

CITY OF ELIZABETHTON, TENNESSEE

Purchasing Department

136 SOUTH SYCAMORE STREET
ELIZABETHTON, TN 37643
423-542-1505

Date: 03/09/2018

(This is NOT an Order) REQUEST FOR BID

TERMS: _____
DELIVERY DATE: _____

BID # 577
BID OPENING DATE: 04/03/2018
BID OPENING TIME: 11:00 AM

ALL QUOTATIONS MUST BE F.O.B. ELIZABETHTON, TENNESSEE

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
			<p>SPORTS LIGHTING EQUIPMENT</p> <p>SPECIFICATIONS ARE ATTACHED AND IS AN INTEGRAL PART OF THIS BID.</p>		\$ _____

Person to contact regarding this bid: GREG WORKMAN (423)542-1505

DELIVERY INSTRUCTIONS
CITY OF ELIZABETHTON 136 S. Sycamore Street Elizabethton, TN 37643

In submitting the above, the undersigned agrees to sell to the City the material or service at the price shown and further agrees to all terms and conditions contained in this bid agreement. Acceptance of any or all of the above within a reasonable period will constitute a contract between both parties.

NAME OF FIRM

(Purchase Order will be issued to the above vendor)

By _____

Address _____

Telephone _____

DIRECTOR OF PURCHASING

GENERAL CONDITIONS (READ CAREFULLY)

1. PREPARATION OF BIDS:

1. Only bids submitted on bid forms furnished by the City will be considered. The City may consider telegraphic bids received prior to the closing time specified if promptly confirmed on bid forms furnished by the City and received two (2) days prior to the bid award date. No TELEPHONE BIDS WILL BE ACCEPTED.
2. Bids to be enclosed in a sealed envelope, plainly identified in the upper left-hand corner with the company name and address and in the lower left-hand corner, the bid number and due date.
3. All bids must be delivered or mailed to the Director of Purchasing, City of Elizabethton, 136 South Sycamore Street, Elizabethton, TN 37643 unless otherwise directed on the bid form.
4. It is the bidder's responsibility to ensure that the written bid is delivered at the proper time and place of the bid opening.
5. No bid received after closing time will be considered. Late bids will be returned unopened.
6. If not offering a bid, bidder must return the bid form marked "NO BID" and state reason for not responding.

2. PRICING:

Each item must be priced separately. Unit prices shall be shown. In case of error in the extension of prices in the bid, the unit price will govern. No bid shall be altered, amended or withdrawn after specified time for bid opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

3. BID OPENINGS:

Bids will be opened and read aloud at the specified time and date set in the Invitation to Bid. These meetings are open to the public.

4. SIGNATURE ON BIDS:

Each bid must give full name and business address of the bidder and be signed, in ink, by the official of the company authorized to bind his company in contract.

5. ACCEPTANCE & REJECTION:

The City reserves the right to reject any or all bids, to waive informalities and to accept the bid if its judgment is in the best interest of the City. If a bidder fails to state a time in which a bid must be accepted, it is understood and agreed that the City shall have sixty (60) days to issue a purchase order.

6. BID EVALUATION:

Bids will be evaluated according to the criteria set forth in the Invitation to Bid with the degree of importance to be determined by the City.

7. AWARD:

Contracts and purchases will be entered into or made with the lowest responsible compliant bidder meeting specifications for material or services as deemed in the best interest and advantage of the City except as otherwise specified in the Invitation to Bid.

8. MULTIPLE ITEM BIDS:

When more than one item is specified in the Invitation to Bid, the City will determine that low bidder either on the basis of the individual items or on all the items included in the bid. ALL OR NONE bids must be clearly identified on the bid form and will be considered only if in the best interest of the City.

9. TIME OF DELIVERY:

Time of delivery is a part of the consideration and must be stated in definite terms and adhered to. If time varies on different items, the bidder shall so state. When no time of delivery is stated, it is understood and agreed that delivery is to be made within two (2) weeks after receipt of order. The contractor shall be required to

maintain or have available an inventory sufficient to make shipment within the time stated in his/her bid. The vendor may request a delivery extension in a letter to the Director of Purchasing if conditions arise that would prevent him/her from meeting his/her quoted delivery schedule. The City reserves the right to accept or reject this request.

10. DEFAULT:

In case of default of the Contractor, the City may procure the articles or services from other sources and hold the Contractor responsible for any excess cost resulting from this action.

11. BRAND NAMES:

Specifications furnished in the Invitation to Bid are intended to establish a desired quality of performance level or other minimum requirements which will provide the City with the best product available at the lowest possible price. If a bidder offers an alternate he/she must include the brand name and/or model he/she proposes to furnish and include complete descriptive literature and specifications that clearly describes the article offered and how it differs from the referenced brand. Reference to literature previously furnished will not satisfy this provision.

12. SAMPLES:

The City may request a sample product as part of a bid. This will be provided at no charge to the City. Samples remain in the Purchasing Department for a period of two (2) weeks following the award of a bid. Vendors are responsible for picking up their samples during that period. Samples not collected by the specified time allowed will become the property of the City. Samples of successful bidders will be retained until delivery is received and is accepted as being equal to their sample.

13. DISCOUNT PERIOD:

Time in connection with discount offered will be computed from the date of satisfactory delivery at destination, or from the date of satisfactory delivery at destination, or from the date the correct invoice is received, whichever is later.

14. FOB (FREE ON BOARD) POINT:

All prices quoted are to be FOB delivered to the using department, City of Elizabethton, Tennessee (unless another FOB point is stated on the bid form). The successful bidder will assume all responsible for damage in transit.

15. TAXES:

The City is exempt from Federal excise taxes and state and local sale or use taxes. Exemption certificates will be furnished upon request.

16. CONDITION STANDARDS:

It is understood and agreed that any item offered or shipped as a result of this bid shall be new and unused and shall be the manufacturer's latest model unless otherwise stated in the bid.

17. INSPECTION:

All supplies or materials are subject to inspection and rejection by the City. Rejected materials shall be returned at the bidder's expense.

18. SAFETY STANDARDS:

Unless otherwise stipulated in the bid all manufactured items and fabricated assemblies shall comply with applicable requirements of OSHA and any standards thereunder.

19. PARTS AND SERVICE:

The successful bidder must be able to provide adequate parts and service for items bid.

20. BID TABULATIONS:

Tabulations of bids will be furnished upon request.

21. PENALTIES:

Bidders may be removed from our active bid file for a period determined by the City as a result of any of the following:

1. Failure to respond to a bid request.
2. Failure to meet delivery requirements.
3. Failure to furnish specified items as a result of a bid award.
4. Offers of gratuities or favors to any employee of the City.

Bids may be removed from consideration for the following reasons:

1. Bid received after bid opening time.
2. Bid not signed.
3. Descriptive literature not included with the bid.
4. Sample not provided with bid if requested.

22. COOPERATIVE PURCHASING:

Bidder's/Proposer's are to indicate whether it is permissible for other governments in Tennessee to purchase these items or services at the same price. Freight charges can be adjusted to reflect differences in delivery costs.

23. EQUAL OPPORTUNITY:

It is the policy of the City of Elizabethton to provide equal employment opportunities and provide its programs, activities, and services to all individuals regardless of race, color, religion, sex, national origin, age, disability, or status in any other group protected by law. Inquiries and charges of violation of this policy should be directed to the Planning & Economic Development Director at (423) 542-1503 or at 136 South Sycamore Street, Elizabethton, Tennessee 37643. Requests for accommodation of a disability should be directed to the Purchasing Director at (423) 542-1505 or at 136 South Sycamore Street, Elizabethton, Tennessee 37643.

24. IRAN DIVESTMENT ACT OF 2014:

Pursuant to the Iran Divestment Act of 2014, Tenn. Code Ann. §12-12-106 requires the State of Tennessee Chief Procurement Officer to publish, using creditable information freely available to the public, a list of persons it determines engage in investment activities in Iran, as described in § 12-12-105. Inclusion on this list makes a person ineligible to contract with the City of Elizabethton; if a person ceases its engagement in investment activities in Iran, it may be removed from the list. The State of Tennessee list is available here:

<http://tennessee.gov/generalservices/article/Public-Information-library>.

25. LICENSES, FEES, PERMITS:

The contractor is responsible for furnishing the proper licenses, fees, and permits required by law to do business with the City of Elizabethton in completion of the project. All work shall be done in accordance with the latest building codes, state and federal laws relative to the contract.

26. NON-COLLUSION AGREEMENT:

By submitting this solicitation, the agent representing all officers, partners, owners, representatives, employees or interested parties of the vendor's firm certifies to the best of his/her knowledge and belief this bid/proposal to the City of Elizabethton, Tennessee has not been prepared in collusion with any other seller, proprietor, or manufacturer of similar products or services. The agent also certifies that the prices, terms and conditions of said bid/proposal have been arrived at independently and have not been communicated by the submitter, nor by any of the aforementioned firm associate to any other seller, proprietor, or manufacturer of similar products or services and will not be communicated prior to the official opening of said solicitation. The agent further states that no official or employee of the City of Elizabethton has promised any personal, financial or other beneficial interest, either directly or indirectly, in order to influence award of this solicitation.

27. WARRANTY:

1. Unless otherwise specified by the City, all items shall be guaranteed for a minimum period of one (1) year against defects in material and workmanship.

SPORTS LIGHTING BID SPECIFICATION
CITY PARK BASEBALL FIELDS
CITY OF ELIZABETHTON PARKS AND RECREATION

1. PART 1-INSTALLATION

1.1 SCOPE OF WORK

SCOPE OF WORK

1. Furnish and Install Sports Lighting Equipment at City Park Babe Ruth Field and Little League field that meets T.S.S.A.A. Lighting Standards.
2. Locate any underground lines before digging. Contractor required to contact Elizabethton Electric Department prior to mobilization to discuss the close proximity of the existing transmission and electrical lines. It will be the responsibility of the bidding electrical contractor to verify and repair any underground utilities.
3. Any underground irrigation lines currently installed at the fields to be marked by the City of Elizabethton.
4. Any fencing damage or removal to be replaced by the contractor.
5. Contractor to demo existing sports lighting poles and lights and dispose of old lights and poles. Existing wood poles to be pulled or cut below grade level.
6. Galvanized steel poles and cross arm assembly. Wood poles, direct burial steel poles, or direct burial steel stub base poles are not recommended.
7. Pre-stressed concrete base embedded in concrete backfill allowed to cure for 12-24 hours before pole stress is applied. Alternate may be an anchor bolt foundation designed so that the steel pole and any exposed steel portion of the foundation is located a minimum of 18 inches above final grade. The concrete for anchor bolt foundations should be allowed to cure for a minimum of 28 days before the pole stress is applied.

8. Provide and Install new breaker panel for 480 Volt 3 phase feeds to each pole. Each pole will be turned on by individual breakers. The panel to be sized for future two additional poles and lights for Babe Ruth Field just in case field size increases in the future.
9. Electrical equipment should be specified as ITE Siemens, Square D, or Cutler Hammer.
10. 480 Volt Three Phase Service to be used for the new lighting poles, fixtures and panel. Contractor to make all final connections. The Transformer is located in right field corner of the little league field.
11. Provide and Install all new underground copper wiring to each pole.
12. No trenches can cross the baseball fields.
13. Trenches are to be filled with Top Soil mix and tamped finished, straw, and reseed.
14. All permits will be obtained by the contractor. Any changes for permits responsibility of contractor.
15. Contractor to provide a set of Tennessee Stamped Electrical Drawings for this project.
16. All taxes to be included in the Contractor's proposal.
17. Contact for this project will be David McQueen with the Elizabethton Parks and Recreation at (423) 895-0802 or email: dmcqueen@cityofelizabethton.org
18. Job Site Address: City Park, 900 East Elk Avenue, Elizabethton, Tennessee 37643
19. A formal light test shall be conducted in the presence of the owner, contractor, and lighting representative. Actual readings must meet the required levels and uniformities in set forth written specifications.
20. Lighting systems not meeting performance criteria for this project shall be upgraded at the contractor's expense until the owner is satisfied that all lighting, structural, and electrical components meet the specifications herein.
21. Contractor must provide a list of references on prior sports lighting projects in the past two (2) years.

22. Contractor to provide all insurance requirements prior to contract award by City of Elizabethton. Proof of 2,000,000.00 per incident insurance policy and a 5,000,000.00- insurance umbrella policy required by contractor.
23. The sports lighting representative to assist with the aiming of the lights and provide light test commission reports per bid document specifications.
24. It is the intent of the City of Elizabethton to award this job no later than April 13, 2018. Construction can begin soon thereafter.
25. The winning bidder will provide all materials and labor and other needs according to the scope of work above to City of Elizabethton Parks and Recreation Department.
26. Sales Tax on Materials to be included with total bid cost.
27. The City of Elizabethton has provided the Geo Technical Soil Investigative Report with Bid package. It will be the full responsibility of the bidding electrical contractor to evaluate this report and provide a Stamped Sports Lighting Pole Foundation Design by a licensed structural engineer with the State of Tennessee. All cost for this to be included by the bidding electrical contractor. There will be no unit prices for partially weather removal or rock removal for pole bases and trenching. All costs are the responsibility of the bidding electrical contractor.

2. PART 2-PRODUCTS

2.1 LIGHTING PERFORMANCE

The purpose of these specifications is to define the performance and design standards for the lighting of this project. The manufacturer shall supply lighting equipment and computer-generated point by point analysis that meets or exceeds the following:

A. Performance Criteria

1. The lamp shall be a 1500-watt metal halide lamp and shall meet ANSI code M48. Lamps with a lumen output above 155,000 will not be accepted due to excessive lamp depreciation.

2. All computer-generated point-by-point light scans shall be based on an approved lamp manufacturer's published initial lumen output (after 100 hours burn in). The lamp manufacturer's 1500-watt lamp specification sheet must be provided.
3. A tilt factor of 1.0 shall not be acceptable for any type of lamp, and all computer-generated point-by-points shall be calculated based on each individual optical unit's actual tilt and required tilt factor for the degree variance from the lamp measured and published operating position.
4. The specified light levels shall be derived by applying Light Loss Factors to the Initial and Maintained lighting designs in the following manner (Per IESNA Recommended Practice for Sports & Recreation Area Lighting-RP-6-01).
5. Initial Light Levels are to be based on foot-candles as calculated from the photometric report of the luminaire (per the lamp manufacturer's 100-hour lamp lumens) x Ballast Factor x Voltage Factor x Ambient Temperature Factor x Lamp Tilt Factor.

<u>Area of Lighting</u>	<u>Average Entire Field</u>
Infield	62.5 foot-candles
Outfield	37.5 foot-candles

6. Target (or Maintained) Light levels are based on Initial Light Levels multiplied by the Recoverable Light Loss Factor (LLF) of 0.80. Recoverable $LLF = LLD \times LDD = .80$. Target Light Levels shall meet or exceed the following. All other manufacturer's submitting for approval must provide initial and maintained lighting designs for approval per IESNA RP-6-01 Section 2.2.5.

<u>Area of Lighting</u>	<u>Average Entire Field</u>
Infield	50 foot-candles
Outfield	30 foot-candles

7. The manufacturer guarantees initial field light intensity levels and uniformity ratios after initial start-up or within the first One Hundred (100) hours of operation (Per IES and Lamp Manufacturer Initial Lumen Output Ratings). Light level readings shall be taken at the grid point locations as detailed in the point by point analysis specification at 3' above field grade.
8. If manufacturer uses a purchased ballast in their fixture/enclosure, the manufacturer must apply the appropriate ballast factor (per ballast manufacturer's data) in their lighting

calculation to account for wattage losses of a ballast operating “hot in the fixture/enclosure”. A ballast factor of 1.0 shall not be allowed, unless the ballast and fixture/enclosure are from the same manufacturer and have been rated and tested to operate the lamp at its design center hot in the fixture/enclosure.

- B. Performance Criteria: Light Uniformity: In order to ensure the optimal playability and visual appearance of the field, all lighting designs shall meet the following:
1. Maximum to Minimum Uniformity Ratio: The uniformity of the playing field shall be measured by comparing the maximum reading to the minimum reading. This ratio shall not exceed the following:

<u>Area of Lighting</u>	<u>Maximum to Minimum Uniformity Ratio</u>
Infield	2:1
Outfield	2.5:1

2. Coefficient of Variance (CV): The ratio of the standard deviation for all of the light level readings to the mean light level for the defined set of grid points shall not exceed the following:

<u>Area of Lighting</u>	<u>Coefficient of Variance</u>
Infield	0.09
Outfield	0.17

2.2 POINT BY POINT ANALYSIS

A. Computer Models-Test Stations

Submitted computer models depicting the measurements of light shall be generated on a grid of specified number of points covering a stated area on an equally spaced grid. See the chart below for the exact specifications of points, areas, and grid spacing for each field:

<u>Area of Lighting</u>	<u>Target Points</u>	<u>Size of Area</u>	<u>Grid Spacing</u>
Infield	25	Entire Infield	30' x 30'
Outfield	82	Entire Outfield	30' x 30'

1. Bidder shall submit two (2) different models, one depicting initial design and the second depicting light levels with described maintenance factor applied.

B. Meter Orientation

1. Horizontal foot-candles models shall represent readings taken with the meter test cell positioned horizontal 36 inches above ground.
2. Maximum Vertical foot-candles-models shall represent readings taken with the test cell positioned 36 inches above grade and aimed towards the center of the field at 30' intervals.

2.3 INSPECTION AND VERIFICATION

A. Test and Measurement Procedures

1. Testing of the facility shall be done based at the test points as described in section 2.2.
2. All testing will be done with entire facility illuminated and shall be done after 100 hours of lighting systems use (per IES recommended practice) to allow the lamps to depreciate to their stated initial lumen output per manufacturer's lamp technical data sheet.
3. In the event that the actual spill light readings exceed those defined in Section 2.1, ambient light readings shall be taken and subtracted from the respective light readings. The ambient readings must be taken at the same location and orientation as the previously recorded readings.
4. The manufacturer will be required to grid the complete field(s) based on the computer models submitted requirements and take readings at each grid point. The manufacturer will be required to utilize a calibrated, cosine corrected light meter for test measurements. The average of the two-meter readings will be recorded as the light intensity of each grid point.
5. For final approval of the project the manufacturer shall provide a final report from the test results that shall provide the following items:
 - a. Identification of number and location of the test stations, that shall agree in number and location with description provided in 2.2.
 - b. Actual horizontal foot-candle readings taken at each test station.

- G. **Aiming Alignment:** Luminaire assembly shall be provided from the factory to the job site as a unit which may be universally oriented in a manner that the entire luminaire assembly can be field aimed as single unit.
- H. **Materials and Coating:** All steel components shall be hot dip galvanized to the most current ASTM A-123 standards. High purity reflector grade aluminum shall be anodized and coated with a thin layer of heat-cured glass that is chemically bonded to the reflector for corrosion protection, greater smoothness, better reflectivity and ease of cleaning. All non-current carrying fasteners, hinges, and latches shall be stainless steel and shall be cadmium plated or coated with thermoset epoxy type organic coatings such as Empigard to prevent galvanic interaction.
- I. **Cross Arm Welding:** Cross Arm sections for the luminaire assembly shall be welded before galvanizing. Any additional fasteners used for the attachment of accessories to the cross arm shall be stainless steel, hot-dipped galvanized or coated with Empigard or equivalent. All weld joints utilized will be pre-qualified per the American Welding Society or qualified by an AWS certified inspector or testing firm.
- J. **Structural Strength:** To assure continued alignment of the critical aiming of the luminaires and to avoid wind damage to the cross arms or its components, the cross arms, fixture, reflector, and its attachment to the pole shall be designed to withstand winds per local builder's code. Luminaires shall be attached to the cross arm by a minimum of one (1) bolt.

2.6 SAFETY SPECIAL CONDITIONS

- A. **UL Listing:** There shall be provided a UL listing for all electrical components from its connection to the feeder conductors, to its completion at the lamp socket including all connections. This listing shall be based upon UL testing and evaluation of the compatibility of the enclosures and components for use in combination in this application in addition to the individual components being UL listed or recognized.
 - 1. Bidder shall supply, in advance of bid, a page summarizing the Underwriters laboratory listing numbers covering the entire luminaire assembly being bid for the owner's review and retention.
- B. **Codes-Sports Lighting Structure** shall meet National Electrical Code

2.7 WARRANTY

- A. **Assurance-** Manufacturer warrants the entire sports lighting system including poles (excluding fuses and lamps) to be free from defects as related to materials for a period of

ten (10) years from the date of delivery.

1. Labor- Contractor agrees to provide a turn key warranty for a period of one (1) year to replace defective ballasts or lamps and repair defects on workmanship per manufacturer's warranty details.
2. Lamps- Lamps are warranted not to fail for one (1) year from the date of delivery. Lamps which fail during the first year will be replaced at no charge by contractor per manufacturer warranty details.
3. Limitations- The following are not covered under this warranty:
 - A. Fuses
 - B. Damage from weather condition events such as lightning, hail, or excessive wind from tornados or hurricanes.
 - C. Improper Installation, vandalism, or abuse.
 - D. Unauthorized repairs or alterations.

2.8 INSTALLATION

- A. Backfill and Auger Size for Steel Poles to be per manufacturer recommendation.
- B. Assembly: The pole to be properly plumbed and aligned per manufacturer requirements.

2.9 MANUFACTURER'S REPRESENTATIVE ON SITE VISIT

- A. Manufacturer shall provide a qualified, factory trained representative on-site after the completion of the project installation. The manufacturer shall make any necessary adjustments to the aiming in order to ensure that the specified lighting performance is met. This service is to be provided free of charge, provided the lighting equipment was installed in accordance with the manufacturer's design and specifications.

2.10 DELIVERY REQUIREMENT

- A. The equipment must be on site 6-8 weeks from the receipt of signed purchase order, acceptance of order and receipt of complete order information.

2:11 ALTERNATE SUBMITTAL DATA TO BE PROVIDED

- A. Failure to provide any of the following information with the alternate submittal will be grounds for rejection of the alternate. Each item listed below shall be provided in the form of clear and concise statements and/or plans and drawings which can be easily read and clearly interpreted. Each item shall also be clearly lettered to correspond with the following list. All items shall be assembled in the order indicated and secured or bound in a neat and orderly fashion for easy use and reference. Faxed bids will not be accepted. Owner must notify all bidders of any approved alternate by addendum only. Bidders requesting to use equipment other than that specified shall submit ten (10) days prior to bid opening the following:

1. Lighting layout design showing luminaire mounting heights, aiming focus points, reflector types, number of luminaires per pole and kilowatt consumption for initial and maintained designs per fixture counts set forth and initial foot-candles per this specification.
2. A drawing of the Sports Lighting Structure meeting or exceeding specified criteria.
3. Computer generated point-by-point analysis of field light values as set forth in accordance with lighting performance specifications.
4. Complete photometric reports produced by an independent testing laboratory for each type of reflector to be utilized to achieve performance criteria.
5. Computer generated spill/glare analysis in accordance with lighting performance specifications.
6. Written statements of model number and manufacturer for all equipment bid.
7. Written warranty from the manufacturer covering entire structure as outlined in specifications.
8. Certified engineer shall verify and stamp wind load tests of luminaire assembly to meet or exceed structural strength as described in specifications. Please note, EPA test does not constitute mis-alignment verification.
9. UL test number
10. Manufacturer shall submit a letter guaranteeing that foot-candle levels and uniformity as specified will be met. In addition, manufacturer's remedy to deficiencies will be noted.
11. There shall be provided by the manufacturer sufficient data and calculations to show that the specified criteria will be met, including a foundation design certified by a professional engineer.
12. Failure to provide any of the above described documentations may be grounds for proposal rejection.

Sealed bids are due on or before Tuesday April 3rd at 11:00 am

The address to deliver bids: Attn: Greg Workman (Purchasing Director)
136 South Sycamore Street, Suite 203
Elizabethton, Tennessee 37643

It is the intent of the City of Elizabethton Parks and Recreation Division to award and notice to proceed by April 13th, 2018.

BASE BID- AS SHOWN IN SCOPE OF WORK ABOVE: \$ _____

BASE BID PRICE INCLUDES ALL LABOR, MATERIALS, PERMITS, TAXES, AND ANYTHING ELSE TO COMPLETE THE PROJECT.

COMPANY NAME: _____ DATE: _____
ELECTRICAL LICENSE NUMBER: _____
COMPANY ADDRESS: _____
CONTACT NAME: _____
CONTACT SIGNATURE: _____
COMPANY FAX: _____ COMPANY PHONE: _____
EMAIL ADDRESS _____

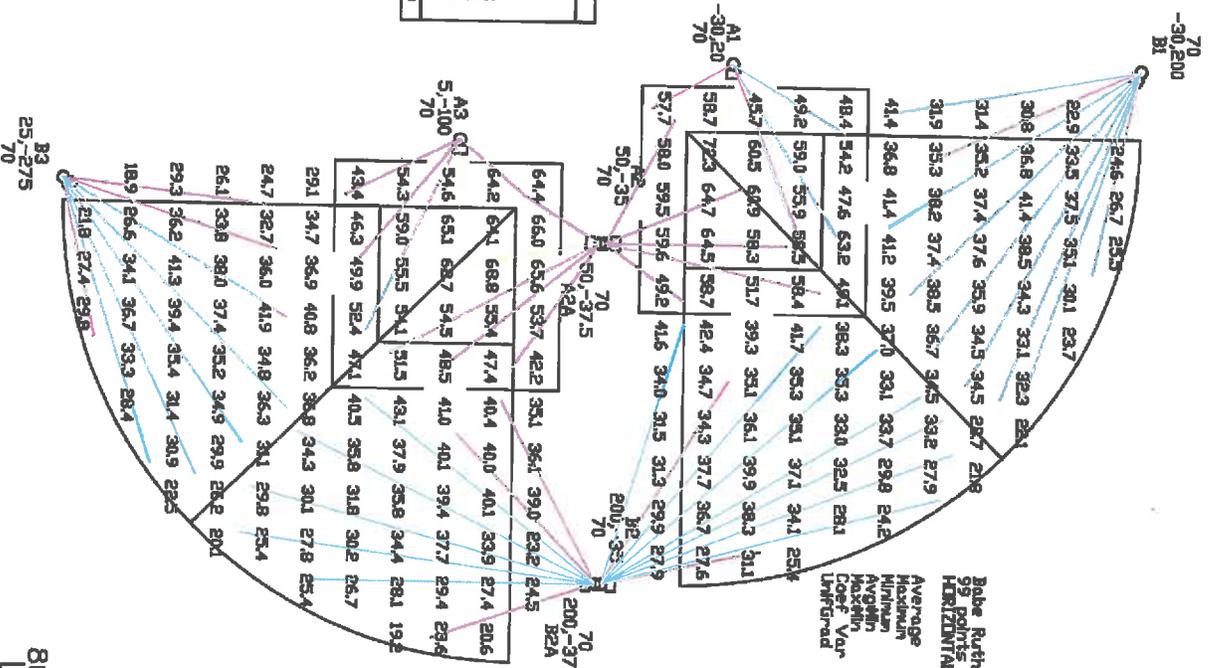
Ensuring that bids are received by the City of Elizabethton Parks and Recreation Department and received on time is the sole responsibility of the bidding contractor. The City of Elizabethton Parks and Recreation Department takes no responsibility for the lost or late submission. Bids will not be accepted by fax or email.

NEMA 5
HUBBELL SL151500H-3K
 Initial Lumens per Lamp = 170000
 Light Loss Factor = 0.800
 Watts per luminaire = 1610
 Candela File Name: sl151500H-3IES
 Number luminaires used = 3
 kv these luminaires = 418

NEMA 4
HUBBELL SL151500H-4K
 Initial Lumens per Lamp = 170000
 Light Loss Factor = 0.800
 Watts per luminaire = 1610
 Candela File Name: sl151500H-4IES
 Number luminaires used = 2
 kv these luminaires = 354

NEMA 3
HUBBELL SL151500H-3K
 Initial Lumens per Lamp = 170000
 Light Loss Factor = 0.800
 Watts per luminaire = 1610
 Candela File Name: sl151500H-3IES
 Number luminaires used = 29
 kv these luminaires = 46.7

Pole	X-LOC	Y-LOC	HEIGHT	NEMA 3	NEMA 4	NEMA 5	Total	kv
A1	-30	20	70ft	2	2	1	5	81
A2	50	-35	70ft	1	4	3	8	81
A2A	50	-37.5	70ft	1	3	3	7	81
A3	5	-100	70ft	1	1	1	3	81
B1	-30	200	70ft	7	2	2	11	14.5
B2	200	-35	70ft	7	2	2	11	14.5
B2A	200	-37.5	70ft	5	3	3	11	12.9
B3	25	-27.5	70ft	5	3	3	11	12.9
Total				29	22	3	54	86.9



Bobbe Ruth
 99 Points
HORIZONTAL FOOTCANDLES
 Average 33.8
 Maximum 42.4
 Minimum 21.8
 Avg/Min 1.94
 Max/Min 1.94
 Coef Var 0.15
 Uniform 1.46

Infield
 Average 56.9
 Maximum 72.3
 Minimum 45.7
 Avg/Min 1.58
 Max/Min 1.58
 Coef Var 0.11
 Uniform 1.33

Little League
 98 Points
HORIZONTAL FOOTCANDLES
 Average 32.4
 Maximum 43.1
 Minimum 18.9
 Avg/Min 1.71
 Max/Min 2.28
 Coef Var 0.19
 Uniform 1.58

Infield
 Average 55.6
 Maximum 68.8
 Minimum 42.2
 Avg/Min 1.63
 Max/Min 1.63
 Coef Var 0.14
 Uniform 1.27



CITY PARK BASEBALL
TORRENCE SPORTS LIGHTING

DATE:	3/10/17	REV.:	CHECK BY:
DRAWING NUMBER:	A031017TSL1	DRAWN BY:	TSL

Torrence Sports Lighting

PD BOX 410129
 CHARLOTTE, NC 28241
 OFFICE (704) 587-6692
 FAX (704) 587-3318
 WWW.TSPORTSLIGHT.COM

Calculations, light levels and distributions are based on specific information that has been supplied to TSL. Any differences in luminaire production, light loss, geometry and other factors may result from the actual production of the luminaire. TSL is not responsible for the actual performance of the luminaire. TSL is not responsible for the actual performance of the luminaire.

LIGHT POLE SOIL REPORT

-Cat Island Park



Foundation Systems
Engineering, P.C.
Geotechnical Engineering and Consulting

Page 1 of 1

PROJECT NAME:	Ballfield Light Poles	DATE OF DRILLING:	1-31-2018
LOCATION:	Cat Island Park - Elizabethton, TN	FSE PROJECT No.:	218128
CLIENT:	City of Elizabethton - Parks and Rec	FSE REP:	George Cross, PE
CONTACT:	David McQueen		
DRILLER:	Construction Material's Laboratory		

Findings:

FSE was requested to evaluate the soil conditions at the ballfield field for six (6) new light pole locations. The planned light pole lengths are approximately 70 feet with a pole embedment depth of 10 feet, if the soil conditions are suitable for drilling. A spread foundation with pedestal will be used if foundation drilling is not viable.

Six (6) soil test borings with Standard Penetration Testing were performed. The soil type encountered was sand, gravel and cobbles. These materials are alluvial river deposits. Drilling refused on larger cobble and boulder size rocks from 2 to 5 feet in depth at the test locations. Groundwater was encountered at 2 feet in depth at location B4 and was not encountered in the drilled depth at the other locations. The park is situated in a low-lying area near the Doe River. Alluvial soil deposits exist throughout this area.

Assessment:

The soil encountered is not suitable for drilled foundations to a depth of 10 feet. The cobble and boulder size rivers rocks in this area are difficult to penetrate. The rocks can be excavated in an open spread type foundation situation. The stratum of dense river gravel, cobble and boulder will be suitable for support of a shallow, spread type foundation.

Recommendations:

The following soil parameters are recommended for foundation design.

Soil Unit Weight = 125 pcf

Friction Angle = 32 degrees

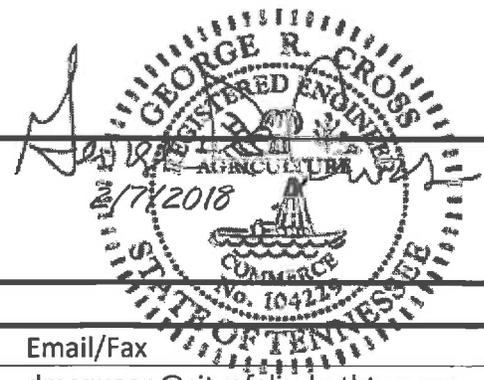
Cohesion = 0 psf

Ground Water Level = 2 feet

Minimum foundation embedment depth 4 feet

Allowable Soil Bearing Capacity= 2500 psf

Attachments: Boring Location Plan, Soil Test Boring Logs (6),
Area Topographic Map, Area Geologic Map

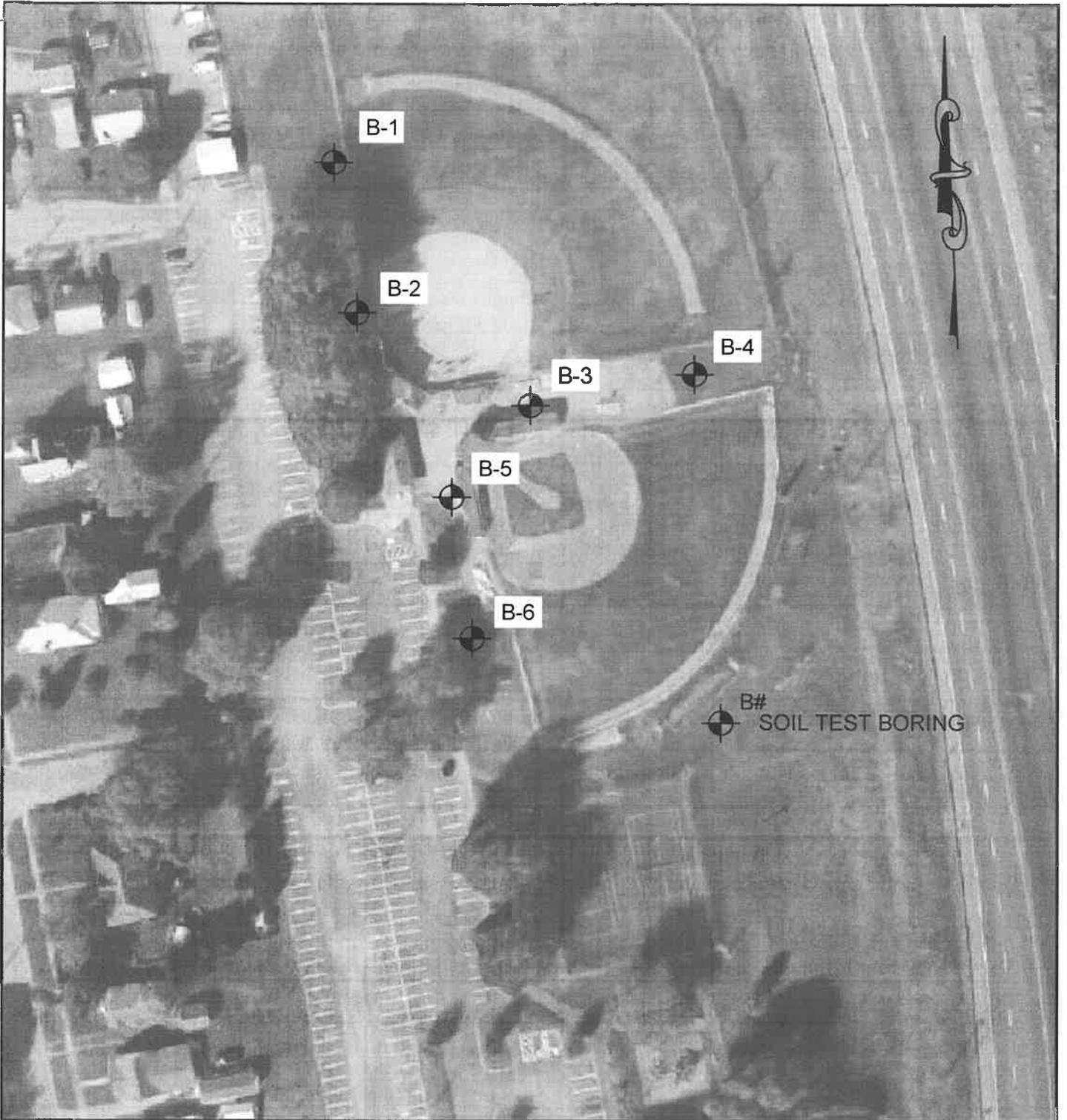


Distribution

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Prepared by: George Cross, PE

Report Date: 2/7/2018



**Foundation Systems
Engineering, P.C.**

Geotechnical Engineering and Consulting

**TEST BORING LOCATION PLAN
ELIZABETHTON CITY LIGHT POLES
CATS ISLAND PARK
ELIZABETHTON, TENNESSEE**

FOR: **CITY OF ELIZABETHTON**

P.O. BOX 5267
KINGSPORT, TN 37663

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FAX 239-8677

www.fsepc.com

DRAWN BY: NGC

PROJ #: 218128

SCALE: NONE

NOTES:

BORING LOCATIONS ARE APPROXIMATE

DATE: 02/05/2018

DWG #: BLP

Project: **ELIZABETHTON BALL PARK LIGHTS**
 Project Location: **ELIZABETHTON, TENNESSEE**
 Client **CITY OF ELIZABETHTON**

Log of Boring B-1
Sheet 1 of 1

Date(s) Drilled 1/31/2018	Drilling Contractor CML - Johnson City	FSE File Number 218128
Drilling Method Hollow Stem Rotary	Logged By George Cross	Total Depth of Borehole 4
Drill Rig Type CME 75	Checked By George Cross	Approximate Surface Elevation N/A
Borehole Backfill Cuttings	Sampling Method SPT	Groundwater Depth (ft) N/A
Comments NOTE: Auger Refusal Material Interpreted as River Cobble/Boulders		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Water Content, %	LL, %	Pl, %	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0									TOPSOIL, Black Sandy LOAM.	
									Loose, Very Moist, Brown, Silty SAND.	
			1	5						
			2	50=3"					Dense, Very Moist, Tan, Silty SAND with Gravel and Cobbles.	
5									Auger Refusal at 4.0 Feet at Time of Drilling.	
10										
15										
20										

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Project: **ELIZABETHTON BALL PARK LIGHTS**
 Project Location: **ELIZABETHTON, TENNESSEE**
 Client **CITY OF ELIZABETHTON**

Log of Boring B-2
Sheet 1 of 1

Date(s) Drilled 1/31/2018	Drilling Contractor CML - Johnson City	FSE File Number 218128
Drilling Method Hollow Stem Rotary	Logged By George Cross	Total Depth of Borehole 5
Drill Rig Type CME 75	Checked By George Cross	Approximate Surface Elevation N/A
Borehole Backfill Cuttings	Sampling Method SPT	Groundwater Depth (ft) N/A
Comments NOTE: Auger Refusal Material Interpreted as River Cobble/Boulders		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Water Content, %	LL, %	Pl, %	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0									Gravel Surface, Gray Black SAND and GRAVEL.	
			1	6					Loose, Very Moist, brown, Silty SAND.	
			2	50=2"					Dense, Very Moist, Tan Brown, SAND, GRAVEL and COBBLE.	
5									Auger Refusal at 5.0 Feet at Time of Drilling.	
10										
15										
20										

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Project: **ELIZABETHTON BALL PARK LIGHTS**
 Project Location: **ELIZABETHTON, TENNESSEE**
 Client **CITY OF ELIZABETHTON**

Log of Boring B-3
Sheet 1 of 1

Date(s) Drilled: 1/31/2018	Drilling Contractor: CML - Johnson City	FSE File Number: 218128
Drilling Method: Hollow Stem Rotary	Logged By: George Cross	Total Depth of Borehole: 5
Drill Rig Type: CME 75	Checked By: George Cross	Approximate Surface Elevation: N/A
Borehole Backfill: Cuttings	Sampling Method: SPT	Groundwater Depth (ft): N/A
Comments: NOTE: Auger Refusal Material Interpreted as River Cobble/Boulders		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Water Content, %	LL, %	Pl, %	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0									GRAVEL Surface, Gray, GRAVEL.	
			1	50=6"					Loose to Dense, Very Moist, Tan Gray Brown, SAND, GRAVEL and COBBLE.	
			2	50=2"						
5									Auger Refusal at 5.0 Feet at Time of Drilling.	
10										
15										
20										

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Project: **ELIZABETHTON BALL PARK LIGHTS**
 Project Location: **ELIZABETHTON, TENNESSEE**
 Client **CITY OF ELIZABETHTON**

Log of Boring B-4
Sheet 1 of 1

Date(s) Drilled 1/31/2018	Drilling Contractor CML - Johnson City	FSE File Number 218128
Drilling Method Hollow Stem Rotary	Logged By George Cross	Total Depth of Borehole 4
Drill Rig Type CME 75	Checked By George Cross	Approximate Surface Elevation N/A
Borehole Backfill Cuttings	Sampling Method SPT	Groundwater Depth (ft) 2.0
Comments NOTE: Auger Refusal Material Interpreted as River Cobble/Boulders		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Water Content, %	LL, %	Pl, %	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								TOPSOIL	
			1	24					Medium Dense, Very Moist, Gray, Brown Tan, SAND and GRAVEL.	
			2	50=3"					Dense, Very Wet, Brown Tan, SAND, GRAVEL and COBBLE.	
	5								Auger Refusal at 4.0 Feet at Time of Drilling.	
	10									
	15									
	20									

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Project: **ELIZABETHTON BALL PARK LIGHTS**
 Project Location: **ELIZABETHTON, TENNESSEE**
 Client **CITY OF ELIZABETHTON**

Log of Boring B-5
Sheet 1 of 1

Date(s) Drilled 1/31/2018	Drilling Contractor CML - Johnson City	FSE File Number 218128
Drilling Method Hollow Stem Rotary	Logged By George Cross	Total Depth of Borehole 2
Drill Rig Type CME 75	Checked By George Cross	Approximate Surface Elevation N/A
Borehole Backfill Cuttings	Sampling Method SPT	Groundwater Depth (ft) 2.0
Comments NOTE: Auger Refusal Material Interpreted as River Cobble/Boulders		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Water Content, %	LL, %	PI, %	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0	0								SAND/GRAVEL Surface.	
11	5		1	50=5"					Dense, Wet, Brown, SAND, GRAVEL and COBBLE.	
									Auger Refusal at 2.0 Feet at Time of Drilling.	
	10									
	15									
	20									

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Project: **ELIZABETHTON BALL PARK LIGHTS**
 Project Location: **ELIZABETHTON, TENNESSEE**
 Client **CITY OF ELIZABETHTON**

Log of Boring B-6
Sheet 1 of 1

Date(s) Drilled 1/31/2018	Drilling Contractor CML - Johnson City	FSE File Number 218128
Drilling Method Hollow Stem Rotary	Logged By George Cross	Total Depth of Borehole 2
Drill Rig Type CME 75	Checked By George Cross	Approximate Surface Elevation N/A
Borehole Backfill Cuttings	Sampling Method SPT	Groundwater Depth (ft) N/A
Comments NOTE: Auger Refusal Material Interpreted as River Cobble/Boulders		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Water Content, %	LL, %	Pl, %	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								TOPSOIL	
			1	50=4"					Dense, Tan Brown, Very Moist, Tan Brown, SAND, GRAVEL and COBBLE.	
									Auger Refusal at 2.0 Feet at Time of Drilling.	
	5									
	10									
	15									
	20									

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Project: **ELIZABETHTON BALL PARK LIGHTS**
 Project Location: **ELIZABETHTON, TENNESSEE**
 Client **CITY OF ELIZABETHTON**

Key to Log of Boring
Sheet 1 of 1

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Water Content, %	LL, %	PI, %	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10	11

COLUMN DESCRIPTIONS

- | | |
|---|---|
| <p>1 Elevation (feet): Elevation (MSL, feet).</p> <p>2 Depth (feet): Depth in feet below the ground surface.</p> <p>3 Sample Type: Type of soil sample collected at the depth interval shown.</p> <p>4 Sample Number: Sample identification number.</p> <p>5 Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.</p> <p>6 Water Content, %: Water content of the soil sample, expressed as percentage of dry weight of sample.</p> | <p>7 LL, %: Liquid Limit, expressed as a water content.</p> <p>8 PI, %: Plasticity Index, expressed as a water content.</p> <p>9 Graphic Log: Graphic depiction of the subsurface material encountered.</p> <p>10 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.</p> <p>11 REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.</p> |
|---|---|

FIELD AND LABORATORY TEST ABBREVIATIONS

- | | |
|--|--|
| NMC: Natural Moisture Content, percent | PI: Plasticity Index, percent |
| LL: Liquid Limit, percent | SA: Sieve analysis (percent passing No. 200 Sieve) |
| | UC: Unconfined compressive strength test, Qu, in ksf |

MATERIAL GRAPHIC SYMBOLS

- | | | | |
|--|--|--|--------------------------------------|
| Asphaltic Concrete (AC) | Portland Cement Concrete | Gravel | Clayey SAND (SC) |
| Bentonite | Cuttings | Grout | Clayey SAND to Sandy CLAY (SC-CH) |
| Bentonite chips | AF | Well graded GRAVEL (GW) | Clayey SAND to Sandy CLAY (SC-CL) |
| Bentonite powder | Clayey GRAVEL (GC) | Well graded GRAVEL with Silt (GW-GM) | Shale |
| Bentonite plug | Clayey GRAVEL to Gravely CLAY (GC-CH) | Poorly to Well graded GRAVEL (GW-GP) | Silt |
| Boulders | Clayey GRAVEL to Gravely CLAY (GC-CL) | Limestone | Siltstone |
| Fat CLAY, CLAY w/SAND, SANDY CLAY (CH) | Silty GRAVEL (GM) | Artificial Fill | Silty SAND (SM) |
| Fat CLAY/SILT (CH-MH) | Silty GRAVEL to Clayey GRAVEL (GM-GC) | SILT, SILT w/SAND, SANDY SILT (MH) | Silty SAND to Sandy SILT (SM-MH) |
| Fat CLAY/PEAT (CH-OH) | Silty GRAVEL to Gravely SILT (GM-MH) | SILT, SILT w/SAND, SANDY SILT (ML) | Silty SAND to Sandy SILT (SM-ML) |
| Lean CLAY, CLAY w/SAND, SANDY CLAY (CL) | Silty GRAVEL to Gravely SILT (GM-ML) | SILT, SILT with SAND, SANDY SILT (ML-MH) | Silty to Clayey SAND (SM-SC) |
| Lean-Fat CLAY, CLAY w/SAND, SANDY CLAY (CL-CH) | Poorly graded GRAVEL (GP) | High plasticity PEAT (OH) | Poorly graded SAND (SP) |
| SILTY CLAY (CL-ML) | Poorly graded GRAVEL with Silt (GP-GM) | Low plasticity PEAT (OL) | Poorly graded SAND with Clay (SP-SC) |
| Lean CLAY/PEAT (CL-OL) | Granite | Low to High plasticity PEAT (OL-OH) | Poorly graded SAND with Silt (SP-SM) |
| Claystone | Grass and/or topsoil | Sandstone | Well graded SAND (SW) |
| | | | Well graded SAND with Clay (SW-SC) |
| | | | Well graded SAND with Silt (SW-SM) |

TYPICAL SAMPLER GRAPHIC SYMBOLS

- | | | |
|-------------------------------------|---|---------------------------------------|
| Auger sampler | CME Sampler | Pitcher Sample |
| Bulk Sample | Grab Sample | 2-inch-OD unlined split spoon (SPT) |
| 3-inch-OD California w/ brass rings | 2.5-inch-OD Modified California w/ brass liners | Shelby Tube (Thin-walled, fixed head) |

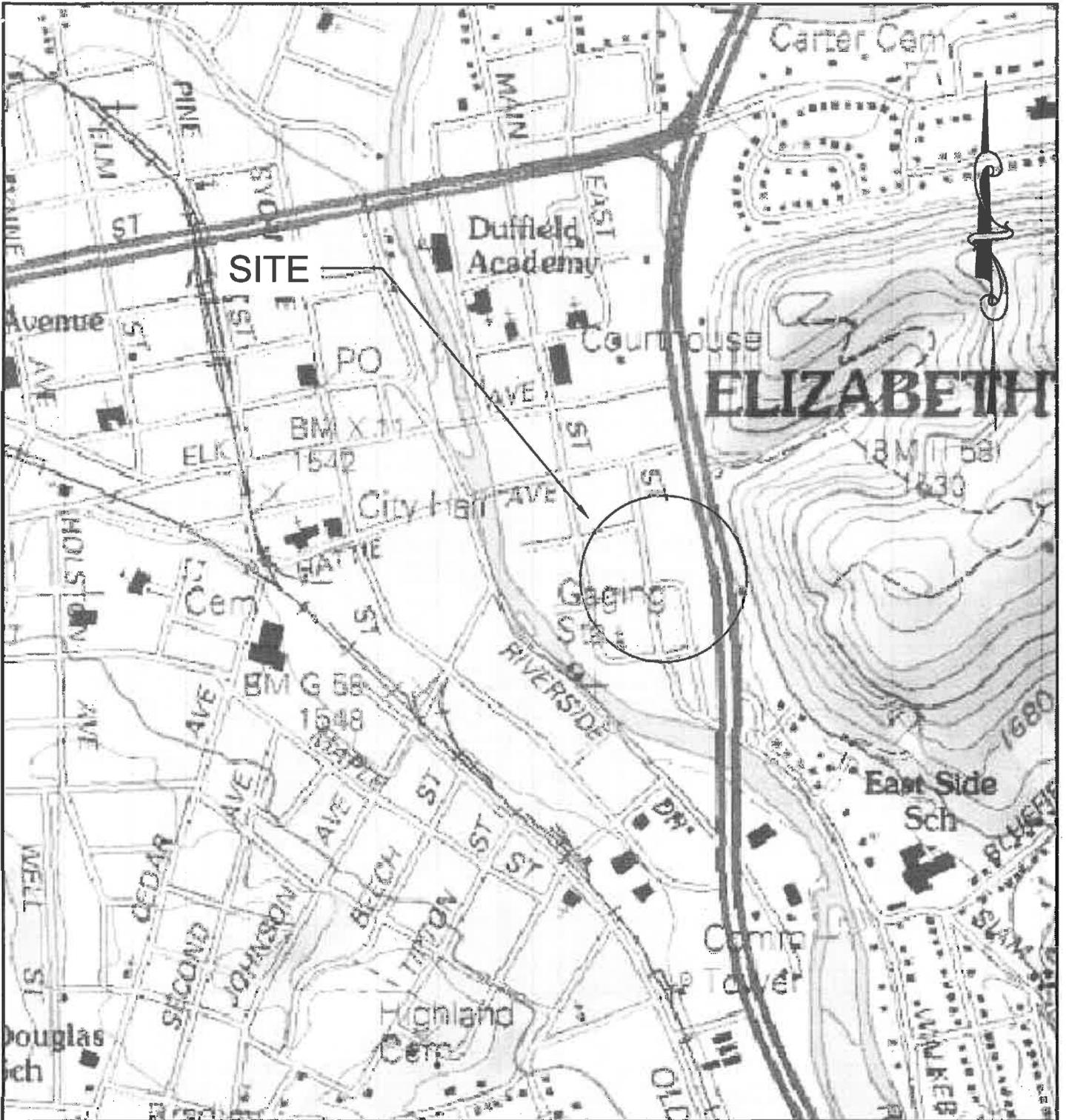
OTHER GRAPHIC SYMBOLS

- | |
|--|
| Water level (at time of drilling, ATD) |
| Water level (after waiting) |
| Minor change in material properties within a stratum |
| Inferred/gradational contact between strata |
| Queried contact between strata |

GENERAL NOTES

- Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
- Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

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**AREA TOPOGRAPHIC MAP
ELIZABETHTON CITY LIGHT POLES
CATS ISLAND PARK
ELIZABETHTON, TENNESSEE**

FOR: **CITY OF ELIZABETHTON**

DRAWN BY: NGC

NOTES:

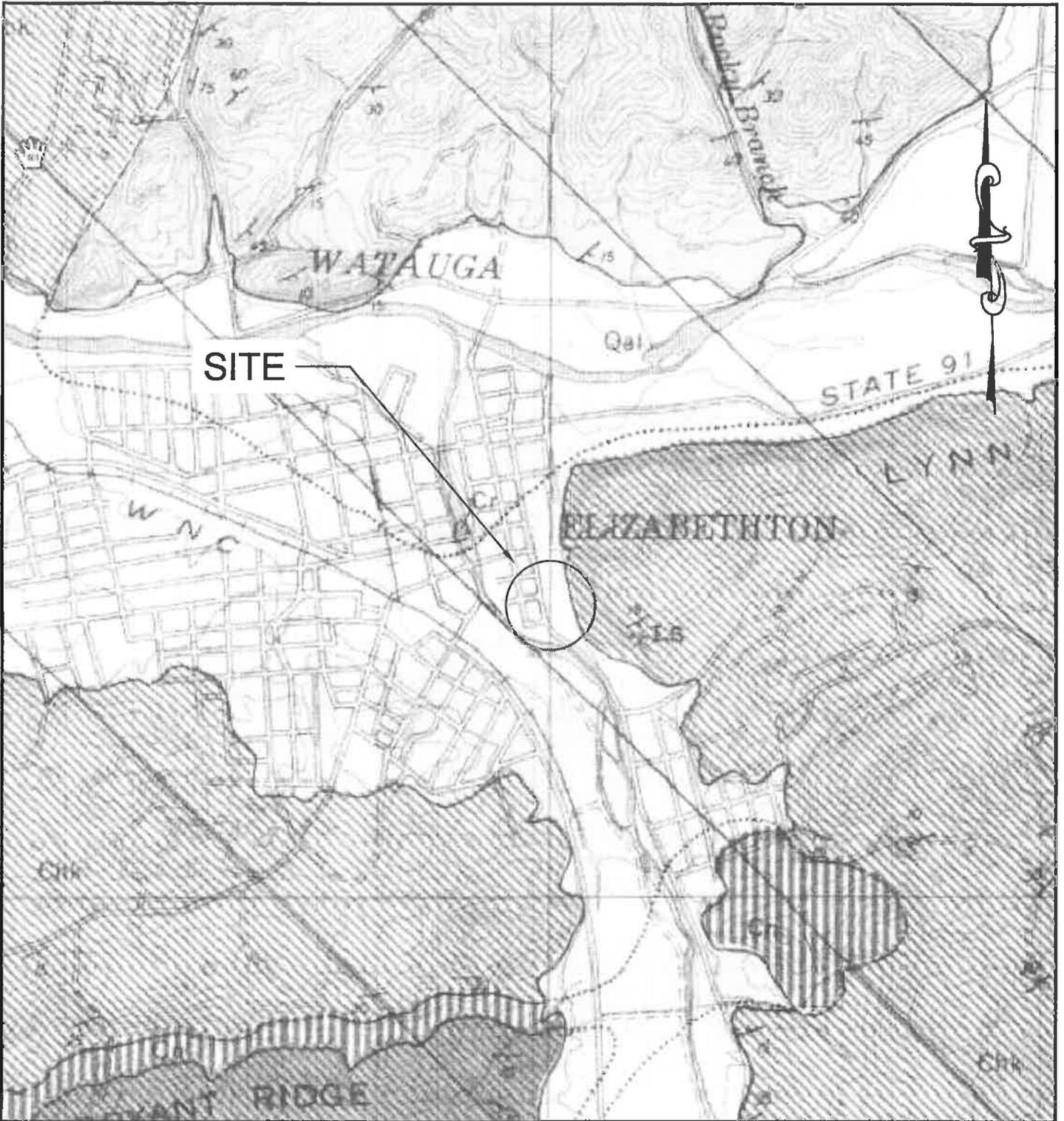
PROJ #: 218128

ADAPTED FROM USGS MAPPING

SCALE: NONE

DATE: 02/05/2018

DWG #: SLP



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**AREA GEOLOGY MAP
ELIZABETHTON CITY LIGHT POLES
CATS ISLAND PARK
ELIZABETHTON, TENNESSEE**

FOR: **CITY OF ELIZABETHTON**

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DRAWN BY: NGC

PROJ #: 218128

SCALE: NONE

NOTES:

ADAPTED FROM TN GEOLOGY MAP

DATE: 02/05/2018

DWG #: GEO