Turf & Soil Diagnostics

MATERIALS TEST REPORT FOR
Newfield Sand

ACCREDITED TESTING Cert #0797.02

REPORT TO: Newfield Sand
Matthew Pepin
59 Shaw Road
Sanford, ME 04073

DATE RECEIVED: Jul-24-2025
REPORT DATE: Aug-01-2025
REPRINT DATE: Sep-11-2025
CONDITION OF SAMPLE: Normal

Bunker Sand Evaluation*

							% Retained mm (US sieve)					
		Soil Separate										
Lab ID#	**Sample Name**	**% Sand 2.0 - 0.05 mm**	**% Silt 0.05-0.002mm**	**% Clay < 0.002mm**	**No. 5 Gravel 4.0 mm**	**No. 10 Gravel 2.0 mm**	**No. 18 V. Coarse 1.0 mm**	**No. 35 Coarse 0.50 mm**	**No. 60 Medium 0.25 mm**	**No. 100 Fine 0.15 mm**	**No. 140 V. Fine 0.10 mm**	**No. 270 V. Fine 0.05 mm**
51563-3	Bunker Sand #2	98.9	< 1.0	< 1.0	0.0	0.3	13.1	31.9	34.9	11.8	4.2	3.1
Bunker Sand Guidelines[1]		-	≤ 3%		≤ 2%		≤ 15%	78 - 100%				≤ 5%
USGA Recommendations for Greens		≥ 92%	≤ 5% Silt	≤ 3% Clay	0%	≤ 3% Gravel ≤ 10% Combined		≥ 60% Combined		≤ 20%	≤ 5%***	

Lab ID#	**Sample Name**	**Uniformity Coefficient Cu**	**D15 mm**	**D50 mm**	**D85 mm**	**Shape Angularity**	**Shape Sphericity**	**Acid Reaction**	**Infiltration Rate** in/hr**	**Infiltration Rate** cm/hr**	**Bulk Density g/cc**
51563-3	Bunker Sand #2	3.4	0.20	0.45	0.96	Sub-Angular to Angular	Medium to Low	None	36.4	92.4	1.53
Bunker Sand Guidelines[1]		2.0 - 5.0	-	-	-	-	-		> 30	> 75	-

USGA Rootzone Coefficient of Uniformity Recommendations: 1.8 to 3.5 for Mixes with Peat; 2.0 to 3.5 for Mixes with Inorganic Amendment or Pure Sand. **ASTM F1815 30 cm Tension

Lab ID#	**Sample Name**	**Dry Color**	**Crusting**	**Penetrometer Value kg/cm^2**
51563-3	Bunker Sand #2	10YR 6/3 Pale Brown	None	2.2

*ASTM F1632 Method B, Determination of Size Factors SOP, & Bunker Sand SOP
***Maximum of 10% combined on Very Fine Sand, Silt, and Clay fractions.
[1] USGA Green Section Record Volume 58, Issue 11, June 2020

Samples were tested as received and comments pertain only to the samples shown.
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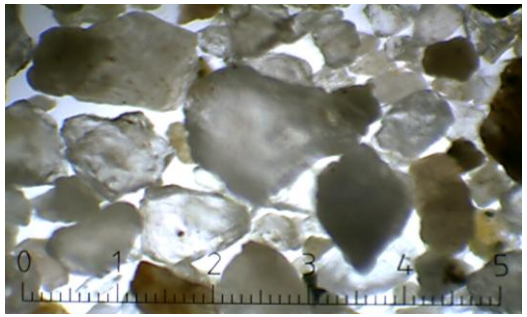

Photomicrograph of Lab ID 51563-3 Bunker Sand #2.

Reviewed by Duane K. Otto

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Turf & Soil Diagnostics

September 11, 2025

Newfield Sand
Matthew Pepin

Newfield Sand
TSD File #51563

This report details the results of the Bunker Sand #2 sample, which was tested as received. The results are being compared to bunker sand guidelines published in 2020, which are included with the results for comparison purposes.

The particle size results indicate the sample is a clean sand with most of the particles in the coarse and medium sand size fractions. The gradation meets the bunker sand guidelines.

It is desirable for sand in green side bunkers to be compatible with the greens mix to reduce risks from sand splashed from bunkers onto nearby greens. In most cases, layering should not be a problem with this sand. However, the very coarse sand particles may be harder to work into thatch layers of the turfgrass.

To measure the potential of a sand to produce fried egg lies or buried balls, the resistance of the sand to ball penetration is measured using a penetrometer. The sample has a penetrometer reading of 2.1 kg/cm^2. Results above 1.8 kg/cm^2 are generally considered acceptable and values above 2.4 kg/cm^2 are considered more desirable as they suggest a potential for fewer instances of buried lies.

There is no crusting of the sand after wetting and drying, which suggests that bunkers with this sand in place may initially require only minimal raking after rainfall or irrigation events.

New bunker sands should initially drain well and a minimum infiltration rate of 30 in/hr is recommended, depending on climate and site conditions. The infiltration rate of this sample is 36.4 in/hr, which is above 30 in/hr.

Despite this testing, bunker sand selection is highly subjective. Aside from playability, factors such as color and aesthetics are often weighed in the decision process. Visiting a club with the sand in use or building a test bunker to further evaluate the bunker sand may be beneficial. This would allow any interested parties to play into and out of it to see how they like it.

Please let us know if you have any questions or need further assistance. Samples are generally kept for 45 days after report date. Thank you for using Turf & Soil Diagnostics, Inc.

Duane K. Otto Digitally signed by Duane K. Otto
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Duane K. Otto
President

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