

File # 6-H-21-VA



BOARD OF ZONING APPEALS APPLICATION

APPLICANT INFORMATION	APPLICANT IS:	THIS PROPOSAL PERTAINS TO:
Name Pain Consultants of East Tennessee	Owner <input checked="" type="checkbox"/>	New Structure <input checked="" type="checkbox"/>
Street Address 1128 Weisgarber Rd. #100	Contractor <input type="checkbox"/>	Modification of Existing Structure <input type="checkbox"/>
City, State, Zip Knoxville, TN 37909	Tenant <input type="checkbox"/>	Off Street Parking <input type="checkbox"/>
Phone Number 865-637-7777	Other <input type="checkbox"/>	Signage <input type="checkbox"/>
Email jpetre@lawlerwood.com		Other <input type="checkbox"/>

THIS IS A REQUEST FOR:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Zoning Variance (Building Permit Denied) | <input type="checkbox"/> Extension of Non-Conforming Use/or Structure |
| <input type="checkbox"/> Appeal of Administrative Official's Decision | <input type="checkbox"/> Map Interpretation |

PROPERTY INFORMATION

Street Address 1540 Member Lane

City, State, Zip Knoxville, TN 37909

Parcel # (see KGIS.org) 106DA00625

Zoning District (see KGIS.org) O-Office

VARIANCE REQUIREMENTS

City of Knoxville Zoning Ordinance Article 7, Section 2
 The City of Knoxville Board of Zoning Appeals shall have the power and authority to grant variances from terms of this ordinance according to the procedure and under the restrictions set out in this section.
 The purpose of the variance is to modify the strict application of the specific requirements of this ordinance in the case of exceptionally irregular, narrow, shallow or steep lots, or other exceptional physical conditions, whereby such strict application would result in practical difficulty or unnecessary hardship which would deprive an owner of the reasonable use of his land. The variance shall be used only where necessary to overcome some obstacle which is preventing an owner from using his property as the zoning ordinance intended.

DESCRIPTION OF APPEAL

Describe your project and why you need variances.

The project consists of the construction of a new medical office building. The exterior lighting requirements in section 10.2.B greatly restrict the type of fixture that can be used to only a small number that are commercially available and require over 3 times the number of lighting fixtures that would have been previously required. The alternative proposed layout (Pre Recode Case Study) is based around a fixture that has the Seal of Approval of the International Dark-Sky Association which provides objective, third-party certification for luminaries that minimize glare, reduce light trespass, and don't pollute the night sky. The alternative proposed layout meets the intentions of the Recode requirements by reducing light pollution and glare while providing more uniform light levels which improves safety and comfort and reducing the number of fixtures required which also reduces the energy usage of the fixtures.

Describe hardship conditions that apply to this variance.

Conforming to the requirements in section 10.2.B will increase the number of light fixtures by more than three times on the site with no practical purpose. Laying out this many light fixtures is infeasible due to the presence of two easements on the property. These easements limit buildable area on the site because of the access requirements that are accompanied. One easement is for Colonial Pipeline and one is for a stormwater easement. The presence of these easements, combined with the property's slope, is directing the development of the site. In addition, the tenant of the property will be a pain management clinic. As such, patients parking in the lot will be in pain or in wheelchairs as they park and make their way into the building. The site layout contemplates the shortest and least complicated routes into the building possible. The additional lighting requirements, under the current code, onerously complicate travel paths for folks in pain, making their trek to the front door a longer and more painful one. This decreases safety for patients coming and going.

APPLICANT AUTHORIZATION

I hereby certify that I am the authorized applicant, representing ALL property owners involved in this request and that all owners have been notified of this request in writing.

APPLICANT'S SIGNATURE  Owners Representative DATE 5-12-21

File #



BOARD OF ZONING APPEALS APPLICATION

*******OFFICE USE ONLY*******

Is a plat required? Yes No

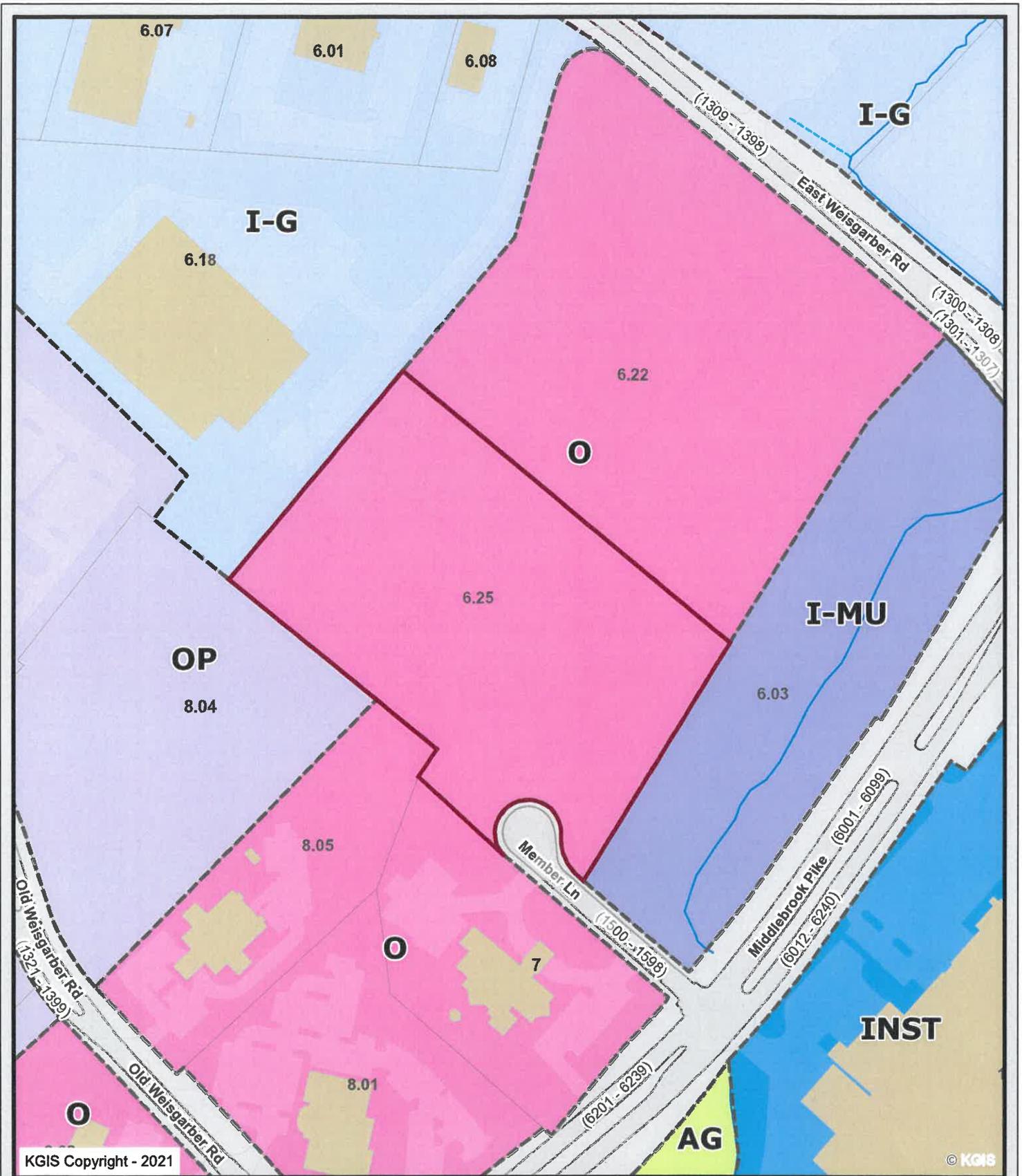
Small Lot of record?

VARIANCE REQUEST(S) WITH ORDINANCE CITATION(S):

(This area is intentionally left blank for the applicant to provide variance request details and ordinance citations.)

PROJECT INFORMATION

Date Filed	Fee Amount
Council District	BZA Meeting Date
PLANS REVIEWER	DATE



1540 Member Ln

6-H-21-VA

Pain Consultants of East Tennessee

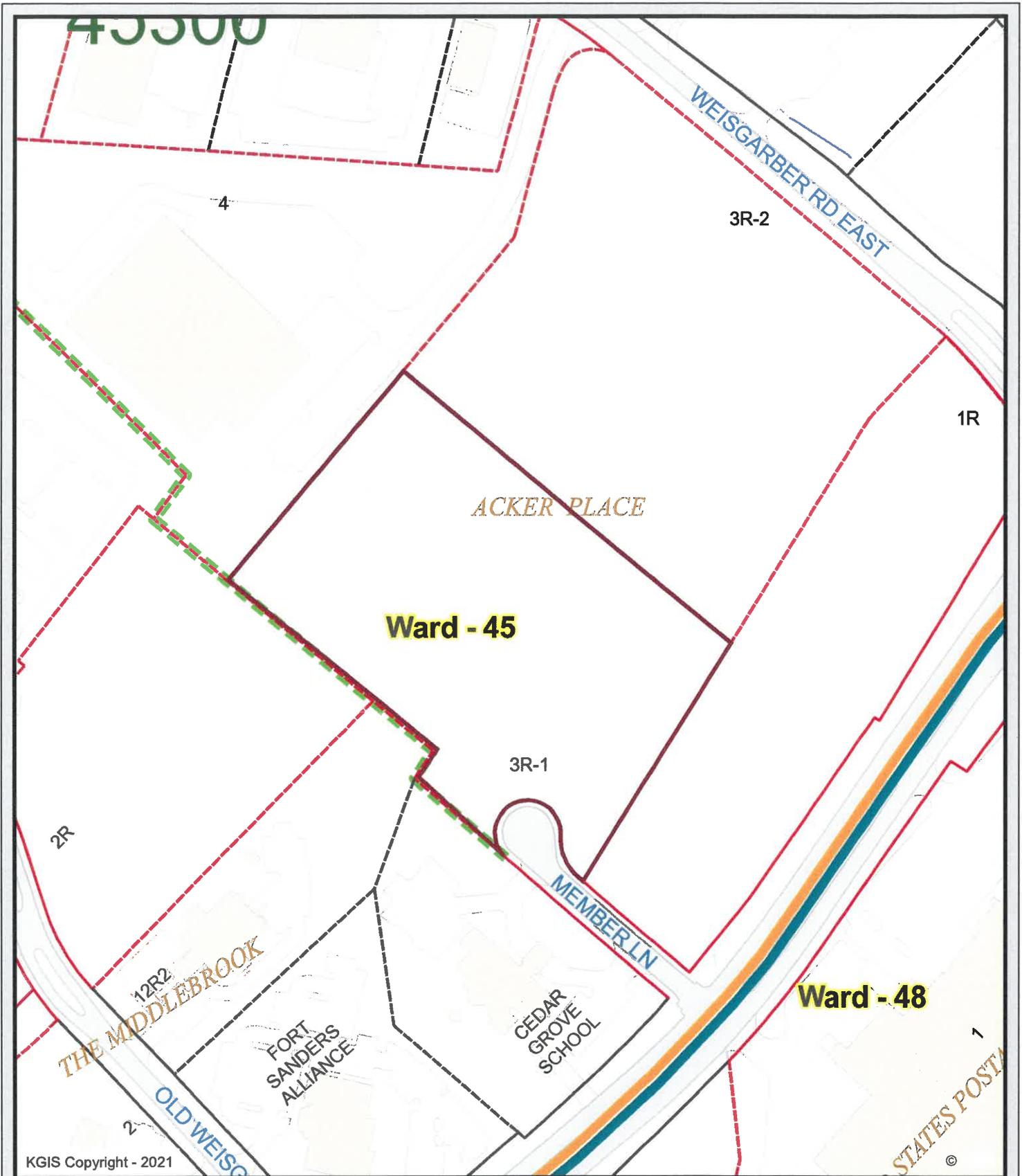
Knoxville - Knox County - KUB Geographic Information System



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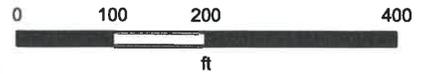
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Pain Consultants of East Tennessee

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Pain Consultants of East Tennessee

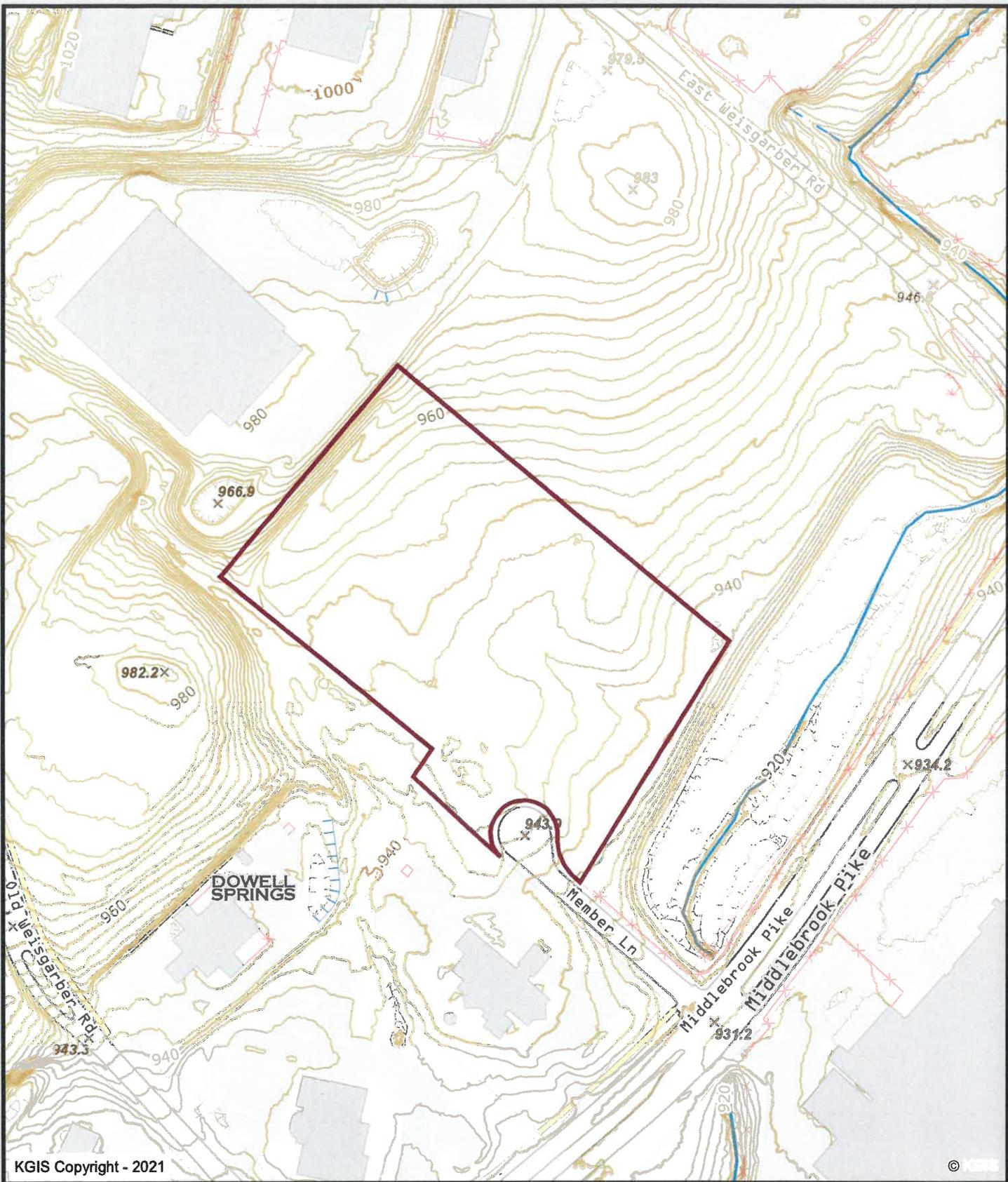
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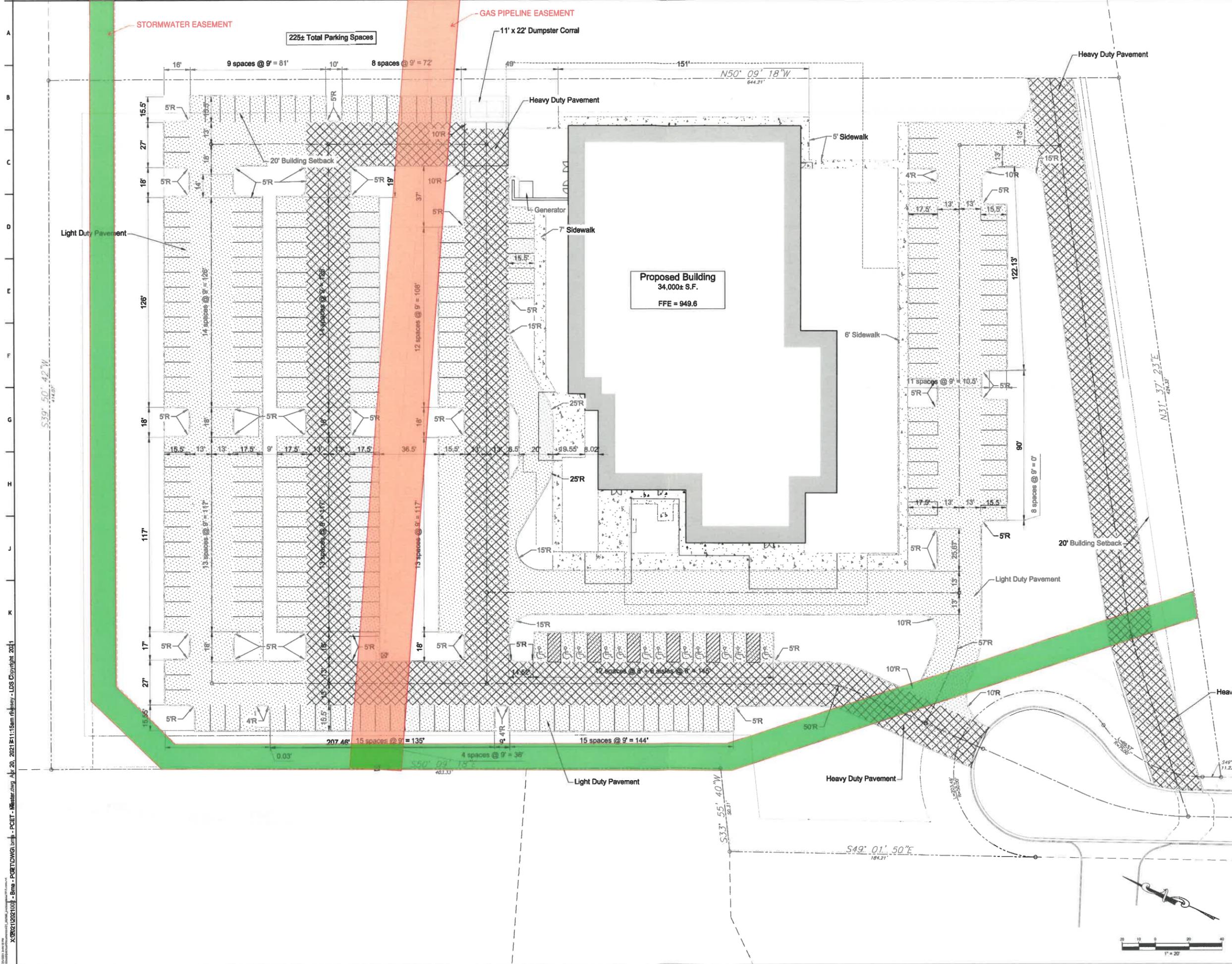
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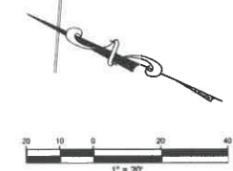
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PROJECT NUMBER
2021002
PROJECT NAME
PAIN CONSULTANTS OF
EAST TENNESSE ASC / MOB
OWNER
PAIN CONSULTANTS OF
EAST TENNESSEE
PROJECT ADDRESS
PROJECT ADDRESS
KNOXVILLE, TN 37909
CONSULTANTS

PARTNER-IN-CHARGE	XC
PROJECT MANAGER	XC
DRAWN BY	RM
REVIEWED BY	EJ
ISSUE DATE	04.20.2021
REVISIONS	



10/2021 24x36 0.1875
 X:\021021002\01 - Sma - P021021002.dwg - PCJET - Westacomp Apr 20, 2021 11:15am rtklmsy - LDS Copyright 2021





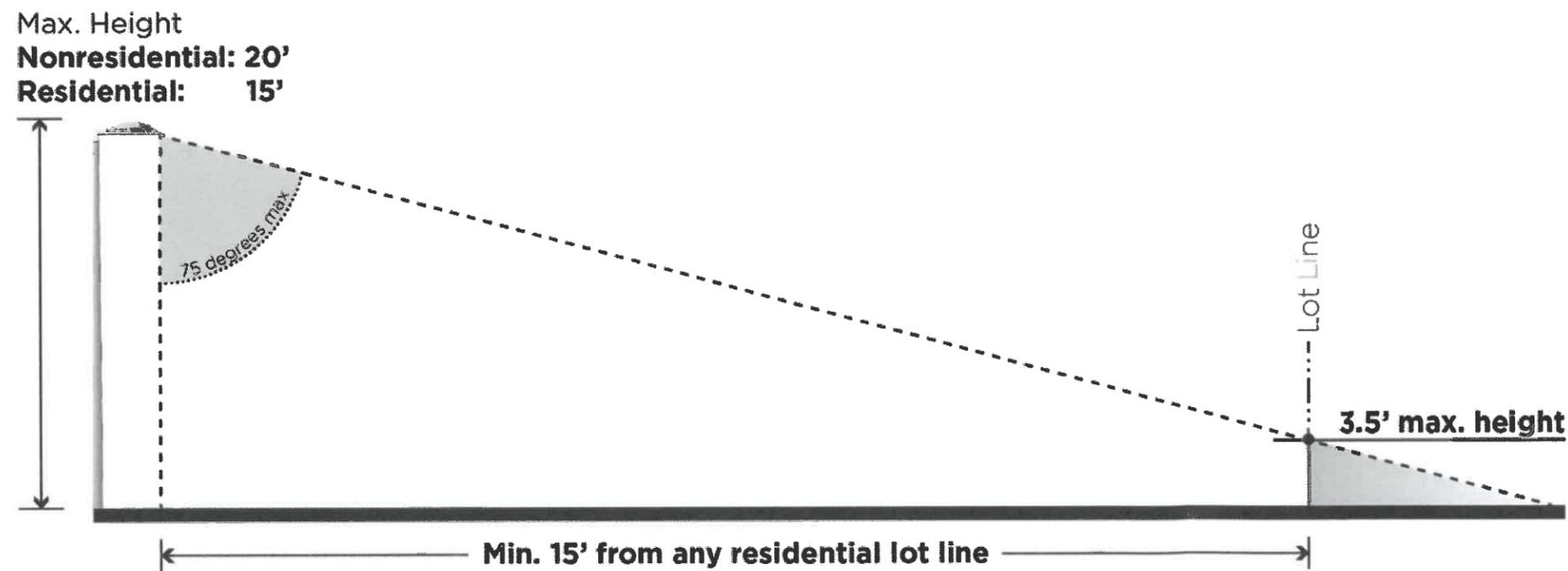
CITY OF KNOXVILLE | SITE LIGHTING STANDARDS

10.2 - EXTERIOR LIGHTING



B. Lighting Standards

1. For townhouse and multi-family dwellings and non-residential developments, the maximum allowable footcandle at any lot line is one footcandle.
2. All luminaires must be of the cut off luminaire design.
3. To be considered a cut off luminaire, the cut off angle must be 75 degrees or less. A cut off luminaire must be designed to completely shield the light source from an observer 3.5 feet above the ground at any point along an abutting lot line.
4. Any freestanding cut off luminaire must be located at least 15 feet from any residential district lot line.
5. The maximum total height of a freestanding cut off luminaire is 20 feet in a nonresidential district, and 15 feet in a residential district.
6. All outdoor luminaires must be adequately shielded.
7. Outdoor lighting fixtures closer to the lot line than the mounting height of the fixture, measured perpendicular to the lot line, adjacent to residential areas, must have internal house-side shields.
8. Flood or spot lamps must be aimed down no higher than 45 degrees to the horizontal (halfway between straight down and straight to the side) when the source is visible from any adjacent residential property.



https://library.municode.com/tn/knoxville/codes/code_of_ordinances?nodeId=APXBZOCO_ART10SIDEST_10.2EXLI

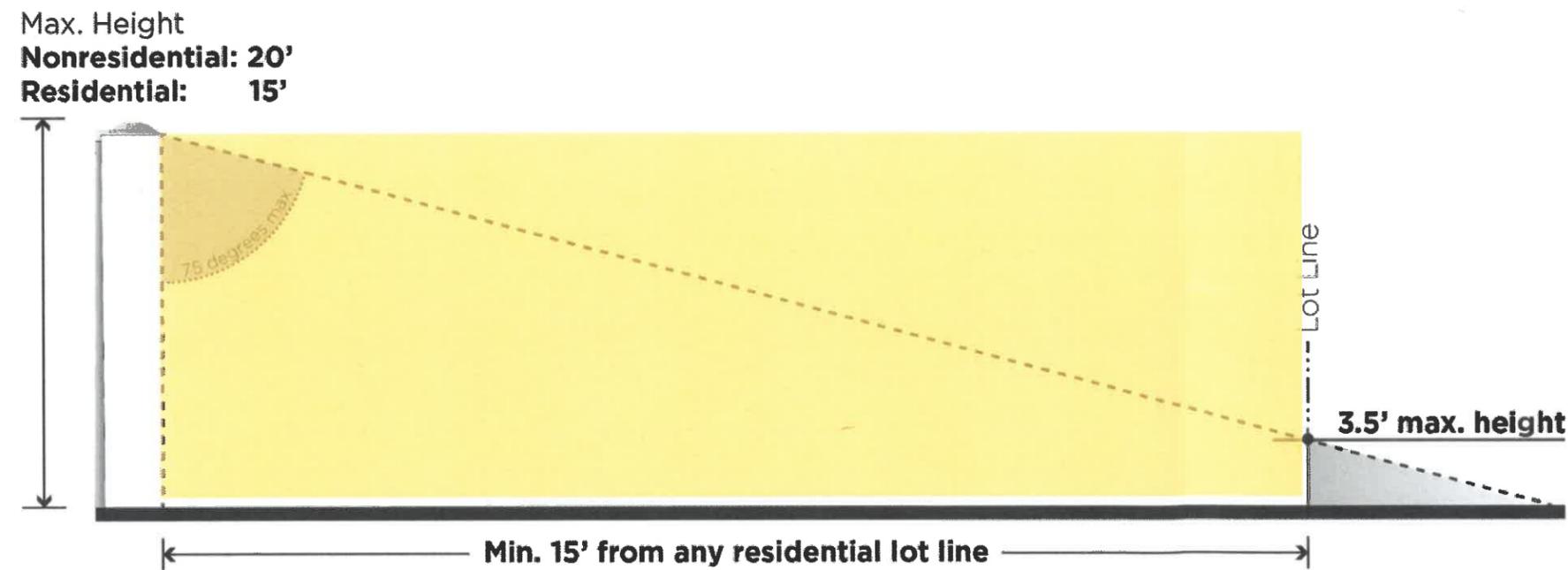
EXTERIOR LIGHTING REQUIREMENTS

10.2 - EXTERIOR LIGHTING



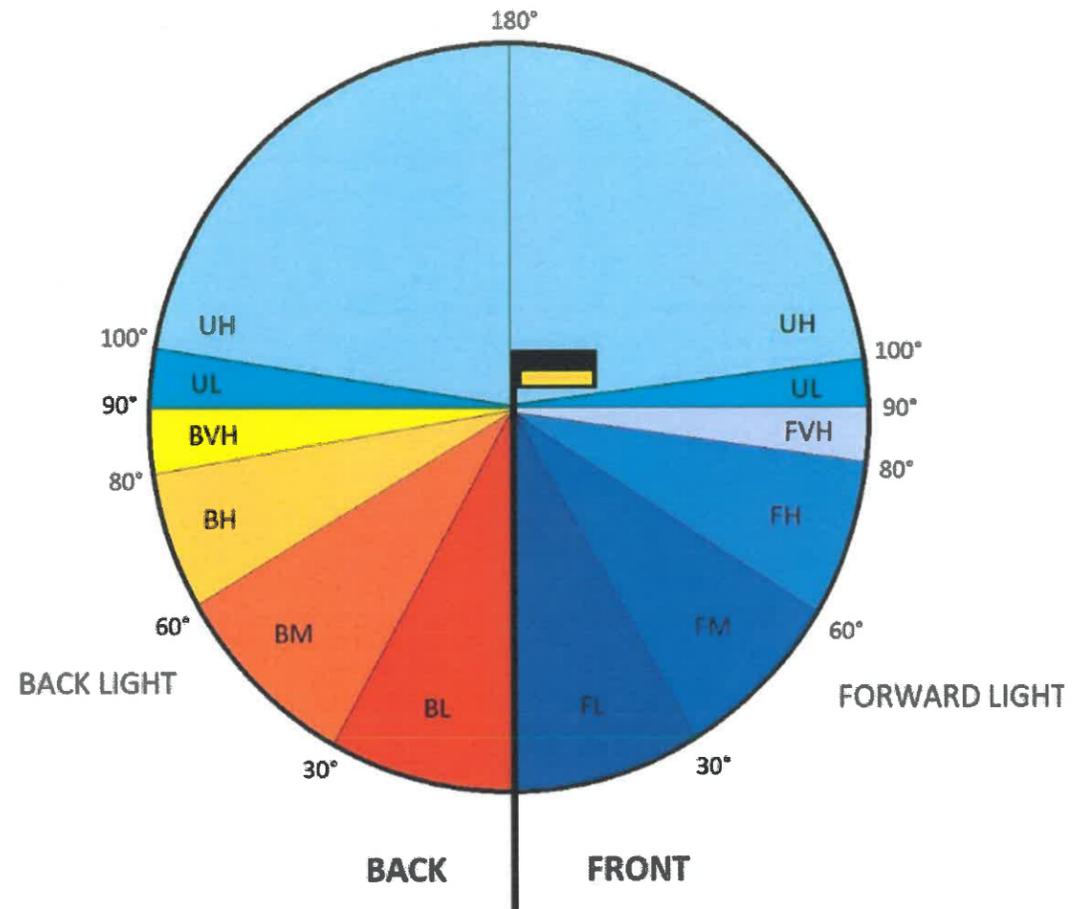
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4. Any freestanding cut off luminaire must be located at least 15 feet from any residential district lot line.
5. The maximum total height of a freestanding cut off luminaire is 20 feet in a nonresidential district, and 15 feet in a residential district.
6. All outdoor luminaires must be adequately shielded.
7. Outdoor lighting fixtures closer to the lot line than the mounting height of the fixture, measured perpendicular to the lot line, adjacent to residential areas, must have internal house-side shields.
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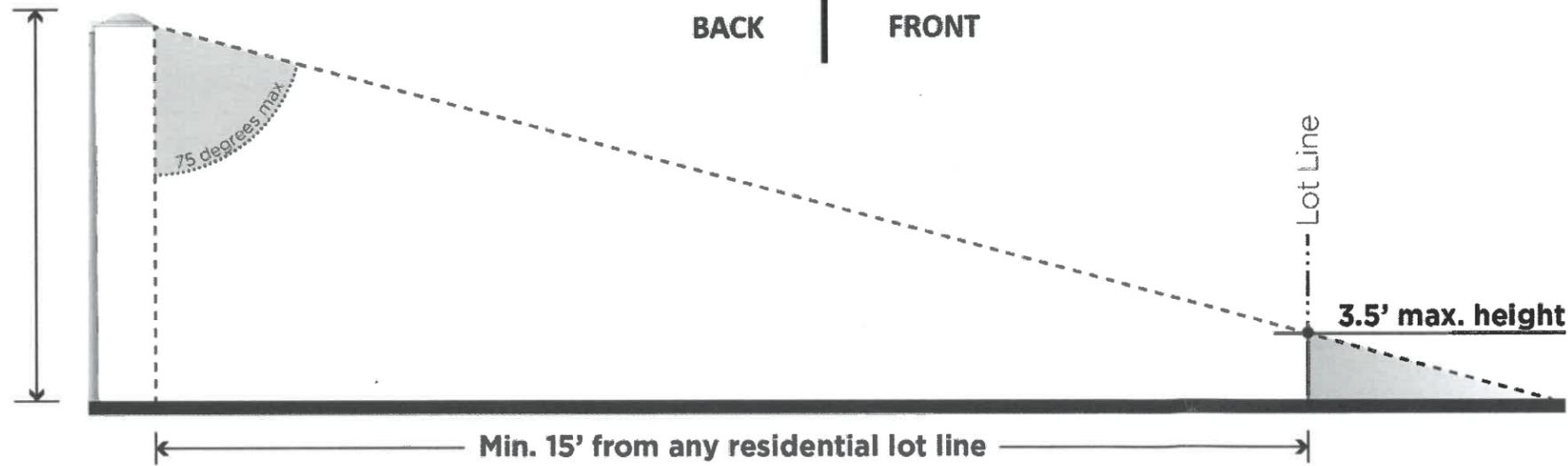


https://library.municode.com/tn/knoxville/codes/code_of_ordinances?nodeId=APXBZOCO_ART10SIDEST_10.2EXLI

EXTERIOR LIGHTING REQUIREMENTS



Max. Height
Nonresidential: 20'
Residential: 15'



BUG RATING

BACKLIGHT

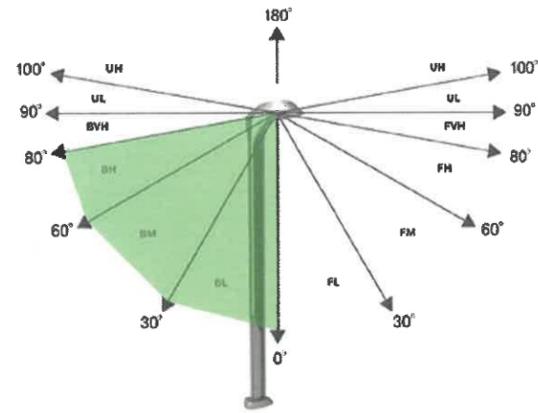
UPLIGHT

GLARE



EXTERIOR LIGHTING REQUIREMENTS

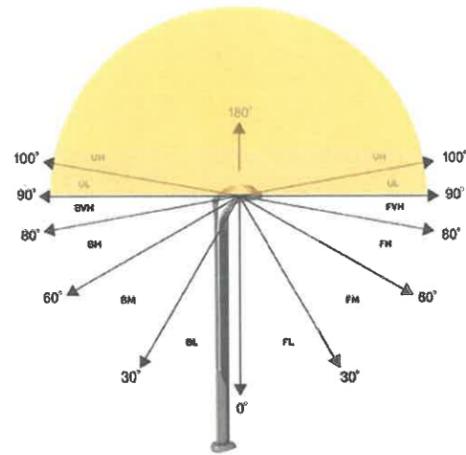
BACKLIGHT



Backlight Ratings (maximum zonal lumens)

Backlight / Trespass	Secondary Solid Angle	B0	B1	B2	B3	B4	B5
	BH	110	500	1000	2500	5000	>5000
	BM	220	1000	2500	5000	8500	>8500
	BL	110	500	1000	2500	5000	>5000

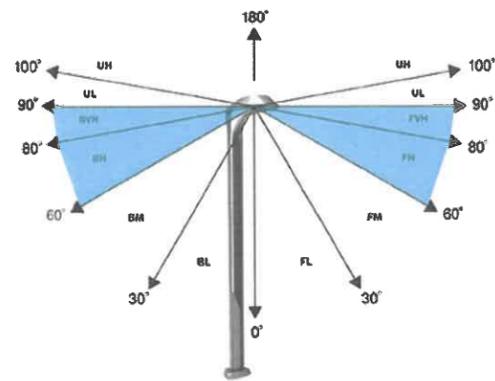
UPLIGHT



Uplight Ratings (maximum zonal lumens)

Uplight / Skyglow	Secondary Solid Angle	U0	U1	U2	U3	U4	U5
	UH	0	10	50	500	1000	>1000
	UL	0	10	50	500	1000	>1000

GLARE



Glare Rating for Asymmetrical Luminaire Types (Types I, II, III, and IV), maximum zonal lumens

Glare / Offensive Light	Secondary Solid Angle	G0	G1	G2	G3	G4	G5
	FVH	10	100	225	500	750	>750
	BVH	10	100	225	500	750	>750
	FH	660	1800	5000	7500	12000	>12000
	BH	110	500	1000	2500	5000	>5000

INDUSTRY STANDARDS - BUG RATING



ECF-S EcoForm small

Area luminaire

3000K LED Wattage and Lumen Values

Ordering Code	Total LEDs	LED Current (mA)	Color Temp.	Average System Watts	Type 2			Type 3			Type 4		
					Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)
ECF-S-32L-365-WW-G2-x	32	365	3000	40	5,508	B1-U0-G1	138	5,428	B1-U0-G2	136	5,637	B1-U0-G2	141
ECF-S-32L-530-WW-G2-x	32	530	3000	56	7,159	B2-U0-G2	129	7,055	B1-U0-G2	127	7,327	B1-U0-G2	132
ECF-S-32L-700-WW-G2-x	32	700	3000	73	9,234	B2-U0-G2	127	9,034	B2-U0-G2	124	9,452	B2-U0-G2	130
ECF-S-32L-1A-WW-G2-x	32	1050	3000	106	13,001	B3-U0-G2	123	12,719	B2-U0-G2	120	13,306	B2-U0-G3	126
ECF-S-32L-1.2A-WW-G2-x	32	1200	3000	122	14,421	B3-U0-G3	119	14,108	B2-U0-G3	116	14,760	B2-U0-G3	121
ECF-S-48L-900-WW-G2-x	48	900	3000	135	17,115	B3-U0-G3	127	16,744	B3-U0-G3	124	17,518	B2-U0-G3	130
ECF-S-48L-1A-WW-G2-x	48	1050	3000	159	19,381	B3-U0-G3	122	18,960	B3-U0-G3	119	19,836	B3-U0-G4	125
ECF-S-48L-1.2A-WW-G2-x	48	1200	3000	183	21,515	B3-U0-G3	118	21,048	B3-U0-G4	115	22,020	B3-U0-G4	121
ECF-S-64L-900-WW-G2-x	64	900	3000	178	22,652	B3-U0-G3	127	22,161	B3-U0-G4	125	23,185	B3-U0-G4	130
ECF-S-64L-1A-WW-G2-x	64	1050	3000	206	25,520	B3-U0-G3	124	24,966	B3-U0-G4	121	26,120	B3-U0-G4	127

<https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/#!/Area/c/12541415/offset=36>

INTERNATIONAL DARK-SKY ASSOCIATION IDA

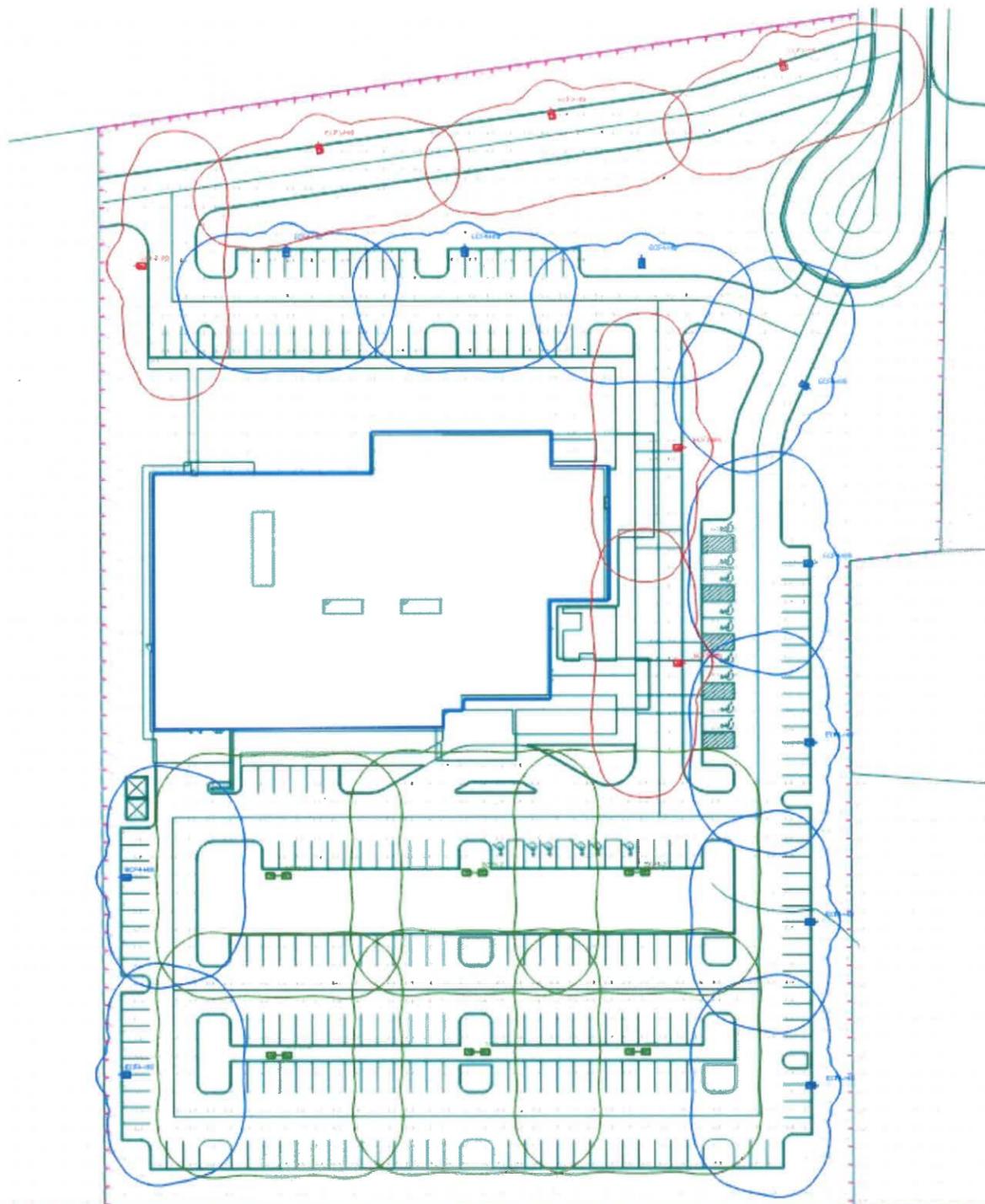
ABOUT OUR WORK LIGHT POLLUTION LIGHTING TAKE ACTION WAYS TO GIVE RESOURCES BLOG CONTACT



The Fixture Seal of Approval provides objective, third-party certification for luminaires that minimize glare, reduce light trespass, and don't pollute the night sky.



INDUSTRY PARTNERS



Luminaire Schedule											
Symbol	Qty	Label	Arrangement	Lum. Lumens	LLD	UDF	LLF	Description	Lum. Watts	Total Watts	BUG Rating
⬢	6	ECF3-HIS	SINGLE	10665	1.000	1.000	0.850	ECF-S-32L-1A-NW-G2-3-HIS	106	636	B1-U0-G2
⬢	10	ECF4-HIS	SINGLE	10983	1.000	1.000	0.850	ECF-S-32L-1A-NW-G2-4-HIS	106	1060	B1-U0-G2
⬢	6	ECF5-2	BACK-BACK	14384	1.000	1.000	0.850	(2) ECF-S-32L-1A-NW-G2-5	106	1272	B4-U0-G2

ALL FIXTURES ARE SHOWN MOUNTED AT 20 FEET ABOVE FINISHED GRADE

Calculation Summary									
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min		
East Side PL at 42 IN	Illuminance	Fc	0.05	0.17 *	0.01	5.00	17.00		
FC Beyond Prop line at Grade	Illuminance	Fc	0.00	0.3 *	0.0	N.A.	N.A.		
Lower Lots and Entrance Drive FC	Illuminance	Fc	1.86	4.6	0.5 *	3.72	9.20 *		
North Side PL at 42 IN	Illuminance	Fc	0.09	0.28 *	0.01	9.00	28.00		
Perimeter Grass Area FC	Illuminance	Fc	0.32	4.0	0.0	N.A.	N.A.		
South Side PL at 42 IN	Illuminance	Fc	0.02	0.04 *	0.01	2.00	4.00		
Upper Lots and Entrance Drive FC	Illuminance	Fc	1.52	4.0	0.5 *	3.04	8.00 *		
WestSide PL at 42 IN	Illuminance	Fc	0.06	0.30 *	0.00	N.A.	N.A.		

ALL VALUES SHOWN ARE HORIZONTAL MAINTAINED FOOTCANDLES AT FINISHED GRADE (U.O.N.)
 FIXTURE DISTRIBUTION TEMPLATES ARE SHOWN AT 1.0 MFC FOR REFERENCE USE ONLY
 VALUES DO NOT INCLUDE CONTRIBUTION FROM ADJACENT PROPERTIES OR DECORATIVE LIGHTING NOT SHOWN
 FOOTCANDLE VALUES DO NOT INCLUDE OBSTRUCTIONS FROM TREES, SHRUBS, LANDSCAPING, VEHICLES OR FENCING

- * RED MEANS THAT WE EXCEED/DO NOT MEET REQUIRED TARGETS FOR KNOXVILLE STANDARDS
- * GREEN MEANS WE MEET KNOXVILLE STANDARDS AND/OR IESNA MINIMUM RECOMMENDATIONS
- * ORANGE MEANS WE DO NOT MEET MINIMUM IESNA RECOMMENDATIONS



BASIC AREA LIGHT WITH HOUSE SIDE SHIELD

**20' MOUNTING HEIGHT
90° CUT OFF**

4-5 mounting height pole spacing

18 poles / 24 fixtures

\$50,000 material no labor estimate

CASE STUDY | PRE RECODE

PAIN CONSULTANTS OF EAST TENNESSEE: 04/13/2021
 PREPARED BY SESCO LIGHTING
 LAYOUT: VISIONAIRE VSX-II (WITH LOUVERS)

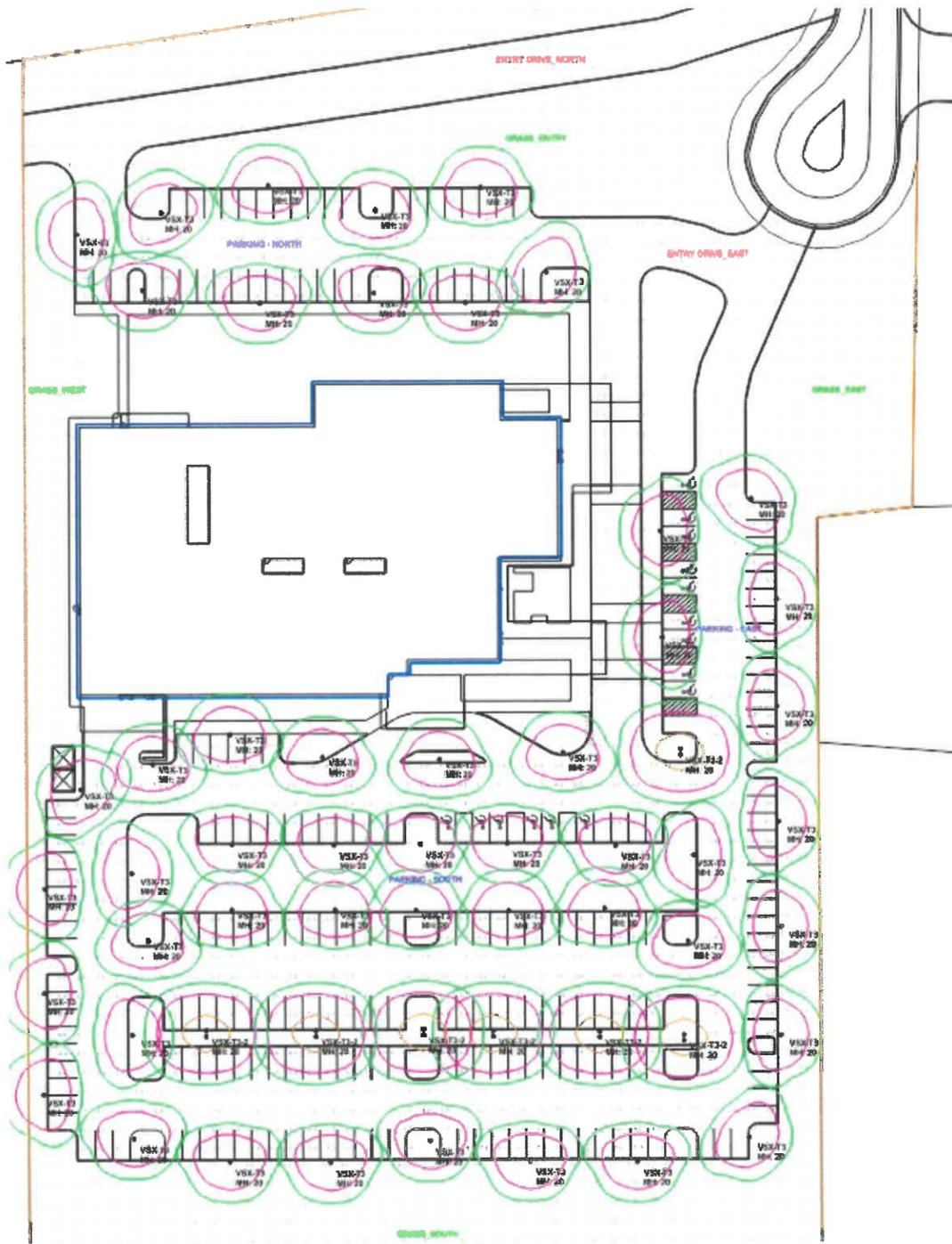
SCALE: 1"=40'

Luminaire Schedule							
Symbol	Label	Qty	Description	Arrangement	Lum. Lumens	Lum. Watts	LLF
+	VSX-T3	49	VSX-II_T1_15L_4K_4HSS	SINGLE	6741	102	0.880
□	VSX-T3-2	7	VSX-II_T1_15L_4K_4HSS	BACK-BACK	6741	102	0.880

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ENTRY DRIVE_EAST	Illuminance	Fc	0.35	2.3	0.0	N.A.	N.A.
ENTRY DRIVE_NORTH	Illuminance	Fc	0.10	1.2	0.0	N.A.	N.A.
GRASS_EAST	Illuminance	Fc	0.92	5.1	0.0	N.A.	N.A.
GRASS_ENTRY	Illuminance	Fc	0.58	4.5	0.0	N.A.	N.A.
GRASS_NORTH	Illuminance	Fc	0.00	0.1	0.0	N.A.	N.A.
GRASS_SOUTH	Illuminance	Fc	0.77	4.9	0.0	N.A.	N.A.
GRASS_WEST	Illuminance	Fc	0.76	3.9	0.0	N.A.	N.A.
PARKING - EAST	Illuminance	Fc	2.03	5.0	0.7	2.90	7.14
PARKING - NORTH	Illuminance	Fc	2.12	4.9	0.7	3.03	7.00
PARKING - SOUTH	Illuminance	Fc	2.47	7.0	0.7	3.53	10.00
PROPERTY LINE	Illuminance	Fc	0.33	3.2	0.0	N.A.	N.A.

ALL FIXTURES ARE SHOWN MOUNTED AT 20 FEET ABOVE FINISHED GRADE

ALL VALUES ARE HORIZONTAL MAINTAINED FOOTCANDLES AT FINISHED GRADE (U.O.N.)
 FIXTURE DISTRIBUTION TEMPLATES ARE SHOWN AT 1.0 MFC FOR REFERENCE USE ONLY
 VALUES DO NOT INCLUDE CONTRIBUTION FROM ADJACENT PROPERTIES OR DECORATIVE LIGHTING NOT
 FOOTCANDLE LEVELS DO NOT INCLUDE OBSTRUCTIONS FROM TREES, SHRUBS, LANDSCAPING, VEHICLE:



BASIC AREA LIGHT WITH LOUVERS

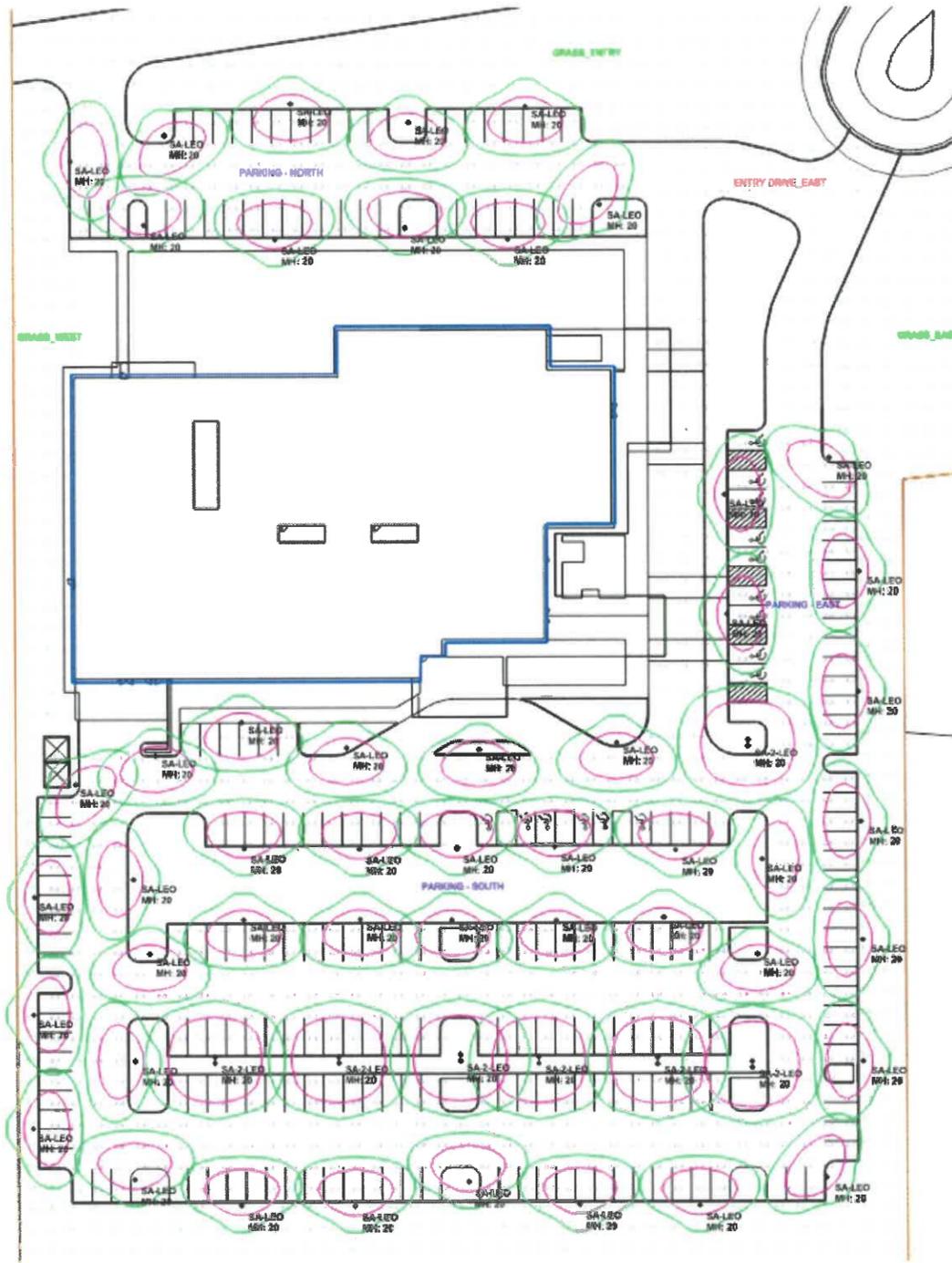
20' MOUNTING HEIGHT
 75° CUT OFF

3 x mounting height pole spacing

56 poles / 63 fixtures

\$150,000 material + estimated labor for additional poles only

CASE STUDY | RECODE COMMODITY



Luminaire Schedule							
Symbol	Label	Qty	Description	Arrangement	Lum. Lumens	Lum. Watts	LLF
	SA-2-LEO	7	LE350-T3-LO-CLR	BACK-BACK	6024	55	0.880
	SA-LEO	49	LE350-T3-LO-CLR	SINGLE	6024	55	0.880

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ENTRY DRIVE_EAST	Illuminance	Fc	0.18	1.2	0.0	N.A.	N.A.
ENTRY DRIVE_NORTH	Illuminance	Fc	0.10	1.1	0.0	N.A.	N.A.
GRASS_EAST	Illuminance	Fc	0.64	3.8	0.0	N.A.	N.A.
GRASS_ENTRY	Illuminance	Fc	0.39	3.6	0.0	N.A.	N.A.
GRASS_NORTH	Illuminance	Fc	0.00	0.1	0.0	N.A.	N.A.
GRASS_SOUTH	Illuminance	Fc	0.47	3.6	0.0	N.A.	N.A.
GRASS_WEST	Illuminance	Fc	0.52	2.9	0.0	N.A.	N.A.
PARKING - EAST	Illuminance	Fc	2.36	4.3	1.2	1.97	3.58
PARKING - NORTH	Illuminance	Fc	2.45	4.5	1.1	2.23	4.09
PARKING - SOUTH	Illuminance	Fc	2.75	6.0	1.1	2.50	5.45
PROPERTY LINE	Illuminance	Fc	0.17	2.0	0.0	N.A.	N.A.

ALL FIXTURES ARE SHOWN MOUNTED AT 20 FEET ABOVE FINISHED GRADE



ARCHITECTURAL AREA LIGHT

**20' MOUNTING HEIGHT
75° CUT OFF**

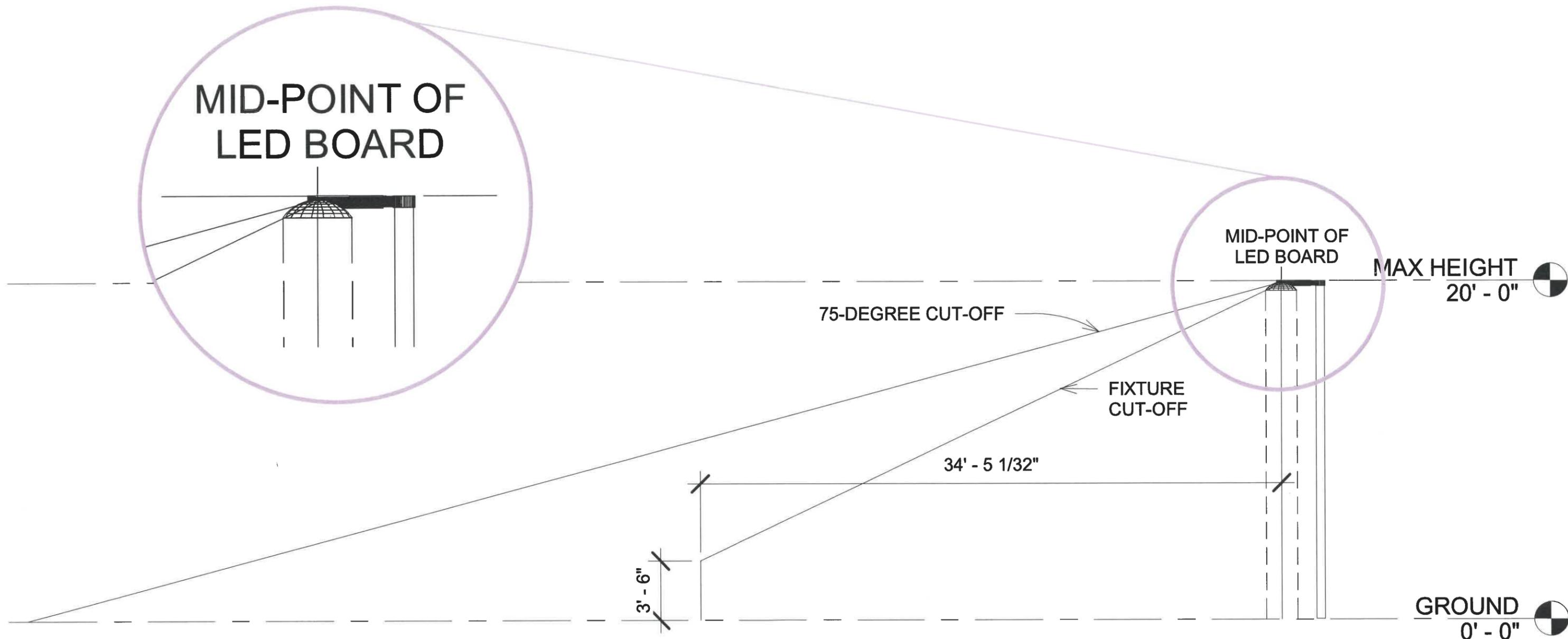
3 x mounting height pole spacing

56 poles / 63 fixtures

\$285,000 material + estimated labor for additional poles only



CASE STUDY | RECODE ARCHITECTURAL

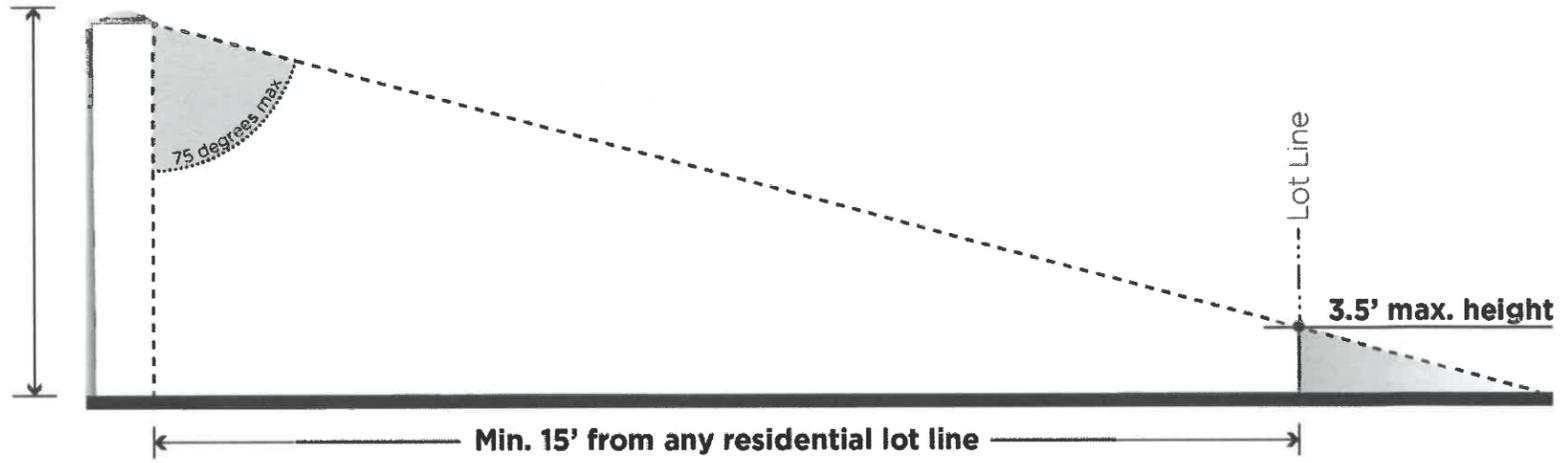


3. To be considered a cut off luminaire, the cut off angle must be 75 degrees or less. A cut off luminaire must be designed to completely shield the light source from an observer 3.5 feet above the ground at any point along an abutting lot line.

RECODE APPROPRIATE FORM FACTORS



Max. Height
Nonresidential: 20'
Residential: 15'



2. All luminaires must be of the cut off luminaire design.
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IMPROVE SAFETY AND COMFORT
UNIFORMITY LEVELS
IES RECOMMENDS 4:1 (MAX:MIN)

COMMUNITY COMFORT / GLARE
LIGHT TRESPASS MAXIMUMS (USE LEED OR WELL AS A GUIDELINE)

HOUSESIDE SHIELDS AT RESIDENTIAL LOT LINES

ALLOW EXTERIOR LIGHTING AESTHETICS
ALLOW A MAX WATTAGE AS AN UPLIGHT ACCENT

OWNER FRIENDLY CRITERIA
CONTINUE TO CONSIDER ENERGY SAVING OPPORTUNITIES AND LOWER
FRONT END INSTALLATION COSTS

DESIGN CONSIDERATIONS - FUTURE FACING

10.2 - EXTERIOR LIGHTING



A. Lighting Plan Required

1. A lighting plan is required for all nonresidential uses (including mixed-use), multi-family, and townhouse developments. Single-family and two-family dwellings are exempt from a required lighting plan but are subject to applicable lighting requirements. These lighting standards apply only to new lighting and to alterations to existing lighting, excluding routine maintenance.
2. A lighting plan must include the following:
 - a. A plan showing all light pole locations, building-mounted lights, bollard lights, and all other lighting.
 - b. Specifications for luminaires and lamp types, and poles, including photographs or drawings of proposed light fixtures.
 - c. Pole and luminaire details including pole height, height of building-mounted lights, mounting height, and height of the luminaire.
 - d. Elevations of the site including all structures and luminaires sufficient to determine the total cut off angle of all luminaires and their relationship to abutting parcels.
 - e. For developments subject to site plan review, photometric plans that show the footcandle measurement at all lot lines may be required if the lot is adjacent to a residential district.
 - f. Other information and data reasonably necessary to evaluate the required lighting plan.

PHOTOMETRY
UNIFORMITY
LIGHT TRESPASS AT PROPERTY LINES

SITE SECTION
ANATOMY OF OF FIXTURE[S] - TO EVALUATE THE FIXTURES ABILITY TO
MEET THE 75° REQUIREMENT

GLARE AT PROPERTY LINE
LINE OF SIGHT

EXTERIOR LIGHTING DELIVERABLES