



CARLIN • SIMPSON & ASSOCIATES

Consulting Geotechnical and Environmental Engineers

61 Main Street, Sayreville, New Jersey 08872
Tel. (732) 432-5757
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Principal:
Robert B. Simpson, P.E.

Associates:
Meredith R. Anke, P.E.
Stephen Rossi, E.I.T.
Kurt W. Anke
Eric J. Shaw

27 July 2016

City Planner
1st Floor City Hall
1051 Boston Post Road
Rye, NY 10580

Attn: Mr. Christian K. Miller

Re: Report on Preliminary Geotechnical Evaluation for
Existing Retaining Wall #1
Scott & Elizabeth Pierpoint
2 Thistle Lane
Rye, NY (CSA Job #14-179)

Dear Mr. Miller:

In accordance with your request, we have completed a preliminary evaluation of the existing retaining wall at the referenced site.

The purpose of this study was to conduct a site visit to inspect the existing retaining wall at the referenced site and to perform a preliminary evaluation with respect to the stability of the retaining wall. On 3 June 2016, we conducted our site inspection and the inspection was limited to performing our inspection on city property.

The referenced section is shown on the attached drawing and begins near Thistle Lane and goes west by approximately 193 feet.

During our site inspection we observed the following:

- On this property there are 3 walls. The wall at the base of the slope consists of a rock wall resting on an undulating bedrock surface. The wall height ranges from 3 to 5 feet in height.
- Above the stone wall are 2 cinder block walls approximately 4 to 6 feet in height. Refer to the attached drawing.
- Upper cinder block wall #1 is approximately 34 feet in length and shows visible signs of distress. (i.e. joints have opened up and the wall appears to be leaning).
- Cinder block wall #2 is approximately 75 feet in length and also shows signs of distress.
- The lower rock wall is approximately 193 feet in length. The first 23 feet of wall starting at the western property line is in distress. Portions of the rock wall are leaning and a section of the rock wall has failed by toppling over.
- Several large trees exist in close proximity of the rock wall.
- The eastern 100 feet of wall appears to be in fair to good condition with no visible signs of distress.

Evaluation and Recommendations

When evaluating retaining wall stability, a factor of safety (FS) value is used. The factor of safety is defined as the ratio of the resisting forces of the wall (i.e. weight of the wall and frictional resistance) to the driving forces (i.e. weight of the soil behind the wall and surcharge loads). A factor of safety of less than 1.0 is an indication that a wall is unstable and failure is imminent. Retaining walls must provide adequate factors of safety with respect to sliding, which is the ability of the wall structure to overcome the horizontal force applied to the wall, and to overturning, which is the ability of the wall structure to overcome the overturning moment that is created by the rotational forces applied to the wall. Generally accepted factors of safety for sliding and overturning are 1.5 and 2.0, respectively.

Cinder Block Wall #1 & #2

The exact geometry of the existing walls are not known, however based on an estimated height of 4 to 6 feet and a width of 1.5 to 2 feet the factors of safety for sliding and overturning are 1.05 and 1.15 respectively.

These factors of safety are low and consistent with the poor condition of the wall. In our opinion, the possibility of a wall failure is high. A failure will likely consist of blocks falling from the wall and a possible toppling of the wall.

In our professional opinion, these 2 walls will likely fail and need to be either replaced or repaired.

Rock Wall

The exact geometry of the existing wall is not known, however based on an estimated height of 3 to 5 feet and a width of 2 to 3 feet the factors of safety for sliding and overturning are 1.20 and 1.45 respectively.

These factors of safety are low and consistent with the poor condition of the wall. In our opinion, the possibility of a wall failure is moderate to high. A failure will likely consist of blocks falling from the wall and a possible toppling of the wall.

The western portion of this wall is failing and will need to be replaced. We recommend that an Engineer registered in the state of New York be retained to evaluate the 3 walls and to prepare a design for 3 new walls or a design to repair the 3 walls.

The large trees in close proximity of the wall can degrade the wall's ability to retain the soil over time. The roots can penetrate the back of the wall and weaken the wall. In addition, the trees could topple over the wall in a large wind storm. The property owner should be made aware of this condition.

Thank you for letting us assist you on this project.

Very truly yours,

CARLIN-SIMPSON & ASSOCIATES

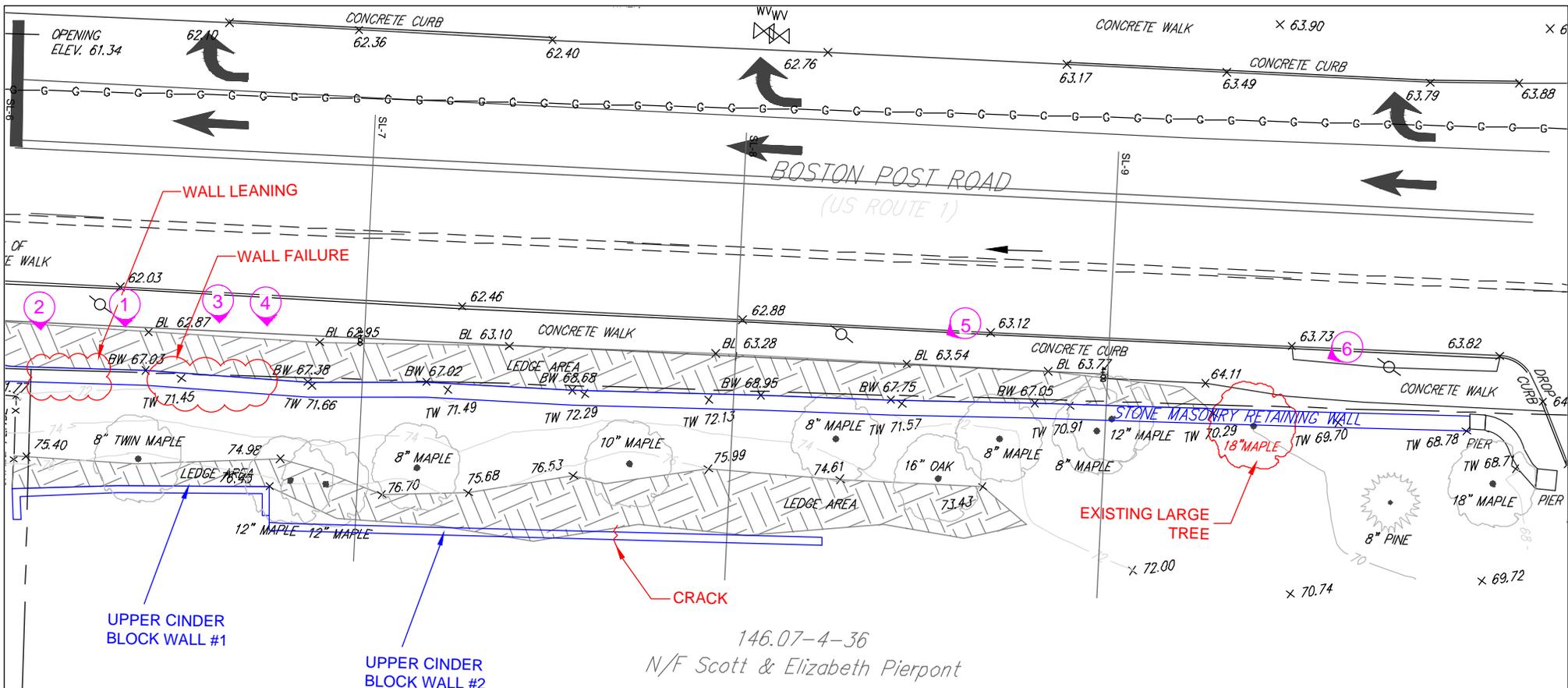
Robert Simpson

ROBERT B. SIMPSON, P.E.

Approved By _____ Date _____

File No. 14-179

/X/ Email: cmiller@ryeny.gov, mserrano@ryeny.gov



146.07-4-36
N/F Scott & Elizabeth Pierpont

GENERAL NOTES:

- GENERAL LAYOUT WAS FROM AN UNDATED DRAWING PROVIDED BY JMC ENTITLED "SITE EXISTING CONDITIONS PLAN"
- LOCATIONS ARE APPROXIMATE.

LEGEND:

① - PHOTOGRAPH LOCATION

ROBERT B. SIMPSON, P.E.
PROFESSIONAL ENGINEER

LICENSE NO. _____ SIGNATURE _____ DATE _____

EXISTING RETAINING WALL LAYOUT

EXISTING RETAINING WALL EVALUATION
PROPERTY # 1
2 THISTLE LANE
RYE, NEW YORK

DRAWN	SCALE
SR	1" = 20'
CHECKED	DATE
RBS	27-JUL-16
PROJECT NO.	DWG NO.
14-179	FIG - 1
APPROVED	

CARLIN-SIMPSON AND ASSOCIATES
61 Main Street
Sayreville, NJ 08872

Consulting Geotechnical and Environmental Engineers





Photo No. 1



Photo No. 2



Photo No. 3



Photo No. 4



Photo No. 5



Photo No. 6



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Eric J. Shaw

27 July 2016

City Planner
1st Floor City Hall
1051 Boston Post Road
Rye, NY 10580

Attn: Mr. Christian K. Miller

Re: Report on Preliminary Geotechnical Evaluation for
Existing Retaining Wall #2
Noreen & Christopher Childs
4 Barberry Lane
Rye, NY (CSA Job #14-179)

Dear Mr. Miller:

In accordance with your request, we have completed a preliminary evaluation of the existing retaining wall at the referenced site.

The purpose of this study was to conduct a site visit to inspect the existing retaining wall at the referenced site and to perform a preliminary evaluation with respect to the stability of the retaining wall. On 3 June 2016, we conducted our site inspection and the inspection was limited to performing our inspection on city property.

The referenced section is shown on the attached drawing and begins at the western property line with Ronald Goldstein & Joan Bobchak and goes east by approximately 109 feet.

During our site inspection we noted the following:

- The wall ranges in height from 3 to 4.5 feet and rests on top of an undulating bedrock surface.
The combined height of the bedrock slope and rock wall is approximately 5 to 6 feet.
- The rock wall consists of large and small rock blocks predominantly dry laid (i.e. no mortar in the joints).
- Sections of the wall are in distress and are leaning outward.
- A section of the wall has failed by toppling over refer to photos #4 & 5.
- 5 large trees are in close proximity to the top of the wall.
- In general, the wall is in poor to very poor condition. Additional sections will likely fail in the near future resulting in rock blocks rolling down the base of the rock wall and exposed bedrock.

Evaluation and Recommendations

When evaluating retaining wall stability, a factor of safety (FS) value is used. The factor of safety is defined as the ratio of the resisting forces of the wall (i.e. weight of the wall and frictional resistance) to the driving forces (i.e. weight of the soil behind the wall and surcharge loads). A factor of safety of less than 1.0 is an indication that a wall is unstable and failure is imminent. Retaining walls must provide adequate factors of safety with respect to sliding, which is the ability of the wall structure to overcome the horizontal force applied to the wall, and to overturning, which is the ability of the wall structure to overcome the overturning moment that is created by the rotational forces applied to the wall. Generally accepted factors of safety for sliding and overturning are 1.5 and 2.0, respectively.

The exact geometry of the existing wall is not known, however based on an estimated height of 3 to 4.5 feet and a width of 2 feet the factors of safety for sliding and overturning are 1.15 and 1.50 respectively.

These factors of safety are low and consistent with the poor condition of the wall. In our opinion, the possibility of a wall failure is moderate to high. A failure will likely consist of blocks falling from the wall and a possible toppling of the wall.

In our professional opinion, this wall is failing and will need to be replaced or repaired.

The large trees in close proximity of the wall can degrade the wall's ability to retain the soil over time. The roots can penetrate the back of the wall and weaken the wall. In addition, the trees could topple over the wall in a large wind storm. The property owner should be made aware of this condition.

We recommend that an Engineer registered in the state of New York be retained to evaluate this wall and to prepare a design for a new wall or a design to repair the existing wall.

Thank you for letting us assist you on this project.

Very truly yours,

CARLIN-SIMPSON & ASSOCIATES

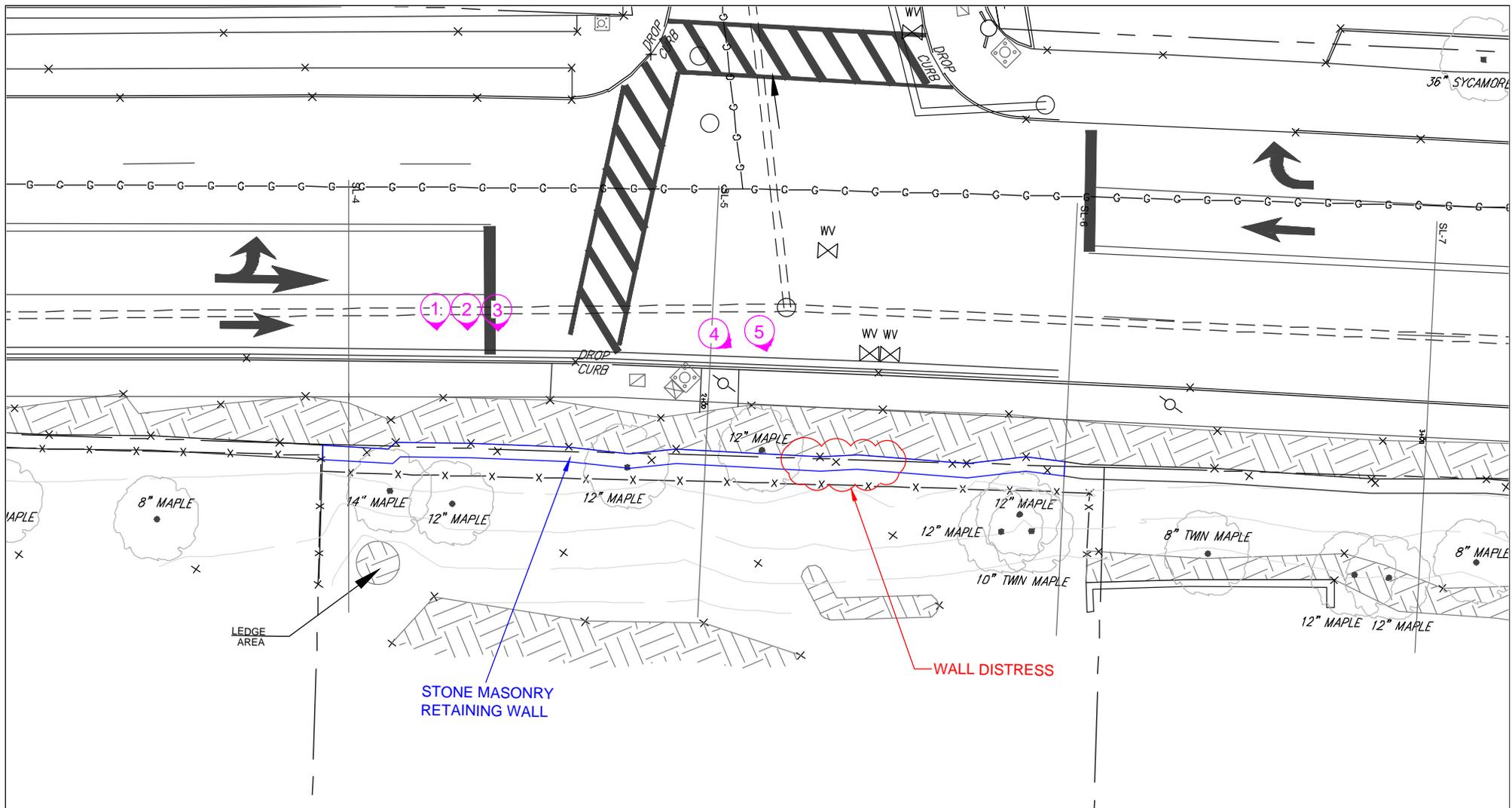
Robert Simpson

ROBERT B. SIMPSON, P.E.

Approved By _____ Date _____

File No. 14-179

/X/ Email: cmiller@ryeny.gov, mserrano@ryeny.gov



STONE MASONRY
RETAINING WALL

WALL DISTRESS

GENERAL NOTES:

1. GENERAL LAYOUT WAS FROM AN UNDATED DRAWING PROVIDED BY JMC ENTITLED "SITE EXISTING CONDITIONS PLAN"
2. LOCATIONS ARE APPROXIMATE.

LEGEND:

① - PHOTOGRAPH LOCATION

ROBERT B. SIMPSON, P.E.
PROFESSIONAL ENGINEER

LICENSE NO. _____ SIGNATURE _____ DATE _____

EXISTING RETAINING WALL LAYOUT

EXISTING RETAINING WALL EVALUATION
PROPERTY # 2
4 BARBERRY LANE
RYE, NEW YORK

DRAWN	SCALE
SR	1" = 20'
CHECKED	DATE
RBS	27-JUL-16
PROJECT NO.	DWG NO.
14-179	FIG - 1
APPROVED	

CARLIN-SIMPSON AND ASSOCIATES
61 Main Street
Sayreville, NJ 08872
Consulting Geotechnical and
Environmental Engineers





Photo No. 1



Photo No. 2



Photo No. 3



Photo No. 4



Photo No. 5



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Kurt W. Anke
Eric J. Shaw

27 July 2016

City Planner
1st Floor City Hall
1051 Boston Post Road
Rye, NY 10580

Attn: Mr. Christian K. Miller

Re: Report on Preliminary Geotechnical Evaluation for
Existing Retaining Wall #3
Ronald Goldstein & Joan Babchak
6 Barberry Lane
Rye, NY (CSA Job #14-179)

Dear Mr. Miller:

In accordance with your request, we have completed a preliminary evaluation of the existing retaining wall at the referenced site.

The purpose of this study was to conduct a site visit to inspect the existing retaining wall at the referenced site and to perform a preliminary evaluation with respect to the stability of the retaining wall. On 3 June 2016, we conducted our site inspection and the inspection was limited to performing our inspection on city property.

The referenced section is shown on the attached drawing and begins at the western property line with John Lee Robertson & Deborah Phillips and goes east by approximately 120 feet.

During our site inspection we observed the following:

- The wall ranges in height from 2 to 6 feet.
- The wall consists of large and small rock blocks with pieces of mortar the rock block joints.
- It appears that sections of this wall have been re-built and the top of the wall has been extended or re-built with dry laid flat cinder blocks. (See photos 2, 3 & 4).
- The integrity of the wall varies where some areas appear stable while other areas show spalling rock blocks.
- This entire section above the wall is heavily vegetated and the wall was placed on an undulating bedrock outcrop.
- The width of the wall is unknown, however we estimate the thickness to be 2 to 3 feet.
- In general, the wall appears to be in poor condition with visible signs of distress.

Evaluation and Recommendations

When evaluating retaining wall stability, a factor of safety (FS) value is used. The factor of safety is defined as the ratio of the resisting forces of the wall (i.e. weight of the wall and frictional resistance) to the driving forces (i.e. weight of the soil behind the wall and surcharge loads). A factor of safety of less than 1.0 is an indication that a wall is unstable and failure is imminent. Retaining walls must provide adequate factors of safety with respect to sliding, which is the ability of the wall structure to overcome the horizontal force applied to the wall, and to overturning, which is the ability of the wall structure to overcome the overturning moment that is created by the rotational forces applied to the wall. Generally accepted factors of safety for sliding and overturning are 1.5 and 2.0, respectively.

The exact geometry of the existing wall is not known, however based on an estimated height of 2 to 6 feet and a width of 2 to 3 feet the factors of safety for sliding and overturning range 1.53 and 2.05 to 1.25 and 1.75 respectively.

These factors of safety are low. In our opinion, the possibility of a wall failure is low to moderate. A failure will likely consist of blocks falling from the wall and a possible toppling of the wall.

In our professional opinion, portions of this wall are failing (specifically in the area of photos # 2 ,3 & 4) and the wall will need to be replaced or repaired.

We recommend that an Engineer registered in the state of New York be retained to retained to evaluate this wall and to prepare a design for a new wall or a design to repair the existing wall.

Thank you for letting us assist you on this project.

Very truly yours,

CARLIN-SIMPSON & ASSOCIATES

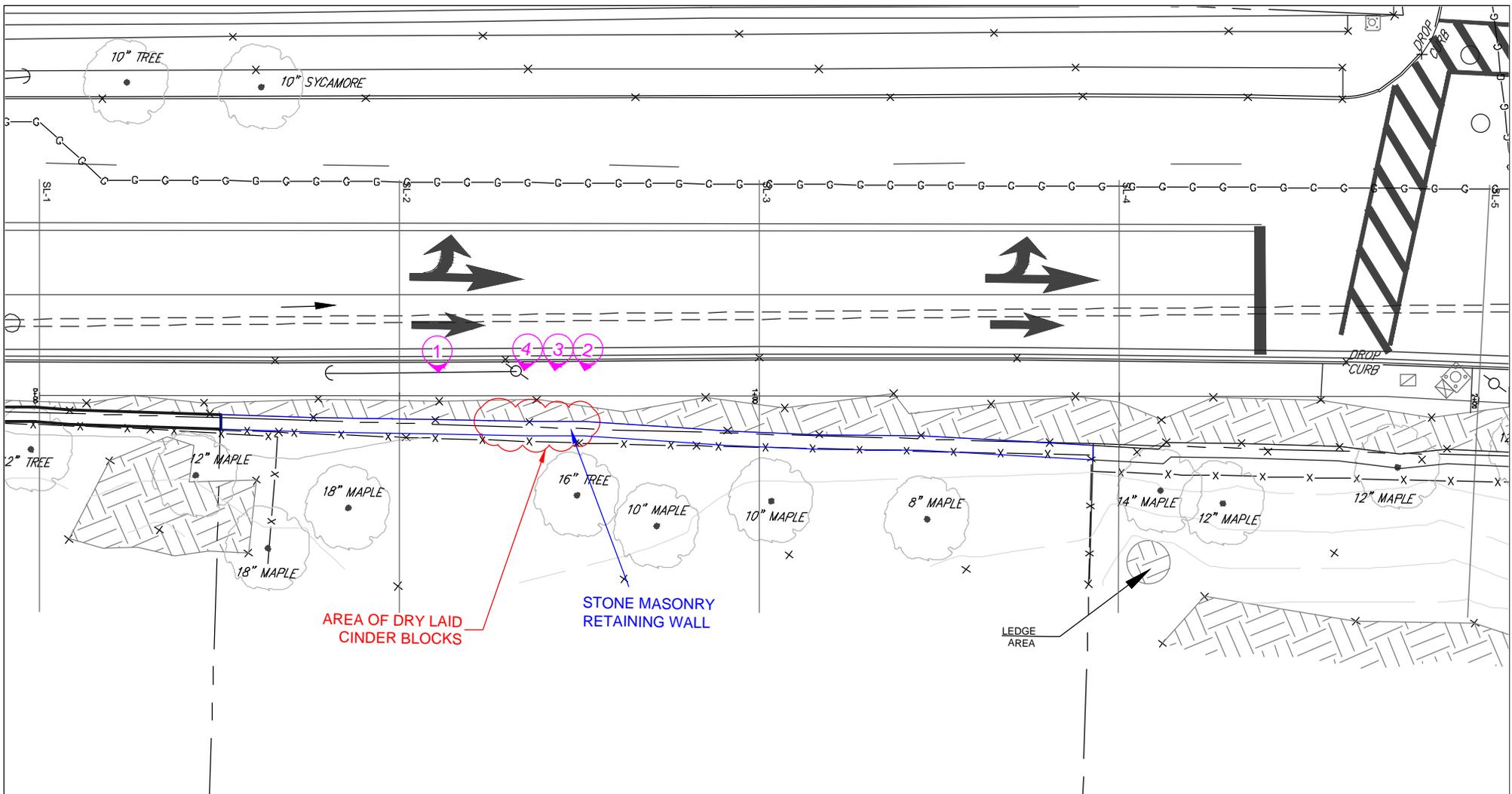
Robert Simpson

ROBERT B. SIMPSON, P.E.

Approved By _____ Date _____

File No. 14-179

/X/ Email: cmiller@ryeny.gov, mserrano@ryeny.gov



AREA OF DRY LAID CINDER BLOCKS

STONE MASONRY RETAINING WALL

LEDGE AREA

GENERAL NOTES:

1. GENERAL LAYOUT WAS FROM AN UNDATED DRAWING PROVIDED BY JMC ENTITLED "SITE EXISTING CONDITIONS PLAN"
2. LOCATIONS ARE APPROXIMATE.

LEGEND:

① - PHOTOGRAPH LOCATION

ROBERT B. SIMPSON, P.E.
PROFESSIONAL ENGINEER

LICENSE NO. _____ SIGNATURE _____ DATE _____

EXISTING RETAINING WALL LAYOUT

EXISTING RETAINING WALL EVALUATION
PROPERTY # 3
6 BARBERRY LANE
RYE, NEW YORK

DRAWN	SCALE
SR	1" = 10'
CHECKED	DATE
RBS	27-JUL-16
PROJECT NO.	DWG NO.
14-179	FIG - 1
APPROVED	

CARLIN-SIMPSON AND ASSOCIATES
61 Main Street
Sayreville, NJ 08872
Consulting Geotechnical and
Environmental Engineers





Photo No. 1



Photo No. 2



Photo No. 3



Photo No. 4



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Eric J. Shaw

27 July 2016

City Planner
1st Floor City Hall
1051 Boston Post Road
Rye, NY 10580

Attn: Mr. Christian K. Miller

Re: Report on Preliminary Geotechnical Evaluation for
Existing Retaining Wall #4
John Lee Robertson & Deborah Phillips
1 Holly Lane
Rye, NY (CSA Job #14-179)

Dear Mr. Miller:

In accordance with your request, we have completed a preliminary evaluation of the existing retaining wall at the referenced site.

The purpose of this study was to conduct a site visit to inspect the existing retaining wall at the referenced site and to perform a preliminary evaluation with respect to the stability of the retaining wall. On 3 June 2016, we conducted our site inspection and the inspection was limited to performing our inspection on city property.

The referenced wall section is shown on the attached drawing and begins at Holly Lane and goes east by approximately 95 feet.

During our site inspection we observed the following:

- The wall ranges in height from 4 to 6 feet.
- The wall consists of large and small pieces of rock with mortar in the joints.
- The top of the wall consists of flat capping stones.
- The estimated wall thickness is 2'6" to 3'6".
- In general, the wall appears to be in fair to good condition.
- We did not observe any areas of distress in the wall.
- A large tree is located near the top of the wall. (Location shown on the attached plan).

Evaluation and Recommendations

When evaluating retaining wall stability, a factor of safety (FS) value is used. The factor of safety is defined as the ratio of the resisting forces of the wall (i.e. weight of the wall and frictional resistance) to the driving forces (i.e. weight of the soil behind the wall and surcharge loads). A factor of safety of less than 1.0 is an indication that a wall is unstable and failure is imminent. Retaining walls must provide adequate factors of safety with respect to sliding, which is the ability of the wall structure to overcome the horizontal force applied to the wall, and to overturning, which is the ability of the wall structure to overcome the overturning moment that is created by the rotational forces applied to the wall. Generally accepted factors of safety for sliding and overturning are 1.5 and 2.0, respectively.

The exact geometry of the existing wall is not known, however based on an estimated height of 4 to 6 feet and a width of 2.5 to 3.5 feet the factors of safety for sliding and overturning are 1.56 and 2.10 respectively.

These factors of safety are above the accepted factors of safety and the condition of the wall is fairly good with no visible sign of distress.

In our opinion, the possibility of a wall failure in this area is low. We recommend that an Engineer registered in the state of New York be retained to verify the actual wall dimensions, retained soil parameters and the factors of safety for the existing wall.

A large tree in close proximity of the wall can degrade the wall's ability to retain the soil over time. The roots can penetrate the back of the wall and weaken the wall. In addition, the tree could topple over the wall in a large wind storm. The property owner should be made aware of this condition.

Thank you for letting us assist you on this project.

Very truly yours,

CARLIN-SIMPSON & ASSOCIATES

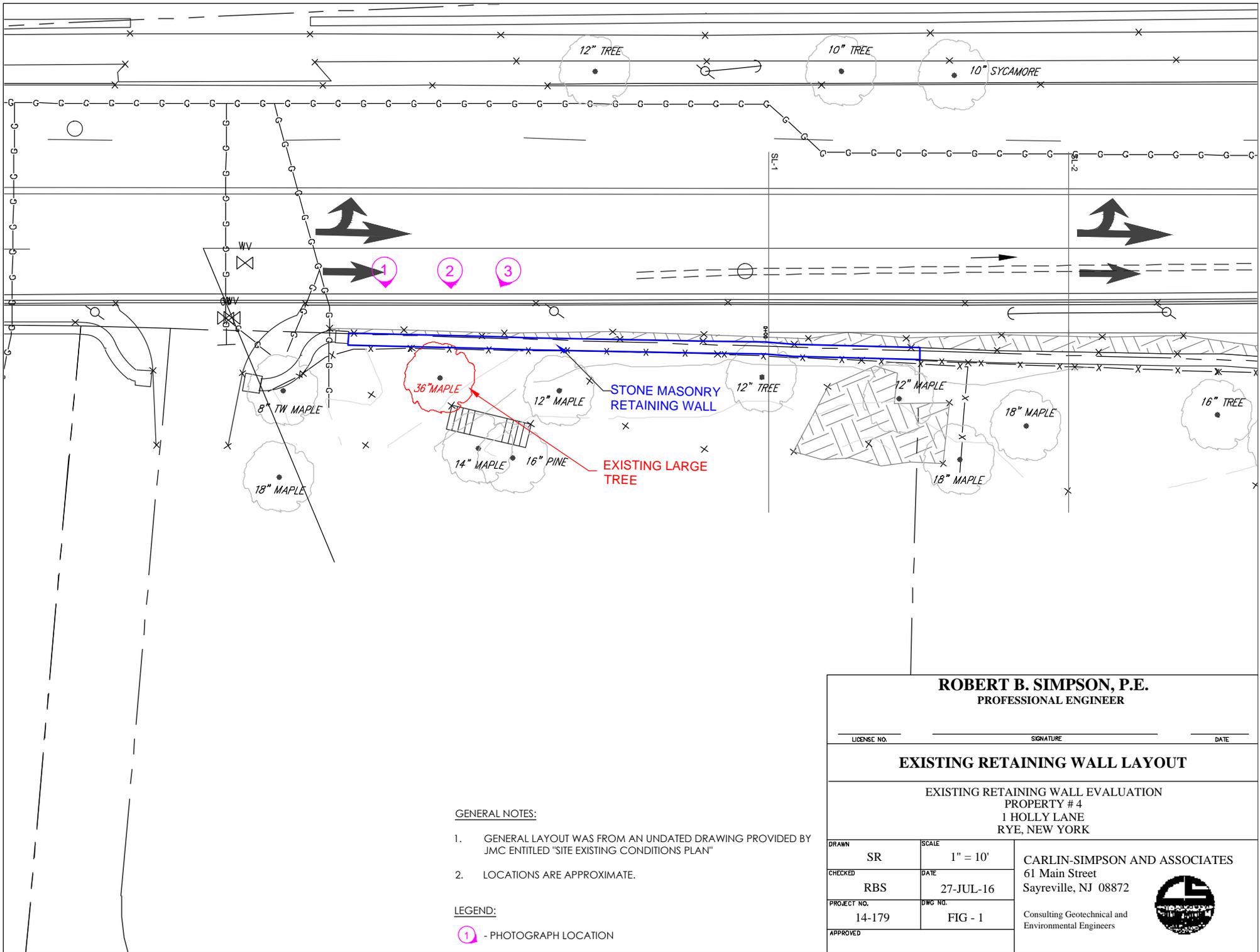
Robert Simpson

ROBERT B. SIMPSON, P.E.

Approved By _____ Date _____

File No. 14-179

/X/ Email: cmiller@ryeny.gov, mserrano@ryeny.gov



GENERAL NOTES:

1. GENERAL LAYOUT WAS FROM AN UNDATED DRAWING PROVIDED BY JMC ENTITLED "SITE EXISTING CONDITIONS PLAN"
2. LOCATIONS ARE APPROXIMATE.

LEGEND:

- ① - PHOTOGRAPH LOCATION

ROBERT B. SIMPSON, P.E.
PROFESSIONAL ENGINEER

LICENSE NO. _____ SIGNATURE _____ DATE _____

EXISTING RETAINING WALL LAYOUT

EXISTING RETAINING WALL EVALUATION
 PROPERTY # 4
 1 HOLLY LANE
 RYE, NEW YORK

DRAWN	SCALE
SR	1" = 10'
CHECKED	DATE
RBS	27-JUL-16
PROJECT NO.	DWG NO.
14-179	FIG - 1
APPROVED	

CARLIN-SIMPSON AND ASSOCIATES
 61 Main Street
 Sayreville, NJ 08872
 Consulting Geotechnical and
 Environmental Engineers





Photo No. 1



Photo No. 2



Photo No. 3