INVITATION TO BID DEMOLITION SERVICES FOR 63 W. WASHINGTON ST– ADDENDUM #2
April 3, 2019

1. IMPORTANT INSTRUCTIONS TO BIDDERS

   This addendum must be read, signed and dated by the bidder and included with the bid documents submitted by the bidder on or before the bid closing date and time. Failure to include this addendum with the bid documents may result in bid rejection.

   Bidder will carefully note the inclusion of this addendum on the bid form.

2. ATTACHMENTS TO THIS ADDENDUM:
   a. Exhibit A – Property Map
   b. Exhibit B – Soil Report
   c. Exhibit C – Bedrock Report

3. CHANGES:

4. ADDITIONS:

5. DELETIONS:
   a. Section E, bullet ii) Coordinate and bear all costs associated with the disconnection of all utilities. The Village has already contacted the utilities to have them removed and the Village will bear all costs associated.

6. SCHEDULE:
   a. Deadline concerns: The Village is in the process of contacting ComEd and Nicor to turn off and remove the utilities. This cost should not be included in your bid price.

7. CLARIFICATIONS:
   a. <u>Water & Sewer lines</u>: Disconnect all utilities beyond foundation. Does not need to be disconnected at the main connection.
   b. <u>Asphalt</u>: Asphalt does not need to be removed from the property.
   c. North Retaining Wall: Do not remove this. This is the boundary for the north-side of the property.
   d. <u>North Stairs/Sidewalk</u>: Do not remove these.
   e. <u>South Retaining Wall</u>: Can remove the railroad ties for easier access. Can slope from Alley to gain easier access to the property during demolition.
   f. <u>South Stairs</u>: Should be removed.
   g. <u>Alley Damage</u>: Contractor is required to access the property through the alley, therefore, damage to alley itself will need to be limited. It will be at the

discretion of the Village to determine if any repairs will need to be made after the project is completed.

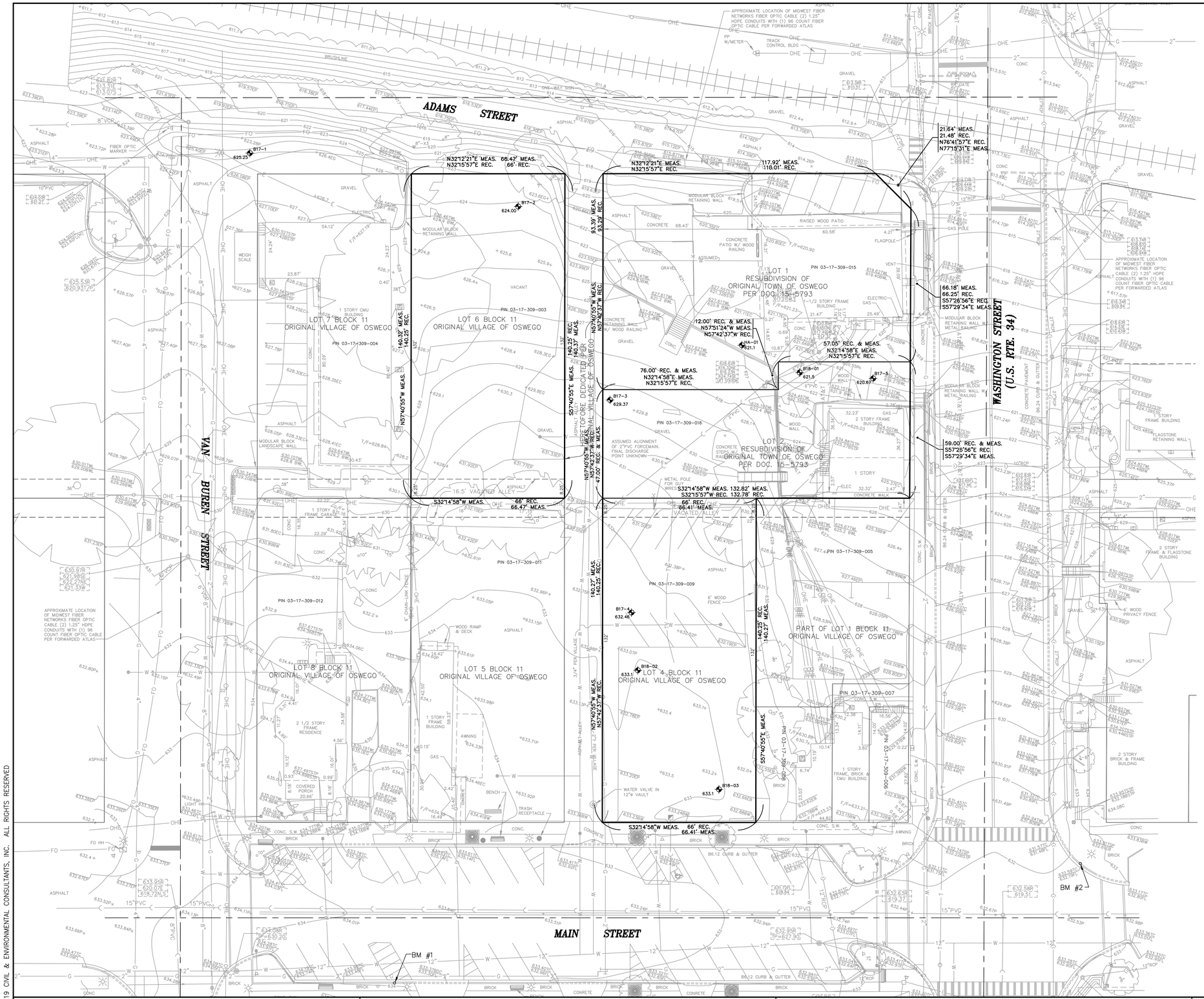
h. Silt Fence: Erosion control logs on the existing pavement can be used.

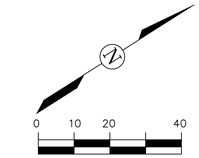
8. ACKNOWLEDGMENT

The Bidder acknowledges receipt of this Addendum and understands its content to the Bid Documents.

9. SIGNATURE AND DATE

Authorized Signature Date





2017 BORING LOG TABLE

BORING #	GROUND ELEVATION	GRAVEL/ SAND	WEATHERED LIMESTONE	AUGER REFUSAL
B17–1	625.25 (624)*		619.25	616.75
B17–2	624.00 (624)*	620.50	618.00	617.10
B17–3	629.37 (630)*	623.37	620.87	619.37
B17–4	632.46 (633)*	623.96	621.46	619.96
B17–5	620.67 (621)*	619.67	617.42	617.17

ELEVATIONS SHOWN ARE ELEVATIONS SURVEYED IN THE FIELD ON 10/20/2017 BY ROAKE AND ASSOCIATES, INC.

( )* INDICATES GROUND ELEVATION SHOWN IN APPENDIX K – BORING LOGS PREPARED BY RUBINO ENGINEERING INC. DATED 10/20/2017.

2018 BORING LOG TABLE

BORING #	GROUND ELEVATION	GRAVEL/ SAND	WEATHERED LIMESTONE	AUGER REFUSAL
HA–1	(621.1)**	620.9		617.6
B18–1	(621.5)**	621.2	618.0	615.0
B18–2	(633.1)**	625.6		622.4
B18–3	(633.1)**	627.1	622.1	621.9

( )** INDICATES GROUND ELEVATION INTERPOLATED FROM THE TOPOGRAPHIC SURVEY BY ROAKE AND ASSOCIATES, INC. THE 2018 BORINGS AND HAND AUGER LOCATIONS HAVE NOT BEEN SURVEYED IN THE FIELD BY ROAKE AND ASSOCIATES, INC.

NOTE:

THE CONTRACTOR SHALL NOTE THE LOCATION OF THE BORINGS AND THE INDICATED DEPTHS OF WEATHERED LIMESTONE/ AUGER REFUSAL RELATIVE TO THE PROPOSED INFRASTRUCTURE IMPROVEMENTS. ROCK EXCAVATION IS ANTICIPATED.

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ROAKE AND ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS • PLANNERS
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PREPARED FOR:
VILLAGE OF OSWEGO
100 PARKERS MILL
OSWEGO, ILLINOIS 60543
(630) 554-3618

REVISIONS

NO.	DATE	DESCRIPTION	NO.	DATE	DESCRIPTION

OLD VILLAGE HALL BLOCK REDEVELOPMENT

TOPOGRAPHIC EXHIBIT

DRN./CKD. BY: SRH/JGC	FILE: 8011E	FLD. BK./PG.: 139/19	SHEET NO.
SCALE: 1"=20'	DATE: 01/23/19	JOB NO.: 801.001/190-093	3 OF 21

REPORT TRANSMITTAL

July 18, 2018

To: Jennifer Hughes
Public Works Director/Village Engineer
Village of Oswego
Ph:630.551.2366

Re: **Geotechnical Engineering Services Report**
Property Development
113 Main St.
Oswego, Illinois

Rubino Report No. G18.089B

Via email: jhughes@oswegoil.com

Dear Ms. Hughes,

Rubino Engineering, Inc. (Rubino) is pleased to submit our Geotechnical Engineering Services Report for the proposed Property Development at 113 Main St. in Oswego, Illinois.

Report Description

Enclosed is the Geotechnical Services Report including results of field and laboratory testing, as well as recommendations for site development.

Authorization and Correspondence History

- Rubino Proposal No. Q18.310g dated June 25, 2018; Signed and authorized by Jennifer Hughes of the Village of Oswego on July 2nd, 2018.

Closing

Rubino appreciates the opportunity to provide geotechnical services for this project and we look forward to continued participation during the design and in future construction phases of this project.

If you have questions pertaining to this report, or if Rubino may be of further service, please contact our office at (847) 931-1555.

Respectfully submitted,
RUBINO ENGINEERING, INC.

Michelle A. Lipinski, PE
President

michelle.lipinski@rubinoeng.com

MAL/file/ Enclosures

Geotechnical Engineering Services Report

Drilling
Laboratory Testing
Geotechnical Analysis

PROPERTY DEVELOPMENT

113 MAIN ST.

OSWEGO, ILLINOIS

RUBINO PROJECT NO. G18.089B

PREPARED BY:

rubino ENGINEERING INC.

Michelle A. Lipinski, PE
President
IL No. 062-061241, Exp. 11/30/19

PREPARED FOR:

VILLAGE OF OSWEGO

100 PARKERS MILL

OSWEGO, ILLINOIS

JULY 18, 2018

TABLE OF CONTENTS

PROJECT INFORMATION ..... - 1 -

PURPOSE / SCOPE OF SERVICES ..... - 1 -
Table: Drilling Scope ..... - 1 -

DRILLING, FIELD, AND LABORATORY TEST PROCEDURES ..... - 2 -

EXECUTIVE SUMMARY OF GEOTECHNICAL CONSIDERATIONS ..... - 2 -

SITE AND SUBSURFACE CONDITIONS ..... - 3 -

SITE LOCATION AND DESCRIPTION ..... - 3 -
SUBSURFACE CONDITIONS ..... - 4 -
Table: Subsurface Conditions Summary ..... - 4 -
GROUNDWATER CONDITIONS ..... - 5 -

EVALUATION AND RECOMMENDATIONS ..... - 5 -

UNDOCUMENTED FILL DISCUSSION ..... - 5 -
TOPSOIL DISCUSSION ..... - 6 -
SITE PREPARATION & FILL RECOMMENDATIONS ..... - 6 -
PRELIMINARY SHALLOW FOUNDATION RECOMMENDATIONS ..... - 7 -
Design – Soil Bearing Pressure ..... - 7 -
PRELIMINARY FLOOR SLAB RECOMMENDATIONS ..... - 8 -
RECOMMENDATIONS FOR ADDITIONAL TESTING ..... - 8 -

CLOSING ..... - 8 -

APPENDIX A - DRILLING, FIELD, AND LABORATORY TEST PROCEDURES
APPENDIX B - SITE PREPARATION – CLEARING & GRUBBING
APPENDIX C - FILL RECOMMENDATIONS
APPENDIX D - FOUNDATION CONSTRUCTION RECOMMENDATIONS
APPENDIX E - SLAB-ON-GRADE CONSIDERATIONS
APPENDIX F - REPORT LIMITATIONS
APPENDIX G - SOIL CLASSIFICATION GENERAL NOTES
APPENDIX H - SOIL CLASSIFICATION CHART
APPENDIX I – SITE VICINITY MAP BORING LOCATION PLAN
APPENDIX J – BORING LOGS

PROJECT INFORMATION

Rubino Engineering, Inc. (Rubino) understands that the Village of Oswego is planning for a proposed mixed-use development at 113 N. Main Street in Oswego, Illinois. At this time, development plans including structural design details have not been provided to Rubino.

Documents received:

- "113 Main St – Soil Boring Locations" – prepared by Roake and Associates Inc.

Project Correspondence:

- RFP Email from Jennifer Hughes on June 19th, 2018
- Authorization to proceed July 2nd, 2018

The geotechnical recommendations presented in this report are based on the available project information and the subsurface materials described in this report. If any of the information on which this report is based is incorrect, please inform Rubino in writing so that we may amend the recommendations presented in this report (if appropriate, and if desired by the client). Rubino will not be responsible for the implementation of our recommendations if we are not notified of changes in the project.

Purpose / Scope of Services

The purpose of this study was to explore the subsurface conditions at the site in order to prepare geotechnical recommendations for shallow foundations for the proposed construction. Rubino's scope of services included the following drilling program:

Table: Drilling Scope

NUMBER OF BORINGS	DEPTH (FEET BEG*)	LOCATION
2	11 ¼ - 11 ½	113 N. Main St. Lot (See Boring Location Plan in Appendix for more details)

*BEG = below existing grade

Representative soil samples obtained during the field exploration program were transported to the laboratory for additional classification and laboratory testing. This report briefly outlines the following:

- *Summary of client-provided project information and report basis*
- *Overview of encountered subsurface conditions*
- *Overview of field and laboratory tests performed including results*
- *Geotechnical recommendations pertaining to:*
  - *Subgrade suitability for future development*

- *Preliminary shallow foundation design, including*
  - *Estimated depth to bedrock*
  - *Estimated shallow foundation bearing capacity ranges*
- *Construction considerations, including temporary excavation and construction control of water*

DRILLING, FIELD, AND LABORATORY TEST PROCEDURES

The Village of Oswego selected the number of borings and the boring depths. Rubino located the borings in the field by measuring distances from known fixed site features. The borings were advanced utilizing 3 ¼ inch inside-diameter, hollow stem auger drilling methods and soil samples were routinely obtained during the drilling process.

Selected soil samples were tested in the laboratory to determine material properties for this report. Drilling, sampling, and laboratory tests were accomplished in general accordance with ASTM procedures. The following items are further described in the Appendix of this report.

- *Field Penetration Tests and Split-Barrel Sampling of Soils (ASTM D1586)*
- *Field Water Level Measurements*
- *Laboratory Determination of Water (Moisture) Content of Soil by Mass (ASTM D2216)*
- *Laboratory Organic Content by Loss on Ignition (ASTM D2974)*

The laboratory testing program was conducted in general accordance with applicable ASTM specifications. The results of these tests are to be found on the accompanying boring logs located in the Appendix.

EXECUTIVE SUMMARY OF GEOTECHNICAL CONSIDERATIONS

The main geotechnical design and construction considerations at this site are:

- **Subgrade soils** generally consisted of undocumented fill underlain by brown to gray, very soft to stiff silty clay soils. Softer silty clay soils were encountered toward the bottom of the borings. See *Subsurface Conditions* section for more detailed information.

- **Undocumented fill soils** containing deleterious materials were observed within the upper 6 feet of the borings. See *Undocumented Fill Discussion* section for more detailed information.

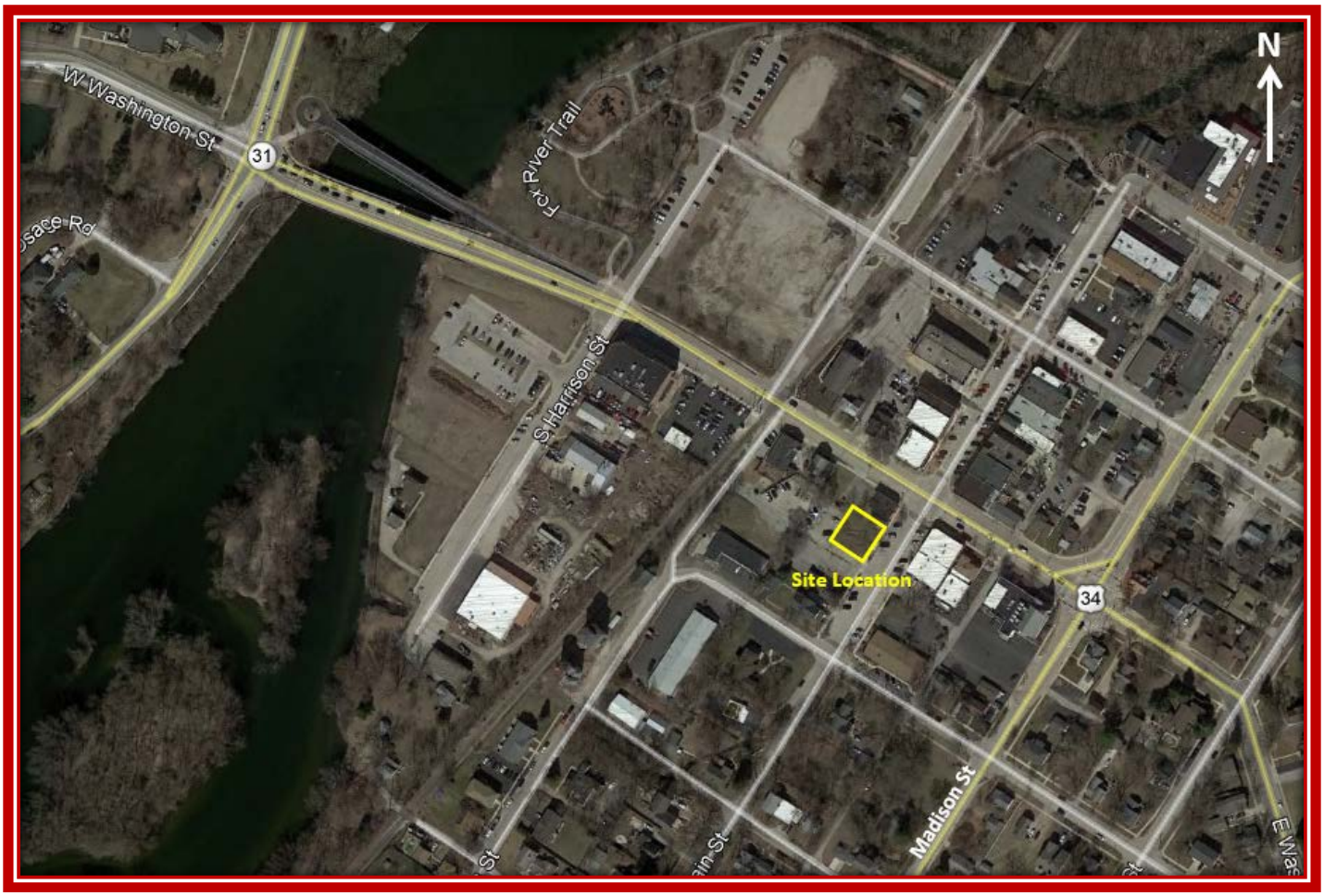
- **Shallow Foundations** are a possible foundation design option at this site with undercuts. See *Foundation Recommendations* section for more detailed information.

The geotechnical-related recommendations in this report are presented based on the subsurface conditions encountered and Rubino's understanding of the project. Should changes in the project criteria occur, a review must be made by Rubino to determine if modifications to our recommendations will be necessary.

SITE AND SUBSURFACE CONDITIONS

Site Location and Description

The subject property was previously occupied by Oswego's old village hall building that was reported to have been demolished in 2015. It has recently been approved for a proposed mixed-use development. The site is located at the corner of S main Street and W Washington St. in Oswego, Illinois.



The center of the site has an approximate latitude and longitude of 41.683293°and -88.353189°, respectively.

Subsurface Conditions

Beneath the existing surficial pavement, undocumented fill soils, or gravel, subsurface conditions generally consisted of brown to gray, medium stiff to very stiff silty clay soils.

- The **topsoil** thickness were approximately 6 inches at both borings
- The **undocumented fill** soils were generally cohesive in nature with a soft consistency
- The native **silty clay** soils were generally soft to stiff in consistency
- The **granular** soils were generally medium dense in consistency

Table: Subsurface Conditions Summary

DEPTH RANGE (FEET BEG*)	SOIL DESCRIPTION	SPT N-VALUES (BLOWS PER FOOT)	MOISTURE CONTENT (%)	ORGANIC CONTENT (%)	ESTIMATED SHEAR STRENGTH
Location around B-02					
½ - 6	UNDOCUMENTED FILL: Dark brown and gray silty CLAY, trace sand and gravel	0 – 4	23 – 24	3 – 8	n/a
6 – 7 ½	Stiff, brown silty CLAY, with sand and gravel	12	23	-	c = 1500 psf – 1,800 psf
7 ½ - 10 ¾	Medium dense, gravel and rock chips with sands and fines	28	4	-	$\phi = 32^o$ - 35°
10 ¾	Possible Bedrock	50/5	n/a	n/a	n/a
Location around B-03					
½ - 3 ½	UNDOCUMENTED FILL: Dark brown to black silty CLAY, trace sand and gravel	3	14	3	n/a
3 ½ - 6	Soft, brown SILTY CLAY, trace gravel and sand	3	16	-	c = 200 psf – 300 psf
6 – 8 ½	Medium dense, brown SAND with fines, trace gravel	22	7	-	$\phi = 30^o$ - 33°
8 ½ - 11	Stiff, moist, light brown SILT with sand, trace gravel	12	14	-	$\phi = 28^o$ - 30°
11	Possible Bedrock	50/3	n/a	n/a	n/a

*BEG = Below existing grade

The native soils were visually classified as silty clay (CL) / silty sand (SP-SM), silty gravel (GP-GM), silt (ML), according to the Unified Soil Classification System (USCS). The above table is a

general summary of subsurface conditions. Please refer to the boring logs for more detailed information.

Estimated shear strength of clay soils is based on empirical correlations using N-values, moisture content, and unconfined compressive strength.

Groundwater Conditions

Groundwater was not observed in the borings during the drilling operation. It should be noted that fluctuations in the groundwater level should be anticipated throughout the year depending on variations in climatological conditions and other factors not apparent at the time the borings were performed. Groundwater may not have been observed in some areas due to the low permeability of soils. Additionally, discontinuous zones of perched water may exist within the soils. The possibility of groundwater level fluctuation should be considered when developing the design and construction plans for the project.

EVALUATION AND RECOMMENDATIONS

The geotechnical-related recommendations in this report are presented based on the subsurface conditions encountered and Rubino's understanding of the project. Should changes in the project criteria occur, a review must be made by Rubino to determine if modifications to our recommendations will be necessary.

Undocumented Fill Discussion

Undocumented fill was observed in the borings to depths ranging from about ½ to 6 feet below existing grade.

Where existing fill is encountered, Rubino recommends that structure foundations extend through the fill materials and be supported on tested and documented native soils, cured flowable fill, or compacted and documented structural fill. See the Foundation Recommendation Section for more details.

Undocumented fill is defined as fill that has been placed without being documented as to its placed density and moisture content.

Deleterious materials could include, but are not limited to, bricks, asphalt, concrete, metal, wood, or other building debris.

Deleterious materials were observed within the undocumented fill materials during the drilling operations. Therefore, Rubino does not recommend the re-use of this material as structural fill on the site.

Topsoil Discussion

Topsoil materials as described in this report have not been analyzed for quality according to any minimum specifications. If topsoil is to be imported to or exported from this site, Rubino recommends that it meet the minimum specifications defined in **Section 1081.05** of the, "Standard Specifications for Road and Bridge Construction," adopted by the Illinois Department of Transportation, April 1st, 2016.

Rubino has reported topsoil thicknesses at each boring based on visual observation of surficial soils. Topsoil thickness at this site is approximately 6 inches.

Site Preparation & Fill Recommendations

During construction, the site should be stripped of existing concrete, foundations, abandoned utilities, undocumented fill containing deleterious materials, and pavement sections including asphalt, subbase, and curbs if applicable. To reference general subgrade preparation recommendations and compaction recommendations, please refer to the Appendix of this report.

The surficial undocumented fill soils are not considered suitable for support of slabs on grade or pavements. The soils should be planned to be stabilized to a depth of at least 3 feet below the proposed bottom of slab or pavement.

Please note that clay subgrade soils are sensitive to moisture and can be easily disturbed by precipitation, groundwater, or construction equipment. Therefore, extra care should be used to avoid disturbing these soils during construction activities. Subgrade soils may be **stabilized** by one of the following **options**:

- **Remove and replace** with non-woven filter fabric and 3-inch stone capped with CA-06 stone.
    - A layer of non-woven filter geotextile should be placed between silty clay soil and an open-graded stone.
    - Please be aware that large amounts of open-graded stone placed on the site will attract groundwater. Please notify the Civil engineer of record if this option is chosen.
- **Geogrid and a stone mat** placed across the building pad per manufacturer's installation specifications could reduce the amount of stone required and provide additional lateral support for foundation loads in service.

Preliminary Shallow Foundation Recommendations

Design – Soil Bearing Pressure

Because project plans have not yet been defined, Rubino is basing this report on the following loads:

- Two-story, slab-on-grade structure without a basement level
- Column loads not exceeding 100 kips, Wall loads not exceeding 6 kips / lineal foot
- Site grading cuts and fills being less than 2 feet

Based on the above criteria, the proposed structure can be supported on shallow, spread footing foundations. As discussed previously, Rubino recommends that foundations extend through undocumented fill soils or softer organic soils and be supported on the stiff to very stiff silty clay soils, medium dense granular soils, or compacted and documented structural fill.

Maximum net allowable soil bearing pressures based on dead load plus design live load for sizing the shallow foundations:

DESCRIPTION	PROPOSED BUILDING RECOMMENDATIONS	
Anticipated Foundation Type:	Wall Footing	Column Footing
Max Net Allowable Bearing Pressure (psf):	2,500 psf	3,000 psf
Minimum Dimensions:	2 ft.	3 ft. x 3 ft.
Anticipated Bearing Soil classification at 6 feet below existing grade:	Brown silty CLAY; $Q_u \geq 1.5$ tsf Sand / Gravel; DCP ≥ 5 blows / 6”	
Estimated depth to suitable bearing soil:	Approximately 6 feet below existing grade	
Boring #’s Referenced:	B-02 - B-03	

Different bearing pressures are given for wall footings vs. column footings due to the difference in the shape factor applied to the *Terzaghi-Meyerhof* general bearing capacity equation as follows:

Wall Footing: $q_{ult} = cN_c + \frac{1}{2}\gamma_t B N_\gamma + \gamma_t D_f N_q$

Square Column Footing: $q_{ult} = 1.25 * cN_c + \frac{1}{2}\gamma_t B * 0.85 * N_\gamma + \gamma_t D_f N_q$

c = cohesion / shear strength

N_c, N_γ, N_q = *Terzaghi Bearing Capacity Factors*

γ_t = *total density*

B = Footing width

D_f = *Depth to bottom of footing*

The net allowable soil bearing pressure is based on dead load plus design live load and represents the pressure that is in excess of the minimum surrounding overburden pressure at the footing base elevation.

Preliminary Floor Slab Recommendations

Based on the encountered subsurface conditions, the anticipated floor slab subgrade will need to be stabilized at least 3 feet below the proposed bottom of slab elevation.

Prior to placing concrete, subgrade soils should be proofrolled and documented by the geotechnical engineer of record prior to placing the floor slab, or inspected and approved newly placed, properly compacted and documented structural fill which extends to original soils as described herein.

Provided that the subgrade and/or properly compacted and documented structural fill, a modulus of subgrade reaction, *k* value, of 120 pounds per cubic inch (psi/inch) may be used in the grade slab design. This value is calculated using empirical correlations based on a 1 ft. x 1 ft. plate load test. However, depending on how the slab load is applied, the value will have to be geometrically modified as outlined Floor slab section of the Appendix to this report.

Floor slab subgrade preparation should be in accordance with the recommendations outlined in the Site Preparation & Fill Requirements section in the Appendix of this report.

Recommendations for Additional Testing

Once the structural loads, site plan and grading plans are finalized, please notify Rubino so that we can review our recommendations for the direct use of the structure and development of the site. Changes in building location, foundation depth, and structural loading can affect the geotechnical recommendations for this site.

During construction, Rubino recommends that one of our representatives be onsite for typical **observations and documentation** of exposed subgrade for support of floor slabs, foundations, and pavements, including proofrolling and penetrometer testing.

CLOSING

The recommendations submitted are based on the available subsurface information obtained by Rubino Engineering, Inc. and design details furnished by the Village of Oswego for the proposed project. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, Rubino should be notified immediately to determine if changes in the foundation recommendations are required. If Rubino is not retained to perform these functions, we will not be responsible for the impact of those conditions on the project.

The scope of services did not include an environmental assessment to determine the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater or air, on, or below or around this site. Any statements in this report and/or on the boring logs regarding odors, colors, and/or unusual or suspicious items or conditions are strictly for informational purposes.

After the plans and specifications are more complete, the geotechnical engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At this time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of the Village of Oswego and their consultants for the specific application to the proposed mixed-use development in Oswego, Illinois.

APPENDIX A - *DRILLING, FIELD, AND LABORATORY TEST PROCEDURES*

ASTM D1586 Penetration Tests and Split-Barrel Sampling of Soils

During the sampling procedure, Standard Penetration Tests (SPT's) were performed at regular intervals to obtain the standard penetration (N-value) of the soil. The results of the standard penetration test are used to estimate the relative strength and compressibility of the soil profile components through empirical correlations to the soils' relative density and consistency. The split-barrel sampler obtains a soil sample for classification purposes and laboratory testing, as appropriate for the type of soil obtained.

Water Level Measurements

Water level observations were attempted during and upon completion of the drilling operation using a 100-foot tape measure. The depths of observed water levels in the boreholes are noted on the boring logs presented in the appendix of this report. In the borings where water is unable to be observed during the field activities, in relatively impervious soils, the accurate determination of the groundwater elevation may not be possible even after several days of observation. Seasonal variations, temperature and recent rainfall conditions may influence the levels of the groundwater table and volumes of water will depend on the permeability of the soils.

ASTM D2166 Unconfined Compressive Strength

Unconfined compression tests are used to obtain approximate compressive strength of cohesive soils by recording the maximum load attained per unit area of a soil sample at failure or at 15% axial strain, whichever occurs first. A compression device may be a platform weighing scale equipped with a device with sufficient capacity and control to provide a specific rate of loading.

ASTM D2216 Water (Moisture) Content of Soil by Mass (Laboratory)

The water content is an important index property used in expressing the phase relationship of solids, water, and air in a given volume of material and can be used to correlate soil behavior with its index properties. In fine grained cohesive soils, the behavior of a given soil type often depends on its natural water content. The water content of a cohesive soil along with its liquid and plastic limits as determined by Atterberg Limit testing are used to express the soil's relative consistency or liquidity index.

ASTM D2974 Standard Test Method for Organic Soils using Loss on Ignition (Laboratory)

These test methods cover the measurement of moisture content, ash content, and organic matter in peats and other organic soils, such as organic clays, silts, and mucks. Ash content of a peat or organic soil sample is determined by igniting the oven-dried sample from the moisture content determination in a muffle furnace at 440°C (Method C) or 750°C (Method D). The substance remaining after ignition is the ash. The ash content is expressed as a percentage of the mass of the oven-dried sample. 2.4 Organic matter is determined by subtracting percent ash content from 100.

ASTM D4318 Atterberg Limits (Laboratory)

Atterberg limit testing defines the liquid limit (LL) and plastic limit (PL) states of a given soil. These limits are used to determine the moisture content limits where the soil characteristics changes from behaving more like a fluid on the liquid limit end to where the soil behaves more like individual soil particles on the plastic limit end. The liquid limit is often used to determine if a soil is a low or high plasticity soil. The plasticity index (PI) is difference between the liquid limit and the plastic limit. The plasticity index is used in conjunction with the liquid limit to determine if the material will behave like a silt or clay.

ASTM D422 Particle Size Analysis (Laboratory)

The Particle Size Analysis of Soils determines the distribution of particle sizes in order to further classify the soil. The distribution of particle sizes larger than 75µm (retained on the No. 200 sieve) is determined by sieving, while the distribution of particle sizes smaller than 75µm is determined by a sedimentation process, using a hydrometer to secure the necessary data. These soils are then classified more accurately based on the distribution information.

APPENDIX B - *SITE PREPARATION – CLEARING & GRUBBING*

Rubino recommends that unsuitable soils or fill be removed from the site, as applicable. Unsuitable soils or fills can be described as, but are not limited to:

- organic soil / topsoil / plants / trees / shrubs / grass
- frozen soil
- existing asphalt or concrete pavement sections
- existing foundations
- building debris / deleterious fill
- existing curbs

Stripping operations should extend a minimum of: **10** feet beyond proposed building limits

Exceptions: where property limits allow. Notify geotechnical engineer if there are property boundary limitations. Stripping operations should be monitored and documented by a representative of the geotechnical engineer at the time of construction.

Proofrolling:

After stripping and excavating to the proposed subgrade level, as required, the paved parking area should be proof-rolled and scarified and compacted to at least 95 percent of the standard Proctor maximum dry density ASTM D 698 for a depth of at least 8 inches below the surface during a period of dry weather.

Proofrolling Equipment:

Tandem-axle dump truck or similar rubber-tired vehicles are acceptable and should be loaded with at least 9 tons per axle.

Benefits of Proofrolling:

- Aids in providing a firm base for compaction of fill soils
- Helps to delineate soft, loose, or disturbed areas that may exist below subgrade level.

Subgrade Stability:

Soils which are observed to rut or deflect excessively (typically greater than 1 inch) under the moving load should either be scarified and re-compacted, or undercut and replaced.
Subgrade soils may be **stabilized** by one of the following **options**:

- **Scarifying and re-compacting** the existing subgrade soil to at least 95% compaction per ASTM D698 Standard Proctor (12 inch depth).
- **Remove and replace** with non-woven filter fabric and 3-inch stone capped with CA-06 stone.
  - A layer of non-woven filter geotextile should be placed between silty clay soil and an open-graded stone.
  - The contractor can also attempt to stabilize the existing subgrade in place by “losing” 3-inch stone into the subgrade until the until the voids of the 3-inch stone are filled with the soft soil and the subgrade “locks up,” showing minimal deflection under a proofroll.
- **Geogrid and a stone mat** placed across the building pad per manufacturer’s installation specifications could reduce the amount of stone required and provide additional lateral support for foundation loads in service.
- **Lime or other chemical additive** stabilization (12 to 14 inches). This can be done as part of a lift structure. Compaction requirements still apply.

APPENDIX C - *FILL RECOMMENDATIONS*

In general, fill materials should meet the following:

- Standard Proctor maximum dry density >100 pcf
- Free of organic or other deleterious materials
- Have a maximum particle size no greater than 3 inches
- Have a liquid limit <45 and plasticity index <25
- Testing should include areas at least 5 feet outside the parking area perimeters, if applicable
- Each lift of compacted, engineered fill should be tested and documented by a representative of the geotechnical engineer prior to placement of subsequent lifts
- If a fine-grained silt or clay soil is used for fill (CL or ML), close moisture content control will be essential to achieve the recommended degree of compaction
- If water must be added, it should be uniformly applied and thoroughly mixed into the soil by disking or scarifying

Suitable Soil Classifications:

CL, SC, GW, and SW will generally be suitable for use as structural fill under pavements.

Unsuitable Soil Classifications:

OL, OH, MH, ML, SM, CH and PT should be considered unsuitable.

Structural fill added to the site shall be evaluated in accordance with the following table:

MATERIAL TESTED	PROCTOR TYPE*-1	MIN % DRY DENSITY	PLACEMENT MOISTURE CONTENT RANGE	FREQUENCY OF TESTING*-2	MAXIMUM LOOSE LIFT HEIGHT
Structural Fill (Cohesive & Well-graded Granular) – Parking	Standard	98%	-2 to +3 %	1 per 2,500 yd^2 of fill placed	8 inches
Random Fill (non-load bearing)	Standard	95%	-3 to +3 %	1 per 5,000 yd^2 of fill placed	8 inches
Utility Trench Backfill	Standard	95%	-2 to +2 %	1 per 50 LF of fill placed	6 inches

*-1 The test frequency for the laboratory reference shall be one laboratory Proctor or Relative Density test for each material used on the site. If the borrow or source of fill material changes, a new reference moisture/density test should be performed.

*-2 A minimum of one test per lift is recommended unless otherwise specified.

Tested fill materials that do not achieve either the required dry density or moisture content range shall be recorded, the location noted, and reported to the Contractor and Owner. A re-test of that area should be performed after the Contractor performs remedial measures. The above test frequencies should be discussed with the contractor prior to starting the work.

The geotechnical engineer of record can only certify work that was performed under their direct observation, or under the observation of a competent person under their specific direction.

APPENDIX D - *FOUNDATION CONSTRUCTION RECOMMENDATIONS*

Rubino recommends that soils at the bottom of the footing design elevation be observed, documented, and tested by a representative of Rubino prior to concrete placement to evaluate the consistency of the soils in the field with the geotechnical report findings. The remedial procedures described in the following paragraph can be used to provide suitable foundation support where unsuitable material such as soft or loose soils, existing fill, or organic soils are encountered.

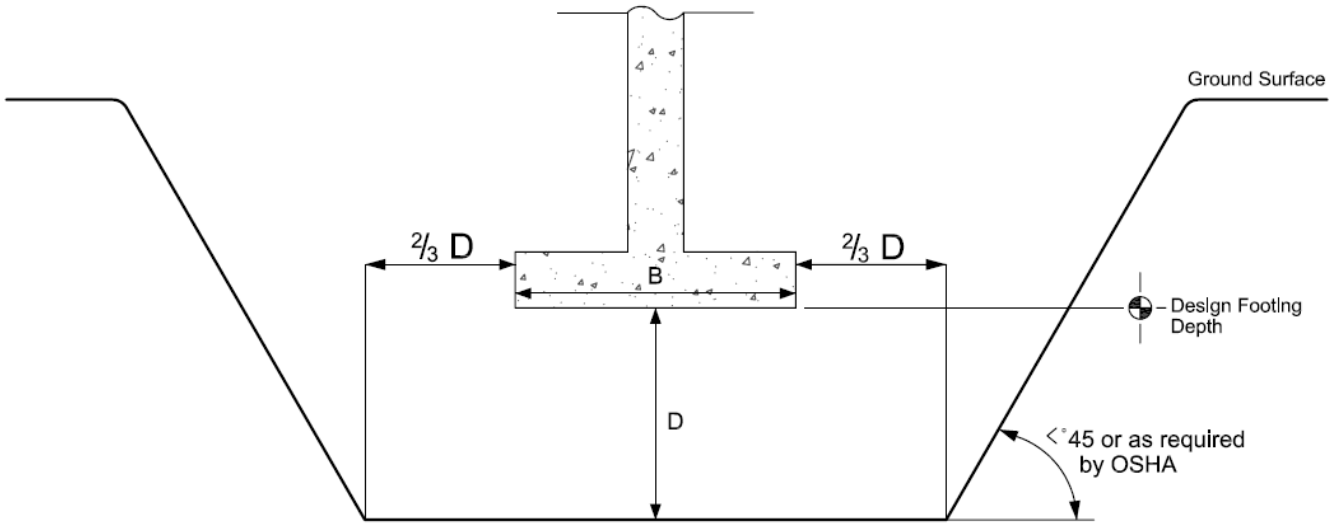
After opening, footing excavations should be observed and concrete placed as quickly as possible to avoid exposure of the footing bottoms to wetting and drying. Surface runoff water should be drained away from the excavations and not be allowed to pond. If possible, the foundation concrete should be placed during the same day the excavation is made. If it is required that footing excavations be left open for more than one day, the soils in the excavation should be protected to reduce evaporation or entry of moisture.

If unsuitable bearing soils are encountered in a footing excavation, the footing should be deepened to competent bearing soil and the footing could be lowered, or an over excavation and backfill procedure could be performed. If an over excavation and backfill procedure will be utilized, it would require widening the deepened excavation in all directions at least 8 inches beyond the edges of the footing for each 12 inches of over excavation depth (See "Over Excavation and Backfill Procedure" diagram below).

The over excavation should then be backfilled in a maximum of 8-inches thick loose lifts with suitable granular fill material, such as ¾ -inch stone with fines (CA-6), compacted to at least 98% of the maximum Standard Proctor dry density (ASTM D 698).

Another alternative is to undercut and refill the unsuitable area with flowable mortar up to the design elevation of the footings. The flowable mortar would serve as a protection to the subgrade during construction of the foundations. In this case, widening the footings is not necessary.

Over Excavation and Backfill Procedure



* Drawing not to scale

APPENDIX E - *SLAB-ON-GRADE CONSIDERATIONS*

The subgrade modulus provided in the main report should be adjusted for larger areas of loading using the following expression for cohesive and cohesionless soil:

Modulus of Subgrade Reaction, $k_s = (\frac{k}{B})$ for cohesive soil and

$$k_s = k\,(\frac{B+1}{2B})^2 \text{ for cohesionless soil}$$

where: k_s = coefficient of vertical subgrade reaction for loaded area,
k = coefficient of vertical subgrade reaction for 1x1 square foot area, and
B = width of area loaded, in feet

The precautions listed below should be followed for construction of slab-on-grade pads.

- Cracking of slab-on-grade concrete is normal and should be expected.
- Cracking can occur not only as a result of heaving or compression of the supporting soil and/or fill material, but also as a result of concrete curing stresses.
- The occurrence of concrete shrinkage cracks and problems associated with concrete curing may be reduced and/or controlled by:
  - Limiting the slump of the concrete
  - Proper concrete placement, finishing, and curing
  - The placement of crack control joints at frequent intervals, particularly where re-entrance slab corners occur.
    - The American Concrete Institute (ACI) recommends a maximum panel size (in feet) equal to approximately three times the thickness of the slab (in inches) in both directions.
- The floor slab should be independent of the foundation walls.
- Areas supporting slabs should be properly moisture conditioned and compacted. Backfill in all interior and exterior water and sewer line trenches should be carefully compacted to reduce the shear stress in the concrete extending over these areas.
- Exterior slabs should be isolated from the building. These slabs should be reinforced to function as independent units. Movement of these slabs should not be transmitted to the building foundation or superstructure.
- Rubino recommends that a minimum 4-inch thick, free-draining granular mat be placed beneath the floor slab to enhance drainage. The floor slabs should have an adequate number of joints to reduce cracking resulting from differential movement and shrinkage. Floor slabs should not be rigidly connected to columns, walls, or foundations.
- A vapor retarder should be considered in areas of tile, carpet, or other moisture sensitive floor finishes. Appropriate curing procedures should be followed to reduce the risk of slab “curling” if a vapor retarder is used.

These details will not reduce the amount of movement but are intended to reduce potential damage should some settlement of the supporting subgrade take place. Some increase in moisture content in the floor slab is inevitable as a result of development and associated landscaping. However, extreme moisture content increases can be largely controlled by proper and responsible site drainage, building maintenance and irrigation practices.

APPENDIX F - *REPORT LIMITATIONS*

Subsurface Conditions:

The subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the appendix should be reviewed for specific information at individual boring locations. These records include soil descriptions, stratifications, penetration resistances, locations of the samples and laboratory test data as well as water level information. The stratifications shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur, and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition between layers may be gradual. The samples, which were not altered by laboratory testing, will be retained for up to 60 days from the date of this report and then will be discarded.

Geotechnical Risk:

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools that geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free, and more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations, presented in the preceding section, constitute Rubino's professional estimate of the necessary measures for the proposed structure to perform according to the proposed design based on the information generated and reference during this evaluation, and Rubino's experience in working with these conditions.

Warranty:

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

Federal Excavation Regulations:

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better insure the safety of workmen entering trenches or excavations. This federal regulation mandates that all excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person," as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. Rubino is providing this information solely as a service to our client. Rubino is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

APPENDIX G - *SOIL CLASSIFICATION GENERAL NOTES*

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1 3/8" I.D., 2" O.D., unless otherwise noted	PS:	Piston Sample
ST:	Thin-Walled Tube - 3" O.D., Unless otherwise noted	WS:	Wash Sample
PM:	Pressuremeter	HA:	Hand Auger
RB:	Rock Bit	HS:	Hollow Stem Auger
DB:	Diamond Bit - 4", N, B	BS:	Bulk Sample

Standard "N" Penetration: Blows per foot of a 140-pound hammer falling 30 inches on a 2 inch O.D. split spoon sampler (SS), except where noted.

WATER LEVEL MEASUREMENT SYMBOLS:
Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of ground water levels is not possible with only short term observations.

DESCRIPTIVE SOIL CLASSIFICATION:
Soil Classification is based on the Unified Soil Classification System as defined in ASTM D-2487 and D-2488. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; they are described as: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are described as: clays, if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse grained soils are defined on the basis of their relative in-place density and fine grained soils on the basis of their consistency. Example: Lean clay with sand, trace gravel, stiff (CL); silty sand, trace gravel, medium dense (SM).

CONSISTENCY OF FINE-GRAINED SOILS:

Unconfined Compressive Strength, Qu (tsf)			N-Blows/ft.			Consistency
	<	0.25	< 2			Very Soft
0.25	-	0.5	2	-	4	Soft
0.5	-	1	4	-	8	Medium Stiff
1	-	2	8	-	15	Stiff
2	-	4	15	-	30	Very Stiff
4	-	8	30	-	50	Hard
>	-	8	> 50			Very Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS

N-Blows/ft.			Relative Density
0	-	3	Very Loose
4	-	9	Loose
10	-	29	Medium Dense
30	-	49	Dense
50	-	80	Very Dense
		80+	Extremely Dense

RELATIVE PROPORTIONS OF SAND & GRAVEL

Descriptive Term	% of Dry Weight		
Trace		<	15
With	15	-	29
Modifier		>	30

RELATIVE PROPORTIONS OF FINES

Descriptive Term	% of Dry Weight		
Trace		<	5
With	5	-	12
Modifier		>	12

*Descriptive Terms apply to components also present in sample

GRAIN SIZE TERMINOLOGY

Major Component	Size Range
Boulders	Over 12 in. (300mm)
Cobbles	12 in. To 3 in. (300mm to 75mm)
Gravel	3 in. To #4 sieve (75mm to 4.75mm)
Sand	#4 to #200 sieve (4.75mm to 0.75mm)

APPENDIX H - *SOIL CLASSIFICATION CHART*

SOIL CLASSIFICATION CHART

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

APPENDIX I – *SITE VICINITY MAP & BORING LOCATION PLAN*

rubino ENGINEERING INC.

665 Tollgate Rd. Unit H
Elgin, Illinois 60123

Project Name:	Property Development
Project Location:	113 Main Street Oswego, Illinois
Client:	Village of Oswego
Rubino Project # :	G18.089B

Boring Location Plan

APPENDIX J – *BORING LOGS*

Rubino Engineering, Inc.
665 Tollgate Road, Unit H
Elgin, IL 60123
Telephone: 847-931-1555
Fax: 847-931-1560

LOG OF BORING B-02

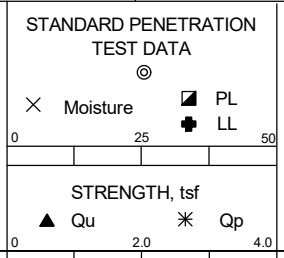
Rubino Job No.:	G18.089	Drilling Method:	3 ¼" Hollow Stem Auger
Project:	Property Development	Sampling Method:	Split Spoon
Location:	113 Main Street	Hammer Type:	Automatic
City, State:	Oswego, Illinois	Boring Location:	Western Corner, 113 Main St. Oswego, IL
Client:	Village of Oswego		

WATER LEVELS

While Drilling	N/A
Upon Completion	N/A
Delay	N/A

Station: N/A
Offset: N/A

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	STP Blows per 6-inch (SS)	Moisture, %	Additional Remarks
	0					Approximately 6 inches of TOPSOIL: Dark brown to black silty clay, trace sand and gravel				
				1	16	UNDOCUMENTED FILL: Dark brown and gray silty clay with sand and gravel Deleterious materials observed (asphalt, wood, glass)		3,2,2 N=4	24	
				2	4			W.O.H. N=0	23	
	5			3	16	Stiff, brown silty CLAY, trace to with sand and gravel	CL	2,3,9 N=12	23	Qp=1.5 tsf
				4	14	Medium dense, gravel and rock chips with sand and fines	GP-GM	6,17,11 N=28	4	
	10			5	9			39,50/5"		
						Auger refusal at approximately 10'8". Split spoon refusal at approximately 11'7". No free groundwater encountered during drilling operations.				



Completion Depth:	12.0 ft
Date Boring Started:	7/3/18
Date Boring Completed:	7/3/18
Logged By:	J.W.
Drilling Contractor:	Rubino Engineering, Inc.

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Hand Auger
Texas Cone

Latitude: 41.683292
Longitude: -88.353307
Drill Rig: Geoprobe 7822DT
Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.

Rubino Engineering, Inc.
665 Tollgate Road, Unit H
Elgin, IL 60123
Telephone: 847-931-1555
Fax: 847-931-1560

LOG OF BORING B-03

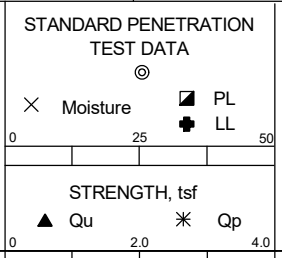
Rubino Job No.:	G18.089	Drilling Method:	3 ¼" Hollow Stem Auger
Project:	Property Development	Sampling Method:	Split Spoon
Location:	113 Main Street	Hammer Type:	Automatic
City, State:	Oswego, Illinois	Boring Location:	Eastern Corner, 113 Main St. Oswego, IL
Client:	Village of Oswego		

WATER LEVELS	
While Drilling	N/A
Upon Completion	N/A
Delay	N/A

Station: N/A
Offset: N/A

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	STP Blows per 6-inch (SS)	Moisture, %	Additional Remarks
	0					Approximately 6 inches of TOPSOIL: Dark brown to black silty clay, trace sand and gravel				
				1	3	UNDOCUMENTED FILL: dark brown and gray silty clay, trace sand, trace to with gravel		2,2,1 N=3	14	
				2	15	Soft, brown silty CLAY, trace to with sand, trace gravel	CL	1,1,2 N=3	16	Qp=1.0 tsf
	5			3	12	Medium dense, brown SAND with fines, trace gravel	SP-SM	5,10,12 N=22	7	
				4	13	Stiff, moist, light brown SILT with sand, trace gravel	ML	3,6,6 N=12	14	Qp=3.0 tsf
	10			5	1	Weathered limestone and gravel chips Possible bedrock		50/3"		

Auger and split spoon refusal at approximately 11'3"
No free groundwater encountered during drilling operations.



Completion Depth:	12.0 ft	Sample Types:	Latitude: 41.683297
Date Boring Started:	7/3/18	Auger Cutting / Shelby Tube	Longitude: -88.353084
Date Boring Completed:	7/3/18	Split-Spoon / Hand Auger	Drill Rig: Geoprobe 7822DT
Logged By:	J.W.	Rock Core / Texas Cone	Remarks:
Drilling Contractor:	Rubino Engineering, Inc.		

The stratification lines represent approximate boundaries. The transition may be gradual.

July 19, 2018

To: Jennifer Hughes
Public Works Director/Village Engineer
Village of Oswego
Ph:630.551.2366

Re: **Geotechnical Engineering Services Report**
Property Improvements
63 W. Washington St.
Oswego, Illinois

Rubino Report No. G18.089-A

Via email: jhughes@oswegoil.com

Dear Ms. Hughes,

Rubino Engineering, Inc. (Rubino) is pleased to submit our Geotechnical Engineering Services Report for the proposed Property Improvements at 63 W. Washington St. in Oswego, Illinois.

Rubino is pleased to submit this letter report in accordance with Rubino Proposal No. Q18.310g dated June 25, 2018; Signed and authorized by Jennifer Hughes of the Village of Oswego on July 2nd, 2018.

The purpose of this project was to determine the depth to bedrock and if it would affect the directional boring operations underneath the existing cooler in the alley for a proposed grease trap at the property known as 63 W. Washington in Oswego, Illinois. Rubino's scope of services included the following drilling program:

NUMBER OF SPT BORINGS	NUMBER OF HAND AUGERS	DEPTH (FEET BEG*)	LOCATION
1	N/A	6	63 W. Washington St. (See attached Boring Location Plan for more details)
N/A	1	3 ½	

*BEG = below existing grade

Representative soil samples obtained during the field exploration program were transported to the laboratory for additional classification and laboratory testing.

Beneath the existing surficial pavement or undocumented fill soils, subsurface conditions generally consisted of brown sandy gravel with fines. Weathered limestone was encountered between approximately 3 ½ and 6 feet below existing grade during traditional drilling. Hand auger sampling was attempted in the gravel patio area south of the building. The hand auger refused at a depth of approximately 3 ½ feet below existing grade. Please refer to the boring logs for more detailed information.

Groundwater was not encountered in the borings. Discontinuous zones of perched water may exist within the soils. The possibility of groundwater level fluctuation should be considered when developing the design and construction plans for the project.

Possible bedrock was encountered in the borings. Rubino's estimates for the apparent depth of bedrock at each boring are in the following table:

Table: Bedrock Observation Summary

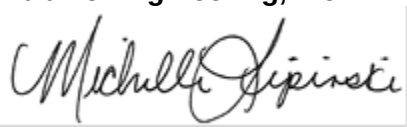
BORING	DEPTH TO BEDROCK (FEET BEG*)	NOTES
B-01	6	Weathered limestone encountered near 3 ½ feet below existing grade
HA-01	3 ½	Hand auger and DCP refusal near 3 1//2 feet below existing grade

*BEG = Below existing grade

Rubino appreciates the opportunity to provide drilling services for this project and we look forward to continued participation on future phases of this project.

If you have questions pertaining to this report, or if Rubino may be of further service, please contact our office at (847) 931-1555.

Respectfully Submitted,
Rubino Engineering, Inc.



Michelle Lipinski, P.E., President

Attachments:
Boring Location Plan
Boring Logs

rubino ENGINEERING INC.

665 Tollgate Rd. Unit H
Elgin, Illinois 60123

Project Name:	Property Improvements
Project Location:	63 W. Washington St. Oswego, Illinois
Client:	Village of Oswego
Rubino Project # :	G18.089A

Boring Location Plan

Rubino Engineering, Inc.
665 Tollgate Road, Unit H
Elgin, IL 60123
Telephone: 847-931-1555
Fax: 847-931-1560

LOG OF BORING B-01

Rubino Job No.:	G18.089	Drilling Method:	3 ¼" Hollow Stem Auger
Project:	Property Improvements	Sampling Method:	Split Spoon
Location:	63 W. Washington Street	Hammer Type:	Automatic
City, State:	Oswego, Illinois	Boring Location:	Proposed Grease Trap 63 W. Washington Ave.
Client:	Village of Oswego		

WATER LEVELS	
While Drilling	N/A
Upon Completion	N/A
Delay	N/A

Station: N/A
Offset: N/A

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	STP Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA (Moisture, PL, LL; 0–25–50) / STRENGTH, tsf (Qu, Qp; 0–2.0–4.0)	Additional Remarks
	0					Apprximately 4 inches of CONCRETE with reinforcing steel					
						Brown, sandy GRAVEL with fines					
				1	8			2,2,3 N=5	6		
						Weathered limestone and gravel chips Possible bedrock					
				2	9			9,20,25 N=45			
	5										
				3	2	Apparent bedrock based on auger and split spoon refusal at approximately 6 feet below existing grade. No free groundwater encountered during drilling operations.		50/2½"			

Completion Depth:	6.0 ft
Date Boring Started:	7/3/18
Date Boring Completed:	7/3/18
Logged By:	J.W.
Drilling Contractor:	Rubino Engineering, Inc.

Sample Types:
Auger Cutting, Split-Spoon, Rock Core, Shelby Tube, Hand Auger, Texas Cone

Latitude: 41.683627
Longitude: -88.353590
Drill Rig: Geoprobe 7822DT
Remarks:

The stratification lines represent approximate boundaries. The transition may be gradual.

Rubino Engineering, Inc.
665 Tollgate Road, Unit H
Elgin, IL 60123
Telephone: 847-931-1555
Fax: 847-931-1560

LOG OF BORING HA-01

Rubino Job No.:	G18.089	Drilling Method:	
Project:	Property Improvements	Sampling Method:	Hand Auger
Location:	63 W. Washington Street	Hammer Type:	Humboldt DCP
City, State:	Oswego, Illinois	Boring Location:	South side of building at 63 W. Washington Ave.
Client:	Village of Oswego		

WATER LEVELS	
While Drilling	N/A
Upon Completion	N/A
Delay	N/A

Station: N/A
Offset: N/A

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	DCP Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA (Moisture, PL, LL; 0–25–50) / STRENGTH, tsf (Qu, Qp; 0–2.0–4.0)	Additional Remarks
	0					Approximately 11 inches of decorative gravel and stone					
			Hand Auger	1	12	UNDOCUMENTED FILL: Brown silty clay with gravel, trace sand		6,12			
			Hand Auger	2	12			11,17	15		
			Hand Auger	3	8			9,23/2"			
						Hand auger and DCP refusal at 3½ feet. No free groundwater encountered during hand auger operations.					

Completion Depth:	3.5 ft	Sample Types:	Latitude: 41.6835928
Date Boring Started:	7/3/18	Auger Cutting / Shelby Tube	Longitude: -88.3536641
Date Boring Completed:	7/3/18	Split-Spoon / Hand Auger	Drill Rig:
Logged By:	J.K.	Rock Core / Texas Cone	Remarks:
Drilling Contractor:	Rubino Engineering, Inc.		

The stratification lines represent approximate boundaries. The transition may be gradual.