

PROJECT:
FORD MOTOR COMPANY
ELECTRIC VEHICLE MFG. FACILITY

Stanton, Tennessee

MORRIS-SHEA PROJECT COMPONENTS

DeWaal Pile System
rigid inclusions
excavated cofferdams
wood lagging pit



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DEEP FOUNDATIONS



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FORD MOTOR COMPANY ELECTRIC VEHICLE MANUFACTURING FACILITY

body shop 1423 14" diameter DeWaal piles

battery buildup 942 14" diameter DeWaal piles

final assembly 2545 14" diameter DeWaal piles

stamping area 2880 14" diameter DeWaal piles + 14" diameter rigid inclusions + pit (excavation, wood lagging, soldier piles, mud slab, concrete base, cut off piles)

paint facility approximately 1000 14" diameter DeWaal piles

bosk building 525 18" diameter DeWaal piles + 14" diameter rigid inclusions

switch house sheet pile cofferdam, pit excavation, mud slab

tryout sheet pile cofferdam, pit excavation, mud slab, concrete slab, walers (braced internally until concrete base slab was poured)



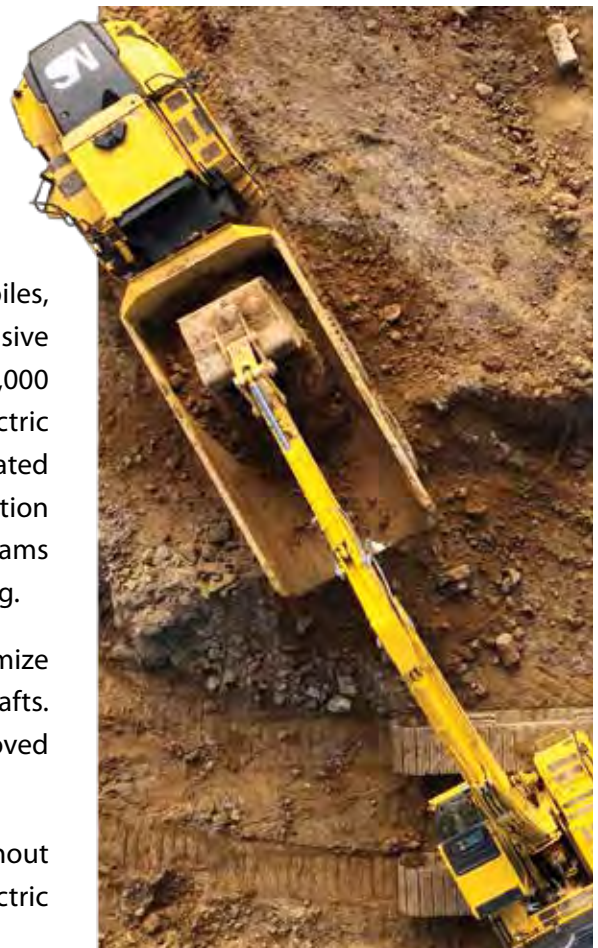
PROJECT:
FORD MANUFACTURING FACILITY
Stanton, Tennessee

DEEP FOUNDATION for FORD ELECTRIC VEHICLE PLANT

Deep foundation contractor Morris-Shea installed DeWaal piles, rigid inclusions and shoring at Ford Motor Company's expansive new production facility near Stanton, Tennessee. Nearly 10,000 DeWaal piles were drilled in sites throughout Ford's electric vehicle manufacturing complex. Three major pits were excavated and the bases fitted with mud slabs followed with the installation of concrete slabs. Two of the pits began as sheet pile cofferdams and the third utilized wood lagging as earth retention shoring.

Morris-Shea collaborated with the owner's engineers to optimize an alternate design to the original specification for drilled shafts. DeWaal piles provided a value engineered solution that improved production performance while maintaining load capacity.

The Morris-Shea team installs deep foundations throughout North America at critical job sites such as Ford's massive electric vehicle manufacturing plant near Memphis.



COFFERDAM STRUCTURES

Morris-Shea installs cofferdams, such as it has at the Ford Memphis job site, as temporary watertight enclosures used in the construction of bridge piers and permanent pits. These structures can be internally braced and/or horizontally anchored, depending on the project application. Temporary pipe piles, sheet piles, bracing and other structural support systems are removed upon a project's completion. A cofferdam is typically installed under challenging conditions requiring the use of substantial heavy equipment and often floating barges.

BEAM AND LAGGING WALLS

Morris-Shea designs and installs beam and lagging walls as temporary or permanent earth retention systems for both shallow and deep excavations. These economical systems efficiently manage critical load requirements in difficult excavation applications. The Ford stamping pit utilized wood lagging walls with vertically driven H-pile soldier beams. The stamping pit shoring was designed to cantilever, avoiding the need for horizontal anchoring. Wood panels were inserted between the spaced steel flanged beams for use as horizontal lagging.



STAMPING PIT FOUNDATION

The Ford Memphis Project stamping pit floor became the below grade surface for the installation of a concrete slab, deep foundation DeWaal piles, and rigid inclusions. Boom pumps delivered concrete to the base of the pit where team members finished the concrete over a prepared mud slab. Rigid inclusions were constructed in the stamping area to provide support for the concrete slab. DeWaal Pile System drilled, full displacement, cast-in-place concrete piles were also installed at this job site.

TRYOUT / SWITCH HOUSE COFFERDAMS

Morris-Shea constructed two additional excavated pits with steel sheet piles at the switch house and tryout locations on the Ford Memphis job site. Interlocking driven sheet pile formed the shoring perimeter of the cofferdams. A single heavy waler was positioned 10 feet below ground surface to brace the walls of the Tryout pit until a concrete base was poured.



DEEP FOUNDATION INSTALLATION

DeWaal pile was ideal for installation in soil profiles found at the Ford electric vehicle facility job site. The DeWaal Pile System is a drilled, full displacement, cast-in-place concrete pile. It is installed by powerful, fixed mast drill rigs capable of applying high rotational torque and crowd forces to the unique DeWaal tool.

Installation was performed in a single pass process that densified the soil, improved shaft friction and increased overall pile capacity. DeWaal pile eliminated the expense associated with waste removal

in conventional drilled shaft applications and met or exceeded specified load strength requirements.

Morris-Shea installed nearly 10,000 DeWaal piles and more than 600 rigid inclusions at the Stanton, Tennessee job site with purpose-built equipment and exacting methods.

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DEWAAL PILE SYSTEM: VALUE ENGINEERED ALTERNATE

Conventional drilled shafts were initially specified as deep foundation at the Ford electric vehicle facility. The Morris-Shea team worked with the owner's engineers to optimize DeWaal pile as a Value Engineered Alternate to drilled shafts. The DeWaal Pile System provided the necessary load strength and minimized the contamination and disposal concerns of spoils brought to the surface by drilled shaft installation.

The DeWaal Pile System was successful in expediting project scheduling with production rates of 20 to 25 piles each day. This field-proven deep foundation was an excellent alternative to drilled shafts.





MORRIS-SHEA INSTALLS DEEP FOUNDATION SYSTEMS THROUGHOUT NORTH AMERICA

Since 1992, Morris-Shea has installed hundreds of thousands of DeWaal piles throughout the United States, the Caribbean and South America. Today, the DeWaal Pile System is providing foundation support for all types of structures including highrise buildings, hospitals, water treatment, manufacturing, industrial and petrochemical facilities. Many of these projects were initially designed with other types of deep foundation before it was determined that DeWaal piles were a more effective solution.

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