MATERIAL SPECIFICATION
PONDLOCK™ SODIUM BENTONITE CLAY
(Pond Sealing and Lining Applications)

This specification governs the supply of granular sodium bentonite clay for use in pond sealing, basin lining, and seepage control applications. This document may be used as a standalone material specification or inserted directly into civil engineering plan sets.

1. GENERAL

1.1 Scope

This specification applies to sodium bentonite clay used as a soil amendment or liner component in compacted soil liner systems, including projects designed in accordance with USDA NRCS Conservation Practice Standard 520 – Pond Sealing or Lining (Compacted Soil Treatment).

1.2 Basis of Design

The basis of design is Pondlock™ Sodium Bentonite Clay as supplied by Natural Waterscapes. Approved equal products shall meet or exceed all requirements of this specification and are subject to approval by the Engineer of Record.

2. MATERIAL REQUIREMENTS

2.1 Bentonite Type

Material shall be natural sodium bentonite (sodium montmorillonite). Calcium bentonite or blended products are not acceptable.

2.2 Physical Form

Bentonite shall be supplied in dry, granular form suitable for mechanical spreading and soil mixing. Powdered, slurry, or pelletized forms are not acceptable unless explicitly approved.

2.3 Particle Size Distribution

100 percent passing –8 mesh.

2.4 Moisture Content

Moisture content at delivery shall not exceed 20 percent by weight. Material showing signs of premature hydration, clumping, or cementation shall be rejected.

3. PERFORMANCE PROPERTIES

3.1 Free Swell Index

Minimum free swell index shall be 25 milliliters (ml) when tested in accordance with ASTM D5890.

3.2 Expansion Capacity

Material shall expand approximately 15 times its dry volume when hydrated under unconfined conditions.

3.3 Aged Viscosity
Minimum aged viscosity shall be 30 as measured by Fann 600 rpm testing or equivalent.

3.4 Hydraulic Performance
When properly confined and compacted, the bentonite shall form a dense, low-permeability, self-sealing clay matrix capable of sealing microcracks and minor liner defects.

4. CHEMICAL PROPERTIES

4.1 pH
Typical pH range shall be 7.5 to 8.7.

4.2 Purity
Material shall be free of organic matter, debris, petroleum contamination, gypsum, or other deleterious materials.

5. PACKAGING AND DELIVERY

5.1 Packaging
Bentonite shall be supplied in bulk super sacks with lifting loops and bottom discharge ports.
Approved sizes:
• 2,000 lb (1-ton) bulk sack
• 3,000 lb bulk sack

5.2 Approximate Volume
• 2,000 lb sack: approximately 28 cubic feet (1.04 cubic yards)
• 3,000 lb sack: approximately 42 cubic feet (1.56 cubic yards)

5.3 Storage and Handling
Store material in a dry location protected from moisture. Do not allow material to hydrate prior to placement. Damaged or water-exposed packaging shall be rejected.

6. QUALITY CONTROL AND ACCEPTANCE

6.1 Certification
Manufacturer shall provide certification upon request confirming compliance with this specification.

6.2 Testing
The Engineer may require independent testing including free swell index, moisture content, and visual inspection for contamination.

7. APPROVED PRODUCTS

• Pondlock™ Sodium Bentonite Clay – Natural Waterscapes
• Approved equal meeting all requirements of this specification

8. ENGINEERING NOTE

Bentonite performance is dependent on confinement and compaction. Material compliance alone does not guarantee liner performance. Improper installation, inadequate confinement, or exposure to drying prior to hydration may result in liner failure independent of material quality.

END OF MATERIAL SPECIFICATION