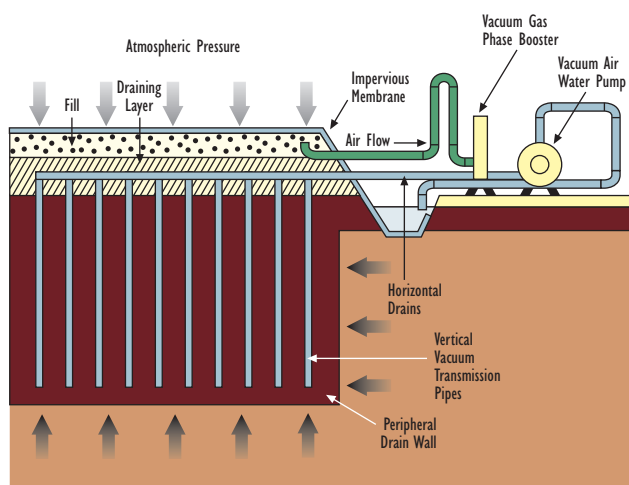




*Menard Vacuum Consolidation consists of installing vertical and horizontal vacuum transmission pipes and peripheral trenches. An airtight impervious membrane is installed on the ground surface and sealed in the trenches. The air is pumped from under the membrane and the resulting vacuum creates an isotropic stress in the ground equivalent to the atmospheric pressure or 12 feet of surcharge fill.*



**Menard Vacuum™ Consolidation is a proprietary system used for preloading and consolidating soft and very soft saturated fine-grain soils. Menard Vacuum Consolidation is an efficient time-saving consolidation method; loading and construction can proceed as early as two weeks after the process has started. Menard Vacuum Consolidation reduces settlement and increases bearing capacity.**

### Menard Vacuum Consolidation Applications

- Airport Platforms and Runways
- Roads and Roadway Embankments
- Bridge Abutments
- MSE Retaining Walls
- Marine Terminals and Port Platforms
- Treatment Plants
- Levees
- Storage Tanks

### Menard Menard Vacuum Consolidation

Menard Vacuum Consolidation involves the installation of both vertical and horizontal vacuum transmission pipes and peripheral trenches. An airtight impervious membrane is then installed on the ground surface and sealed in the peripheral trenches. Menard Vacuum Pumps are then connected to the system to remove the air below the membrane. This results in the creation of a vacuum under this membrane. The difference of pressure at the membrane interface creates a gradient resulting in the application of a pressure equivalent to the atmospheric pressure on the ground below the membrane. This loading process creates an isotropic state of stress in the soils under the membrane, accelerating the consolidation in the soil mass in a very short time, reducing the need for long term and potentially unstable surcharge loads. The Menard Vacuum Consolidation method saves time and significantly reduces the amount of surcharge material that is needed. The process almost instantaneously replicates the effect of a conventional 12 foot surcharge with Wick Drain system.

The patented Menard Vacuum Consolidation technique was developed in 1988 by Menard's French affiliate, Menard Soltraitemnt, and presents a method for rapid consolidation of clay soils that is unprecedented.



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