IN REHAB: REBUILDING UNIVERSITY OF FLORIDA’S UNDERGROUND INFRASTRUCTURE

PRESENTED BY

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The state's oldest university, traces its beginnings to 1853. Today, the university has more than 55,000 students and 16 colleges. UF has a 2,000-acre campus and more than 1,000 buildings on the main campus.
### MECHANICAL MANHOLE: MH-3D3-9

**SYSTEM CONDITION**

- **Date of Entry:** 7/7/2017
- **Job Team:** JML, ALS, VGS, JF
- **Access Cover Condition:** Good
- **Access Cover Urgency:** N/A
- **Manhole Condition:** Cracks: ✔, Spalling: ✔, Exposed Rebar: □
- **Neck Condition:** Good
- **Ladder Condition:** Good
- **Excessive Surface Temperature?** Yes: ✔, No: □
- **Notes:** C=1.6 deg F
- **Water Present?** Yes: □, No: ✔
- **Piping Leaks?** Yes: □, No: ✔
- **Debris?** Yes: ✔, No: □
  - **Debris Notes:** Broken insulation, dirt, and sand
- **Pipe Hangers Cond.:** Good
- **Pipe Hangers Urgency:** N/A
- **Pipe Anchors Condition:** Poor
- **Pipe Anchors Urgency:** Immediate

### CONDITION PHOTOS

- **Rusted and Broken Anchor Plate on 8" 70S**
- **Looking South**
- **Looking North**

### Pipe Table

<table>
<thead>
<tr>
<th>Service</th>
<th>Pipe Size (IPS)</th>
<th>Pipe Type</th>
<th>Cond. Urg.</th>
<th>Type</th>
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<th>Cond. Urg.</th>
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<td>AL</td>
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<td>Poor</td>
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<td>AL</td>
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<td>SJ</td>
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<td>Poor</td>
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<td>Poor</td>
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### NOTES / COMMENTS / CONCERNS

**General:**
This manhole serves as a branch isolation point with normal service from MH-3D3-12 to the south with branches east to MH-3D3-13 and north to MH-3D3-9. This manhole also serves as a low point for traps and accommodates thermal expansion from the north in the sewer and condenser systems. This is the westarm portion of a manhole with MH-3D3-13. This manhole is very hot. There are no base anchors on any of the expansion joints and the 8" 70S anchor has failed.

**Piping:**
6" 70S XJ is leaking in its north side.

**Exp. Joint:**
There are three packed, slip joints with no base anchors. The 8" 70S XJ is leaking no north side. Anchor plate on 6" 70S XJ has heaved off concrete base. JX is very compressed with not much room for expansion. Anchor failure in adjacent manhole.
THERMAL IMAGE MAPPING PROCESS
THERMAL HOT SPOT MAPPING

Images added at each hot spot for clarity
UNIVERSITY OF FLORIDA “TEAR OFF” PROJECTS

SCAPE OF WORK
- Provide insulation blankets on all major isolation valves.
- Provide drain and warm-up at the 4" 705 valve.
- Replace all pressure gauges.
- Seal pipe penetrations that are leaking ground water into manhole.
- Insulate 705 and Steam trap piping that are currently un-insulated.
- Vent the manhole.
- Install steam driven sump pump and drainage.
- Provide a rubber gasket for the manways to make them watertight.
- Provide a ladder extension for safe access into manhole.
- Replace rusted trap station and other affected piping after resolving.
TYPICAL MANHOLE RECONSTRUCTION

MH-3D4-3 - ISOMETRIC VIEW - DEMOLITION
MH-3D4-3 - ISOMETRIC VIEW - NEW WORK
MH-3D4-5 - DIMETRIC VIEW - DEMOLITION
MH-3D4-5 - DIMETRIC VIEW - NEW WORK
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QUESTIONS?