

**EXECUTIVE DEPARTMENT
OFFICE OF GENERAL SERVICES
DESIGN AND CONSTRUCTION GROUP - DIVISION OF DESIGN**

PROFESSIONAL CONSULTATION REPORT

Professional Consultation S8324

December 21, 2004

Structural Survey, Foundation Cottage "A"
Hudson Correctional Facility
East Court Street
Hudson, NY 12534

FIELD SURVEY

This is a continued investigation for the foundation of the referenced building. Several site visits was made during last few years.

On July 17, 2001 Mike Ernst and Mark Dore of OGS D&C made an initial inspection of the building to observe movement in both the building's foundation and superstructure. Jim Conlon of the OGS District Office accompanied the design staff.

A soil boring was progressed on July 20, 2001 through a term contract with C.T. Male at which time Mark Dore and Mike Mitchell of CT Male were present. On July 27, 2001 Mike Mitchell returned to the building to take soil samples inside the crawl space of the Cottage. Four crack monitoring gauges were set on the inside foundation walls on the north end of the building by Mark Dore on July 23 2001.

On October 13, 2004, Ruijia Mu of OGS Design and Construction made a follow-up inspection on the cracked foundation wall. Mr. Robert Barbini, Plan Superintendent of the Facility was present during this inspection.

FINDINGS

2001 Inspections

Two longitudinal cracks can be observed along the north exterior wall of the building. The cracks vary in width from hairline to ½ inch. The widest separation occurs on the north wall. There is also a horizontal movement between the wall above and below the crack with the bottom of the wall being out to the north between ¼ and 3/8 inch. The cracks translate around to the east and west exterior walls. Magnitude of the crack widths vary here from ¼ to ½ inch and run horizontally for a distance of 5 to 6 feet and then run vertically below the dirt floor. Here on both walls there is no horizontal movement above or below the crack. The shape and magnitude of the cracks is almost symmetrical from both the northeast and northwest corners of the building.

Investigations by CT male

Tests and analysis of the soil found it should have adequate capacity for the structure. The majority of the settlement likely occurred during or soon after the building was constructed. The settlement may have been the result of improper preparation of the foundation bearing grades. When the area along north wall was excavated for the new steam lines, site personnel indicated that the cracks appear to have become larger and more extensive. Investigations by CT male conclude that underpinning of these foundations was not required at the time. They recommend the gauges be routinely monitored and elevation surveys of the building conducted as the excavation remains open and work proceeds on the installation of the steam lines. Following the installation of these steam lines, the excavations are to be backfilled and compacted with Select Structural Fill.

2004 Follow-up Inspections

In this inspection, no new movement of the wall was observed. Cracks remain stable. Excavations along the north wall of the building have been backfilled. An 8'x3' concrete block with exposed 2' above ground was built to encase the steam line intake.

RECOMMENDATIONS

Based on our investigations, we believe that the cracks were likely occurred due to the initial settlement of the building. The excavation in 2001 for the new steam lines may have some adverse affect on the existing condition. Recent revisit of the building found no new crack movement, and the excavation has been backfilled. Foundation appears stable at this time. However, to protect structural integrity and prevent any future deterioration, we recommend remove some outside bricks near corner, pressure grout cracked foundation walls from both inside and outside, and repoint outside veneer walls.

The total length of the cracks needs to be pressure grouted is about 50 feet long, average width of cracks is $\frac{1}{4}$ inch. The concrete foundation wall is about 12 inch wide. The area of brick veneer need to be repointed is at the two north wall corners. Total area is about 10 square feet.

ESTIMATE AND FEES

The attached Project Estimate dated December 21, 2004, indicates an estimated bid amount of \$8,000 and field order allowances of \$600 for the recommended works.