R1011 - Roodeplaat Wind Farm
Estimated Water Demand for Construction

AFRICOAST CONSULTING ENGINEERS

	Length (m)	Layerworks (mm)	Width (m)	Earthworks Volume (m³)	
A) Roads Earthworks					
Good Prov & internal roads	20 424	150	8	24 509	
Poor Prov & internal roads	4 549	300	8	10 918	
New Internal Roads	23 985	450	6	64 760	
Road layerwork volume =				**100 186**	m³
Water = approx 10% / volume					
based on 2200kg/m³ =	220	l / m³			
Total water for roads =				**22 041**	**kl**
Construction period =	12	months			
Water demand =	1 837	kl / month			
@ 22 d / month	83	kl / day			
15kl Water tanker trucks per day =	5.6	trucks / day			

B) Platforms Earthworks			
length =	75	65	m
width =	35		m
layerworks =	900		mm
number of platforms =	46		WTGs
Platform layerwork volume =	101 430		m³
Water - approx 10% / volume			
based on say 2200kg/m³ =	220	l / m³	
(will differ with insitu OMC etc.)			
Total water for platforms =			**22 315** **kl**
Construction period =	16	months	
Water demand =	1 395	kl / month	
@ 22 d / month	63	kl / day	
15kl Water tanker trucks per day =	4.2	trucks / day	

C) Foundation Earthworks		
diameter =	20	m
layerworks =	300	mm
number of platforms =	46	WTGs
Platform layerwork volume =	4 335	m³
Water - approx 10% / volume		
based on say 2200kg/m³ =	220	l / m³
(will differ with insitu OMC etc.)		
Total water for foundations =		**954** **kl**
Construction period =	16	months
Water demand =	60	kl / month
@ 22 d / month	2.7	kl / day
15kl Water tanker trucks per day =	0.2	trucks / day

Total Estimated Water Demand

Total Water demand (A+B+C) =	45 309	kl	
Total Water consumption =	150	kl / day	[Estimated storage required]
Total Water Abstraction Rate =	2.60	l/s	(based at 16h pump per day)
15kl Water tanker trucks per day (average) =	10.0	trucks / day	[Peak Demand]

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Estimated Water Demand for Construction

Concrete requirements :

Construction Period	16	months
Foundations (number off)	46	WTGs
Concrete / foundation	550	m^3
Concrete total m^3	**25 300**	m^3
concrete m^3 / month	1581	m^3 / month
litre water / m^3 concrete	200	liter

Total Estimated Water Demand

Total Water demand =	5060	kl
Total Water consumption =	316	kl / month
@ 22 d / month	14.4	kl / day [Estimated storage required]
Total Water Abstraction Rate =	0.25	l/s (based at 16h pump p/d)
15kl Water tanker trucks per day (average) =	1.0	trucks / day

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Estimated Water Demand for Staff Accommodation

Water Comsumption requirements :	**Peak Period**	**Off-Peak Period**	
	16	**8**	months
Workers living on site during construction	200	50	
Water demand for "On-site" staff	120	120	litre pppd
Total	**24.0**	**6.0**	**kl / day**
Workers traveling to site during construction	100	30	
Water demand for "Off-site" staff	40	40	litre pppd
	4.0	**1.2**	**kl / day**

Total Estimated Water Demand

Total Water demand =	14 579	kl	
Total Water consumption =	808	kl / month (peak)	
Total Water consumption =	26.9	kl / day (peak)	[Estimated storage required]
Total Water Abstraction Rate =	0.47	l/s (based at 16h pump p/d)	