11.0 SOILS

A Class B (High Intensity) Soil Survey, performed by a Maine Certified Soil Scientist, identified four major soil series in the project area. Undeveloped portions of the Site are largely comprised of Pushaw silt loam, a somewhat poorly drained soil, and to a lesser extent Boothbay silt loam, a moderately well drained soil. Hydric soil boundaries were found to be similar to field-delineated wetland boundaries and are comprised of Swanville silt loam, a poorly drained soil. All of these soils are derived from a mineralogically similar marine sediment parent material. Developed portions of the Site, along Route 1, are identified as man-modified, Udorthent soils. The complete soil survey report and soil map are provided as **Appendix 11-A**.

To support the design and construction of project buildings and infrastructure, a geotechnical investigation was conducted. The subsurface geotechnical explorations generally encountered a glaciomarine deposit of silt and clay, underlain by glacial till, and bedrock. Upper portions of the glaciomarine deposit were observed to be medium to very stiff, while the lower portions of the glaciomarine deposit were observed to be very soft and compressible.

Due to the presence of soft, compressible clay, the subsurface conditions are not suitable for supporting the loads of the proposed structures with a conventional spread footing foundation system without improvement of the soil conditions (for example, through aggregate piers or preloading) or employment of a deep foundation system such as piles. Based on costs and potential design challenges, Nordic has planned to conduct excavation and replacement of the unsuitable soils (soft glaciomarine soils) or design the buildings to bear at elevations corresponding to suitable soils (i.e. glacial till or bedrock). Excavation and replacement of the glaciomarine soils with compacted structural fill, and/or design of the buildings to bear at elevations corresponding to suitable bearing soils are geotechnically feasible alternatives to allow construction of the proposed buildings on conventional spread footing foundation systems. The complete Geotechnical Engineering Report is provided as **Appendix 11-B**.

In conclusion, the proposed Project will be constructed on soils suitable for the nature of the undertaking. Design considerations for the geotechnical conditions at the Site will be made to overcome limitations presented by existing soil characteristics.

APPENDIX 11-A

Soil Survey Report and Soil Map

APPENDIX 11-B

Geotechnical Engineering Report

Ransom Consulting, Inc.