July 23, 2024
240199

Sophia L. Wilson, Town Manager
Charles Tetreau, Marine Resource Conservation Officer/Harbormaster
Town of Freeport
30 Main Street
Freeport, Maine 04032

Review Services for the "Island Rover," Temporary Access and Boat Launch at "0" Shore Drive, Freeport, Maine

Dear Sophie and Charles;

Thank you for the opportunity to assist the Town of Freeport with peer review services for the temporary access road and boat launch for the Island Rover. The following letter sets forth our review and opinions regarding the proposed temporary access for the Island Rover.

Project Understanding:

The project proposes the construction of a temporary access road and temporary boat launch ramp to launch the Island Rover Ship that is located on a nearby property. Once the Island Rover is launched into the Harraseeket River, all materials used for the temporary access road and temporary boat launch ramp will be removed and the site restored. Temporary timber mats are proposed by the applicant to provide a launching ramp at the shoreline and into the bay mud. A proposed access road will also be constructed from Shore Drive to the shoreline.

Information provided to Sebago Technics, Inc. includes the following:

1. "Coastal Waters Commission Application," under cover letter by Archipelago dated June 8, 2023.
2. "Pre-Site Inspection- Vegetation, Erosion, Soils Coastal Wetland Assessment Report," dated November 8, 2023, prepared by Archipelago.
3. "Coastal Waters Commission- Response to Comments at 9/13/23 Meeting," under cover letter by Archipelago and dated October 10, 2023.
4. "Coastal Waters Commission Application Revisions and Insurance Policy," under cover letter by Archipelago and dated October 17, 2023.
5. "Coastal Waters Commission – Submission of Requested Information," dated February 26, 2024.

Our review is intended to provide the town with a third-party peer review with the understanding that any opinions and comments of the third-party reviewer do not in any way relieve the applicant and their professionals of the sole liability and responsibility for the project.

To better organize our review comments, we have separated the review into environmental considerations and technical considerations.

Environmental Considerations and Comments:

1. The submitted documentation notes that the applicant and the applicant's consultant team will obtain the necessary MDEP and US ACOE permits. We recommend that before any work, the applicant confirm permits are in place and provide supporting documentation. Given the controversy of the "Island Rover," it is likely that once the project begins, the public may contact the regulatory agencies (local, state, and federal) expressing concerns about the work and potential environmental impacts on the coastal wetland. Therefore, we recommend that the town and/or applicant inform the Town, MDEP, and US ACOE in advance of the work and host a pre-work site coordination meeting.

2. The Archipelago report indicates that the access road surface will utilize a series of 20' x 4' x 12" crane mats placed on top of the geotextile fabric with additional 4' x 16' x 8" crane mats installed running longitudinally over the timber mats in critical locations. Construction bags filled with washed ¾" stone are proposed to fill vertical transition zones between the fabric mesh and the mats. The mats will be fastened together longitudinally. The report suggests that the launch ramp structure will be in place for several tide cycles, and possibly for several days. As noted in the report, the mats are expected to compress the vegetation and if any vegetation is damaged the vegetation will be restored the following growing season. Work is proposed outside of the growing season (October).

   Comments:

   - The provided drawings include a cross-section showing the placement of tote bags under the crane mats. The intent of the tote bags filled with crushed stone is to create a uniform surface for the placement of the crane mats. However, the bags may result in uneven loading of the underlying soils (point loads) since it is practically difficult to achieve a perfect uniform load-bearing surface. The means and methods for placement of the tote bags will be important. We would ask the applicant to confirm how the tote bags will be placed and leveled and what measures will be taken should the tote bags become damaged or broken during installation depositing stone on the underlying geotextile that is proposed or spilling over onto the coastal wetland.

   - Given the soft coastal soils, we believe it is highly likely that the geotextile placed over the coastal wetland layered with the tote bags will cause variable settlement in the coastal wetland and may become partially embedded into underlying soft soils creating post-launching difficulties in removing the temporary geotextile and stone filled tote bags. How will the tote bags and geotextile be removed? Depending on the size of the tote bags and the level of settlement in the coastal wetland, the geotextile and tote bags may be difficult to remove. We recommend the applicant confirm the method of tote bag installation/removal including the geotextile since this could require excavation or soil disturbance.

   - It is our opinion that the Town should expect that deformation of the surficial soils and vegetation is likely in the coastal wetland and bay mud. At a minimum, the vegetation will be compressed and will be visually apparent after removal with potential areas that

may require remediation to restore the area will be needed. The October 10, 2023 letter from Archipelago includes the following restoration measures.

"Specifically, if compression of 4 inches or more persists and if a good catch of salt marsh vegetation fails to re-establish within the footprint, the compressed area will be mechanically tilled/aerated using a small tracked excavator operating on mats and the affected area would be replanted with spartina plugs. Spartina alterniflora would be planted within the lower vegetated salt marsh zone, and Spartina patens would be planted in the high marsh zone. Plugs will be planted on 2'- 3' centers in accordance with USDA/NRCS planting specifications, and would be monitored during the 2024 growing season to ensure success. Again, we do not anticipate that corrective actions will be necessary, but we provide you with this plan simply so that it is clear that a plan is in place should unexpected results occur. If minor compression occurs and a good catch of salt marsh vegetation grows within the area during the growing season, we are reluctant to disturb the established vegetation only to replant new vegetation."

Please note that the proposed remediation only occurs if 4" or more of compressed salt marsh/coastal wetland occurs and good salt marsh vegetation fails to re-establish. A "good catch" should be defined and be agreeable to the town and the town should confirm 4" or more of compressed salt marsh/coastal wetland is an acceptable threshold.

In addition, who will determine if remediation is or isn't needed? This can often be a source of contention between the regulatory agency and the applicant. We recommend clear lines of authority are determined from the onset and who will make the determinations.

3. Given the recent severity of coastal storms, we recommend that the project work be planned and completed to the maximum extent practicable to avoid predicted weather events. Given the fragile nature of the coastal wetland and the placement of temporary facilities, a storm surge and significant wave action could adversely impact the temporary work.

4. We recommend that the applicant have their environmental consultant visit the site daily during the work to review/document environmental conditions for consistency with the evaluations completed and to monitor any needed remedial restoration work. The environmental consultant should also photo document the work and provide written reports and summaries to the Town.

Engineering Considerations and Comments:

The applicant's consultant provided an engineering assessment in the October 2, 2023 response to review comments. In addition, a "draft flotation," bag design was prepared by Falls Point Marine and included in the February 26, 2024 submittal to the Coastal Waters Commission.

Comments:

1. The 2-26-24 submittal prepared by Archipelago included a comprehensive list of support (seaward and landward) equipment that would be on hand for the project. This equipment in addition to the crushed stone tote bags and crane mats will require a location for staging. The site plan depicts a circular area for staging next to the temporary access road that appears to be

approximately 500 s.f. Given the list of landside equipment and materials, the 500 square feet does not appear to be adequate. Please confirm what will be stored onsite, what will be brought in daily, and what ground preparation will be needed for the stored material/equipment area and the actual area needed for equipment and materials. For instance, where will the crane mats be staged, and where will the stone be filled and stored?

2. The provided site plan includes the expected limits of the crane mats, the finish grade of the crane mats, and a typical section of the proposed access road. Two sections are provided; one section includes stone-filled totes and one layer of crane mats, and a second section includes stoned-filled totes and two layers of crane mats depending on the location.

   We recommend the applicant prepare a scaled profile of the access road including existing contour elevations, proposed top of crane mats, limits of the coastal vegetation, profile of the Island Rover at the launch point, mud flat, and waterline profile noting mean high water, observed tide elevation, the limit of crane mats and extended profile beyond the end of the crane mats to assess depth for floating the ship. The scaled profile will be helpful to better understand the relationship between the existing soils, crane mat buildup, and water available for the flotation of the ship. We would note that the crane mat buildup shown on the site plan suggests approximately 2' of sectional buildup but the finish contours at the 40-foot section of 5% grade depict approximately 1 foot from the top of the mat to the existing ground surface.

3. The provided site plan includes a detail for Access Contours 0 to 3 that states "4' WIDE x 8" THK CRANE MATS RUNNERS (TYP)" over 20' LONG X 12' THK CRANE MATS (TYP). We assume the 12' reference is intended to be 12" for a total sectional depth of 20 inches plus the thickness of the rubber mats geotextile. Given the expected soft soils, the geotextile, rubber mats, and crane mats may settle into the underlying mud. How will the geotextile and rubber mats be removed? We are concerned that the geotextile/rubber mats could become embedded in the mud and difficult to remove without excavation.

   We also recommend the applicant's engineer review the need to have all double-stacked crane mats and consider a load test at the time of mobilization to assess the behavior of the design under expected loading before launching the Island Rover. This would provide an opportunity to confirm the stability of the mats before the more unstable Island Rover ship moves across the mats. Given the weight of the ship, any lateral instability or movement would create a shift in the center of gravity inducing a rotational moment that could be difficult to manage.

4. We understand the Island Rover to be approximately 113 feet long (overall length). The site plan depicts a 40-foot-long (5%) launch pad at elevation 1-2. The applicant should provide documentation noting that the 40-foot-long (5% launch pad grade) is adequate given the length and profile of the ship bottom. We also suggest the profile of the ship be drawn to scale on the profile requested in item 2 above along with the locations of the floatation bags, and the vessel carrying system.

5. The applicant's engineer provided an assessment (10-10-23 Archipelago Submittal) of the bearing capacity of the mud flats and load path from the ship and carrying system to the subsoil. The basic assumption of the analysis is that the crane mats will uniformly distribute the weight over the underlying mud flats. This is based on the presumptive bearing capacities of the underlying mud flats. We had requested that a geotechnical engineer review the site-specific conditions to assumptions in the applicant's engineering assessment. The applicant responded via e-mail and stated, *"Ross Cudlitz, the P.E. for the project, and he reiterated what we've*

already advised the CWC, that the design takes into account the worst possible soil conditions." While we appreciate the conservative nature of the approach, it is our opinion that a geotechnical engineers' review would be advisable given the size and nature of the project. The applicant and their engineers of record shall be fully responsible for the means, methods, outcome, and liability of the project.

6. The October 10, 2023 submittal referenced a total ship weight of 180,000 lbs. Please confirm how this weight was determined.

7. A significant component of the ship launching will rely on the successful use of floatation bags as described in the February 26, 2024 submittal. The applicant's submittal states, "*It should be noted that this proposed plan has been put together by Carter Becker and Capt. Bill Creighton. Carter has used lift bags for many years in many aspects of marine construction. Bill has extensive experience in the use of enclosed floatation bags as the owner/operator of Sea Tow Midcoast Maine, where these devices were routinely used for the salvage/recovery of vessels up to 110' in length. This plan has been reviewed by Richard Fryeburg of Subsalve USA, (www.subsalve.com) one of the primary designers and suppliers of lift bags used throughout the world by government agencies and industry. "*

We recommend that the final flotation design be provided and certified by the experienced installer and the entities referenced above. We remain concerned about the differential settlement of the crane mats as the dollies roll across the mats and how lateral stability will be maintained. The floatation devices are an integral part of maintaining lateral stability and will require careful attention throughout the launch (see comment item 3). The applicant's submittal has noted that additional floatation bags will be on site with equipment to address stability and floatation difficulties. Since this will be the most vulnerable time of the launching, we recommend the applicant have their engineer, designer of the floatation, and sufficient equipment and workforce onsite to address any occurrence.

As noted in the provided narrative, specific information was stated regarding elevations and buoyancy calculations to float the ship. The narrative speaks to 80 tons (160,000) which differs from the ship weight referenced by Ross Cudlitz, P.E. in his assessment which noted the ship weight to be 180,000 pounds. As stated in item 6 above, we request that the applicant confirm the weight of the ship.

8. Given the complexity of the project, we recommend that the applicant provide a comprehensive work plan and timeline to the town before the work. This information will help identify the expected sequencing of the work from start to finish and establish a timeline. We also recommend a pre-mobilization meeting with the marine contractor, owners' environmental consultant, engineer, town, regulatory agency (if possible) and other key individuals involved in the ship launching. The applicant's submittal referenced contingencies to address challenges or issues encountered during the work. The contingencies including having materials, equipment, and personnel must be readily available and onsite.

9. While the project work is the sole responsibility and liability of the applicant including contingency plans, the town should consider having the applicant provide a cost estimate for the work including contingencies and potential restoration, and determine an appropriate amount for any bonds and insurance.

Closure:

Thank you for the opportunity to assist the Town of Freeport with this third-party review. As always, please feel free to contact me with any questions.

Sincerely,

SEBAGO TECHNICS, INC.

Owens A. McCullough, P.E.; LEED A.P.
Sr. Vice President of Strategy and Client Development
OAM: oam