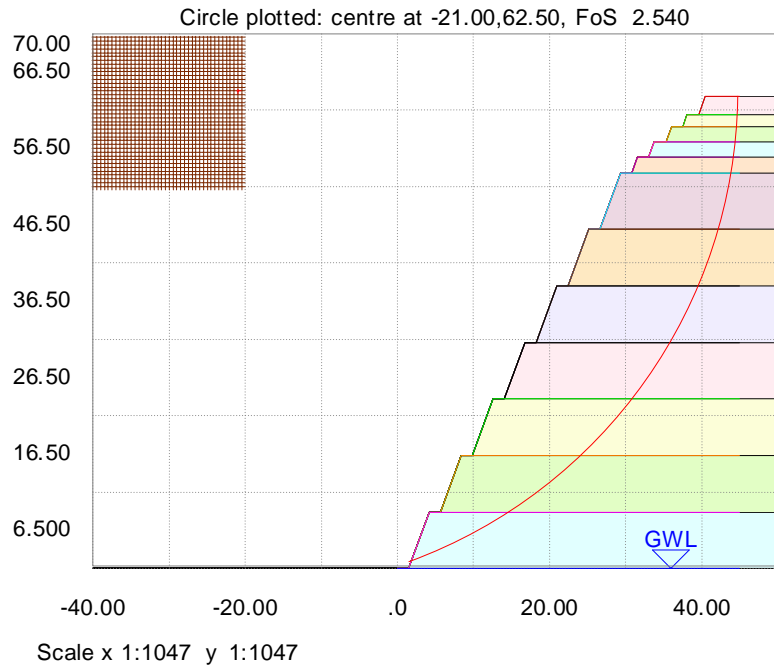
### 10. Tahap 6.5



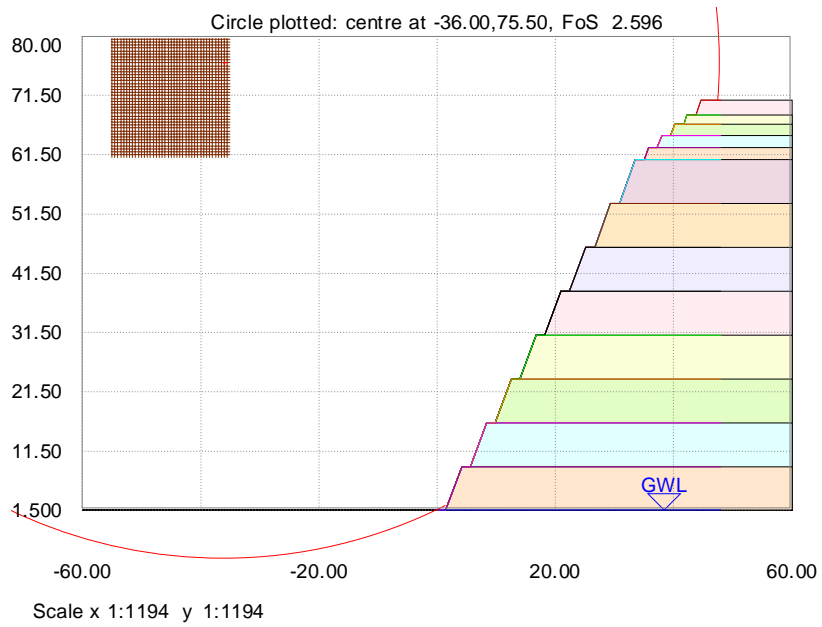
### 11. Tahap 6.6



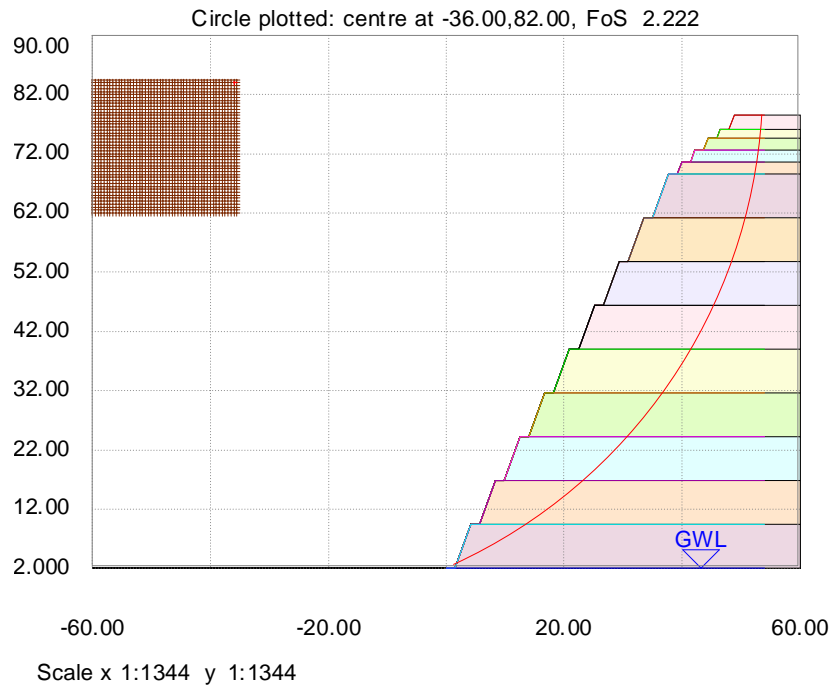
### 12. Tahap 6.7



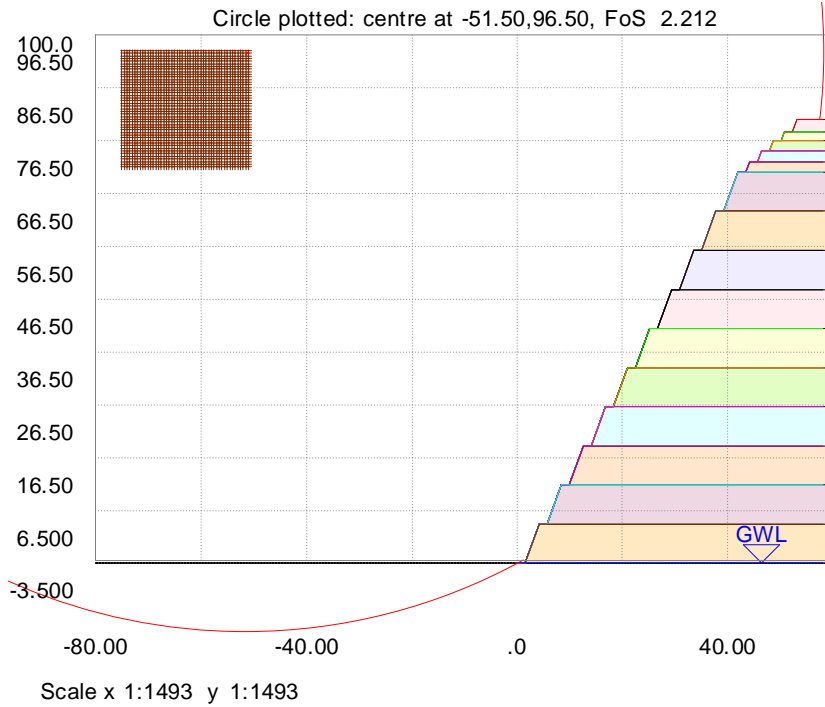
### 13. Tahap 6.8



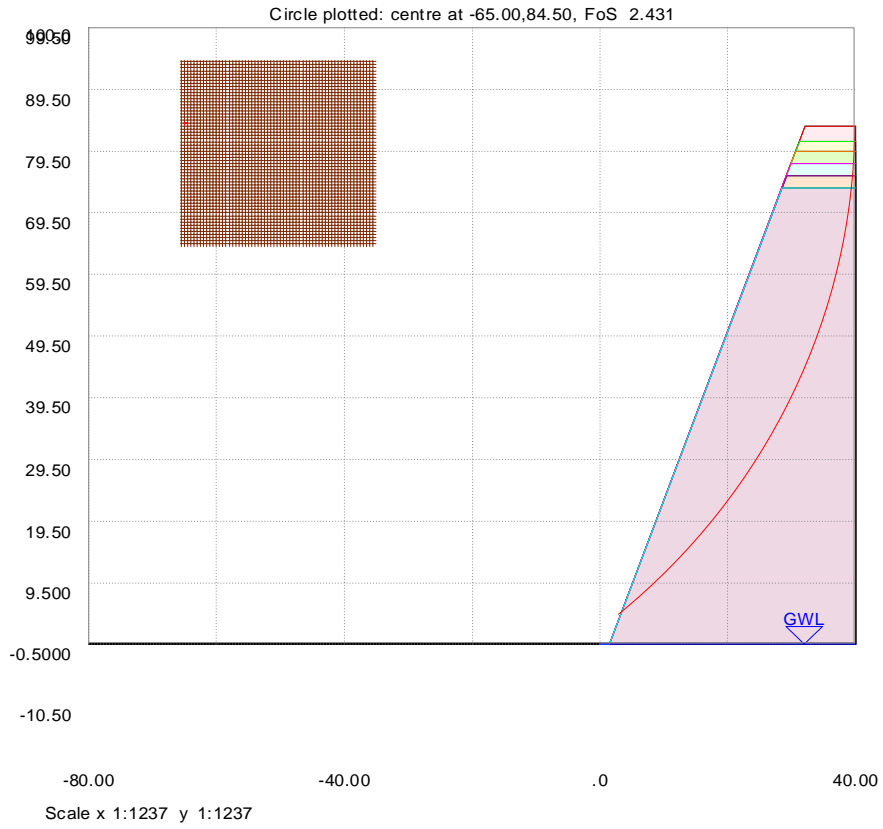
### 14. Tahap 6.9



### 15. Tahap 6.10

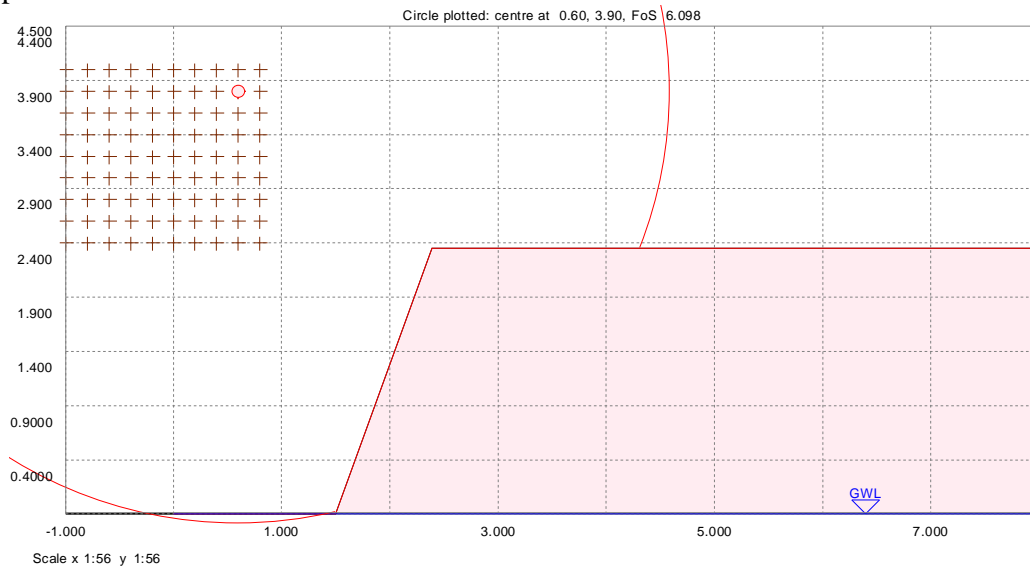


## 16. Tahap 7



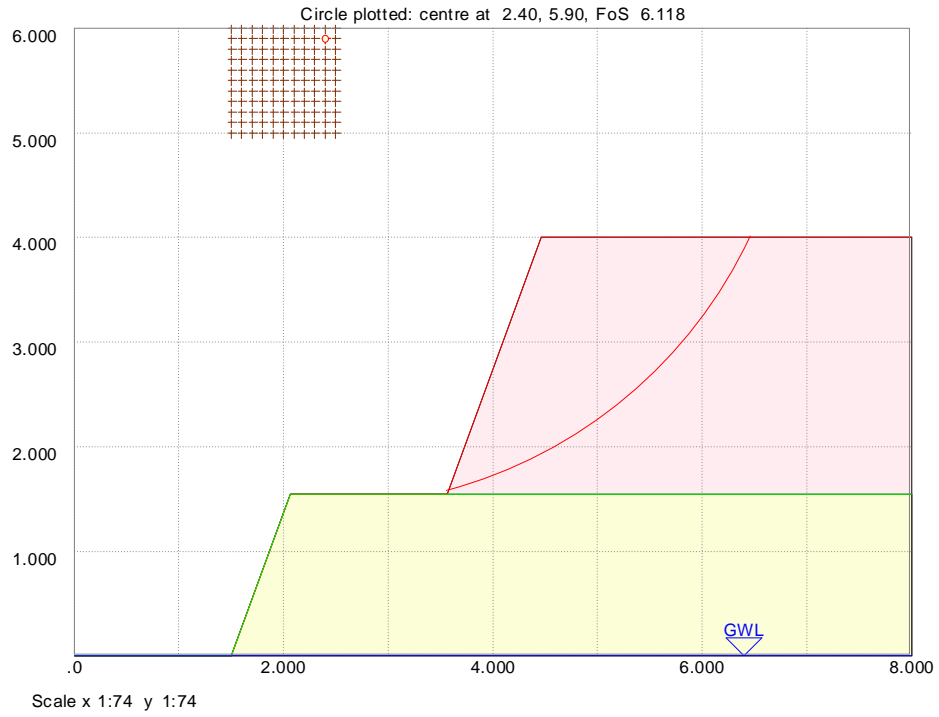
## B.Tanpa Gempa

### 1.Tahap 1

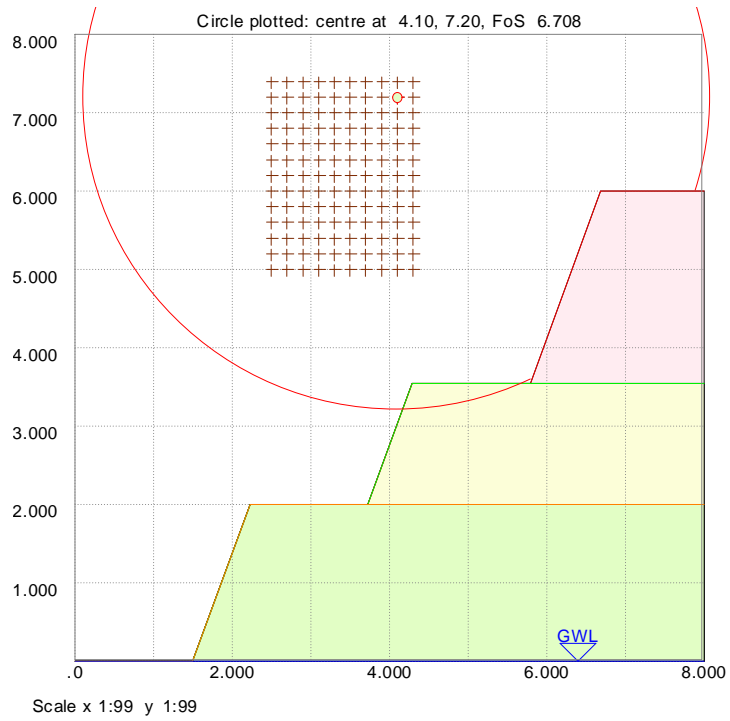




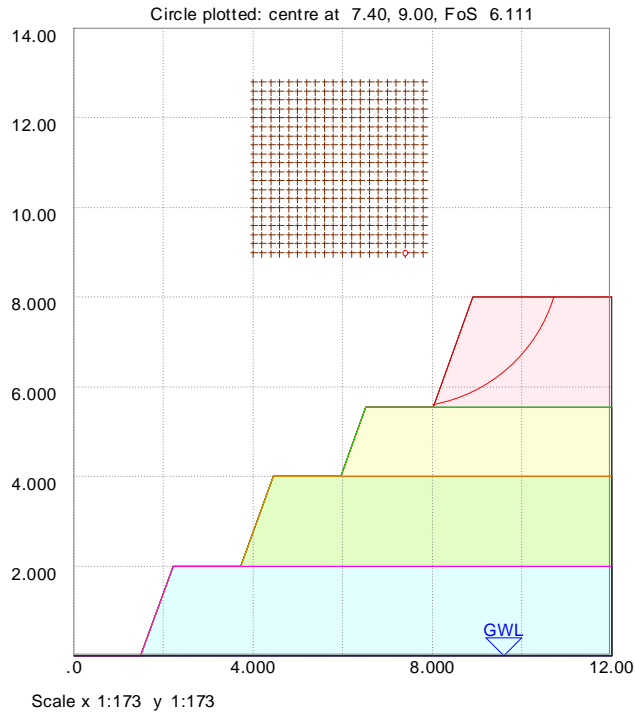
## 2. Tahap 2



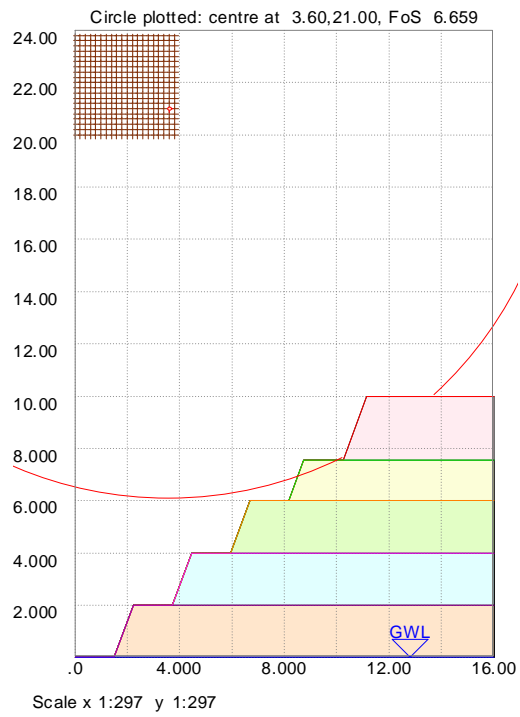
## 3. Tahap 3



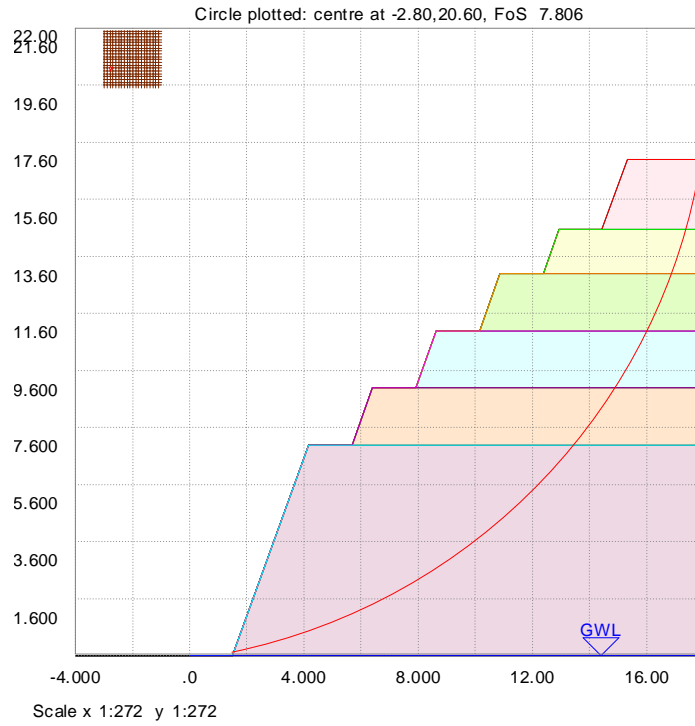
#### 4. Tahap 4



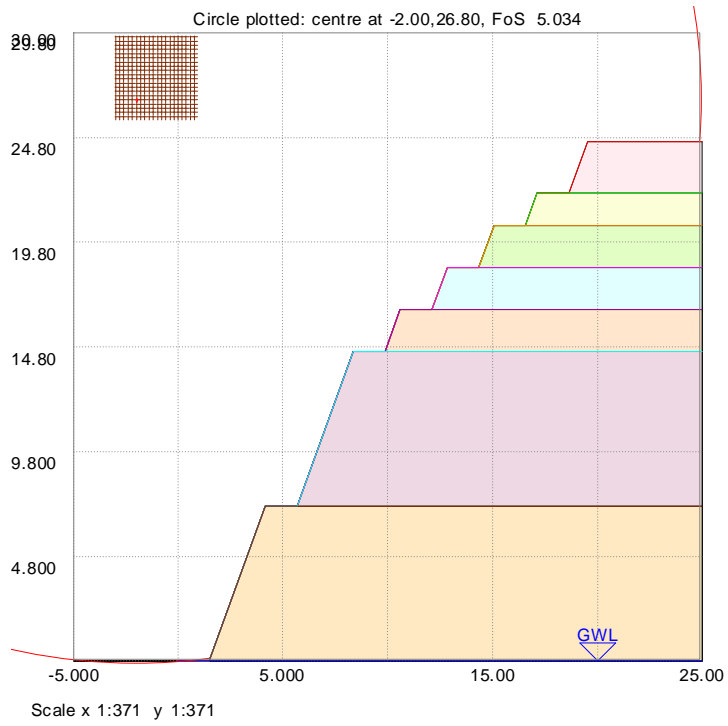
#### 5. Tahap 5



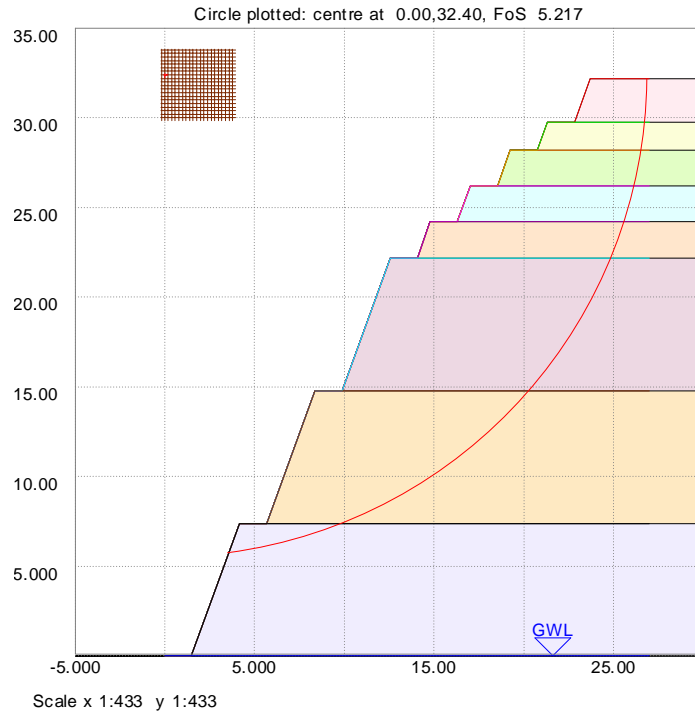
### 6. Tahap 6.1



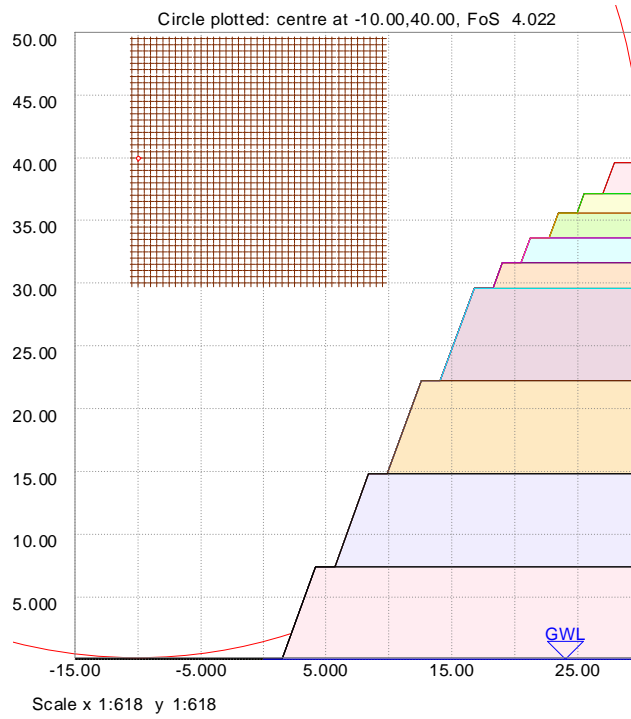
### 7. Tahap 6.2



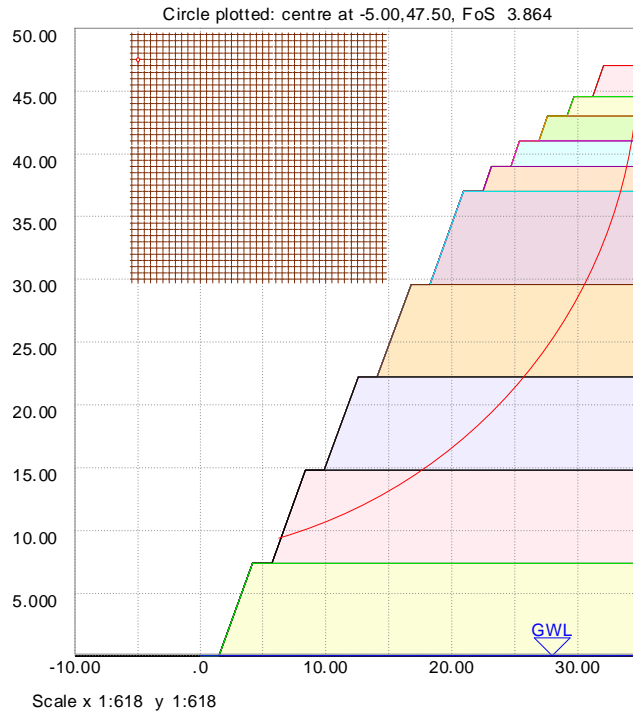
### 8. Tahap 6.3



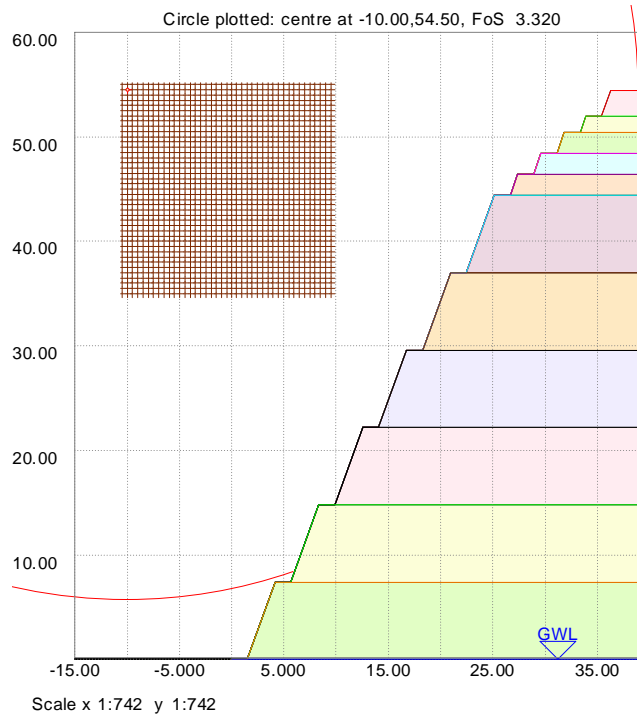
### 9. Tahap 6.4



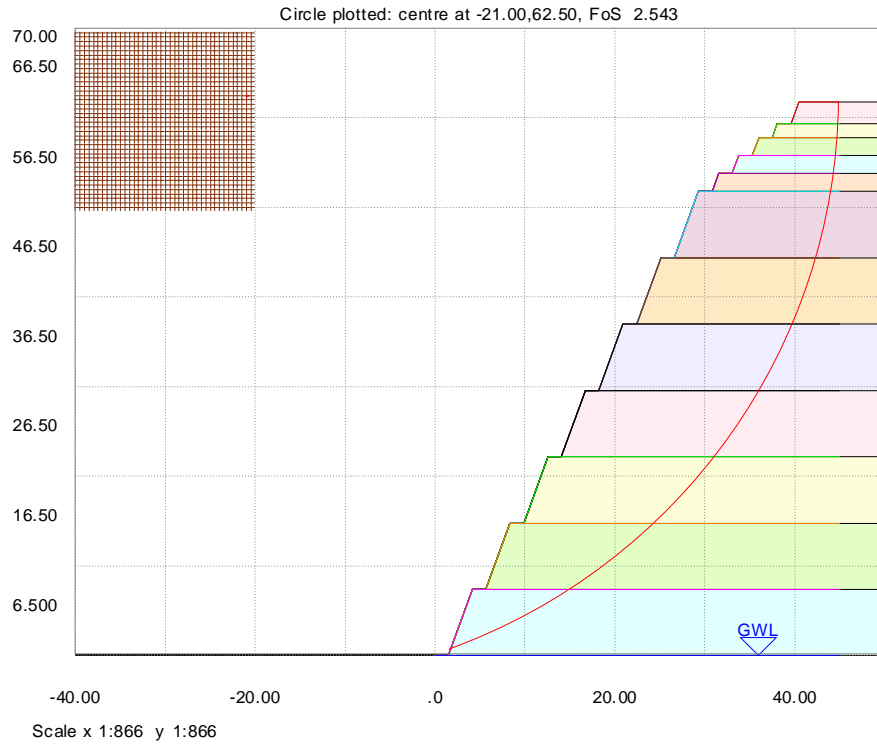
### 10. Tahap 6.5



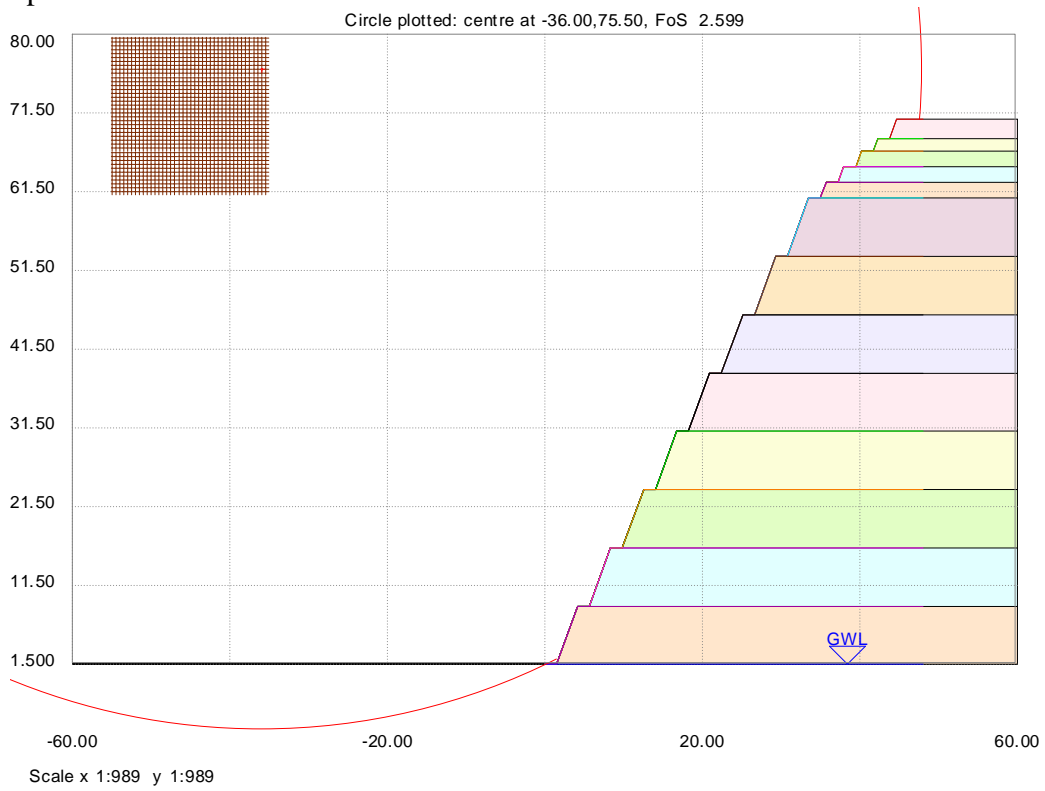
### 11. Tahap 6.6



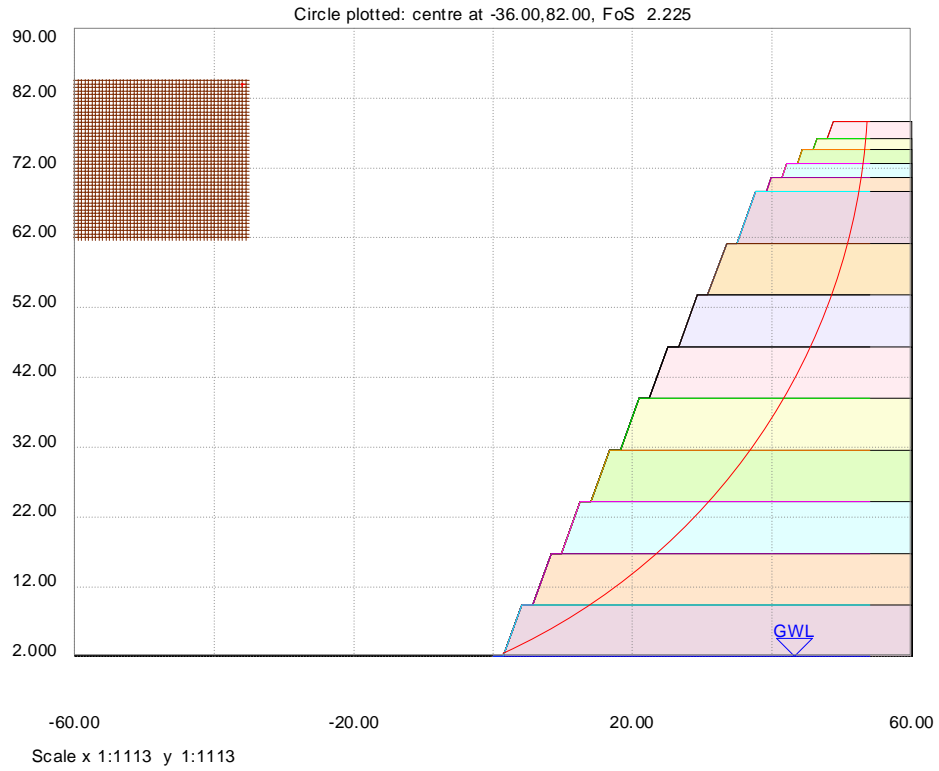
### 12. Tahap 6.7



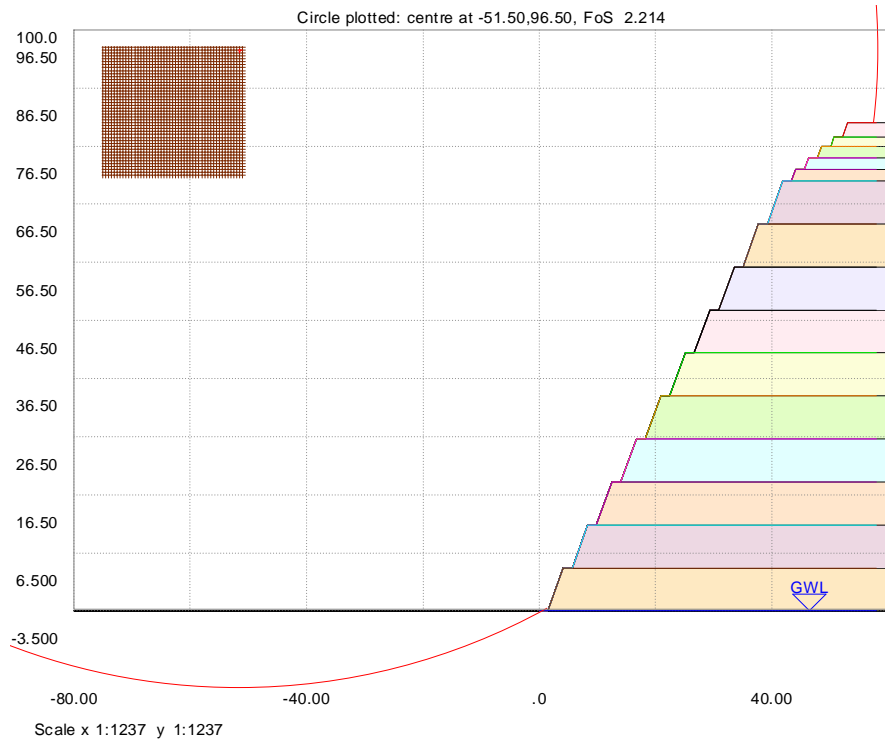
### 13. Tahap 6.8



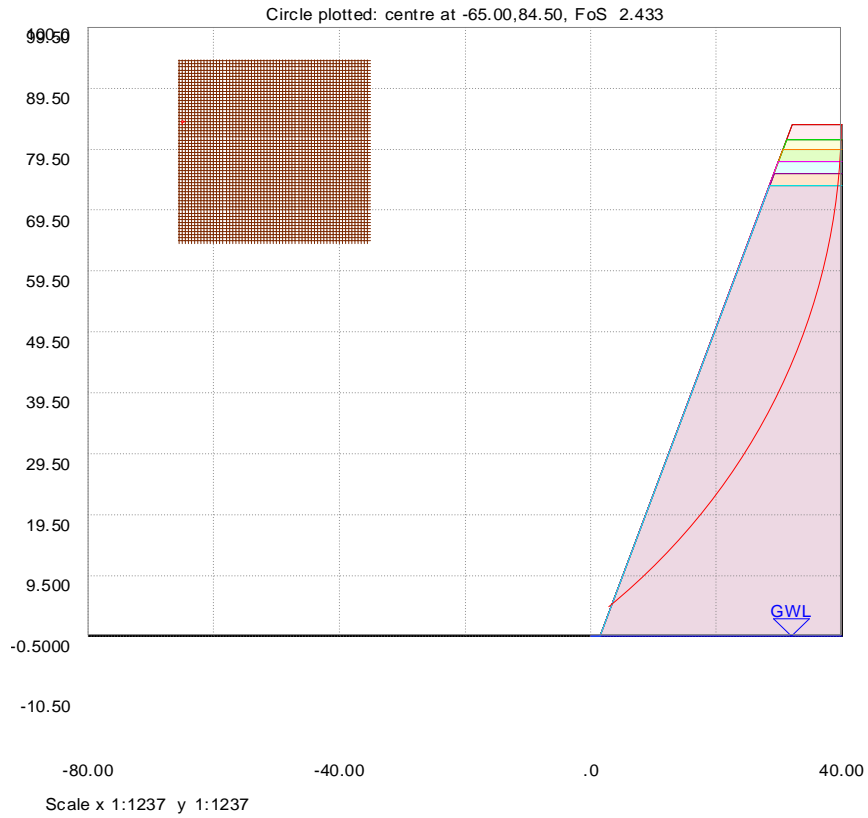
### 14. Tahap 6.9



### 15. Tahap 6.10

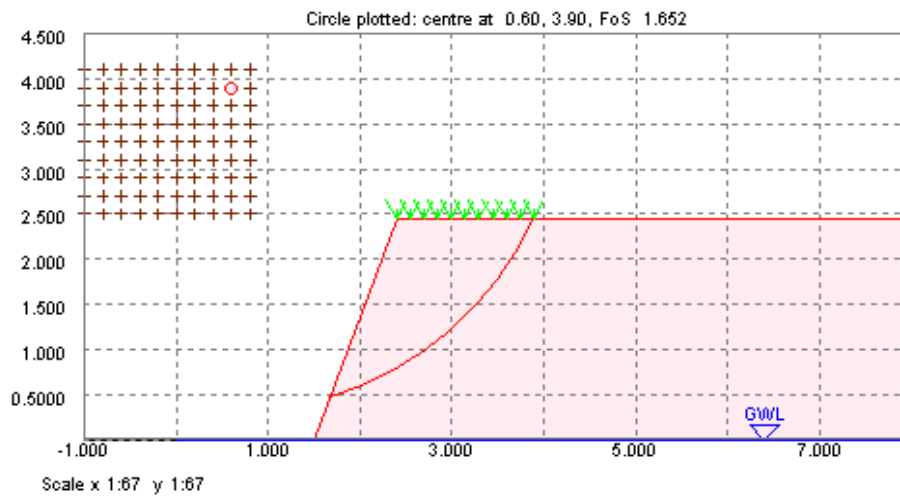


## 16. Tahap 7



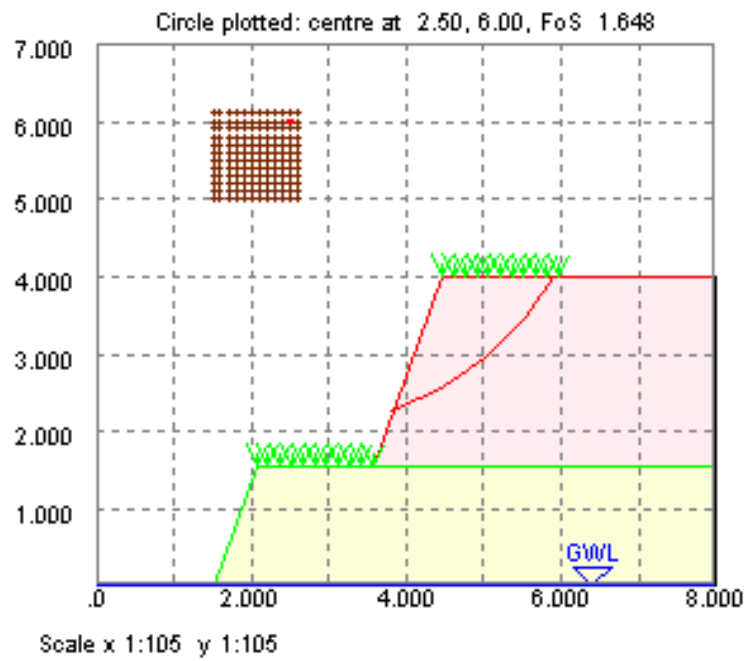
## C. Beban Kendaraan

### 1. Tahap 1

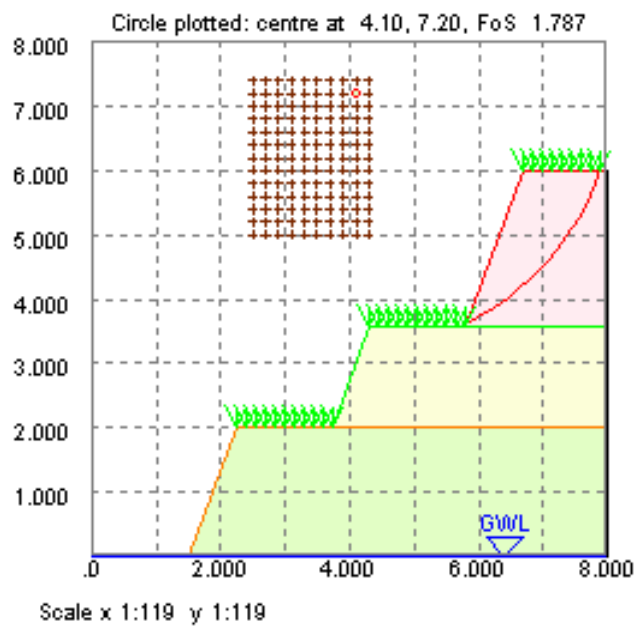




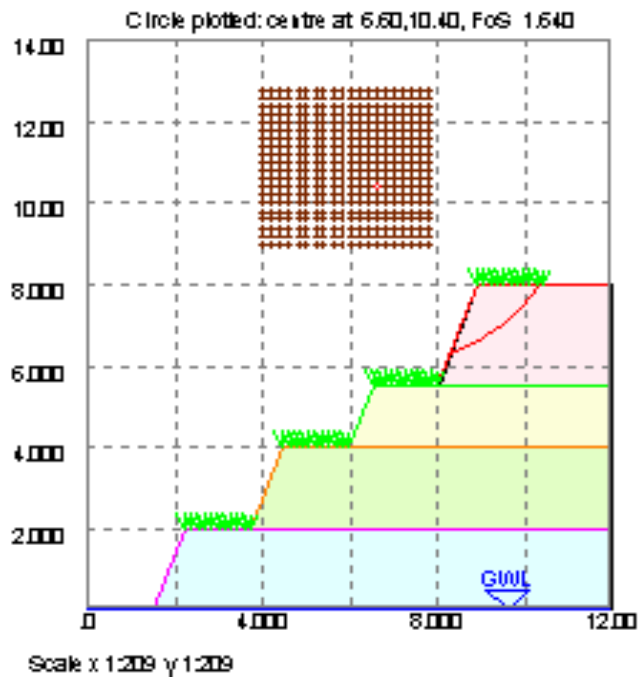
## 2. Tahap 2



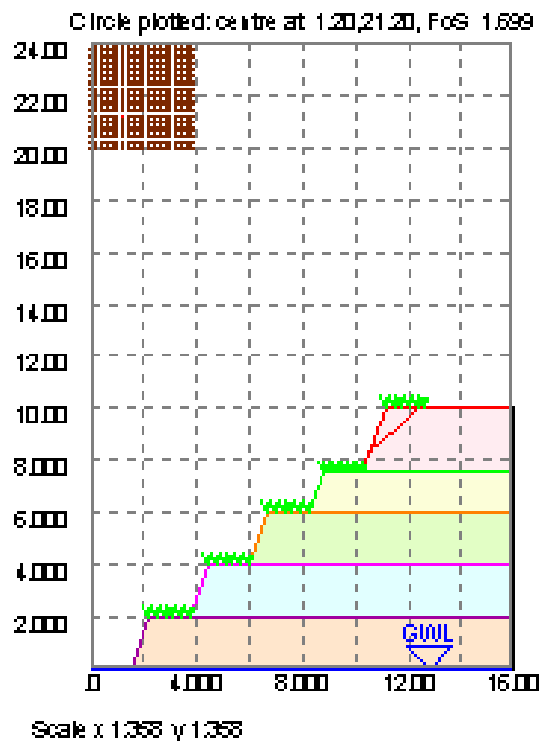
## 3. Tahap 3



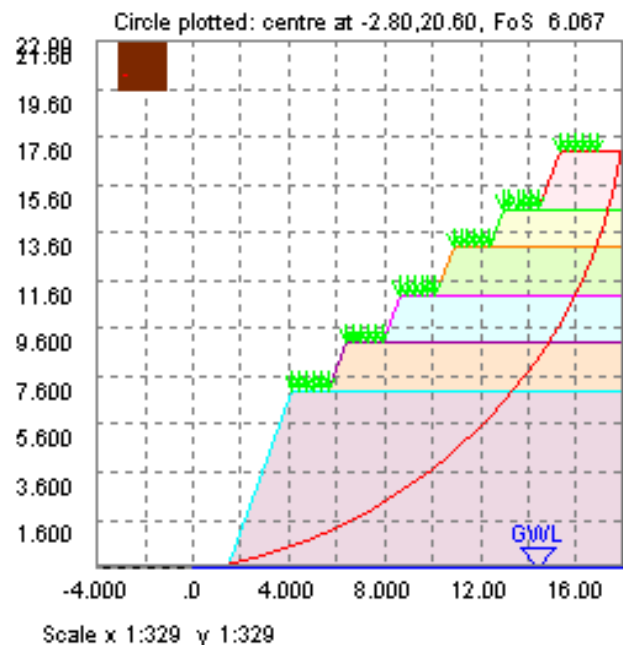
4. Tahap 4



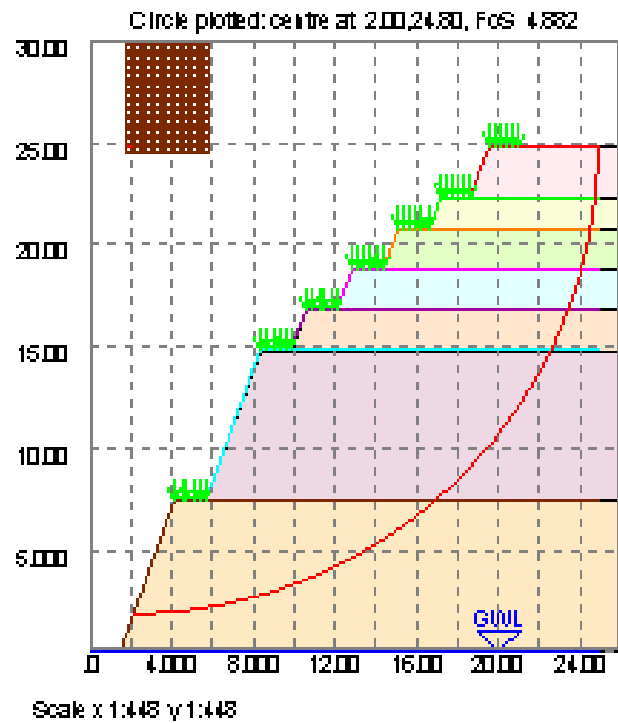
5. Tahap 5



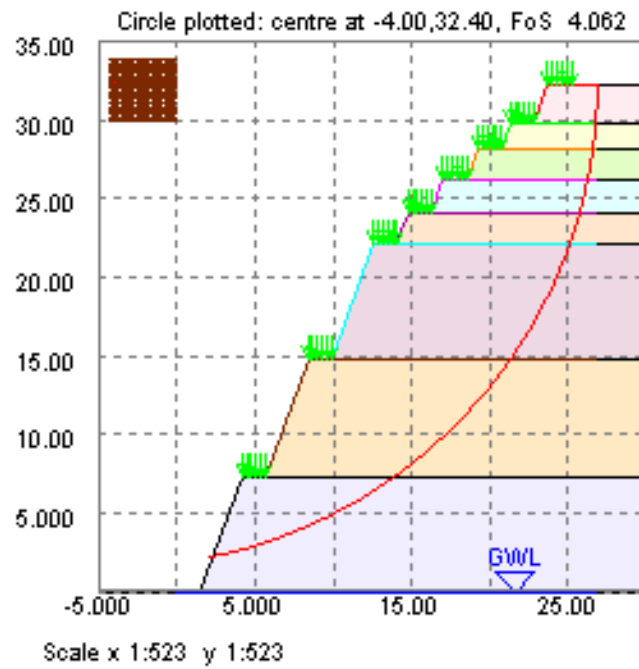
6. Tahap 6.1



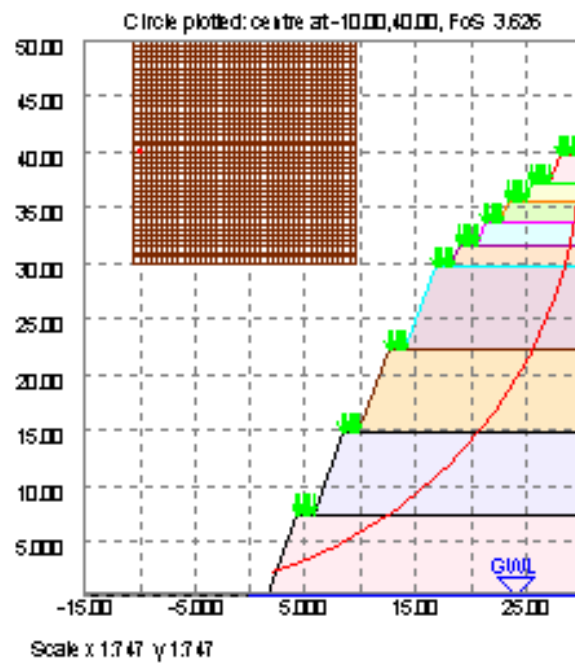
7. Tahap 6.2



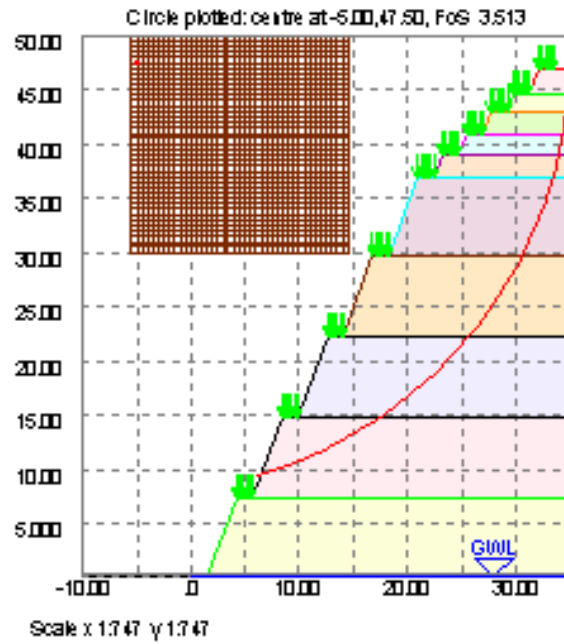
8. Tahap 6.3



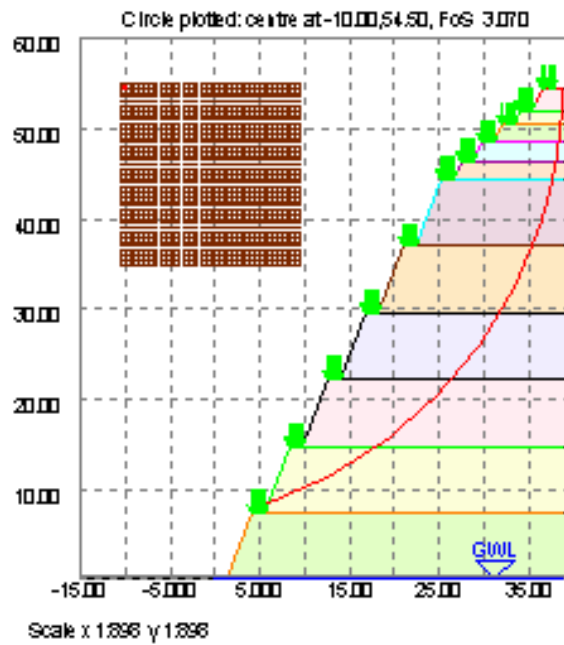
9. Tahap 6.4



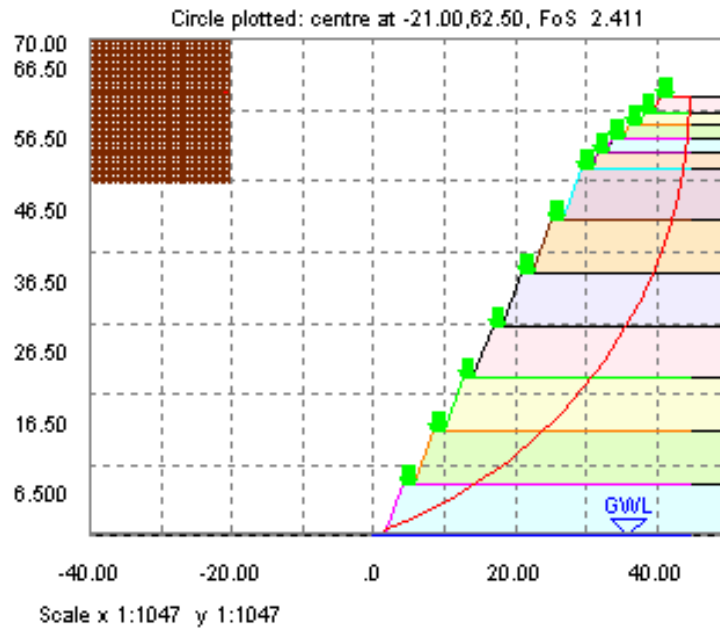
10. Tahap 6.5



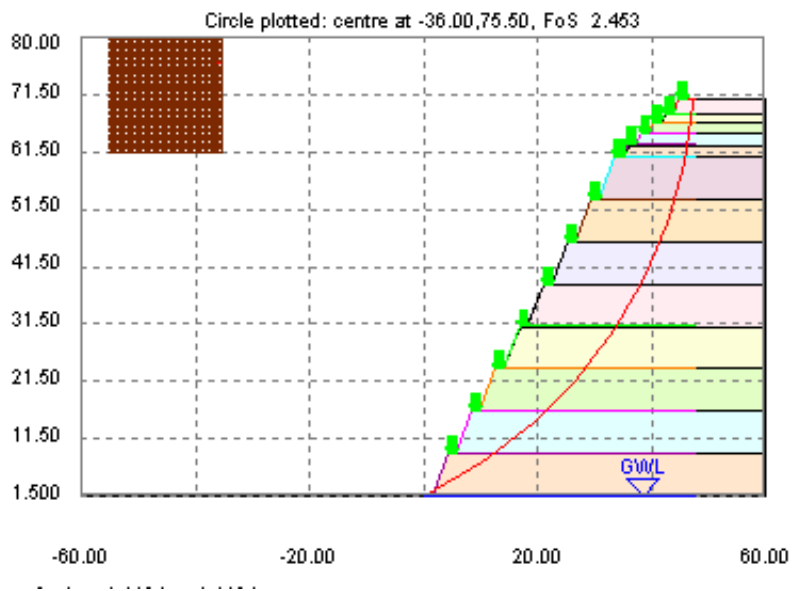
11. Tahap 6.6



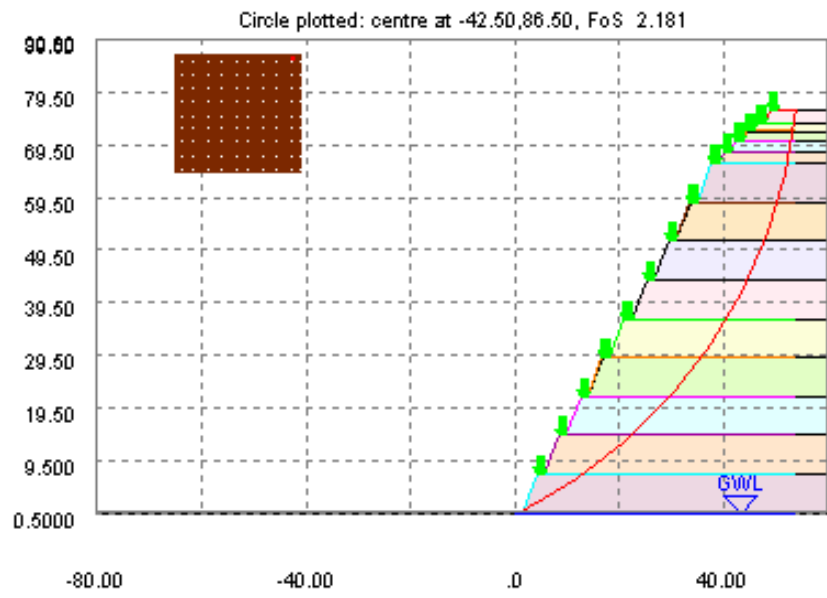
12. Tahap 6.7



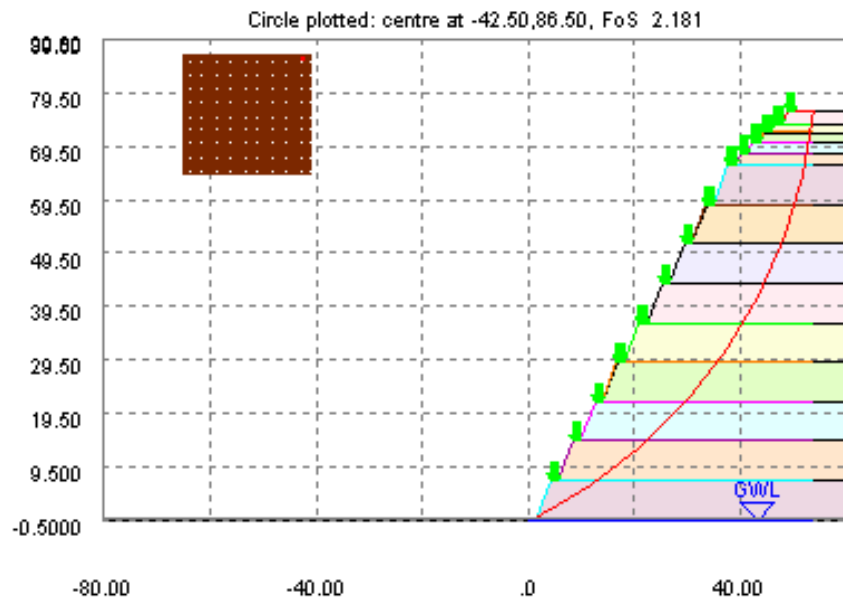
13. Tahap 6.8



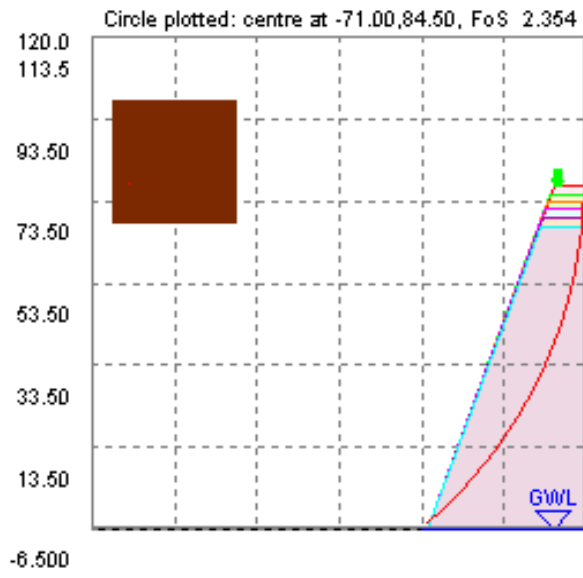
14. Tahap 6.9



15. Tahap 6.10



16. Tahap 7







**BORING LOG**

Parameter

Design

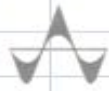
Bore Hole : BH 7

PROJECT	: Cutting Tinggi	COORDINATE	: X = 368177 Y = 9705543	GROUND WATER LEVEL	: - m
LOCATION	: S. Oskar	BORING DEPTH	: 30.00 m	TINGGI BAGAN	: - m

DEPTH (M)	SOIL DESCRIPTION	STANDARD PENETRATION TEST										No. Of Sample	STRENGTH TEST					ATERBERG LIMITS			Y (kN/m <sup>3</sup> )	Gs	e <sub>0</sub>	(kPa)																
		N-Value	0	10	20	30	40	50	60	70	TYPE		C total (kg/cm <sup>2</sup> )	φ* total	C eff (kg/cm <sup>2</sup> )	φ* eff	q <sub>u</sub> (kg/cm <sup>2</sup> )	0	20	40					60	80	100													
1	Lanau lempung tufa coklat lunak												UDS 1 (1.50-2.00)	CU	0.28	8.91	0.11	25.03	0.41	13	40	53	1.60	2.59	1.37	44														
1.5																																								
2	Lanau lempung tufa kerikil coklat sedang												11													120														
2.45																																								
3	Tufa lanau kerakal kerikil coklat sedang												19													240														
3.5																																								
4	Breksi lapuk abu-abu keras												40	DS 1 (5.50-6.00)	-	-	-	-	-	-	-	-	-	-	-	308														
4.35																																								
5	Breksi lapuk abu-abu agak kompak												>60													480														
5.5																																								
6																																								
6.45																																								
7																																								
7.5																																								
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29.5																																								
30																																								
END OF BORING																																								

Note:

- = UDS / DS
- = SPT
- c = Cohesion intercept, kg/cm<sup>2</sup>
- φ\* = Internal friction angle, deg
- UU = Unconsolidated Undrained
- CU = Consolidation Undrained
- CD = Consolidated Drained
- SPT = Standard Penetration test (blows / ft)
- qu = Unconfined compression strength, kg/cm<sup>2</sup>
- = Plastic Limit (PL), %
- = Liquid Limit (LL), %
- Δ = Plastic Index (PI), %
- γ = Bulk density, t/m<sup>3</sup>
- Gs = Specific gravity
- e<sub>0</sub> = Void Ratio



Project : Sorowako-Bahodopi Public Road  
Location : S. Oskar (Cutting Tinggi)  
Bor location : X =0368177, Y=9705543

Check by : Sri W.  
Date : Feb 2009  
No. Bor : BH 7

### Laboratory Test Resume

No. Sample				UDS 1	DS 1			
Depth				1.50 - 2.00	5.00 - 5.50			
Indek Properties		symbol	unit					
1.	Density	$\gamma$	t/m <sup>3</sup>	1.596				
2.	Water content	$\omega$	%	46.30	15.80			
3.	Specific of gravity	$G_s$	-	2.59	2.62			
	Void ratio	$e$	-	1.37				
	Porosity	$n$	-	0.58				
	Degree of saturation	$S_r$	%	87.26				
4.	Plastic limit	$PL$	%	40.11	25.00			
	Liquid limit	$LL$	%	52.60	33.54			
	Plasticity index	$PI$	%	12.49	8.54			
5.	Grainsize	Gravel	$G$	%	9.40	23.86		
		Sand	$S$	%	45.62	51.45		
		Silt	$M$	%	44.98	24.69		
		Clay	$C$	%	0.00	0.00		
<b>Engineering properties</b>								
6.	Unconfined	$q_u$	kg/cm <sup>2</sup>	0.411				
	Compression Test	$q_u'$	kg/cm <sup>2</sup>	0.230				
		$S_t$	-	1.789				
		$c_u$	kg/cm <sup>2</sup>	0.206				
7.	Triaxial - UU Test	$\phi$	$^\circ$					
		$c$	kg/cm <sup>2</sup>					
8.	Triaxial - CU Test	$\phi$ total	$^\circ$	8.912				
		$c$ total	kg/cm <sup>2</sup>	0.277				
		$\phi$ effective	$^\circ$	25.028				
		$c$ effective	kg/cm <sup>2</sup>	0.113				
9.	Direct Shear Test	$\phi$	$^\circ$	-				
		$c$	kg/cm <sup>2</sup>	-				
10.	Consolidation Test	$C_c$	-	0.3457				
		$C_v$	cm <sup>2</sup> /detik	0.025				