APPENDIX 4

Chapter 4 Appendices:

- Gyrodyne Borings Report

SUBSOIL
INVESTIGATIONS

SOIL MECHANICS DRILLING CORP.
3770 MERRICK ROAD • SEAFORD, L. I., NEW YORK 11783
(516) 221-2333 • FAX (516) 221-0254

July 28, 2016

Gyrodyne Company of America, Inc.
One Flowerfield, Suite 24
St. James, NY 11780
Att: Peter Pitsiokis

Re: Cortlandt Medical Center
1980 Crompond Road
Cortlandt, NY
Our Job #16-423

Gentlemen:

Forwarded herewith are the results of the borings drilled at the above referenced site.

A copy of the boring logs and report is being e-mailed to Michael De Giglio of Cameron Engineer & Associates.

The purpose of the subsurface investigation was to determine the nature and extent of the underlying soil deposits and determine the structural engineering characteristics of the soil at the site. Three (3) test borings were drilled using truck mounted drilling equipment at the above referenced site at the locations shown on our Boring Location Plan. Soil samples were obtained using a CME automatic trip hammer and advanced using hollow stem auger casing. Sample recovery was obtained using a 2" diameter, 2'0" long split spoon sampler was advanced into the subsurface by the use of an automatic 140 lb. hammer with a 30" drop. From the drops of the hammer, blow counts required to advance the split spoon sampler over each 6" intervals were recorded and is shown on the boring logs. Continuous split spoon samples were taken for the top 12 feet then every 5 feet to the final depth of the borings. A written description of the recovered soil samples per our geologist's visual identification of same is also presented on the logs.

The CME automatic hammer operates with an efficiency of approximately 90%. The original conventional use of rope, cathead and drop weight, on the other hand, operates with an efficiency of approximately 60%. As a consequence, the standard penetration test results obtained using the CME auto-hammer are on the order of two-thirds the value that would have been obtained had the original rope and cathead method been used. This is significant if you are using design charts for soil strength parameters based on historical data associated with the rope and cathead method. If so, you should adjust our data accordingly.

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Our investigation revealed that the areas drilled are blanketed by from 8 to 18 feet of generally loose soil fill extending to loose coarse to fine sand with traces of silt extending to the bottom of boring B-1. At boring B-2 the fill was underlain by a moderately dense to very dense silty sand with traces of silt and gravel extending to decomposed rock at 47 feet. At B-3 the fill was underlain by a dense silty sand with traces of gravel and cobble extending to refusal.

Ground water was encountered within the boreholes at depths ranging from13'8" to 20'6" at the time the work was done. Perched water was encountered in boring B-3 at a depth of 4'1".

The natural sand below the fill is capable of supporting foundation loads varying from generally 1 ton to 4 tons per square foot, depending on location and elevation.

Liquefaction is not a design consideration.

For seismic purposes the site is classified as Site Class "D" per the New York State Building Code. Site coefficient is F_a as a function of site class and mapped spectral response acceleration at short periods $(SS)^a$ is 1.51. Site Coefficient F_v as a function of site class and mapped spectral response acceleration at 1-second period $(S_1)^a$ is 2.4.

We have not been apprised of the proposed construction. The fill cannot be used as a bearing stratum and must be replaced with a controlled fill or installation of piles.

Soil samples recovered during drilling operations will be stored in our lab for a period of 30 days after which they will be destroyed. During this period we will deliver these samples to any prescribed location upon request.

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If after you examine the enclosed you have any further questions, please feel free to call and discuss them with us.

Billing is enclosed.

Very truly yours,

SOIL MECHANICS DRILLING CORP.

Carl Vernick, P.E.
President

CV:mlf
Encls.

Cc: Cameron Engineering
Att: Michael De Giglio
E-Mail: mdegiglio@cameronengineering.com

SUBSOIL
INVESTIGATIONS

SOIL MECHANICS DRILLING CORP.
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April 17, 2017

Gyrodyne Company of America, Inc.
One Flowerfield, Suite 24
St. James, NY 11780
Att: Peter Pitsiokis

Re: Cortlandt Medical Center
1980 Crompond Road
Cortlandt, NY
Our Job #16-423A

Gentlemen:

Forwarded herewith are the results of the three (3) additional borings drilled and seven (7) additional infiltration tests performed at the above referenced site.

A copy of the boring logs and report is being e-mailed to Michael De Giglio of Cameron Engineer & Associates.

The three (3) additional borings revealed similar profiles of the initial three (3) borings drilled although the top of the boring elevations has a 21 foot grade differential.

Our investigation at the three (3) additional test borings revealed 1 to 10 feet of loam, asphalt and loose to moderately dense soil, rock fragments and fill, underlain, generally, by a loose to dense sand formation with varying percentages of silt extending to decomposed rock which was encountered between 15 to 20 feet.

Natural ground water was encountered at depths ranging from 7'6" to 11'6" below existing grade at the time the borings were taken and is not considered reliable probably due to being perched or trapped on top of the rock that was encountered.

The angle of internal friction varies between 25° and 34°, depending on the percentages of silt in the formation.

The allowable bearing pressure of the loose sand below the loam and fill varies from 1-1/2 to 4 tons depending on elevation and location. The loose to moderately dense sand varies from 1-1/2 to 2 tons.

The dense sand can support 4 tons per square foot.

The coefficient of friction for sliding is .35.

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The infiltration test results at various locations are as shown on the drawing.

Soil samples recovered during drilling operations will be stored in our lab for a period of 30 days after which they will be destroyed. During this period we will deliver these samples to any prescribed location upon request.

If after you examine the enclosed you have any further questions, please feel free to call and discuss them with us.

Billing is enclosed.

Very truly yours,

SOIL MECHANICS DRILLING CORP.

Carl Vernick, P.E.
President

CV:mlf
Encls.

Cc: Cameron Engineering
Att: Michael De Giglio
E-Mail: mdegiglio@cameronengineering.com