30 August 2023

Mr. Matt Wexler
National Development Council
633 Third Avenue, Suite 19J
New York, New York 10017

RE: Due Diligence Geotechnical Investigation Study
First Street Parking Lot Redevelopment
Riverhead, Suffolk County, NY
Langan Project No. 101061401

Dear Mr. Wexler:

At your request, we have completed our due diligence Geotechnical Investigation for the proposed First Street Parking Lot Redevelopment in Riverhead, Suffolk County, New York. The purposes of this study were to: 1) research and review available site information, 2) perform a limited geotechnical investigation consisting of drilling borings and installing a permanent groundwater level observation well, and 3) provide preliminary geotechnical considerations and recommendations for the proposed site development.

A final investigation consisting of borings, test pits, CPTs, and laboratory testing will be required in order to provide final recommendations for design and construction. We recommend that this investigation be performed subsequent to finalizing the Conceptual Site Plan.

BACKGROUND

Existing Conditions

The approximate 3-acre site is located in Riverhead, Suffolk County, New York; see Figures 1 and 2. The overall project site is bounded by the following:

- Residential houses and commercial buildings to the north.
- East Avenue, residential houses, and the Riverhead United Methodist Church to the east.
- Commercial buildings and East Main Street to the south. The Peconic River is located further to the south.
- Roanoke Ave, commercial buildings, and an adjacent parking lot to the west.

Currently, the site is a paved asphalt parking lot with landscape islands.

At the time of this report, a topographic survey was not available for our review. Based on existing site grades measured by our field engineer using a survey-grade GPS unit during our field work, grades at the site are relatively flat and generally range from approximate el 18.5 to el 21.5.

See Appendix A for select general site photographs.

PROPOSED DEVELOPMENT

Based on conversations with the Project Team, we understand the following regarding the site development:

- A parking garage will be constructed within the northern portion of the project site (north of the First Street).
- The parking garage is anticipated to have approximately 350 to 500 spaces and will likely be 3 to 4 levels. Based on our conversations, we understand that a below-grade level is currently not being contemplated.
- The remainder of the site will be an on-grade parking lot. We expect that the current parking lot will remain unchanged in the areas surrounding the new parking garage.

At the time of our investigation and report, a concept site plan was not available for review. In addition, structural loading information for the proposed garage was not available for our review. Once it becomes available, we should review the structural loading information for the garage so that we may evaluate and modify, if necessary, the recommendations provided herein

REVIEW OF AVAILABLE INFORMATION

We reviewed available historic aerial photographs, historic topographic maps, Sanborn maps, soil survey data, regional geologic information, and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the site vicinity. Pertinent information obtained from the above documents is summarized in the following paragraphs.

Historic Aerial Photographs

We reviewed historical aerial photographs dated 1938 through 2019; see Appendix B.

- Historic aerial photographs dated from 1938 to 1947 show the site is mainly occupied by residential houses and a road (First Street) that traverses the project site in an east-west direction.
- Historic aerial photographs dated from 1957 to 1966 show the eastern portion of the site to be gradually converted to a parking lot. Historic aerial photographs dated from 1970 to 1985 show all of the former residential houses to be completely demolished and the entire site to be a parking lot. In these photographs, First Street still traverses the site and connects Roanoke Avenue and East Avenue.

- Historic aerial photographs dated from 1994 to 2019 show the parking lot to be reconfigured and similar to today.

Historic Topographic Maps

We reviewed available historic United States Geological Survey (USGS) Topographic Maps dated 1903 through 2019; see Appendix C.

- Topographic maps dated from 1903 to 1947 depict a road (First Street) running in an east-west direction across the site. Residential houses are shown on both sides of the road. The elevations at the site are shown to range from approximate el 15 to el 20 (Mean Sea Level, MSL) and typically sloping downward from north to south.
- The topographic maps dated 1956 to 2019 no longer depict buildings within the project site. In all maps except 2013, First Street is still depicted running in an east-west direction across the site.

Sanborn Maps

We reviewed available historic Sanborn Maps dated 1885 through 1969; see Appendix D.

- Sanborn maps dated 1885 to 1947 show the project site is mainly occupied by 1- to 2-story brick/masonry residential buildings (no basements), sheds/garages associated with the houses, and a 60-foot-wide street (known as Cottage Place and then First Street).
- The Sanborn map dated 1969 shows that all buildings on the project site have been demolished and parking lots have been constructed. First Street is still shown to exist.

Soil Survey Data

We reviewed the United States Department of Agriculture (USDA) Natural Resources Conservation Service soil survey map for Suffolk County, New York; see Figure 3. A brief description of the soil types within the site vicinity is provided below:

- *Cut and Fill Land (CuB):* These areas consist of gently sloping material that has been cut and filled. The Hydrologic Soil Group of this soil type is unranked.
- *Urban land (UR):* These areas typically consist of a surface covered by pavement, concrete, buildings, and other structures. The Hydrologic Soil Group of this soil type is unranked.

Regional Geology

We reviewed the "Surficial Geology Map of New York, Lower Hudson Sheet" published by University of the State of New York, the State Education Department; see Figure 4. According to this map, the soil within the site vicinity consists of Outwash Sand and Gravel (og). These soils generally consist of fine to coarse gravel with sand from proglacial fluvial depositions.

We also reviewed the "Geologic Map of New York, Lower Hudson Sheet" published by University of the State of New York, the State Education Department; see Figure 5. According to this map, the site is underlain by the Monmouth Group, Matawan Group, and Magothy Formation (Km), which consist of silty clay, glauconitic sandy clay, sand, and gravel.

Bedrock is expected to be very deep.

Flood Map

We reviewed the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Number 36103C0466H dated 25 September 2009; see Figure 6. According to this map, the site lies outside the 100-year and 500-year floodplains. The closest area within the 100-year floodplain is located to the south of East Main Street along the Peconic River having a base flood elevation of el 7 to el 8 (NAVD 88).

Nearby Langan Project

We reviewed documents (i.e. geotechnical engineering reports and structural drawings for a proposed residential building and parking garage) of a nearby project site that Langan had previously been engaged to review. The proposed residential building site is located closer to the Peconic River to the south of the First Street Parking Lot project site. A summary of pertinent information obtained from these documents is provided below:

- Based on findings from borings drilled at the nearby site, the subsurface conditions generally consist of fill overlying loose to medium dense sand to the termination depths of the borings. A relatively thin layer of peat was encountered beneath the fill in one of the borings.
- Groundwater was encountered at depths ranging from approximately 3.5 to 5.5 feet below existing grades, corresponding to approximate el 0.5 to el -1.
- Based on the structural foundation drawing, a 50-ton pile was proposed to support the proposed building foundations and slab.

SUBSURFACE INVESTIGATION FOR THIS STUDY

The due diligence geotechnical field investigation performed by Langan consisted of the following:

- Drilling three (3) borings (identified as LB-1 through LB-3).
- Installing one (1) permanent groundwater level observation well adjacent to boring LB-2.
- Performed a geophysical survey to investigate select portions of the site for subsurface anomalies.

See Figure 2 for approximate location of work.

The field work associated with our investigation was completed under the full-time inspection by a field engineer from our office under the direct supervision of our Project Professional Engineer. Our field engineer marked out the boring and well locations using a survey-grade GPS unit, maintained logs of the explorations, classified encountered soil, and obtained representative material samples.

Permission to access the site was obtained from the National Development Council and the Town of Riverhead prior to performing our work. The One-Call utility mark-out request was performed by our subcontracted drilling contractor prior to any drilling activities. In addition, a private utility company was used to mark out detectable utilities within the immediate vicinity of the proposed boring/well locations.

Borings

The borings were drilled by Eastern Environmental Solutions, Inc. on 2 and 3 August 2023 using a Geoprobe 7822 DT drill rig. The borings were advanced to depths ranging from approximately 37 to 77 feet below existing grades using mud rotary techniques. A standard 2-inch-outer-diameter split spoon sampler was used to obtain disturbed samples of the underlying soil strata. The Standard Penetration Test (SPT)[1] was accomplished as part of the sampling procedure (in accordance with ASTM D1586), and the SPT results were recorded by our inspecting engineer. As part of the SPT test, an *automatic hammer* was used to advance the split spoon into the soil. Continuous SPT soil samples were obtained for the first 12 feet and every 5-foot interval thereafter.

Groundwater levels were recorded when first encountered within each boring. The borings were grouted upon completion.

[1] The Standard Penetration Test (SPT) is a measure of the soil density and consistency. The SPT N-value is defined as the number of blows required to drive a 2-inch O.D. split-barrel sampler 12 inches, after an initial penetration of 6 inches using a 140-pound automatic hammer falling freely for 30 inches.

The individual boring logs are provided in Appendix E.

Permanent Groundwater Level Observation Well

The permanent groundwater level observation well was installed by Eastern Environmental Solutions, Inc. on 3 August 2023 in a borehole adjacent to boring LB-2. The well was drilled to a depth of approximately 25 feet below existing grades and consisted of 2-inch-diameter (solid and screened) PVC pipes, sand backfill, and a flush-mounted cover to match the existing grades.

Groundwater levels within the groundwater level observation well were measured during our field investigation.

Laboratory Testing

Soil samples from the geotechnical investigation were visually examined in the field and classifications were confirmed by re-examination in our Parsippany, New Jersey offices and selected soil samples were sent to a specialty testing laboratory for Grain Size Distribution.

The results of the geotechnical testing are provided in Appendix F.

Geophysical Survey

The geophysical survey was performed by NOVA Geophysical Engineering Services within select portions of the asphalt paved parking lots to locate existing utilities and scan for possible buried obstructions (including former foundations and USTs). The geophysical survey was performed using electromagnetic (EM) scanning and ground penetrating radar (GPR) methods.

The geophysical survey report prepared by NOVA is provided in Appendix G.

SUBSURFACE CONDITONS

Based on the borings performed for this study, the site subsurface conditions beneath the surficial materials consisted of fill overlying sand. The following sections describe the encountered strata and observed groundwater conditions.

An automatic hammer was utilized for the borings performed for this study. The SPT N values obtained during our investigation have been converted to N_{60}-values by utilizing a conversion formula and estimated hammer efficiency.

Surface Materials

An approximate 4- to 6-inch-thick layer of asphalt was encountered at the surface of the borings.

All borings were performed within the existing paved areas. Please note that landscaped areas exist within the site and are expected to consist of a surface layer of topsoil.

Fill

A fill layer typically consisting of yellowish brown to orangish brown to dark grayish brown to black fine to coarse sand with varying amounts of silt, fine gravel, and miscellaneous debris (asphalt, concrete, glass, and wood) was encountered beneath the asphalt in all borings.

The fill thickness was found to range from approximately 2 to 3 feet.

Sand

Light brown to light orangish brown to brown to light gray to gray fine to coarse sand with varying amounts of silt and fine gravel was encountered beneath the fill in all borings.

The upper portion of the sand was typically found to be loose to medium dense as evidenced by SPT N_{60}-values ranging from 7 to 46 blows/foot (average SPT N_{60}-value of 17 blows/foot).

At a depth of approximately 55 to 65 feet below existing grades, the density of the sand was found to increase. The lower sand was found to be dense as evidenced by SPT N_{60}-values ranging from 30 to 48 blows/foot (average SPT N_{60}-value of 42 blows/foot).

Based on laboratory testing, the sand had a fines content ranging from approximately 0.5% to 2.5%.

All borings were terminated within the sand stratum.

Groundwater

Groundwater was first encountered within all borings at depths ranging from approximately 15 to 20 feet below existing grades, corresponding to approximate el 0.6 to el 5.7. The groundwater level within the borings was inferred based on the moisture content of the samples retrieved during SPT sampling and is not as reliable as results obtained from the monitoring well.

Subsequent to developing the groundwater level observation well on 3 August 2023, the groundwater level was measured to stabilize at approximately 16.5 feet below existing grades, corresponding to approximate el 4.1.

The groundwater levels are expected to fluctuate based on weather, seasonal conditions, and construction activity. In addition, the groundwater levels are expected to be affected by the tide of the nearby Peconic River.

GEOPHYSICAL SURVEY FINDINGS

According to the results of the geophysical survey, subsurface anomalies were detected at several locations throughout the site. These anomalies were primarily observed within areas where residential houses previously existed and are indicative of buried structures (potentially old foundation remnants).

PRELIMINARY GEOTECHNICAL CONSIDERATIONS

Based on a review of available information, we have identified the following geotechnical considerations for development at the project site:

- **Site Demolition and Site Preparation:** Any miscellaneous surface trash, debris, or other unsuitable materials should be removed from the site. In existing vegetated areas, clearing and grubbing of all trees (including removal of any associated roots systems) and vegetation designated for removal should be performed.

  Existing asphalt should be completely stripped within the designated areas of the project site. The existing asphalt designated for removal can be milled and stockpiled for reuse as pavement subbase in any new pavement areas or disposed off-site.

  Any active existing utilities that are encountered in the proposed parking garage footprint area should be re-routed. Utilities designated for removal should be completely removed within the proposed garage footprint. In proposed pavement and landscape areas, existing utilities can be either removed or abandoned in place by completely filling with flowable fill.

  After performing the site preparation work and prior to placing compacted fill to raise site grades, all site soil within the proposed development area should be proofrolled with 3 overlapping coverages of a vibratory roller having a minimum static drum weight of 5 tons. Prior to constructing finished surfaces (building slabs, asphalt pavement, and concrete pavement), we also recommend that the subbase be proofrolled using a fully loaded tri-axle dump truck in the presence of a qualified geotechnical engineer. Soft areas identified during proofrolling should be excavated and replaced with approved, compacted fill.

- **Reuse of Existing Soils:** At this time, we anticipate that the on-site soils can be reused as compacted fill to raise grades or backfill foundation and utility excavations. We typically recommend that oversized material (i.e. greater than 6 inches) be removed from the fill. The use of larger aggregate should only be done as approved by a qualified geotechnical engineer based on inspection of conditions encountered during construction.

  In addition, the existing fill was found to only contain trace amounts of miscellaneous debris (asphalt, concrete, glass, wood). Due to the site history, selective screening of the existing fill may be necessary to remove buried unsuitable soils and larger pieces of deleterious debris. This deleterious materials separated by screening should be disposed off-site.

- **Reuse of Asphalt Millings:** The existing asphalt designated for removal can be milled/broken and stockpiled for reuse as pavement subbase in proposed pavement areas (if necessary). Removed asphalt that will be reused should be broken into a well-graded mixture with pieces having dimensions less than 2 inches in any direction. The Contractor should provide adequate dust control during the milling process. The reuse of asphalt millings at the site should also be reviewed and approved by the project environmental consultant, prior to such reuse.

  We recommend that the asphalt millings not be reused as "general" fill or to backfill excavations.

- **Buried Obstructions:** Based on historic information, residential houses were previously present on the north and south sides of First Street. Remnants of the foundations for the former houses likely still exist. Several subsurface anomalies were found in our geophysical survey that indicate buried obstructions may be encountered during construction of foundations.

  We recommend that buried foundations be completely removed beneath the proposed parking garage footprint (where encountered).

- **Imported Fill:** Imported fill should consist of a relatively well graded mixture of sand and gravel with not more than 15 percent (by weight) finer than the No. 200 sieve and a maximum particle size of 4 inches. The use of any imported fill containing a higher percentage of fines or larger aggregate size would need to be evaluated by a qualified geotechnical engineer during construction.

  Suitable fill should be free of organics and other deleterious materials. Any approved imported fill should contain no contamination in exceedance of the applicable New York State DEC standards. In addition, the fill material should not originate from any site subject to federal or state environmental regulatory requirements for site remediation or

permitting of hazardous or petroleum waste or material including but not limited to underground storage tanks, state hazardous waste sites, brownfield sites, New York City 'E' designated sites, national priority list sites, state voluntary cleanup, or landfill sites. The Contractor should provide documentation of compliance prior to delivery of any fill to the site.

- **Groundwater Control During Construction:** Based on anticipated grading, excavations for the proposed building foundations and site utilities are anticipated to be above the measured groundwater levels. However, groundwater seepage during periods of wet weather and perched water encountered during excavation work should be expected and can be controlled using conventional submersible pumps in conjunction with gravel sumps.

- **Foundation Support:** We recommend the following foundation options be considered for support of the proposed parking garage:

    1) Shallow Foundations and Slab-On-Grade Construction
    2) Deep Foundations and Structural Slab Construction

  The Design Team and Contractor should consider economic, vibration, noise, and schedule impacts associated with each option when selecting the foundation support system.

- **Shallow Foundations:** The proposed parking garage can be supported on shallow foundations.

  – Shallow Foundation Design: The proposed parking garage can be supported on shallow foundations bearing on proofrolled native soils. At this time, we recommend that the existing fill soils be removed beneath the proposed footings. The new building footings can be designed using a maximum allowable bearing pressure of 2.5 to 3 kips/ft^2.

    To improve the bearing support for the parking garage due to the anticipated heavy loads associated with a 3- to 4-level garage, ground improvement can be performed beneath the foundations. Subsequent to ground improvement, we anticipate that the new building footings can be designed using an allowable bearing pressure of 5 kips/ft^2.

  – Ground Improvement: We recommend that the ground improvement consist of installing vibratory stone columns (VSCs). The VSCs are constructed by drilling a specially designed mandrel completely through the fill and loose sandy soils and into the underlying denser soil, then backfilling the excavated shaft with

compacted lifts of crushed stone. The VSC method displaces the soil during stone column installation rather than creating an augered hole, as when installing traditional Compacted Stone Columns, by utilizing a specialized vibratory probe. The cavity associated with the VSC is created by a specially designed mandrel that is pushed and vibrated into the ground to a specific depth. Stone is placed into the cavity as the mandrel is withdrawn. The mandrel also acts as a tamper to compact the stone in approximately one-foot-thick lifts.

Obstructions and sporadically dense soils are expected to be encountered within the fill and upper sandy soils. Pre-drilling or excavation of obstructions in the fill should be performed as necessary to facilitate installation of VSCs.

At this time, we anticipate that the VSC lengths will typically range from approximately 30 to 35 feet.

- **Deep Foundations:** As an alternative to supporting the structure on shallow foundations, deep foundations consisting of driven or drilled piles can be considered to support the proposed parking garage. We recommend that the deep foundations consist of either driven timber piles or tapertube piles. However, if noise and vibration are a concern, Auger Cast in Place (ACIP) drilled piles should be considered instead of driven piles.

  The following is brief description of the different deep foundation options:

  – Timber Piles: We recommend that 12-inch-diameter timber piles (minimum 8-inch-diameter tip) be considered as a deep foundation option. We anticipate that the timber piles would be driven to approximately 30 to 35 feet and provide an allowable compression capacity of 25 to 30 tons.

    The timber piles should be of Pacific Coast Douglas fir or Southern Yellow Pine and should conform to ASTM D25. All piles should be driven in one piece. Splices should not be permitted. Piles shall be preserved in accordance with specifications of the American Wood Preservers Associations (AWPA). The timber piles should be driven using a hammer having a minimum rated energy of 15,000 foot-lbs to a final driving criteria as determined by the Engineering News Formula.

    If required, timber piles can be outfitted with special connections to provide uplift capacity.

  – Tapertube Piles: We recommend that 14-inch O.D. x 0.25 inch wall thickness pipe pile fitted with 8-inch x 14-inch x 15 foot long tapered tip section be considered as a deep foundation option. We anticipate that the tapertube piles would be driven to approximately 70 to 75 feet and provide an allowable compression capacity of 50 tons.

The pipe pile should have a minimum yield strength of 50,000 lb/in^2. Subsequent to driving, the pile should be filled with concrete having a 28-day compressive strength of 4,000 lb/in^2.

Tapertube piles should have a protective conical point at the tip. The tapered sections should also have an adequate wall thickness to minimize potential damage during driving.

– ACIP Drilled Piles: We recommend that 12-inch-diameter Auger Cast in Place (ACIP) piles with a rebar cage be considered as a deep foundation option. We anticipate that the ACIP piles would be drilled to approximately 50 to 65 feet and provide an allowable compression capacity of 50 to 75 tons.

ACIP Piles are installed by first drilling a plugged hollow-stem, continuous-flight auger or drill tool into the ground at a certain rate to a predetermined depth or resistance. During auger or drill tool penetration, some soil is removed by the auger flights, and additional soil is compacted against the sidewalls of the drill hole. After the desired depth or resistance is reached, concrete or grout is pumped into the hollow stem to tremie fill the drill hole. Subsequently, the auger is withdrawn while concrete or grout is continuously pumped under pressure throughout the auger or drill tool withdrawal. After the concrete or grout placement is completed and the auger is removed, steel reinforcement is inserted or vibrated down into the fresh concrete or grout mixture and supported at the surface until curing is complete.

– Pile Load Testing: Index pile installation and full-scale pile load tests are necessary to confirm the final pile capacities and lengths prior to the start of construction. Index piles should be driven or drilled at locations selected by the Geotechnical Engineer and should be the same in every respect to the production piles. All pile load tests should be performed in accordance with requirements of the 2020 New York State Building Code.

- **Slab Support:**

- If shallow foundations are utilized, the garage ground floor slab can be a conventional slab-on-grade bearing on proofrolled/compacted soil subgrade areas. Ground improvement is not anticipated to be necessary beneath the ground floor slab. Slab areas should be proofrolled and any soft, loose, or unsuitable soils identified by the inspecting geotechnical engineer should be removed and replaced with approved, compacted fill. A 6-inch-thick layer of processed aggregate should be provided beneath the ground floor slab. The floor slab can be designed using a modulus of subgrade reaction of 150 lbs/in^3.

- A pile-supported structural slab should be used in building areas where pile foundations are utilized.

- At this time, we expect that a vapor barrier will not be required beneath the parking garage ground floor slab (subject to approval by the Architect and Owner). However, we recommend that a minimum 10-mil vapor retarder be utilized beneath the mechanical room or any areas that require special floor coverings (i.e. tile, carpeting) and are humidity controlled areas.

- **Estimated Garage Structure Settlement:**

  - For structures supported on shallow foundations, we estimate the total settlement for the proposed parking garage to be less than 1 inch and differential settlement of adjacent structure columns to be less than ¾ inch.

  - For pile supported structures, we estimate the total and differential settlement for the proposed parking garage to be less than ½ inch.

- **Seismic and Liquefaction Evaluation:** Based on the 2020 New York State Building Code, ASCE 7-16, and corrected SPT N_{60}-values obtained during this study, the proposed site building structures should be designed using the following parameters:

  – Site Class = D
  – Maximum Considered Earthquake Ground Motions:
    - 0.2 Second Spectral Response Acceleration, %g: S_s = 17.1
    - 1.0 Second Spectral Response Acceleration, %g: S_1 = 4.9

  The above ground motions should be adjusted for site class "D" effects using coefficients Fa = 1.6 and Fv = 2.4.

  Based the corrected SPT N_{60}-values and analyzing the liquefaction potential using Seismic Site Class D, liquefaction is considered to be unlikely. However, due to the relative density of the sand, we recommend that the seismic site class and liquefaction potential be further evaluated by performing additional borings and cone penetration tests (CPTs) during the final geotechnical investigation.

- **Protection of Adjacent Buildings and Utilities:** The proposed development will be constructed adjacent to existing structures, roadways, and utilities. Construction should be performed so as not adversely impact these existing structures, roadways, and utilities.

  We recommend that a pre-construction conditions documentation of adjacent buildings and roadways be performed prior to the start of work. At a minimum, the documentation

should consist of video tape documentation of the inspected areas, supplemented by photographs and sketches as appropriate. The documentation would serve as a qualitative document of the conditions of the existing structure prior to the start of work.

During demolition and construction, we recommend that construction induced vibrations be monitored with seismographs strategically placed along the existing buildings so that the Contractor can keep themself informed regarding the impacts, if any, of their work on adjacent structure. The monitoring described herein should not replace the Contractor's responsibility to perform this work in a manner so as to not adversely impact or cause loss of support to adjacent structures. The Contractor should perform any survey or other additional monitoring they deem necessary to adequately inform themself regarding the impacts of their work on the adjacent buildings.

At this time, we recommend that the peak particle velocity measured at the adjacent buildings not exceed 1 inch/second. This is a preliminary criterion that should be monitored and confirmed by the behavior of adjacent structures. Monitoring of the vibrations should be performed continuously during the demolition and construction work hours.

- **Environmental Aspects:** Any environmental issues identified at the site should be considered with respect to impacts on the geotechnical aspects of the work as described in this report and together with recommendations regarding on-site soil material re-use, construction dewatering, and off-site disposal of materials and groundwater.

ADDITIONAL INVESTIGATION

Once the development concept plans for the site are finalized, a final investigation consisting of borings, test pits, CPTs, and laboratory testing will be required in order to provide final recommendations for design and construction.

CLOSURE

The Contractor is responsible for construction quality control, which includes satisfactorily constructing the foundation system and any associated temporary works to achieve the design intent while not adversely impacting or causing loss of support to neighboring property, structures, utilities, roadways, etc.

This letter report presents our preliminary recommendations regarding the geotechnical aspects of design and construction for the proposed First Street Parking Lot Redevelopment located on Riverhead, Suffolk County, New York. This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, or by natural events such as floods, earthquakes, slope instability, or groundwater fluctuations.

The information provided herein is preliminary. Final recommendations will be provided upon completing a final geotechnical investigation.

The conclusions and recommendations provided in this report result from our interpretation of the geotechnical conditions existing at the site inferred from a limited number of borings, as well as site information provided to our firm. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Actual subsurface conditions may vary. Langan reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Recommendations provided are dependent upon one another and no recommendation should be followed independent of the others. Our report, conclusions, and interpretations should not be construed as a warranty of the subsurface conditions.

Environmental issues (such as permitting or potentially contaminated soil and groundwater) are outside the scope of this study and should be addressed in a separate evaluation.

We thank you for allowing us to assist you on this project. If you have any questions regarding this report, please call.

Sincerely,
Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology, DPC

Kristen E. Olson
Project Engineer

Ronald D. Boyer, P.E.
Principal / Vice President

cc: Daniel Marsh III / National Development Council
Dawn Thomas / Town of Riverhead
Arthur Roesler / Langan