



# CASE HISTORY

SAFEBASE™ 2.875" O.D. STANDARD DUTY PUSH PIERS

## OVER TWELVE INCH LIFT OF MINNEAPOLIS HOME

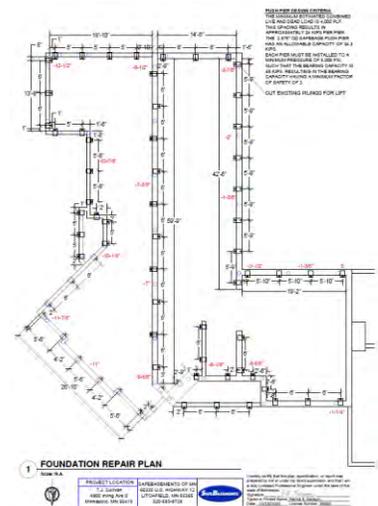


This home, built in 1951, was recently purchased and assessments had been made to its current condition by local engineers and recommendations were made for foundation piercing. The owner had contracted MJB engineering and U+B architecture to help coordinate the work, including completing soil borings, plan review of the original construction, an elevation survey



and exploratory test pits. The home was originally built on 35 concrete pilings and 21 timber pilings installed to depths ranging from 16 to 40 feet. Unfortunately the soil borings revealed

swamp deposits up to a depth of 54 feet, which the pilings did not penetrate, resulting in settlement of the foundation.



SafeBasements of Minnesota verified the elevation measurements confirming the house was twelve and a half inches out of level. A plan was made to lift the foundation back to level using SafeBase™ Push Piers. A total of 69 piers were to be used to support the foundation. The piers were installed to depths from 57-121 feet with a force of approximately 48,000 lbs per pier. The majority of the piers were installed on the interior of the foundation throughout the basement and crawlspace. Two areas near entrances to the home were pierced from the exterior as they were inaccessible from the interior.



All of the existing pilings needed to be cut prior to lifting. The concrete pilings were drilled and chipped away and then the rebar cut, and the wood pilings were cut beneath the grade beams. With all of the piers installed a series of hydraulic lift cylinders were connected to the SaberTooth™ pier brackets to facilitate lifting. An auxiliary hydraulic oil tank was attached to the pier pump to allow for the fluid capacity necessary for lifting with all 69 piers. The six piers on the exterior were connected to a separate pump that was operated in unison during the lift. Extra-long threaded rods were used to allow for multiple strokes of the hydraulic cylinders needed to achieve the over 12 inch lift.



To prepare the utilities for the lift the furnaces and water heater were hung from the floor joists, and other plumbing was disconnected in the home. Also a portion of the foundation wall between the basement and crawlspace had sheared over the years and was pulled back into place prior to lifting with the push piers.



The lift was performed in small increments of approximately one inch at a time. Between each increment the nuts were tightened down on the brackets and checks were made through out the home for changes in elevation and any other possible issues. As areas reached the desired elevations the hydraulic lift cylinders were switched off, or bypassed in that area. A full recovery of the twelve and a half inches was achieved, and the whole home was brought to within 1/4" of level. The project was completed in January of 2021. The rest of the renovations could now be completed on the home that is safely bearing on a new deep foundation.



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