

REPORT OF ADJUSTABLE MANHOLE RING – FREEZE TEST

PROJECT:
HDPE ADJUSTABLE MANHOLE RINGS
AET LABORATORY

REPORTED TO:
LADTECH, INC.
6704 MEADOWLARK COURT
LINO LAKES, MN 55038

ATTN: MARTY PITZEN

AET PROJECT NO: 05-06572

DATE: NOVEMBER 20, 2015

INTRODUCTION

American Engineering Testing (AET) has completed the freeze testing on the adjustable manhole rings. Ladtech requested this additional testing on October 27, 2015 to document that the cavities within the manhole rings would remain intact if they were filled with water and allowed to freeze.

TEST PROCEDURES

Two adjustable manhole rings were used for testing. The bottom ring was placed right side up on the floor and the cavities were filled with water. Butyl adhesive was applied to the interior lip of the top ring before being placed on top of the bottom ring. The cavities in the top ring were also filled with water. Concrete blocks were placed on top of the rings to simulate the weight of a frame and cover. The manhole rings were placed in a walk in freezer at a temperature of 0°F and were left in place for 24 hours. After about 24 hours, the adjustable rings were removed for observations.

RESULTS

We set up the test specimen on November 11, 2015 around 10 am and removed it from the freezer on November 12, 2015 around 10 am. The adjustable manhole rings showed no signs of distress as a result of the water freezing inside the cavities.

LIMITATIONS

Our authorized work scope was limited to our observations in the requested areas only. As such, our conclusions and recommendations pertain only to those areas observed. Should conditions differing from those documented by AET at the time our work be found in the future, AET reserves the right to review our conclusions and recommendations and modify them accordingly.

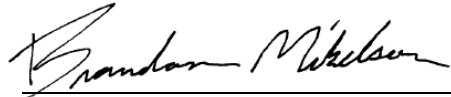
STANDARD OF CARE

The work performed by American Engineering Testing, Inc., has been conducted in a manner consistent with that level of skill and care ordinarily exercised by other members of the profession currently practicing in this area.

REMARKS

It has been a pleasure to have been of service to you on this project. Should you have any questions or concerns regarding this report, please do not hesitate to contact us.

Report Prepared By:
American Engineering Testing, Inc.



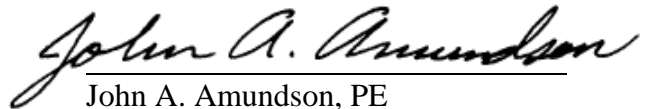
Brandon J. Mikelson, EIT

Staff Engineer

Phone: 651-659-1331

bmikelson@amengtest.com

Report Reviewed By:
American Engineering Testing, Inc.



John A. Amundson, PE

Principal Engineer

MN Lic. No. 20838

Phone: 651-659-1361

jamundson@amengtest.com