AREAL   :   DISPOSAL
ITEM WOR :   TOPSOIL SPREADING
UNIT   :   Ha

No.	Description	Code	Coefficient	Unit	Remark
I.	ASSUMPTION				
1	Effective work hour (daily)	Tk	8.00	hour	
	Topsoil Thickness	t	0.30	m	
	Solid Factor		1.10		
	Volume per Ha	V	5,610.00	ton/ha	
II	WORK METHOD				
1	Setting the areal				
2	Topsoil material loading using Excavator				
3	Material hauling using Dump truck				
4	Topsoil spreading using Buldozer				
III	EQUIPMENT and WORK FORCE				
1	Heavy Equipment				
	BULDOZER BD. 65P LGP.				
	Length of blade	Lb	3.97	m	
	Forward speed	Vf	3,900.00	m/hour	
	Reverse speed	Vr	5,000.00	m/hour	
	Average spread range	J	20.00	m	
	Heavy equipment Work Efficiency	Ea	0.70		
	Blade Angle Factor	Fs	1.00		
	Fixed time assumption	t	0.00	hour	
	Height of blade	Tb	1.10	m	
	Height of spreading	Th	0.36		
	Production Capacity (hourly)				

$$Q = \frac{Lb \times Tb \times Th \times Ea \times Fs}{J/Vf + J/Vr + t}$$

		Code	Coefficient	Unit	Remark
	Q =	Q	101.95	m3/hour	
			173.31	ton/hour	
	Heavy Equipment coefficient per Ha = V/Q1	Ca	32.37	hour	

AREAL : DISPOSAL
ITEM WOR : TOPSOIL HAULING
UNIT : Ha

No.	Description	Code	Coefficient	Unit	Remark
I.	ASSUMPTION				
1	Effective work hour (daily)	Tk	8.00	hour	
	Topsoil Thickness	t	0.30	m	
	Solid Factor		1.25		
	Volume per Ha	V	6,375.00	ton/ha	
	Hauling distance	j	0.25	km	
II	WORK METHOD				
1	Setting the areal				
2	Topsoil material loading using Excavator				
3	Material hauling using Dump truck class 20 ton (10 wheels)				
III	EQUIPMENT and WORK FORCE				
1	Heavy Equipment				
	EXCAVATOR PC. 200				
	Bucket Capacity	Kb	0.80	m3	
	Bucket Factor	Fb	1.00		
	Heavy equipment Work Efficiency	Ea	0.85		
	Time Cycle				
	- Excavation and Loading Time	t1	0.01	hour	
	- Extra	t5	0.00	hour	
	Total time cycle	T	0.01	hour	
	Production Capacity				
	$\quad$ Kb x Fb x Ea				
	Q =	Q	81.60	m3/hour	
	$\qquad$ T x Fh		138.72	ton/hour	
	Heavy Equipment coefficient per Ha = V/Q	Ca	45.96	hour	
2	DUMP TRUCK (for material hauling)				
	Dump capacity	Kb	12.00	m3	
	Dump efficiency	Eb	0.80		
	Heavy equipment Work Efficiency	Ea	0.80		
	Average speed at full loaded	Vb	30.00	Km/hour	
	Average speed at empty	Vk	35.00	Km/hour	
	Average distance	J	5.00	Km	
	Material expanding factor	Fp	1.00		
	Time cycle				
	Loaded time	t1	0.17	hour	
	Empty time	t2	0.14	hour	
	Loading time	t3	0.12	hour	
	Extra	t4	0.04	hour	
	Total time cycle	T	0.47	hour	
	$\quad$ Kb x Ea x Eb				
	Q =	Q2	16.32	m3/hour	
	$\qquad$ T x Fp		27.75	ton/hour	
	Heavy equipment coefficient per Ha = V/Q2	Ca	229.74	hour	

AREAL   :   DISPOSAL (OB density 1.7)
ITEM WOR :   Re Sloping/surface grading in reguler area
UNIT   :   Ha

No.	Description	Code	Coefficient	Unit	Remark
I.	ASSUMPTION				
1	Effective work hour (daily)	Tk	8.00	hour	
2	Material volume that must be reslope/regrade	V	8,500.00	ton/ha	
			5,000.00	m3/ha	
II	WORK METHOD				
1	Setting the areal				
2	Excavation is carried out by pushing the material				
	from top to bottom as well as material filling				
3	After resloping, the surface is leveled				
	mukaan atas				
III	EQUIPMENT and WORK FORCE				
1	Heavy Equipment				
	BULDOZER BD. 65P LGP. CUT & FILL				
	Length of blade	Lb	3.97	m	
	Forward speed	Vf	5,500.00	m/hour	
	Reverse speed	Vr	4,500.00	m/hour	
	Average pushing distance	J	50.00	m	
	Heavy equipment Work Efficiency	Ea	0.85		
	Blade Angle Factor	Fs	0.80		
	Fixed time assumption	t	0.03	hour	
	Average thickness of cut-fill material	H	0.50	m	
	Height of blade	Tb	1.10	m	
	Production Capacity for Cut and Fill				
	$\quad$ Lb x Tb x Tb x Ea x Fs				
	Q = $\dfrac{}{}$	Q1	122.03	m3/hour	
	$\quad\quad$ J/Vf + J/Vr + t		207.45	ton /hour	
	Heavy equipment coefficient per Ha = V / Q1	Ca	40.97	hour	
1	BULDOZER BD. 65P LGP. (SURFACE GRADING)				
	Length of blade	Lb	3.97	m	
	Forward speed	Vf	3,900.00	m/hour	
	Reverse speed	Vr	5,000.00	m/hour	
	Average pushing distance	J	50.00	m	
	Heavy equipment Work Efficiency	Ea	0.85		
	Blade Angle Factor	Fs	0.80		
	Fixed time assumption	t	0.00	hour	
	Height of blade	Tb	1.10	m	
	Production Capacity (hourly)				
	$\quad$ Lb x J x Ea x Fs				
	Q = $\dfrac{}{}$	Q2	5,706.47	m2/hour	
	$\quad\quad$ J/Vf + J/Vr+ t		1,940.20	ton/hour	
	Heavy Equipment coefficient per Ha = V/Q2	Ca	4.38	hour	

FUEL CONSUMPTION

No.	Equipment	Fuel (Ltr/hour)	Prod. Cap (hour/ha)	Prod. Cap (hour/ha)	Prod. Cap (hour/ha)
1	BULDOZER D 65 P LGP	30	33.00	0	46
2	BULDOZER D 85 SS	35	33.00	0	46
3	EXCAVATOR PC 300	25	-	0	0
4	EXCAVATOR PC 200	20	-	46	0
5	DUMP TRUCK class 20 ton	12	-	230	0