SOIL AND WATER CONSULTING

PRODUCT SELECTION REPORT

2022- 2023

TUCSON COUNTRY CLUB
1947

ROOTZONE OPTIONS

	WCS&G Straight Sand- Ventana Pile	WCS&G Straight Sand-Plant	WCS&G 90/10	Lab Mix 80/20	USGA Recommendations
Silt and Clay	1.70	1.50	2.80	4.60	<= 8.0%
Sand	98.30	98.50	97.10	94.30	94 - 100%
Gravel	0.00	0.00	0.10	1.10	
Organic Material	0.23	0.25	1.03	2.43	
Sieve #:					
Fine Gravel 10	0.00	0.00	0.10	1.10	2.0mm <= 3.0%
Very Coarse Sand 18	6.20	7.30	6.60	8.30	2.0mm + 1.0mm <= 10%
Coarse Sand 35	36.80	39.60	36.40	37.60	
Medium Sand 60	41.90	38.80	40.60	37.00	0.5mm + 0.25mm >= 60%
Fine Sand 100	10.30	10.60	10.30	8.60	0.15mm <= 20%
Very Fine Sand 140	2.40	1.70	2.40	2.30	0.106mm + 0.053mm <= 5.0%
Very Fine Sand 270	0.70	0.50	0.80	0.50	
Saturated Hydraulic Conductivity in/hr	53.1"	56.7"	9.3"	5.2"	Greater than 6" per hour
Coeffiecient of Uniformity	2.70	2.80	2.87	3.29	1.8 to 3.5 for peat and sand mixes
Recommended Depth	n/r	n/r	10.23"	?	

- There is approximately 0.25% organic matter in the Straight sand. We need to investigate where that comes from, and BJ Kerzetski is working on that.
- The 90/10 is a viable option for your greens-mix.
- The Lab Mix 80/20 could be used but we would need to see an actual blend of the 80/20 from the plant in Phoenix before we could accept it. A lab mix is very accurate, but also very specific to the part of the sample from the bag. What you can see is a reduced Sand content, increased Silt and Clay content and Organic material at a level that makes the mix slower to drain and requiring much less water.
- ON August 1st, 2022, it was decided to use an 85/15 greens-mix from WCS&G as it will be produced for another golf course around the same time TCC will need some. This is looked at as a 'trial" for the upcoming course greens renovation.

ROOTZONE QUALITY CONTROL

	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	***USGA Recommendations***
Silt and Clay							*<= 8.0%*
Sand							*94 - 100%*
Gravel							
Organic Material							
Sieve #:							
Fine Gravel 10							*2.0mm <= 3.0%*
Very Coarse Sand 18							*2.0mm + 1.0mm <= 10%*
Coarse Sand 35							
Medium Sand 60							*0.5mm + 0.25mm >= 60%*
Fine Sand 100							*0.15mm <= 20%*
Very Fine Sand 140							*0.106mm + 0.053mm <= 5.0%*
Very Fine Sand 270							
Saturated Hydraulic Conductivity in/hr							*Greater than 6" per hour*
Coeffiecient of Uniformity							*1.8 to 3.5 for peat and sand mixes*
Recommended Depth							

	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	WCS&G 80/20 QC #1 8/2022	***USGA Recommendations***
Silt and Clay							*<= 8.0%*
Sand							*94 - 100%*
Gravel							
Organic Material							
Sieve #:							
Fine Gravel 10							*2.0mm <= 3.0%*
Very Coarse Sand 18							*2.0mm + 1.0mm <= 10%*
Coarse Sand 35							
Medium Sand 60							*0.5mm + 0.25mm >= 60%*
Fine Sand 100							*0.15mm <= 20%*
Very Fine Sand 140							*0.106mm + 0.053mm <= 5.0%*
Very Fine Sand 270							
Saturated Hydraulic Conductivity in/hr							*Greater than 6" per hour*
Coeffiecient of Uniformity							*1.8 to 3.5 for peat and sand mixes*
Recommended Depth							

GRAVEL

	WCS&G PHX Gravel 8/2022	WCS&G PHX Gravel 9/2022	WCS&G PHX Gravel QC /2023	WCS&G PHX Gravel QC /2023	WCS&G PHX Gravel QC /2023
Sieve #:					
12.5	0.00	0.00			
9.5	0.80	0.70			
6.35	34.80	30.40			
4.75	30.20	23.00			
2.36	33.80	41.50			
2	0.10	1.40			
1	0.10	1.80			
<1.0	0.20	1.20			
Coeffiecient of Uniformity	2.55	2.78			

Gravel Compatibility for WCS&G 85/15	WCS&G PHX
Bridging Number needs to be less than 7.44	3.39
Adequate Permeability Number needs to be greater than 1.20	3.39
Uniformity Coefficient Number needs to be less than 3.0	2.56

- The WCS&G PHX Gravel makes a bridge with any of the WCS&G sand or sand and Dakota Peat mixes. We have not tested with the 85/15 proposed for September 2022 and new Practice green, but the assumption is that it will. We should test again prior to shipping.

GRAVEL QUALITY CONTROL

Gravel Compatibility for WCS&G 80/20

Bridging Number needs to be less than 7.20				
Adequate Permeability Number needs to be greater than 1.35				
Uniformity Coefficient Number needs to be less than 3.0				

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BUNKER SAND

TEE-MIX SAND

	Pioneer Tee Sand #1 9/2022	Pioneer Tee Sand #1 /2023	***USGA Recommendations***
Silt and Clay	3.40		*<= 8.0%*
Sand	93.80		*94 - 100%*
Gravel	2.80		
Organic Material	0.12		
Sieve #:			
Fine Gravel 10	2.80		*2.0mm <= 3.0%*
Very Coarse Sand 18	15.00		*2.0mm + 1.0mm <= 10%*
Coarse Sand 35	27.90		
Medium Sand 60	31.00		*0.5mm + 0.25mm >= 60%*
Fine Sand 100	11.80		*0.15mm <= 20%*
Very Fine Sand 140	5.10		*0.106mm + 0.053mm <= 5.0%*
Very Fine Sand 270	3.00		
Saturated Hydraulic Conductivity in/hr	15"		*Greater than 6" per hour*
Coeffiecient of Uniformity	4.39		*1.8 to 3.5 for peat and sand mixes*
Recommended Depth	13"		