

**PROJECT:** O'BRIEN FISH PASSAGE  
**PROJECT NO.:** 20-110-01  
**CLIENT:** MSB  
**SAMPLE NO.:** 23P903  
**LOCATION:** STOCKPILE

**DATE TAKEN:** 5/30/2023  
**DATE TESTED:** 6/1/2023  
**TESTED BY:** DEM  
**REVIEWED BY:** JAB  
**DESCRIPTION:** K&H D1

**SIEVE ANALYSIS TEST**

(ASTM D422)

Sieve Size	Diameter (mm)	Total % Passing
6"	152.4	
4"	100.0	
3"	76.2	
2"	50.8	
1"	25.4	100
3/4"	19.0	93
1/2"	12.7	79
3/8"	9.5	71
#4	4.75	52
#8	2.26	43
#16	1.18	34
#30	0.6	22
#50	0.3	9
#100	0.15	5
#200	0.075	3.0

**% Gravel:** 48.2  
**% Sand:** 48.7  
**% Fines:** 3.0  
**D60:** 6.80  
**D30:** 0.97  
**D10:** 0.32  
**Cu:** 21.6  
**Cc:** 0.4  
**.02 mm:**  
**% Moisture:** 3.4  
**Fine Modulus:**

(ASTM D4318)

**Liquid Limit:**  
**Plastic Limit:**  
**Plastic Index:**

(ASTM C127)

**Bulk SpG:**  
**SSD SpG:**  
**Apparent SpG:**  
**% Absorption:**

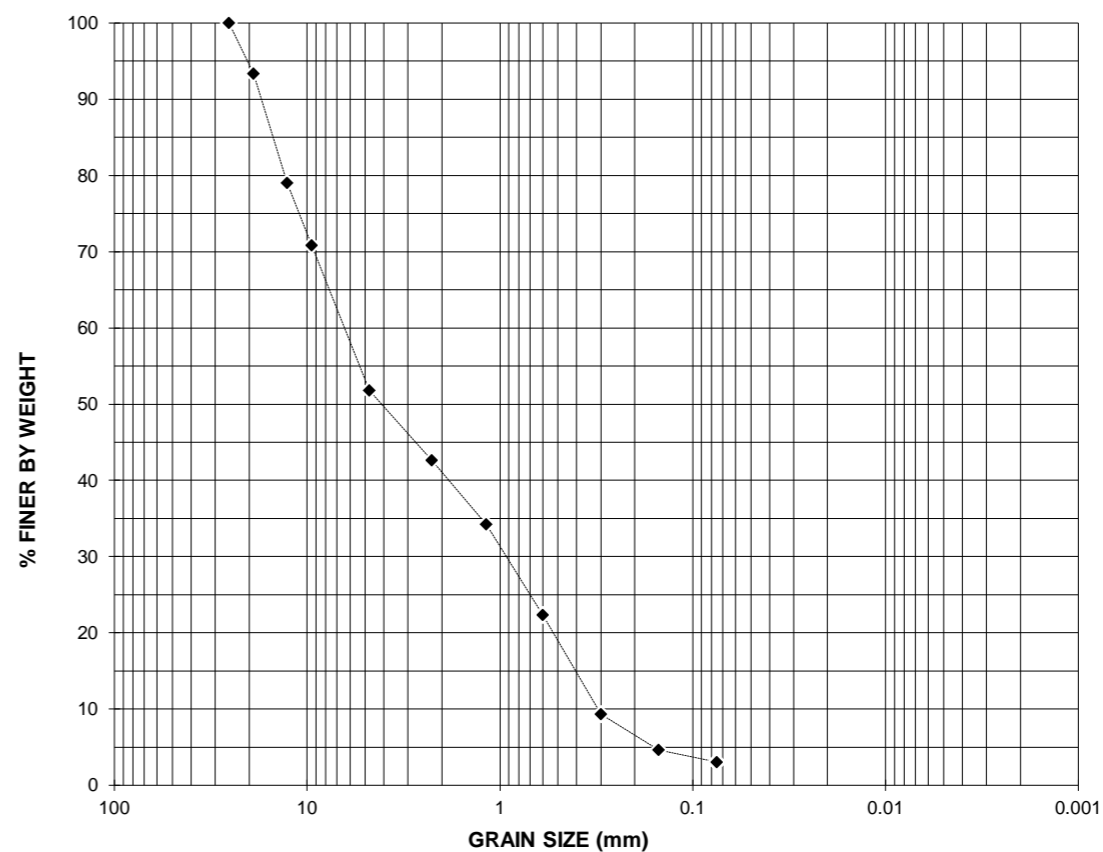
(ASTM C128)

**Bulk SpG:**  
**SSD SpG:**  
**Apparent SpG:**  
**% Absorption:**

(ASTM D1557)

**Dry Den (U):** 137.0  
**Dry Den (C):** 139.0  
**M% (U):** 7.0%  
**M% (C):** 6.6%  
**SpG (assumed):** 2.77  
**M-D Test Method:**

**GRAIN SIZE DISTRIBUTION**

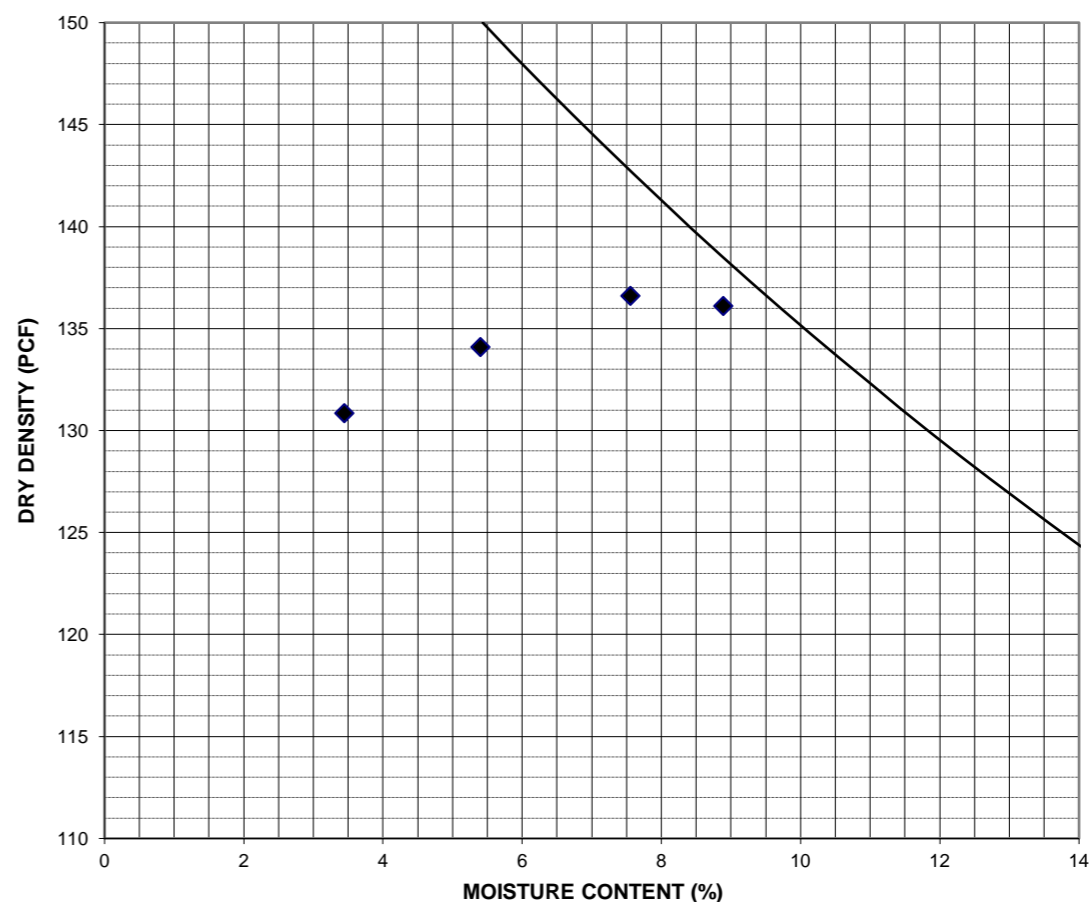


**HYDROMETER TEST**

(ASTM D422)

Elapsed Time (min)	Diameter (mm)	Total % Passing
0		
0.5		
1		
2		
5		
8		
15		
30		
60		
250		
1459		
2750		

**MOISTURE-DENSITY RELATIONSHIP**



**CLASSIFICATION:** Poorly Graded Sand w/Gravel  
**USC:** SP  
**FROST CLASS:**

Remarks: **1 FACE FRAC = 73%**

JOHN A. BUZDOR, P.E. 6/8/2023