

**PROJECT:** O'BRIEN FISH PASSAGE  
**PROJECT NO.:** 20-110-01  
**CLIENT:** MSB  
**SAMPLE NO.:** 23P904  
**LOCATION:** STOCKPILE

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

**SIEVE ANALYSIS TEST**

(ASTM D422)

Sieve Size	Diameter (mm)	Total % Passing
6"	152.4	
4"	100.0	100
3"	76.2	97
2"	50.8	86
1"	25.4	76
3/4"	19.0	73
1/2"	12.7	66
3/8"	9.5	63
#4	4.75	55
#10	2.00	49
#20	0.85	42
#40	0.425	32
#60	0.25	20
#100	0.15	10
#200	0.075	4.9

**% Gravel:** 44.6  
**% Sand:** 50.5  
**% Fines:** 4.9  
**D60:** 7.68  
**D30:** 0.40  
**D10:** 0.15  
**Cu:** 51.0  
**Cc:** 0.1  
**% .02 mm:**  
**% Moisture:** 4.0  
**Fine Modulus:**

(ASTM D4318)

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

(ASTM C127)

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

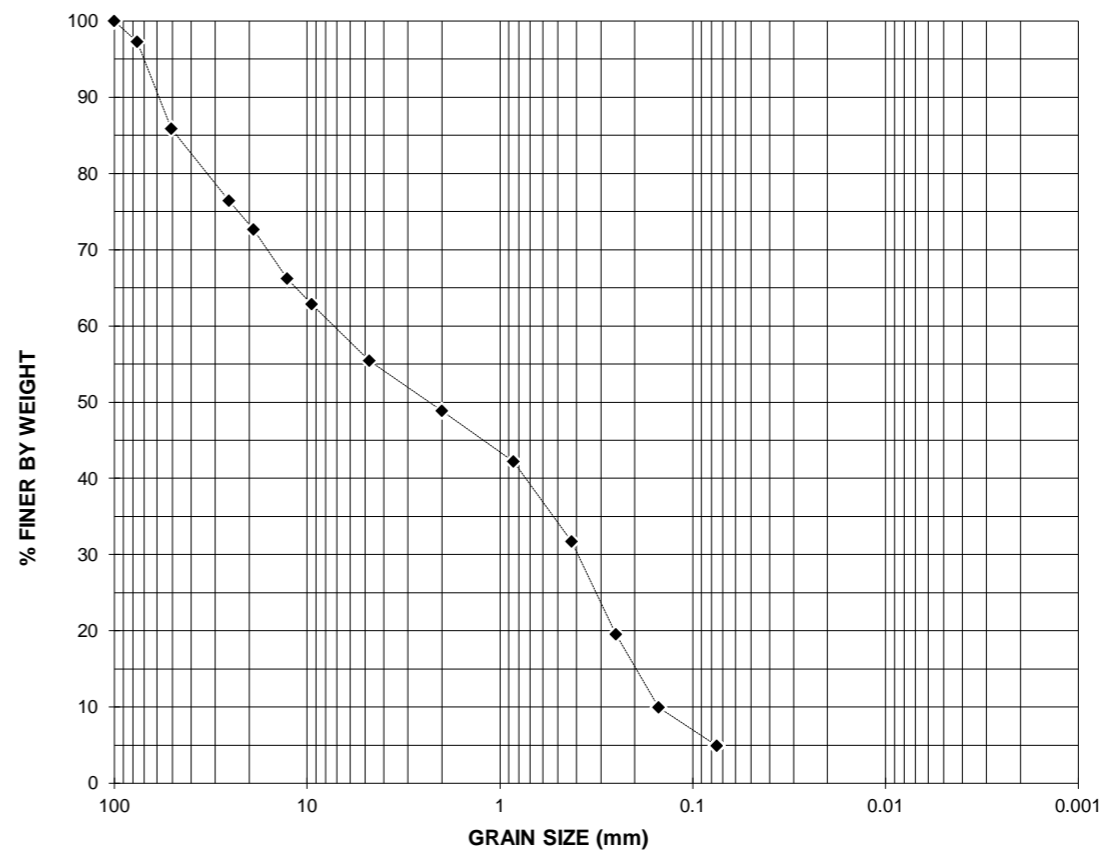
(ASTM C128)

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

(ASTM D1557)

**Dry Den (U):** 133.0  
**Dry Den (C):** 141.8  
**M% (U):** 8.5%  
**M% (C):** 6.5%  
**SpG (assumed):** 2.77  
**M-D Test Method:**

**GRAIN SIZE DISTRIBUTION**

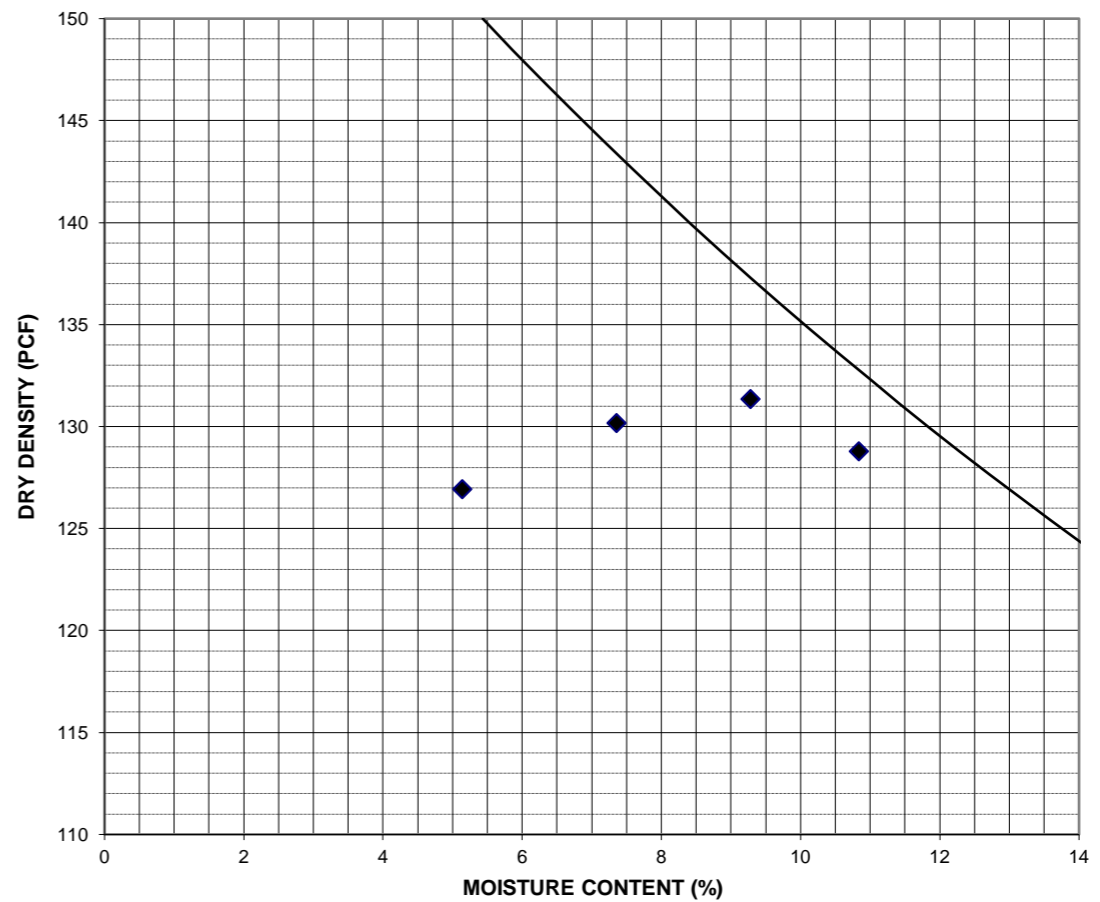


**HYDROMETER TEST**

(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:

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