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WATER CONTAINMENT BARRIER LINER SYSTEM AND METHOD

Abstract

A water containment barrier liner system with a liner member and a channel adjacent to and running along one side of the liner member. The channel is configured to receive an elongate member that forms a backstop for a portable water containment barrier placed over the liner member such that the liner member forms an apron forward of the barrier. Also, a method of containing water using the system wherein the above-described components are put together at a desired flood control location.

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Background/Summary

TO THE COMMISSIONER OF PATENTS AND TRADEMARKS

[0001] Assignee-Applicant MUSCLE WALL HOLDINGS, LLC, a United States citizen and Texas limited liability company whose post office address is 675 N 600 E, Suite 1, Logan, UT 84321, hereby submits a non-provisional, utility patent application for a WATER CONTAINMENT BARRIER LINER SYSTEM AND METHOD, as set forth in the following specification.

RELATED APPLICATIONS

[0002] This application is the non-provisional of U.S. provisional patent application 63/555,806, filed on Feb. 20, 2024, and claims priority thereto.

BACKGROUND OF THE INVENTION

[0003] Water containment barriers and methods are disclosed in prior art such as, for example, U.S. Pat. App. No. 63/549,498 and U.S. Pat. Nos. 8,313,265, 8,864,411, 9,004,815, D634443, and D696791 (hereinafter “the Patents”). While there are many advantages to using these barriers and methods to contain water, there are further improvements to this technology in its existing state. For example, in various water containment projects, there is need and/or desire to create a bottom barrier to water in front of water barriers to facilitate water retention and/or water conveyance and/or fluid dynamics adjacent to water barriers. Moreover, further stability to deployed water barriers may be desired to counteract the horizontal forces imparted by retained water to such water barriers.

SUMMARY OF THE INVENTION

[0004] In accordance with the above, a water containment barrier with discharge system and method are provided. Embodiments of the system include: a liner member with a channel adjacent to and running along the liner member's length at one side. The channel is configured to receive an elongate member that forms a backstop for a water containment barrier placed over the liner member such that the liner member forms an apron forward of the barrier. Embodiments of an accompanying method of use include: providing the described liner member; providing one or more elongate members; placing the liner on the ground at a desired water containment location and inserting the one or more elongate members into the liner member channel; providing one or more water containment barriers; placing the one or more water containment barriers over the liner member and adjacent the elongate member so that the liner member forms an apron forward of the barrier and the elongate member forms a backstop to the one or more water containment barriers.

Description

BRIEF DESCRIPTION OF THE FIGURES

[0005] To further clarify the above and other aspects of the present invention, a more particular description of the invention will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. It is appreciated that these drawings depict only typical embodiments of the invention and are therefore not to be considered limiting of its scope. The drawings may not be drawn to scale. The invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

[0006] FIG. 1 is a perspective view of a water containment barrier liner system in one embodiment.

[0007] FIG. 2 is a first perspective side view of a water containment barrier liner system in a barrier environment in one embodiment.

[0008] FIG. 3 is a second perspective side view of a water containment barrier liner system in one embodiment.

[0009] FIG. 4 is a front perspective view of a water containment barrier liner system in a barrier in

one embodiment.

[0010] FIG. 5 is a rear perspective view of a water containment barrier liner system in one embodiment.

[0011] FIG. 6 is a top perspective view of a portion of a water containment barrier liner system in one embodiment.

[0012] FIG. 7 is a block diagram of a water containment method using the water containment barrier liner system in one embodiment.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

[0013] The present invention in its various embodiments, some of which are depicted in the figures herein, is a water containment barrier liner system and method. In general, the system includes a liner member with a channel adjacent to and running along the liner member's length at one side. The channel is configured to receive an elongate member that forms a backstop for a water containment barrier placed over the liner member such that the liner member forms an apron forward of the barrier.

[0014] Referring now to FIG. 1, one embodiment of the system may include a generally square and/or rectangular liner member **100** with a top **101** and bottom (not shown), as well as first **102**, second **103**, third **104**, and fourth **105** sides and/or edges. Liner member **100** may be constructed of any number of generally water-impermeable, water-proof, water resistant, water shedding, and/or optimal fluid conveyance materials such as, for example, 20 millimeter woven coated fabric. Liner member **100** may have a channel **107** adjacent to and running along the length of one or more liner member sides that terminates in one or more apertures **108** configured to receive an elongate member, discussed in more detail below. Channel **107** may be formed by a side and/or edge of the liner member **100** that is doubled or folded over an adjacent liner member portion and fastened (e.g., sewn and/or seam welded, thereby forming a seam and/or weld **106** adjacent the channel **107**). Fastened portion (e.g., seam and/or weld **106**) may be reinforced by integrating nylon web material into the seam and/or weld, or any other reinforcing structures or materials. See also FIG. 6.

[0015] In the illustrated embodiment, rectangular liner member **100** (including channel **107**) is configured to roll and/or form a roll for transport and unroll for placement at a desired water containment location. Described differently, the liner member and channel are configured to roll into a stowed position (e.g., FIG. 1) and unroll into an extended position (e.g., FIG. 2). As discussed in further detail below, a portion of the top side of the liner member that is located adjacent the channel **107** may be configured to underlay a portable water containment barrier.

[0016] Referring now to FIGS. 2-6, one embodiment of the system is shown with a portable water containment barrier **201** with a toe portion **202**. Water containment barrier may be a barrier of the type such as is set forth in the Patents, which are expressly incorporated herein by reference. For example, water containment barrier may have a generally hollow body having top, bottom, front, and back sides and an external support system comprised of a plurality of raised portions configured to reinforce the barrier against one or more of internal and external forces exerted on the front side. The generally hollow body may be configured to receive one or more materials (such as, for example, water) to at least partially fill the body. In some versions of the system, barrier **201** may be included with the liner in the overall system.

[0017] Various embodiments may also include one or more rigid and/or semi-rigid elongate members **203** configured to slide into and fit within the aperture **108** and channel **107** of the rectangular liner member **100**. The one or more elongate members **203** may be generally solid and/or weighted and comprised of any number of suitable materials such as wood, metal, plastic, polymer, etc.

[0018] With one or more elongate members **203** placed within the channel **107**, liner member **100** may be configured for specific placement and/or functionality with respect to water containment barrier **201**. For example, elongate member **203** in channel **107** is configured to be placed generally behind and below, and/or in abutment with, the back/bottom side or edge of water containment

barrier **201**. See esp. FIGS. **3** & **5**. Channel **107** and/or elongate member **203** forms a backstop to barrier **201** and/or system wherein a portion of the liner member **100** extends as an apron from underneath barrier **201** to forward from and underneath barrier **201**. Depending on the embodiment, this apron may have a length 2 to 3 times (or more) the width and/or depth of the barrier's base. See FIG. **3**. In embodiments of the system where a liner member **100** is rolled and then unrolled for placement, the overall width of the apron (between sides **102**, **203**) may span the width of and/or be placed underneath many linearly-arranged barriers **201**.

[0019] So configured, liner member **100** with elongate member **203** optimizes water retention and flow in an area forward of and adjacent to the water containment barrier **201** in a manner that also provides structural and stability (against, for example, horizontal forces caused by water retained against the barrier) to the barrier **201** through a backstop that, when in use, is anchored by its own weight as well as the weight and volume of contained water that is located above the apron when the system is in use. Stated differently, the elongate member is configured to abut a back side of the portable water containment barrier through the channel to form a backstop for the portable water containment barrier with respect to forces on the front side of the portable water containment barrier.

[0020] Referring now to FIG. **7**, a method **700** of using a water containment barrier liner may also be included. Such a method **700** may generally include the steps of providing a water containment barrier liner **701** and one or more elongate members **702** as described above; unrolling and/or placing the liner member and on the ground at a desired water containment location and inserting the one or more elongate members into the liner member channel **703**; providing one or more water containment barriers **704**; and placing the one or more water containment barriers over the liner member and against the elongate member so that the liner member forms an apron forward of the barrier and the elongate member forms a backstop for the barrier **705**. Method **700** may also include the step of placing material, substrate, and/or weight over one or more leading edges of the liner member to ensure that liner member remains below moving and/or retained water within the water containment project area. Some or all of these steps may be repeated as the water containment project area is prepared for water containment.

[0021] The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

Claims

1. A water containment barrier liner system comprising: a liner member with a top, bottom, and first, second, third, and fourth sides; and a channel adjacent to and running along a length of one or more of the liner member sides wherein the channel terminates in one or more apertures and is configured to receive an elongate member.
2. The water containment barrier liner system of claim 1, wherein the channel has a first end terminating in a first aperture and a second end terminating in a second aperture.
3. The water containment barrier liner system of claim 1, wherein the channel is formed from a folded-over portion of the liner member.
4. The water containment barrier liner system of claim 1, wherein the liner member and channel are configured to roll into a stowed position and unroll into an extended position.
5. The water containment barrier liner system of claim 1, wherein the liner member is made of a generally water impermeable material.
6. The water containment barrier liner system of claim 1, further comprising the elongate member.
7. The water containment barrier liner system of claim 1, a portion of the top side of the liner

member that is located adjacent the channel configured to underlay a portable water containment barrier with a generally hollow body that is configured to receive one or more materials to at least partially fill the body.

8. The water containment barrier liner system of claim 7, further comprising the portable water containment barrier with a generally hollow body configured to receive one or more materials to at least partially fill the body.

9. A water containment barrier liner system comprising; a generally water impermeable liner member with a top, bottom, and first, second, third, and fourth sides; a channel adjacent to and running along a length of one or more of the liner member sides wherein the channel is formed from a folded-over portion of the liner member, has a first end terminating in a first aperture and a second end terminating in a second aperture, each end configured to receive an elongate member; and wherein a portion of the top side of the liner member that is located adjacent to the channel is configured to underlay a portable water containment barrier with a generally hollow body that is configured to receive one or more materials to at least partially fill the body.

10. The water containment barrier liner system of claim 9, wherein the liner member and channel are configured to roll into a stowed position and unroll into an extended position.

11. The water containment barrier liner system of claim 9, further comprising the elongate member.

12. The water containment barrier liner system of claim 9, further comprising the portable water containment barrier with a generally hollow body configured to receive one or more materials to at least partially fill the body.

13. The water containment barrier liner system of claim 11, wherein the elongate member is configured to abut a back side of the portable water containment barrier through the channel to form a backstop for the portable water containment barrier with respect to forces on the front side of the portable water containment barrier.

14. The water containment barrier liner system of claim 9, wherein the liner member is configured to form an apron in front of the portable water containment barrier.

15. The water containment barrier liner system of claim 14, wherein the apron has a length that is at least two times one or more of the width and depth of a base of the portable water containment barrier.

16. A water containment method comprising the steps of: providing a liner member with a channel running along an edge of the liner member; providing an elongate member; placing the liner member on the ground and inserting the elongate member into the channel; providing a portable water containment barrier with a generally hollow body configured to receive one or more materials to at least partially fill the body; placing the portable water containment barrier on the liner member so that the liner member forms an apron forward of the portable water containment barrier and the elongate member and channel form a backstop to a back side of the water containment barrier with respect to forces on a front side of the portable water containment barrier.

17. The water containment method of claim 16, further comprising the step of placing material over one or more leading edges of the liner member.

18. The water containment method of claim 16, further comprising the step of rolling the liner member and channel into a stowed position.

19. The water containment method of claim 16, further comprising the step of unrolling the liner member and channel into an extended position.
