



Municipal Planning & Design Review Commission  
Regular Meeting Agenda  
Thursday, March 16, 2023, 5:30 PM  
City Hall, Lakeland, Tennessee 38002

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- I. CALL TO ORDER:
- II. ROLL CALL:
- III. APPROVAL OF MINUTES OF PREVIOUS MEETING:
  - 1. February 16, 2023
- IV. PUBLIC DISCUSSION:
- V. REPORTS OF OFFICERS AND COMMITTEES:
- VI. OLD BUSINESS:
  - 1. Action on approval of Dunkin Site Plan located at 8984 US Hwy 64.
- VII. NEW BUSINESS:
  - 1. Action on approval of a Cell Tower located at 8922 US Hwy 64.
  - 2. Discussion and Possible Action on Mobil Station Lighting Plan (March 2018)
- VIII. ANNOUNCEMENTS:
- IX. ADJOURNMENT:

**LAKELAND MUNICIPAL PLANNING COMMISSION  
MEETING MINUTES**

**THURSDAY, FEBRUARY 16, 2023, 5:30 PM  
CITY HALL, LAKELAND, TN.**

**DRAFT**

- I. CALL TO ORDER:** The meeting was called to order at 5:30 PM by Acting Chairman Sal Feraci.

**II. ROLL CALL BY ACTING RECORDER:**

|                           |                           |
|---------------------------|---------------------------|
| Commissioner Jim Atkinson | Present                   |
| Sal Feraci                | Present                   |
| Carl Helton               | Present                   |
| Adam Henry                | Present                   |
| Amber Hitchcock           | Present                   |
| Shawn Rowland             | Present                   |
| (C) Wyatt Bunker          | Absent ( <i>excused</i> ) |

Others present:

Michael Walker, City Manager  
Paul Luker, Planning Director  
Emily Harrell, City Engineer  
Alex Barthol, City Planner  
Will Patterson, City Attorney

**III. APPROVAL OF MEETING MINUTES:**

Mr. Henry moved to approve the regular meeting of January 19, 2023, as written, seconded by Commissioner Atkinson.

***Motion carried, roll call vote 6 in favor 0 against (6-0).***

|            |     |
|------------|-----|
| Atkinson   | Yea |
| Helton     | Yea |
| Henry      | Yea |
| Hitchcock  | Yea |
| Rowland    | Yea |
| (c) Feraci | Yea |

*For the record:* Commissioner Atkinson moved to amend the agenda to move New Business item # 3 up to be heard ahead of the public discussion, seconded by Vice Chairman Helton.

***Motion carried, voice vote 6 in favor 0 against (6-0).***

**NEW BUSINESS:**

- 3. Action on approval of a site plan for Dollar General Store located at 10410 US Highway 70.**

Commissioner Atkinson moved to bring this item to the floor, seconded by Vice-Chairman Helton.

Discussion ensued.

**LAKELAND MUNICIPAL PLANNING COMMISSION  
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THURSDAY, FEBRUARY 16, 2023, 5:30 PM  
CITY HALL, LAKE LAND, TN.**

**DRAFT**

*For the record:* Public comments were heard from the following:

Tim McCaskill – The Reaves Firm (*Representing the applicant*)  
Richard Gonzales – 5000 block of Conifer View  
Will Heaton – 5000 block of Evergreen Rd  
Chris Pennington – 5000 block of Saffron Spring Dr  
Dewey Dillard – 10000 block of Twisting Pine Ln  
Pamela Wade – 10000 block of Twisting Pine Ln  
Krista Dillard – 10000 block of Twisting Pine Ln

*For the record:* Written comments were received from the following:

- City Manager Michael Walker read into record from the following:  
Barbara Wilson – hand delivered.  
Laura Harrison – via email  
Parker & Mandy Magness – via email
- 139 signed petitions opposing the Dollar General were received.
- Photos of other local Dollar General Stores were submitted.  
(Please note: all documents received are on file)

After the discussion Mr. Henry moved to vote on the application for the Dollar General site plan, seconded by Commissioner Atkinson.

Commissioner Atkinson moved to amend the motion to deny the application, seconded by Vice-Chairman Helton.

***Motion to amend the motion carried, voice vote, 6 in favor 0 against.***

***Main motion as amended to deny the application for the Dollar General site plan carried, roll call vote, 6 in favor 0 against (6-0).***

|            |     |
|------------|-----|
| Atkinson   | Yea |
| Helton     | Yea |
| Henry      | Yea |
| Hitchcock  | Yea |
| Rowland    | Yea |
| (c) Feraci | Yea |

*For the record:* Reasons for denial were stated as follows:

1. Moratorium on new commercial development along Highway 70 according to Board of Commissioners Resolution R-12-2023. (*See attached*)
2. Deficiencies in site plan as listed in the staff report and as discussed by Planning Commission. (*See attached*)

*For the record:* The meeting was recessed at 6:35 p.m. and reconvened at 6:12 p.m.

**LAKELAND MUNICIPAL PLANNING COMMISSION  
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Upon returning back in session, Commissioner Atkinson moved to take New Business item # 2 next on the agenda, seconded by Mr. Henry.

***Motion carried, voice vote 6 in favor 0 against (6-0).***

**2. Action on approval of a site plan for Chick-Fil-A Restaurant located at 3423 Lake District Drive.**

Commissioner Atkinson moved to bring this item to the floor, seconded by Mr. Henry.

Discussion ensued.

Comments were heard from the following:

Mark Campbell, Carter Engineering (*The applicant*)  
Vice-Mayor Wesley Wright  
Yehuda Netanel – Lake District Developer

After the discussion, Commissioner Atkinson moved to approve the site plan for the Chick-Fil-A contingent upon the following conditions:

1. The final plat is approved and recorded.
2. The building architecture be modified as follows:  
The front left perspective view the element where the logo is would appear on the rear left perspective view where the sign is and that the same element on front left perspective view at the center where the Chick-Fil-A sign is would appear on the rear left perspective view.
3. Comments made by the commission and Vice-Mayor Wright regarding foundational landscaping also be incorporated and approved by city staff.
4. All site lightings are in full compliance with Lakeland's lighting standards which includes full cut off fixtures.
5. The color of bricks is Glacier White.

Mr. Rowland seconded the motion.

***Motion carried, roll call vote 6 in favor 0 against (6-0).***

|            |     |
|------------|-----|
| Atkinson   | Yea |
| Helton     | Yea |
| Henry      | Yea |
| Hitchcock  | Yea |
| Rowland    | Yea |
| (c) Feraci | Yea |

**IV. PUBLIC DISCUSSION: None**

LAKELAND MUNICIPAL PLANNING COMMISSION  
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CITY HALL, LAKELAND, TN.

DRAFT

**V. REPORTS OF OFFICERS AND COMMITTEES:**

**VI. OLD BUSINESS:**

**1. Action on a proposed amendment to The Lake District PD to add additional multi-family lots.**

Mr. Rowland moved to bring this item to the floor, seconded by Vice-Chairman Helton.

Discussion ensued.

Comments were heard from the following:

Yehuda Netanel – Lake District Developer

Richard Gonzales – 5000 block of Conifer View

Julie Pereira – 5000 block of Adagio Ln

After the discussion, Commissioner Atkinson moved to recommend approval to the Board of Commissioners for the amendment to The Lake District PD to add additional multi-family lots as outlined in the staff report, seconded by Mr. Henry.

***Motion failed to pass, roll call vote 1 in favor 5 against (1-5).***

|            |     |
|------------|-----|
| Atkinson   | Nay |
| Helton     | Nay |
| Henry      | Nay |
| Hitchcock  | Nay |
| Rowland    | Nay |
| (c) Feraci | Yea |

Commissioner Atkinson made a subsequent motion to recommend disapproval to Board of Commissioners for the amendment to The Lake District PD due to the heavy mixed use on multi-family, seconded by Mr. Henry.

***Motion failed to pass, roll call vote 5 in favor 1 against (5-1).***

|            |     |
|------------|-----|
| Atkinson   | Yea |
| Helton     | Yea |
| Henry      | Yea |
| Hitchcock  | Yea |
| Rowland    | Yea |
| (c) Feraci | Nay |

**VII. NEW BUSINESS:**

**1. Action on sign plan for Lakeland Town Square.**

Mr. Henry moved to bring this item to the floor, seconded by Mrs. Hitchcock.

**LAKELAND MUNICIPAL PLANNING COMMISSION  
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**DRAFT**

Discussion ensued.

Comments were heard from the following:

Cory Brady, Integrated Land Solutions (*The applicant*)

After the discussion, Mrs. Hitchcock moved to approve the sign plan for Lakeland Town Square, seconded by Commissioner Atkinson.

***Motion carried, roll call vote 5 in favor 0 against 1 abstention (5-0-1).***

|            |         |
|------------|---------|
| Atkinson   | Yea     |
| Helton     | Yea     |
| Henry      | Yea     |
| Hitchcock  | Yea     |
| Rowland    | Yea     |
| (c) Feraci | Abstain |

*For the record:* New Business Agenda items # 2 & 3 were moved up on the agenda.

**4. Action on amending the Lakeland Municipal Planning Commission By-laws.**

Mr. Rowland moved to bring this item to the floor, seconded by Mr. Henry.

Discussion ensued.

After the discussion, Mr. Rowland moved to approve amending the Lakeland Municipal Planning Commission By-laws, seconded by Commissioner Atkinson.

***Motion carried, voice vote, 6 in favor 0 against (6-0).***

**VIII. ANNOUNCEMENTS:**

**IX. ADJOURNMENT:**

Mr. Henry moved to adjourn the meeting, seconded by Commissioner Hitchcock.

The meeting was adjourned at 8:15 p.m. without objections.

LAKELAND MUNICIPAL PLANNING COMMISSION  
MEETING MINUTES  
THURSDAY, FEBRUARY 16, 2023, 5:30 PM  
CITY HALL, LAKELAND, TN.

DRAFT

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Amber Hitchcock, *Secretary*

ATTEST:

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Debra Murrell, *City Recorder*

These minutes were approved on March 16, 2023.

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**Meeting Date:** Thursday, March 16, 2023

**Project:** Dunkin Donuts - Site Plan

**Staff Contact:** Alex Barthol, Staff Planner

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**PROJECT INFORMATION**

Location: 8984 Highway 64

Parcel ID: L0159 00487

Zoning District: C-2 (Regional Commercial District)

Site Area: .65 acres

Applicant: John Vaci

Representative: John Vaci (Architect)

Location: 8984 Highway 64

**STAFF RECOMMENDATION**

Staff Recommends approval of the application as submitted.

**REQUEST**

The applicant is seeking approval of a site plan application for the change out of the Dunkin Donuts awnings. The Dunkin Donuts is located at 8984 Highway 64.

**BACKGROUND**

The subject property is located at 8984 Highway 64 in Lot 2-B of the Stonebridge Commercial Subdivision. The original structure was built in 2012 and has not been modified since its original construction.

**ANALYSIS**

**Building Elevations**

Metal awnings are proposed over the drive thru window and building entrance on the south and east side and are proposed to be painted DD Orange.

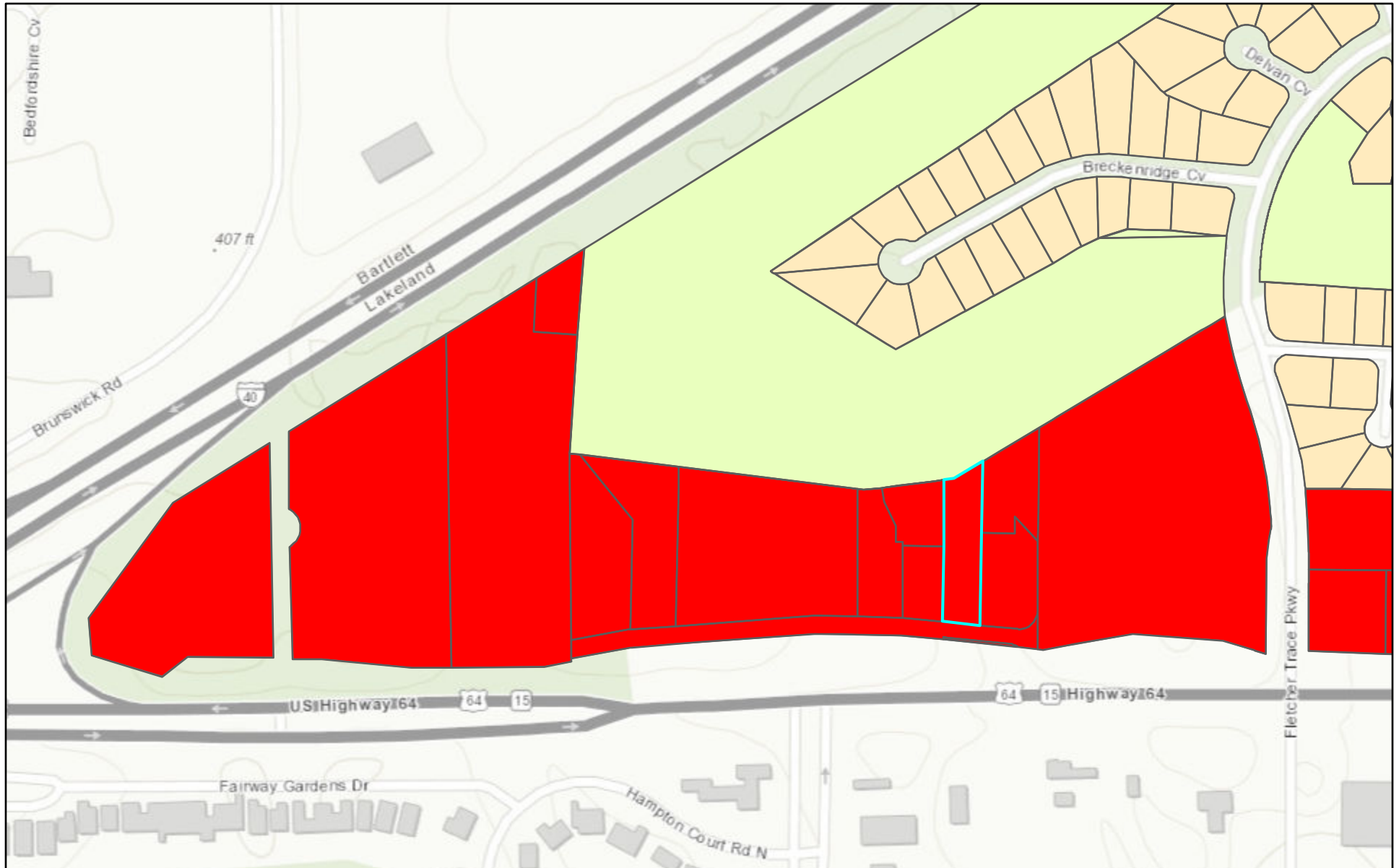
**Signage**

No new signage is proposed with the application however there will be a new sign package submitted later as part of the overall brand update.

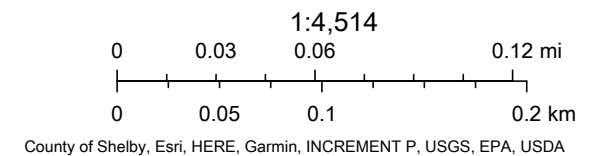
**EXAMPLE MOTIONS**

1. Motion to approve the Dunkin Donuts site plan subject to the following conditions:
  - a. Conditions as determined by the Planning Commission
2. Motion to approve the Dunkin Donuts site plan without conditions.
3. Motion to deny the Dunkin Donuts site plan application:
  - a. Reason for denial

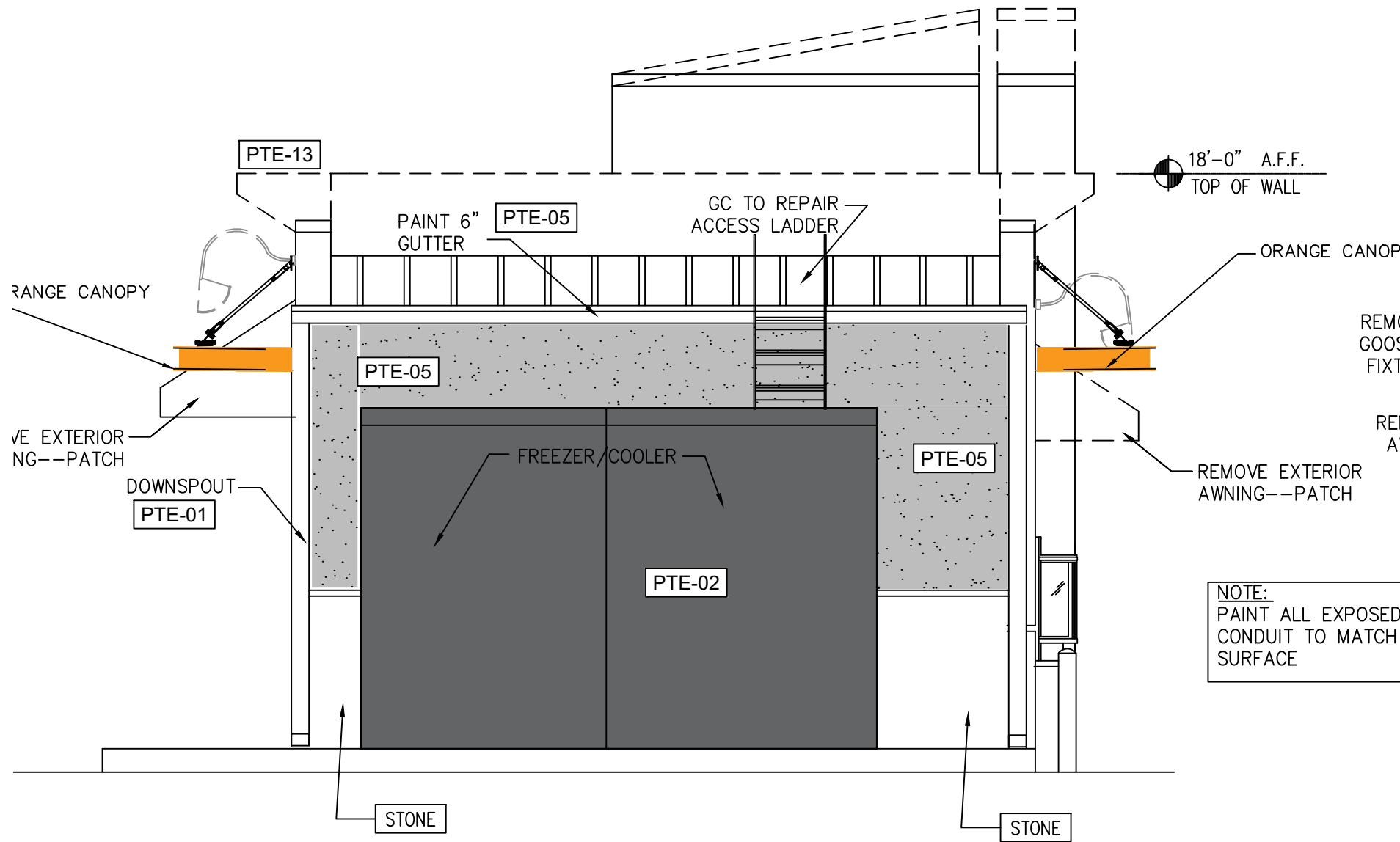
# Dunkin' Donuts Zoning Map



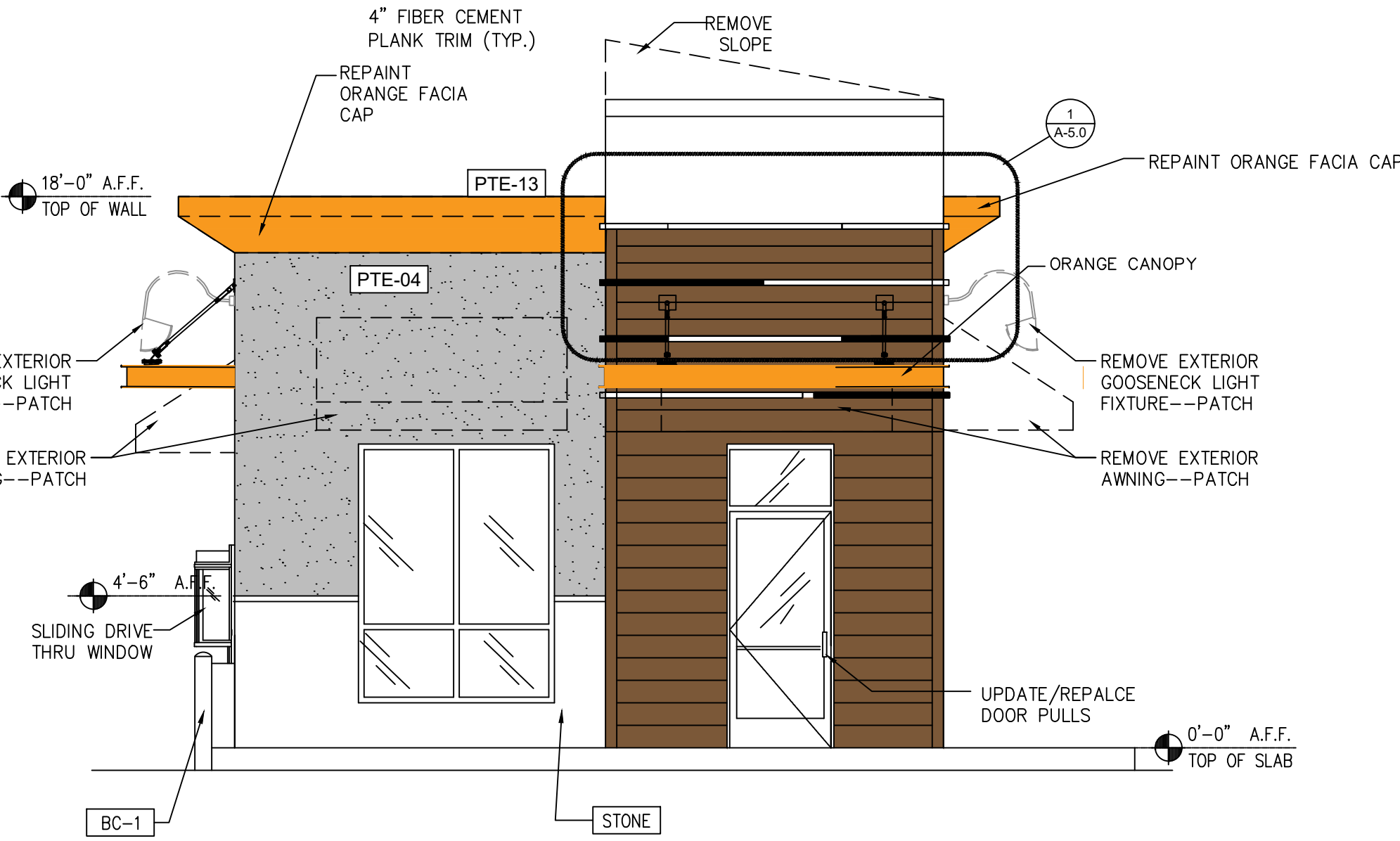
- Parcel
- C-2: General Business
- R-2: Medium Density Residential
- AG: Agriculture



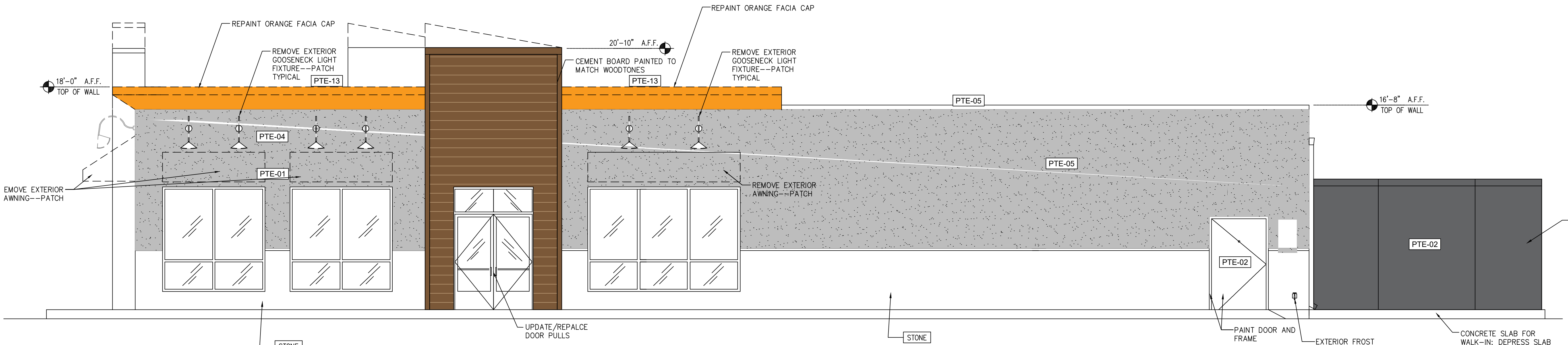
The only items for review with these elevations are the orange metal awnings above the entrance doors.



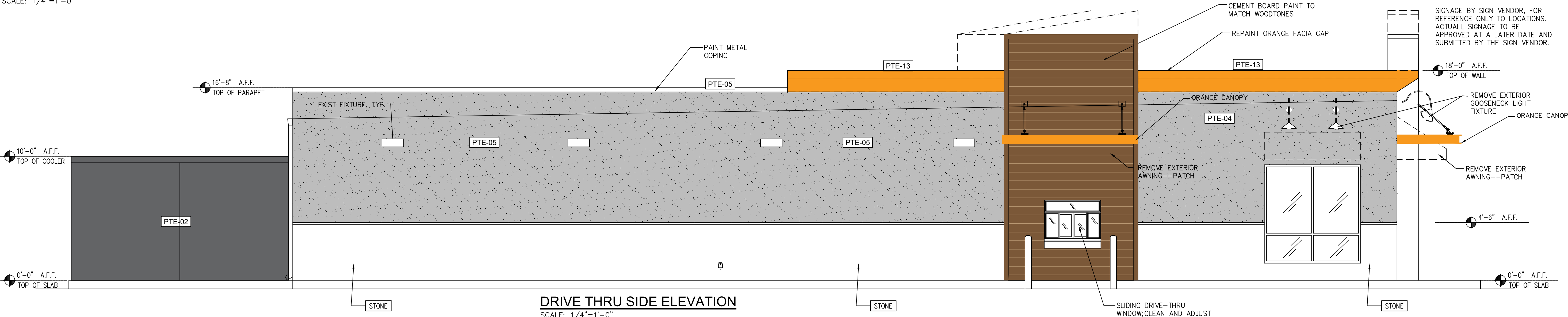
REAR ELEVATION  
SCALE: 1/4\"=1'-0"



STREET SIDE ELEVATION  
SCALE: 1/4\"=1'-0"



SIDE ELEVATION  
SCALE: 1/4\"=1'-0"



DRIVE THRU SIDE ELEVATION  
SCALE: 1/4\"=1'-0"

**JOHN S VACI, Architect**  
1138 BERWICK ROAD  
BIRMINGHAM, AL 35242  
205.541.7898  
john@johnvacichitect.com

3/28/2022

**dunkin'**  
brands™

8984 US-64  
Lakeland, TN 38002  
Store Number: 349629

JOHN S VACI  
REGISTERED ARCHITECT  
STATE OF TENNESSEE  
No. 103373  
EXPIRATION DATE 12/31/2024

Wagner DaRosa Franchisee  
Memphis Donuts, LLC.  
P.O. Box 383348  
Germantown, TN 38183  
825-2685  
e-fax (901) 457-0007  
Wagner.DaRosa@MemphisDonuts.com

| DATE     | ISSUED / REVISED  |
|----------|-------------------|
| 01/10/22 | ISSUED FOR PERMIT |
|          |                   |
|          |                   |
|          |                   |

ELEVATIONS

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**Meeting Date:** Thursday, March 16, 2023

**Project:** Highway 64 Cell Tower

**Staff Contact:** Paul Luker, Planning Director

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**PROJECT INFORMATION**

**Location:** 8922 US Highway 64

**Parcel ID:** L0159 00527

**Zoning District:** Regional Commercial (C2)

**Neighborhood:** Type V

**Site Area:** 2.83 acres

**Applicant:** TVT II, LLC d/b/a Tower Ventures, c/o Lou Katzerman

**Representative:** Kevin Norman, A2H Engineers, Inc.

**STAFF RECOMMENDATION**

Staff recommends approval of the proposed site plan application as submitted.

**BACKGROUND**

The applicant seeks approval of a Site Plan to construct a 150 ft. monopole wireless communications tower with perimeter fencing and landscaping. The site will be accessed via an easement provided from Country Bridge Road (private). The subject property is a 2,400 sq. ft. leased parcel located at 8922 U.S. Highway 64 and is within a Regional Commercial (C2) zoning district. Adjacent property uses include a Shadrach's Coffee Shop and Glide Xpress Car Wash (under construction) on the parcel to the west in the C2 zoning district; a commercial retail center on the property to the east in the C2 zoning district; Lakeland Golf Club to the north in the Agricultural (AG) District; and Banfield Pet Hospital to the south in the C2 zoning district. (See attached zoning map)

## **PROPERTY CHARACTERISTICS**

The subject property has a rectangular shape, having a depth of approximately 40 feet along the east and west boundaries; a width of approximately 60 feet on the north and south boundary; The site slopes slightly from the north to the south. The northern boundary of the subject property is heavily wooded adjacent to the golf course, the balance of the site is treeless.

## **ANALYSIS**

### **Structural Requirements**

Article III. Section 14. I. 6 of the Land Development Regulations requires written certification that a tower can withstand winds of seventy (70) miles per hour with one-half inch of radial ice, as per ANSI Standards, and/or 100 miles per hour wind gusts, whichever is greater. The applicant's engineer has supplied a letter stating that the proposed tower will exceed these requirements. Additionally, the letter also states the maximum tower fall radius is twenty (20) ft. (see attached letter).

### **Separation Distance Between Off-site Uses**

The Land Development Regulations were recently amended to provide for a reduced required minimum distance from the base of a tower to an adjoining property line from a minimum of 200% of tower height to a minimum of "maximum fall radius plus 10 ft."

The closest structure to the proposed tower will be the Banfield Pet Hospital. The distance between the tower and the pet hospital will be approximately 128 ft. The next closest structure is the retail center to the east of the site, that distance is approximately 160 ft. When construction of Shadrach's Coffee Shop is complete, the building will be approximately 180 ft. from the base of the tower. All these distances exceed the separation requirements of the Land Development Regulations.

### **Separation Distance Between Existing Towers in the Area**

Article III. Section 14. I. 3 of the Land Development Regulations requires a separation distance between existing and proposed new towers. The tower being proposed for this location is of "monopole design" and the required separation distance from existing towers is between 1,500 ft. and 750 ft., depending on existing tower design. There are no existing towers within 1,500 ft. of the subject site. There is a water tower approximately 450 ft. from the site that currently has wireless antenna arrays attached. However, the tower is at capacity and cannot accommodate additional antenna (see attached letter from T-Mobile).

### **Shared Use**

The proposed tower is being designed to accommodate a total of four (4) cellular carrier tenants. This design is in excess of the requirements prescribed by the Land Development Regulations (see attached letter).

**Site Plan**

The site plan shows an access drive and parking in accordance with the Land Development Regulations. The access drive will include a retaining wall due to the elevation change between the adjacent property and the subject site (see attached Site Plan).

**Buffer/Landscaping/Fencing**

The perimeter of the site will be enclosed with a wooden fence. Additionally, a landscape screen is provided along the southern, western and eastern boundaries. The landscaping consists of fourteen (14) Magnolia trees with a minimum height of 6 ft. tall when planted. The northern boundary of the site is screened by existing trees and vegetation. Staff feels the proposed landscape/screening plan is an acceptable alternative to the base screening requirements of Land Development Regulations. The regulations allow for alternatives from the prescribed fifty (50) ft. buffer based on the existing physical features of the site. In this case, the site is heavily screened with existing trees and vegetation to the north and will be screened from public view from Highway 64 by commercial buildings.

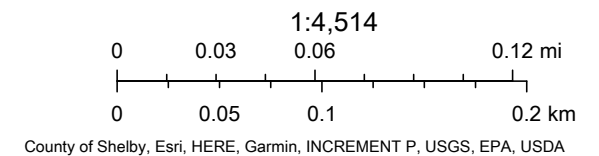
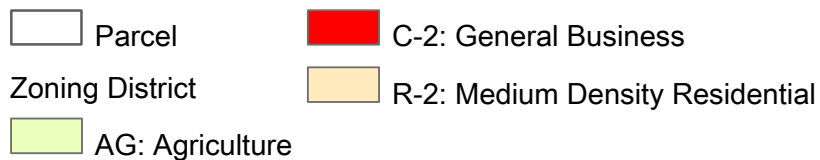
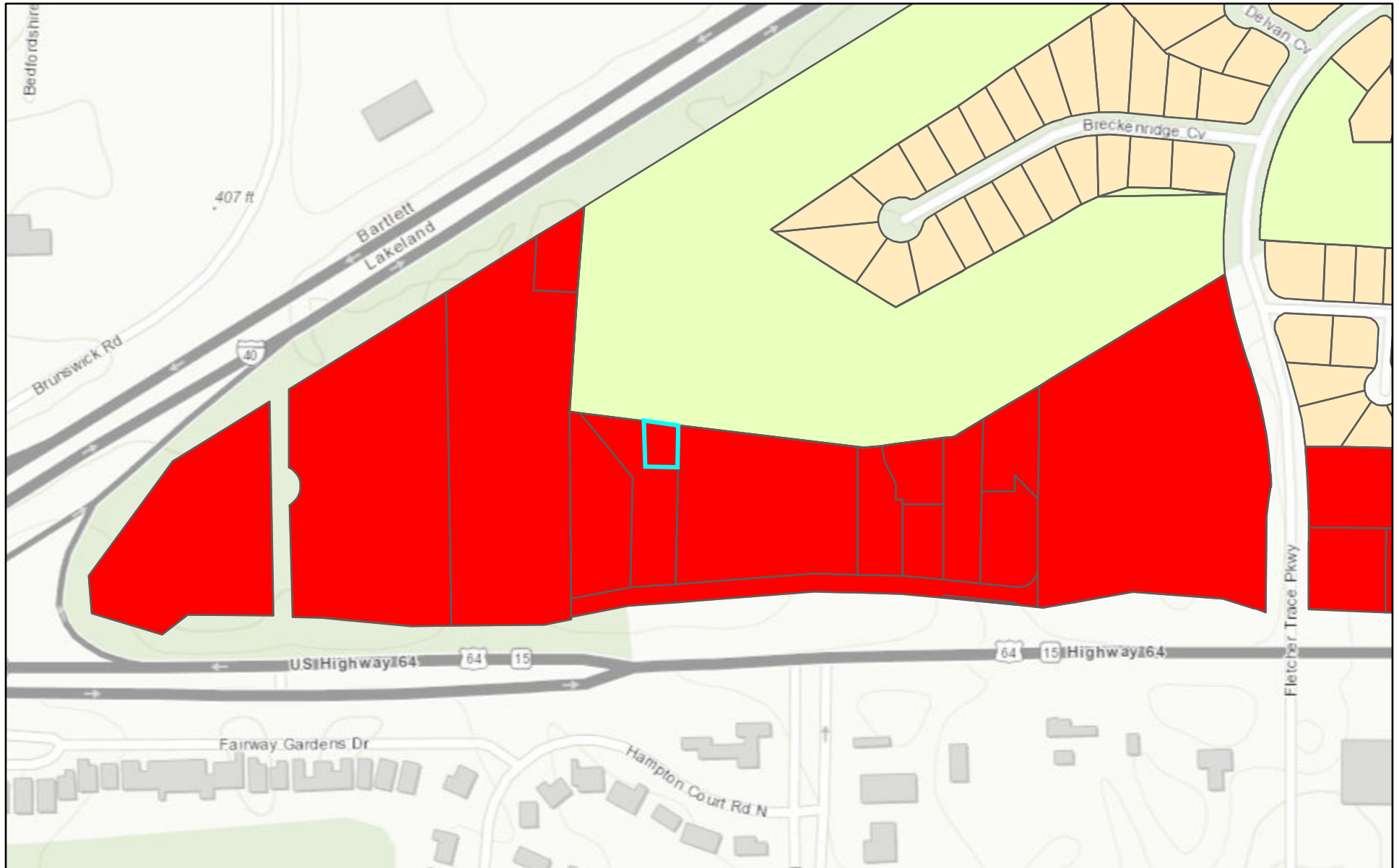
**CONCLUSIONS**

Staff has reviewed the application and has determined the Site Plan conforms to the City's Land Use Regulations.

**EXAMPLE MOTIONS**

1. Motion to approve the Highway 64 Cell Tower Site Plan subject to the following conditions:
  - a. Conditions as determined by the Planning Commission
  - b. Conditions listed in the Staff Report
2. Motion to approve the Highway 64 Cell Tower Site Plan application without conditions.
3. Motion to deny the Highway 64 Cell Tower Site Plan application:
  - a. Reason for denial

# Highway 64 Cell Tower Zoning Map





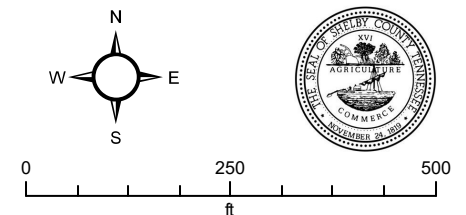
Shelby County GIS / ReGIS 160 North Main, Suite 1000, Memphis, TN 38103 email:  
ReGIS@shelbycountyttn.gov | www.gis.shelbycountyttn.gov, ReGIS Shelby County Government



## MELVIN BURGESS, ASSESSOR SHELBY COUNTY, TENNESSEE

DISCLAIMER: THIS MAP IS FOR PROPERTY ASSESSMENT PURPOSES ONLY. IT IS NOT CONCLUSIVE AS TO LOCATION OF PROPERTY OR LEGAL OWNERSHIP AND THEREFORE, SHOULD NOT BE RELIED UPON AS A REPRESENTATION OF ANY PROPERTY FOR ANY PURPOSE.

MAP DATE: February 21, 2023





September 29, 2022

VIA EMAIL - pluker@lakelandtn.org

Mr. Paul Luker  
City of Lakeland  
10001 Highway 70  
Lakeland, TN 38002

RE: Proposed Cell Tower Behind Benfield Pet Hospital – 8920 Us Hwy 64

Dear Mr. Luker:

While we haven't yet had the opportunity to meet, I wish you success in your new role with the City of Lakeland.

I am writing to you regarding the proposed cell tower site behind the Banfield Pet Hospital. I thought it might be of some value to recap how that site came into existence. When the developers of the Banfield hospital initially approached us, they only wanted to buy a parcel substantially similar to what they eventually developed. It was only when Tower Ventures subsequently approached us that we agreed to sell the front portion for what is now Banfield and carve out the parcel for the cell tower. The Banfield development team was aware we intended to develop the rear for the tower and in so doing it was beneficial to them to the extent that I didn't force them to buy more land they were not going to use. You might be able to confirm the veracity of this information by examining the development plans for Shadrach's and Glide. As you will see they both were required to purchase to our rear property line.

If I can be of any assistance to you, please do not hesitate to call me.

Yours truly,  
MAKOWSKY RINGEL GREENBERG, LLC

A handwritten signature in black ink, appearing to read 'Michael Greenberg', written over a light blue horizontal line.

Michael Greenberg, CCIM, CPM

CC: Louis Katzerman – Tower Ventures



# Michael F. Plahovinsak, P.E.

18301 State Route 161, Plain City, Ohio 43064  
(614) 398-6250 • mike@mfpeng.com

January 31, 2023

Paul Luker  
Planning Director  
City of Lakeland, Tennessee  
Lakeland City Hall  
10001 U.S. Highway 70  
Lakeland, TN 38002

Re: Proposed 150-ft Monopole  
Located in Shelby Co., TN: Site #TN2744 – Stonebridge  
8922 U.S. Highway 64, Cell, Lakeland, TN 38002  
MFP #90122-008

Mr. Luker,

Communication structures are designed in accordance with the Telecommunications Industry Association TIA-222-H, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures".

I will design this monopole to withstand a 3-second gust wind speed of 105 mph ( $V_{ult}$ ) in accordance with TIA-222-H for Shelby County. *The design will also conform to the requirements of the 2021 International Building Code. This design also exceeds the Lakeland required 70 mph with ½" ice, 100 mph (no-ice) wind and Seismic Zone 3.*

This monopole will be intentionally designed to accommodate a theoretical fall radius. The upper 20' of the pole will be designed to meet the wind loads of the design, however, the lower portion of the pole will be designed with a minimum 10% extra capacity. Assuming the pole will be fabricated according to my design and well maintained, in the event of a failure due to extreme wind and a comparable appurtenance antenna loads (winds in excess of the design wind load), it would yield/buckle at the 130' elevation. The yielded section would result in a maximum 20' fall radius, but would most likely remain connected and hang from the standing section.

The structure will be designed with all of the applicable factors as required by the code. A properly designed, constructed and maintained pole has never collapsed; monopoles are safe structures with a long history of reliable operation.

I hope this review of the monopole design has given you a greater degree of comfort regarding the design capacity inherent in pole structures. If you have any additional questions please call me at 614-398-6250 or email [mike@mfpeng.com](mailto:mike@mfpeng.com).

Sincerely,

Michael F. Plahovinsak, P.E.  
Professional Engineer



## **TVT II, LLC - Tower Ventures**

Phone: 901 244-4017  
495 Tennessee Street  
Suite: 152  
Memphis, TN 38103

June 21<sup>st</sup>, 2022

City of Lakeland  
Planning Department  
C/O Mr. Donald Anthony  
Planning Director  
10001 US Highway 70  
Lakeland, TN 38002

RE: Site Name: TN 2744; Stonebridge: **Statement of Governmental Compliance** for  
a One Hundred Fifty Foot (150') Monopole Communications Tower at 8922 US  
Highway 64, Cell, Lakeland TN 38002 (Parcel ID # LO 00527)

Dear Mr. Anthony:

The proposed Cellular Tower at 8922 US Highway 64 (Parcel ID # LO 00527), Lakeland, TN, 38002, will kindly comply with all regulations administered by the Federal Aviation Administration, the Federal Communications Commission, the EPA, all applicable ANSI Standards, and all other Federal, State and Local governmental bodies.

Sincerely,



Lou Katzerman  
Sr. Site Acquisition and Zoning Manager  
TVT II, LLC - Tower Ventures  
Office: 901-244-4017  
[lou@towerventures.com](mailto:lou@towerventures.com)



June 6<sup>th</sup>, 2022

RE: T-Mobile Site # 9ME0447A  
8922 US Highway 64 Lakeland, Tennessee 38002  
Proposed New 150 FT Tower Construction

To The City of Lakeland Planning Department:

T-Mobile South LLC (“T-Mobile”) respectfully submits this letter to construct a new telecommunications tower at 8922 US Highway 64 Lakeland, Tennessee. The proposed new tower is required to provide 5G capacity, relieve exhausted sectors, and provide enhanced 5G data services in Lakeland, TN.

The existing adjacent T-Mobile towers with site numbers 9ME0953A, 9ME3721S, and 9ME0442A are unable to provide the needed in-building and in-vehicular 5G coverage needed for the area. Previous optimization efforts were not able to improve the signal strength.

The current water tank location no longer has adequate space to meet T-Mobile’s future 5G data and voice capacity equipment expansion plans. As such TMO must find a new location specifically designed for wireless carriers.

As the attached picture shows (page two) T-Mobile’s site consists of three antennas. When this site was designed back in 1999, voice transmissions were the main justification for the site. That was back in the “2G” days. Meaning very little data was transmitted on these sites. This all changed with the advent of the iPhone in 2007. Now, 15 years after the introduction of the iPhone, data transmissions are the primary drivers of new cell sites. Being a site that can only hold three antennas, the current Water Tank Site is simply inadequate to be a viable cell site in today’s cellular environment. Simply stated, the Water Tank Site cannot be upgraded to accommodate the new 5G data transmission equipment.

Additionally, this new site will improve the access to T-Mobile’s enhanced E911 services as required by the FCC and local PSAP and improve safety to the citizens of Lakeland, Tennessee.



T-Mobile owns and operates the following frequency bands in Tennessee.

T-Mobile ensures that all necessary precautions are taken to ensure our frequency bands do not interfere with any other carrier or wireless entity.

| BH/ME Operational frequency bands |                         |      |                |        |      |                    |                        |        |      |                 |
|-----------------------------------|-------------------------|------|----------------|--------|------|--------------------|------------------------|--------|------|-----------------|
| Band                              | Name                    | Mode | Downlink (MHz) |        |      | Bandwidth<br>DL/UL | Uplink (MHz)           |        |      | Duplex<br>(MHz) |
|                                   |                         |      | Low            | Middle | High |                    | Low                    | Middle | High |                 |
|                                   |                         |      | Earfcn         |        |      |                    | Earfcn                 |        |      |                 |
| 2                                 | G1900/U1900/L1900/N1900 | FDD  | 1930           | 1960   | 1990 | 60                 | 1850                   | 1880   | 1910 | 80              |
| 4                                 | U2100/L2100/N2100       | FDD  | 2110           | 2132.5 | 2155 | 45                 | 1710                   | 1732.5 | 1755 | 400             |
| 12                                | L700                    | FDD  | 729            | 737.5  | 746  | 17                 | 699                    | 707.5  | 716  | 30              |
| 41                                | L2500/N2500             | TDD  | 2496           | 2593   | 2690 | 194                | UL/DL same frequencies |        |      |                 |
| 66                                | AWS-3                   | FDD  | 2110           | 2155   | 2200 | 90 / 70            | 1710                   | 1745   | 1780 | 400             |
| 71                                | L600/N600               | FDD  | 617            | 634.5  | 652  | 35                 | 663                    | 680.5  | 698  | -46             |

If you have any further technical questions related to this application, you may contact me at [Ralph.Piacente@T-Mobile.com](mailto:Ralph.Piacente@T-Mobile.com).

Sincerely,

*Ralph Piacente*

Sr. RF Engineer  
RF Engineering RF Deployment

**ATTACHMENT NEXT PAGE**

# T-Mobile®

T-Mobile's Three Antenna Array



## **TVT II, LLC - Tower Ventures**

Phone: 901 244-4017  
495 Tennessee Street  
Suite: 152  
Memphis, TN 38103

June 21<sup>st</sup>, 2022

City of Lakeland  
Planning Department  
C/O Mr. Donald Anthony  
Planning Director  
10001 US Highway 70  
Lakeland, TN 38002

RE: Site Name: TN 2744; Stonebridge: **Statement of Shared Use** for a One Hundred Fifty Foot (150') Monopole Communications Tower at 8922 US Highway 64, Cell, Lakeland TN 38002 (Parcel ID # LO 00527)

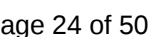
Dear Mr. Anthony:

TVT II, LLC kindly commits to allow shared use or colocation of the proposed tower at 8922 US Highway 64, Cell (Parcel ID #LO 00527) Lakeland, TN 38002 in capacities based on existing and planned use, and if a future applicant agrees in writing to pay any reasonable charge for shared use, the potential use is technically compatible, and the future applicant is in good standing. The proposed Tower will be built to accommodate a total of four Cellular Carrier Tenants. One tower lease center for each Cellular Licensee in Lakeland, TN.

Sincerely,



Lou Katzerman  
Sr. Site Acquisition and Zoning Manager  
TVT II, LLC - Tower Ventures  
Office: 901-244-4017  
[lou@towerventures.com](mailto:lou@towerventures.com)

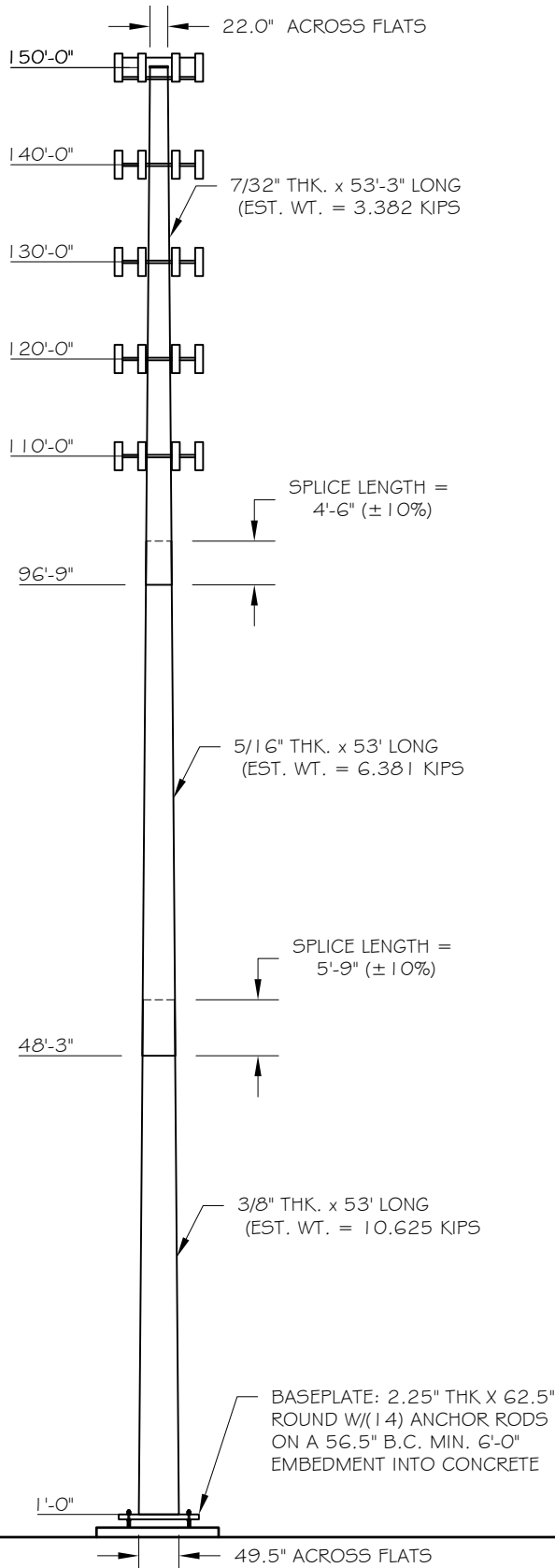




# TransAmerican Power Products, Inc.

2427 Kelly Lane  
Houston, Texas 77068

PH: 281-444-8277 / FX: 281-444-7270



|                                                 |                        |
|-------------------------------------------------|------------------------|
| Page 1 of 2                                     | Job Number: 23516-397  |
| Eng: MFP                                        | Customer Ref: TP-14553 |
|                                                 | Date: 2/2/2017         |
| Structure: 150-FT MONOPOLE                      |                        |
| Site: TN-1959 BELLE OAK                         |                        |
| Location: SHELBY CO., TN / 35°3'36", -89°51'51" |                        |
| Owner: TV6 SIGNAL SOURCE TOWERS, LLC            |                        |
| Revision No.: Revision Date:                    |                        |

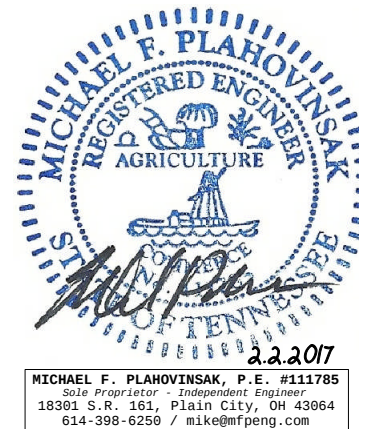
| DESIGN                                                                    |               |                 |              |
|---------------------------------------------------------------------------|---------------|-----------------|--------------|
| Building Code: 2006-2015 INTERNATIONAL BUILDING CODE                      |               |                 |              |
| Design Standard: ANSI/TIA-222-G-2                                         |               |                 |              |
| Wind Speed Load Cases: 3-SEC. GUSTED WIND SPEED                           |               |                 |              |
| Load Case #1: 90 MPH Design Wind Speed - $V_{ASD}$ ( $V_{ULT} = 116$ MPH) |               |                 |              |
| Load Case #2: 30 MPH Wind with 1" Ice Accumulation                        |               |                 |              |
| Load Case #3: 60 MPH Service Wind Speed                                   |               |                 |              |
| Structure Class                                                           | Exposure Cat. | Topography Cat. | Crest Height |
| II                                                                        | C             | I               |              |

| SEISMIC ANALYSIS                                        |                       |                                     |                                   |
|---------------------------------------------------------|-----------------------|-------------------------------------|-----------------------------------|
| Importance Factor: I                                    |                       | Occupancy Cat: I                    | Seis Design Cat: E   Site Class D |
| S <sub>s</sub> : 0.64                                   | S <sub>i</sub> : 0.82 | Design Base Shear: 33 Kips          | Seis Response C: 0.43             |
| S <sub>s</sub> : 0.35                                   | S <sub>i</sub> : 0.29 | Response Modification Factor R: 1.5 |                                   |
| Equivalent Lateral Force Procedure      Analysis Method |                       |                                     |                                   |

| EQUIPMENT LIST |                                                          |
|----------------|----------------------------------------------------------|
| Elev.          | Description                                              |
| 150            | (3) NOKIA FASB + (3) APXV18-20G517 + (12) TMA/RRU/RAYCAP |
| 150            | PLATFORM WITH HANDRAIL                                   |
| 140            | (12) 8' X 1' PANEL ANTENNA                               |
| 140            | 12-FT LOW PROFILE PLATFORM                               |
| 130            | (12) 8' X 1' PANEL ANTENNAS                              |
| 130            | 12-FT LOW PROFILE PLATFORM                               |
| 120            | (12) 8' X 1' PANEL ANTENNA                               |
| 120            | 12-FT LOW PROFILE PLATFORM                               |
| 110            | (6) 8' X 1' PANEL ANTENNA                                |
| 110            | 12-FT LOW PROFILE PLATFORM                               |

ANTENNA FEED LINES ROUTED ON THE INSIDE OF THE POLE

| STRUCTURE PROPERTIES                           |             |                |                                  |               |               |
|------------------------------------------------|-------------|----------------|----------------------------------|---------------|---------------|
| Cross-Section: 18-SIDED                        |             |                | Taper: 0.19169 in/ft             |               |               |
| Shaft Steel: ASTM A572 GR 65                   |             |                | Baseplate Steel: ASTM A572 GR 50 |               |               |
| Anchor Rods: 2.25 in. A615 GR. 75 X 7'-0" LONG |             |                |                                  |               |               |
| Sect.                                          | Length (ft) | Thickness (in) | Splice (ft)                      | Top Dia. (in) | Bot Dia. (in) |
| 1                                              | 53.25       | 0.2188         | 4.50                             | 22.00         | 32.21         |
| 2                                              | 53.00       | 0.3125         | 5.75                             | 30.91         | 41.07         |
| 3                                              | 53.00       | 0.3750         | 0.00                             | 39.34         | 49.50         |



MICHAEL F. PLAHOVINSAK, P.E. #111785  
Sole Proprietor - Independent Engineer  
18301 S.R. 161, Plain City, OH 43064  
614-398-6250 / mike@mfpeng.com

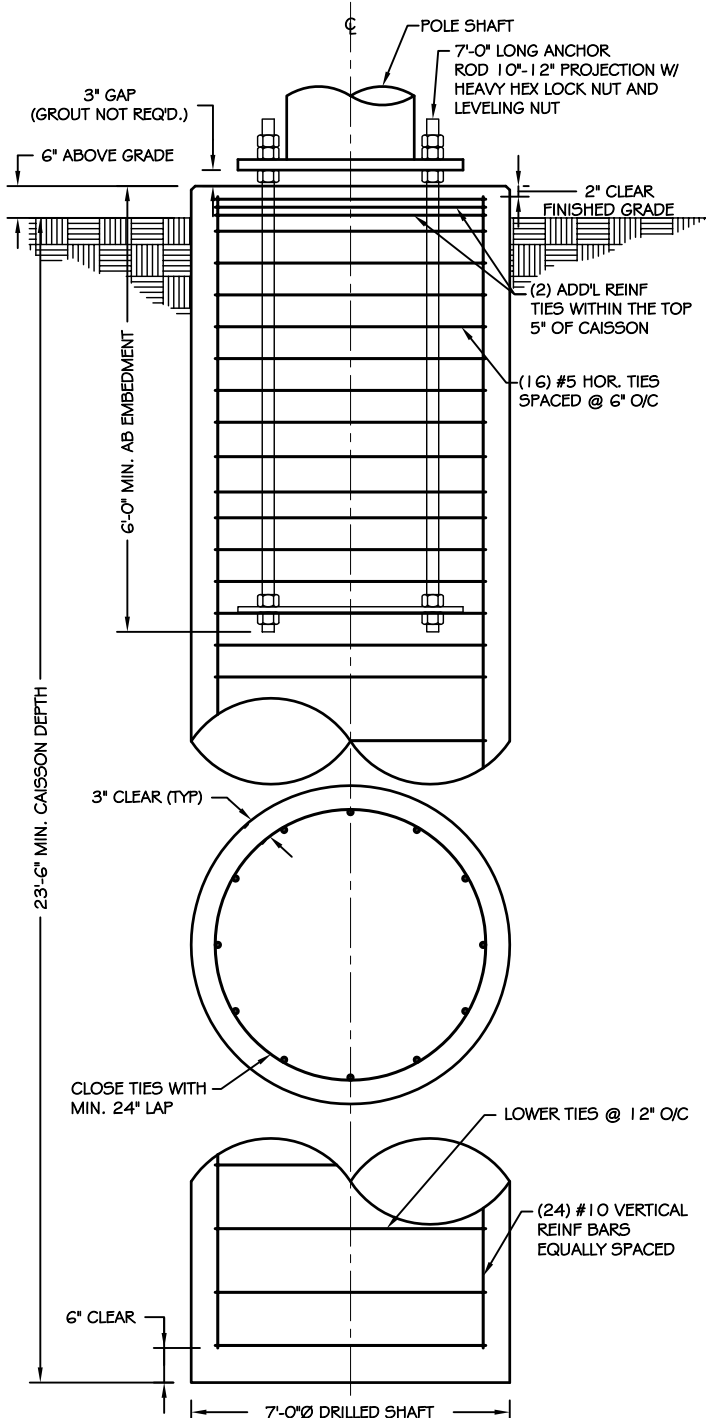
## BASE REACTIONS FOR FOUNDATION DESIGN

Moment: 3840 ft-kip  
Shear: 33 kip  
Axial: 49 kip

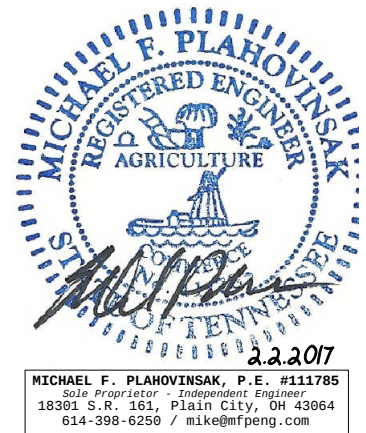
|               |                                       |           |
|---------------|---------------------------------------|-----------|
| Page 2 of 2   | Job Number:                           | 23516-397 |
| Eng: MFP      | Customer Ref:                         | TP-14553  |
|               | Date:                                 | 2/2/2017  |
| Structure:    | 150-FT MONOPOLE                       |           |
| Site:         | TN-1959 BELLE OAK                     |           |
| Location:     | SHELBY CO., TN / 35°3'36", -89°51'51" |           |
| Owner:        | TVG SIGNAL SOURCE TOWERS, LLC         |           |
| Revision No.: | Revision Date:                        |           |

FOUNDATION NOTES:

1. ALL FOUNDATION CONSTRUCTION SHALL USE TYPE II CEMENT AND ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. CONCRETE SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.46 AND SHALL BE AIR ENTRAINED 6% ( $\pm 1.5\%$ ). ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318, "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION.
2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 VERTICAL BARS SHALL BE GRADE 60, AND TIES OR STIRRUPS SHALL BE A MINIMUM OF GRADE 40. THE PLACEMENT OF ALL REINFORCEMENT SHALL CONFORM TO ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
3. CAISSON FOUNDATION INSTALLATION SHALL BE IN ACCORDANCE WITH ACI 336, "STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF DRILLED PIERS", LATEST EDITION.
4. THE CONTRACTOR SHALL DETERMINE THE MEANS AND METHODS TO SUPPORT THE EXCAVATION DURING CONSTRUCTION. THE CONTRACTOR SHALL READ THE GEOTECHNICAL REPORT AND SHALL CONSULT THE GEOTECHNICAL ENGINEER AS NECESSARY PRIOR TO CONSTRUCTION.
5. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL REPORT BY:  
ENGINEER: TERRACON  
REPORT NO.: A8137313 (DATED 10/25/13)
6. ESTIMATED CONCRETE VOLUME = 34 CUBIC YARDS.
7. THE FOUNDATION HAS BEEN DESIGNED TO RESIST THE FOLLOWING FACTORED LOADS:  
MOMENT: 3840 FT\*KIPS  
SHEAR: 33 KIPS  
AXIAL: 49 KIPS



## CAISSON FOUNDATION



|                                                                                                                                                            |                                                |                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------|
| <b>tnxTower</b><br><br><b>Michael F. Plahovinsak, P.E.</b><br>18301 State Route 161<br>Plain City, OH 43064<br>Phone: 614-398-6250<br>FAX: mike@mfpeng.com | <b>Job</b><br>150-ft Monopole - MFP #23516-397 | <b>Page</b><br>1 of 6            |
|                                                                                                                                                            | <b>Project</b><br>TN-1959 Belle Oak            | <b>Date</b><br>19:26:14 08/23/16 |
|                                                                                                                                                            | <b>Client</b><br>TAPP (TP-14553)               | <b>Designed by</b><br>Mike       |

## Tower Input Data

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Shelby County, Tennessee.

Basic wind speed of 90 mph ( $V_{ASD}$ ) – Equivalent to 116 mph  $V_{ULT}$ .

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 30 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

## Tapered Pole Section Geometry

| Section | Elevation<br>ft | Section<br>Length<br>ft | Splice<br>Length<br>ft | Number<br>of<br>Sides | Top<br>Diameter<br>in | Bottom<br>Diameter<br>in | Wall<br>Thickness<br>in | Bend<br>Radius<br>in | Pole Grade          |
|---------|-----------------|-------------------------|------------------------|-----------------------|-----------------------|--------------------------|-------------------------|----------------------|---------------------|
| L1      | 150.00-96.75    | 53.25                   | 4.50                   | 18                    | 22.0000               | 32.2100                  | 0.2188                  | 0.8750               | A572-65<br>(65 ksi) |
| L2      | 96.75-48.25     | 53.00                   | 5.75                   | 18                    | 30.9097               | 41.0700                  | 0.3125                  | 1.2500               | A572-65<br>(65 ksi) |
| L3      | 48.25-1.00      | 53.00                   |                        | 18                    | 39.3427               | 49.5000                  | 0.3750                  | 1.5000               | A572-65<br>(65 ksi) |

## Tapered Pole Properties

| Section | Tip Dia.<br>in | Area<br>in <sup>2</sup> | I<br>in <sup>4</sup> | r<br>in | C<br>in | I/C<br>in <sup>3</sup> | J<br>in <sup>4</sup> | It/Q<br>in <sup>2</sup> | w<br>in | w/t    |
|---------|----------------|-------------------------|----------------------|---------|---------|------------------------|----------------------|-------------------------|---------|--------|
| L1      | 22.3394        | 15.1230                 | 906.4437             | 7.7323  | 11.1760 | 81.1063                | 1814.0801            | 7.5629                  | 3.4870  | 15.941 |
|         | 32.7069        | 22.2119                 | 2872.0108            | 11.3569 | 16.3627 | 175.5220               | 5747.8006            | 11.1081                 | 5.2840  | 24.155 |
| L2      | 32.2625        | 30.3486                 | 3589.5394            | 10.8620 | 15.7021 | 228.6022               | 7183.8020            | 15.1772                 | 4.8901  | 15.648 |
|         | 41.7036        | 40.4263                 | 8484.3193            | 14.4689 | 20.8636 | 406.6573               | 16979.8025           | 20.2170                 | 6.6783  | 21.371 |
| L3      | 41.0686        | 46.3813                 | 8897.9507            | 13.8335 | 19.9861 | 445.2071               | 17807.6095           | 23.1951                 | 6.2643  | 16.705 |
|         | 50.2636        | 58.4710                 | 17827.2080           | 17.4394 | 25.1460 | 708.9481               | 35677.8734           | 29.2411                 | 8.0520  | 21.472 |

## Feed Line/Linear Appurtenances - Entered As Area

| Description | Face<br>or<br>Leg | Allow<br>Shield | Component<br>Type | Placement<br>ft | Total<br>Number |          | $C_A A_A$<br>ft <sup>2</sup> /ft | Weight<br>plf |
|-------------|-------------------|-----------------|-------------------|-----------------|-----------------|----------|----------------------------------|---------------|
| 1 5/8"      | C                 | No              | Inside Pole       | 150.00 - 1.00   | 18              | No Ice   | 0.00                             | 0.92          |
|             |                   |                 |                   |                 |                 | 1/2" Ice | 0.00                             | 0.92          |
|             |                   |                 |                   |                 |                 | 1" Ice   | 0.00                             | 0.92          |
| 1 5/8"      | C                 | No              | Inside Pole       | 140.00 - 1.00   | 18              | No Ice   | 0.00                             | 0.92          |
|             |                   |                 |                   |                 |                 | 1/2" Ice | 0.00                             | 0.92          |
|             |                   |                 |                   |                 |                 | 1" Ice   | 0.00                             | 0.92          |

|                                                                                                                                                            |                |                                  |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>Michael F. Plahovinsak, P.E.</b><br>18301 State Route 161<br>Plain City, OH 43064<br>Phone: 614-398-6250<br>FAX: mike@mfpeng.com | <b>Job</b>     | 150-ft Monopole - MFP #23516-397 | <b>Page</b>        | 2 of 6            |
|                                                                                                                                                            | <b>Project</b> | TN-1959 Belle Oak                | <b>Date</b>        | 19:26:14 08/23/16 |
|                                                                                                                                                            | <b>Client</b>  | TAPP (TP-14553)                  | <b>Designed by</b> | Mike              |

| Description | Face<br>or<br>Leg | Allow<br>Shield | Component<br>Type | Placement<br>ft | Total<br>Number |          | C <sub>A</sub> A <sub>A</sub><br>ft <sup>2</sup> /ft | Weight<br>plf |
|-------------|-------------------|-----------------|-------------------|-----------------|-----------------|----------|------------------------------------------------------|---------------|
| 1 5/8"      | C                 | No              | Inside Pole       | 130.00 - 1.00   | 18              | No Ice   | 0.00                                                 | 0.92          |
|             |                   |                 |                   |                 |                 | 1/2" Ice | 0.00                                                 | 0.92          |
|             |                   |                 |                   |                 |                 | 1" Ice   | 0.00                                                 | 0.92          |
| 1 5/8"      | C                 | No              | Inside Pole       | 120.00 - 1.00   | 18              | No Ice   | 0.00                                                 | 0.92          |
|             |                   |                 |                   |                 |                 | 1/2" Ice | 0.00                                                 | 0.92          |
|             |                   |                 |                   |                 |                 | 1" Ice   | 0.00                                                 | 0.92          |
| 1 5/8"      | C                 | No              | Inside Pole       | 110.00 - 1.00   | 18              | No Ice   | 0.00                                                 | 0.92          |
|             |                   |                 |                   |                 |                 | 1/2" Ice | 0.00                                                 | 0.92          |
|             |                   |                 |                   |                 |                 | 1" Ice   | 0.00                                                 | 0.92          |

### Discrete Tower Loads

| Description                                       | Face<br>or<br>Leg | Offset<br>Type | Offsets:<br>Horz<br>Lateral<br>Vert<br>ft<br>ft<br>ft | Azimuth<br>Adjustment<br>° | Placement<br>ft |          | C <sub>A</sub> A <sub>A</sub><br>Front<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Side<br>ft <sup>2</sup> | Weight<br>K |
|---------------------------------------------------|-------------------|----------------|-------------------------------------------------------|----------------------------|-----------------|----------|-----------------------------------------------------------|----------------------------------------------------------|-------------|
| Nokia FASB Antenna w/<br>mount pipe               | A                 | From Face      | 3.00<br>0.00<br>0.00                                  | 0.0000                     | 150.00          | No Ice   | 12.65                                                     | 15.82                                                    | 0.24        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 13.33                                                     | 17.37                                                    | 0.35        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 14.05                                                     | 18.78                                                    | 0.48        |
| RFS APXV18-206517S-C w/<br>mount pipe             | A                 | From Face      | 3.00<br>0.00<br>0.00                                  | 0.0000                     | 150.00          | No Ice   | 5.45                                                      | 5.05                                                     | 0.07        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 5.99                                                      | 6.06                                                     | 0.11        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 6.51                                                      | 6.93                                                     | 0.17        |
| Nokia FASB Antenna w/<br>mount pipe               | B                 | From Face      | 3.00<br>0.00<br>0.00                                  | 0.0000                     | 150.00          | No Ice   | 12.65                                                     | 15.82                                                    | 0.24        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 13.33                                                     | 17.37                                                    | 0.35        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 14.05                                                     | 18.78                                                    | 0.48        |
| RFS APXV18-206517S-C w/<br>mount pipe             | B                 | From Face      | 3.00<br>0.00<br>0.00                                  | 0.0000                     | 150.00          | No Ice   | 5.45                                                      | 5.05                                                     | 0.07        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 5.99                                                      | 6.06                                                     | 0.11        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 6.51                                                      | 6.93                                                     | 0.17        |
| Nokia FASB Antenna w/<br>mount pipe               | C                 | From Face      | 3.00<br>0.00<br>0.00                                  | 0.0000                     | 150.00          | No Ice   | 12.65                                                     | 15.82                                                    | 0.24        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 13.33                                                     | 17.37                                                    | 0.35        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 14.05                                                     | 18.78                                                    | 0.48        |
| RFS APXV18-206517S-C w/<br>mount pipe             | C                 | From Face      | 3.00<br>0.00<br>0.00                                  | 0.0000                     | 150.00          | No Ice   | 5.45                                                      | 5.05                                                     | 0.07        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 5.99                                                      | 6.06                                                     | 0.11        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 6.51                                                      | 6.93                                                     | 0.17        |
| (6) RFS ATMAA1412D<br>TMA                         | A                 | From Face      | 2.00<br>0.00<br>0.00                                  | 0.0000                     | 150.00          | No Ice   | 0.52                                                      | 1.19                                                     | 0.03        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 0.62                                                      | 1.33                                                     | 0.04        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 0.74                                                      | 1.49                                                     | 0.05        |
| (3) Nokia FRGB                                    | B                 | From Face      | 2.00<br>0.00<br>0.00                                  | 0.0000                     | 150.00          | No Ice   | 1.39                                                      | 2.82                                                     | 0.05        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 1.58                                                      | 3.05                                                     | 0.07        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 1.78                                                      | 3.30                                                     | 0.09        |
| (3) Raycap ASU9338 typ01                          | B                 | From Face      | 2.00<br>0.00<br>0.00                                  | 0.0000                     | 150.00          | No Ice   | 2.95                                                      | 1.07                                                     | 0.02        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 3.18                                                      | 1.23                                                     | 0.04        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 3.42                                                      | 1.41                                                     | 0.06        |
| Kenwood T1515KT 13'<br>Round Platform w/ Handrail | C                 | None           |                                                       | 0.0000                     | 150.00          | No Ice   | 54.22                                                     | 35.58                                                    | 1.95        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 60.00                                                     | 40.00                                                    | 2.44        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 65.78                                                     | 44.42                                                    | 2.94        |
| ***                                               |                   |                |                                                       |                            |                 |          |                                                           |                                                          |             |
| (4) 96" x 12" x 3" Panel w/<br>mount pipe         | A                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 140.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| (4) 96" x 12" x 3" Panel w/<br>mount pipe         | B                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 140.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| (4) 96" x 12" x 3" Panel w/<br>mount pipe         | C                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 140.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                                   |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                                   |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |

|                                                                                                                                                           |                |                                  |                    |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>Michael F. Plahovinsak, P.E.</b><br>18301 State Route 161<br>Plain City, OH 43064<br>Phone: 614-398-6250<br>FAX: mike@mpeng.com | <b>Job</b>     | 150-ft Monopole - MFP #23516-397 | <b>Page</b>        | 3 of 6            |
|                                                                                                                                                           | <b>Project</b> | TN-1959 Belle Oak                | <b>Date</b>        | 19:26:14 08/23/16 |
|                                                                                                                                                           | <b>Client</b>  | TAPP (TP-14553)                  | <b>Designed by</b> | Mike              |

| Description                               | Face<br>or<br>Leg | Offset<br>Type | Offsets:<br>Horz<br>Lateral<br>Vert<br>ft<br>ft<br>ft | Azimuth<br>Adjustment<br>° | Placement<br>ft |          | C <sub>A</sub> A <sub>A</sub><br>Front<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Side<br>ft <sup>2</sup> | Weight<br>K |
|-------------------------------------------|-------------------|----------------|-------------------------------------------------------|----------------------------|-----------------|----------|-----------------------------------------------------------|----------------------------------------------------------|-------------|
| 12' Low Profile Platform<br>(MT-196)      | C                 | None           |                                                       | 0.0000                     | 140.00          | No Ice   | 10.40                                                     | 10.40                                                    | 0.91        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 10.70                                                     | 10.70                                                    | 1.20        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 11.00                                                     | 11.00                                                    | 1.47        |
| **                                        |                   |                |                                                       |                            |                 |          |                                                           |                                                          |             |
| (4) 96" x 12" x 3" Panel w/<br>mount pipe | A                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 130.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| (4) 96" x 12" x 3" Panel w/<br>mount pipe | B                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 130.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| (4) 96" x 12" x 3" Panel w/<br>mount pipe | C                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 130.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| 12' Low Profile Platform<br>(MT-196)      | C                 | None           |                                                       | 0.0000                     | 130.00          | No Ice   | 10.40                                                     | 10.40                                                    | 0.91        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 10.70                                                     | 10.70                                                    | 1.20        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 11.00                                                     | 11.00                                                    | 1.47        |
| **                                        |                   |                |                                                       |                            |                 |          |                                                           |                                                          |             |
| (4) 96" x 12" x 3" Panel w/<br>mount pipe | A                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 120.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| (4) 96" x 12" x 3" Panel w/<br>mount pipe | B                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 120.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| (4) 96" x 12" x 3" Panel w/<br>mount pipe | C                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 120.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| 12' Low Profile Platform<br>(MT-196)      | C                 | None           |                                                       | 0.0000                     | 120.00          | No Ice   | 10.40                                                     | 10.40                                                    | 0.91        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 10.70                                                     | 10.70                                                    | 1.20        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 11.00                                                     | 11.00                                                    | 1.47        |
| **                                        |                   |                |                                                       |                            |                 |          |                                                           |                                                          |             |
| (2) 96" x 12" x 3" Panel w/<br>mount pipe | A                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 110.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| (2) 96" x 12" x 3" Panel w/<br>mount pipe | B                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 110.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| (2) 96" x 12" x 3" Panel w/<br>mount pipe | C                 | From Face      | 1.00<br>0.00<br>0.00                                  | 0.0000                     | 110.00          | No Ice   | 11.47                                                     | 5.90                                                     | 0.09        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 12.08                                                     | 7.65                                                     | 0.16        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 12.71                                                     | 9.01                                                     | 0.24        |
| 12' Low Profile Platform<br>(MT-196)      | C                 | None           |                                                       | 0.0000                     | 110.00          | No Ice   | 10.40                                                     | 10.40                                                    | 0.91        |
|                                           |                   |                |                                                       |                            |                 | 1/2" Ice | 10.70                                                     | 10.70                                                    | 1.20        |
|                                           |                   |                |                                                       |                            |                 | 1" Ice   | 11.00                                                     | 11.00                                                    | 1.47        |
| **                                        |                   |                |                                                       |                            |                 |          |                                                           |                                                          |             |

## Load Combinations

| Comb.<br>No. | Description                        |
|--------------|------------------------------------|
| 1            | Dead Only                          |
| 2            | 1.2 Dead+1.6 Wind 0 deg - No Ice   |
| 3            | 0.9 Dead+1.6 Wind 0 deg - No Ice   |
| 4            | 1.2 Dead+1.6 Wind 90 deg - No Ice  |
| 5            | 0.9 Dead+1.6 Wind 90 deg - No Ice  |
| 6            | 1.2 Dead+1.6 Wind 180 deg - No Ice |
| 7            | 0.9 Dead+1.6 Wind 180 deg - No Ice |

|                                                                                                                                                            |                |                                  |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>Michael F. Plahovinsak, P.E.</b><br>18301 State Route 161<br>Plain City, OH 43064<br>Phone: 614-398-6250<br>FAX: mike@mfpeng.com | <b>Job</b>     | 150-ft Monopole - MFP #23516-397 | <b>Page</b>        | 4 of 6            |
|                                                                                                                                                            | <b>Project</b> | TN-1959 Belle Oak                | <b>Date</b>        | 19:26:14 08/23/16 |
|                                                                                                                                                            | <b>Client</b>  | TAPP (TP-14553)                  | <b>Designed by</b> | Mike              |

| Comb. No. | Description                                |
|-----------|--------------------------------------------|
| 8         | 1.2 Dead+1.0 Ice+1.0 Temp                  |
| 9         | 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp   |
| 10        | 1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp  |
| 11        | 1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp |
| 12        | Dead+Wind 0 deg - Service                  |
| 13        | Dead+Wind 90 deg - Service                 |
| 14        | Dead+Wind 180 deg - Service                |

### Maximum Member Forces

| Section No. | Elevation ft  | Component Type | Condition        | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|---------------|----------------|------------------|-----------------|---------|--------------------------|--------------------------|
| L1          | 150 - 96.75   | Pole           | Max Tension      | 12              | 0.00    | 0.00                     | -0.00                    |
|             |               |                | Max. Compression | 8               | -52.91  | -1.05                    | 2.66                     |
|             |               |                | Max. Mx          | 4               | -16.46  | -824.52                  | 5.29                     |
|             |               |                | Max. My          | 2               | -16.44  | -4.70                    | 827.75                   |
|             |               |                | Max. Vy          | 4               | 26.55   | -824.52                  | 5.29                     |
|             |               |                | Max. Vx          | 2               | -26.60  | -4.70                    | 827.75                   |
|             |               |                | Max. Torque      | 4               |         |                          | 1.14                     |
| L2          | 96.75 - 48.25 | Pole           | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
|             |               |                | Max. Compression | 8               | -69.78  | -1.12                    | 2.85                     |
|             |               |                | Max. Mx          | 4               | -29.42  | -2164.02                 | 9.95                     |
|             |               |                | Max. My          | 2               | -29.41  | -9.30                    | 2169.88                  |
|             |               |                | Max. Vy          | 4               | 30.00   | -2164.02                 | 9.95                     |
|             |               |                | Max. Vx          | 2               | -30.05  | -9.30                    | 2169.88                  |
|             |               |                | Max. Torque      | 4               |         |                          | 1.13                     |
| L3          | 48.25 - 1     | Pole           | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
|             |               |                | Max. Compression | 8               | -93.88  | -1.11                    | 2.82                     |
|             |               |                | Max. Mx          | 4               | -48.63  | -3831.76                 | 14.86                    |
|             |               |                | Max. My          | 2               | -48.63  | -14.20                   | 3840.43                  |
|             |               |                | Max. Vy          | 4               | 32.54   | -3831.76                 | 14.86                    |
|             |               |                | Max. Vx          | 2               | -32.60  | -14.20                   | 3840.43                  |
|             |               |                | Max. Torque      | 4               |         |                          | 1.12                     |

### Maximum Tower Deflections - Service Wind

| Section No. | Elevation ft   | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|----------------|---------------------|-----------------|--------|---------|
| L1          | 150 - 96.75    | 37.989              | 12              | 2.2225 | 0.0017  |
| L2          | 101.25 - 48.25 | 17.193              | 12              | 1.6668 | 0.0005  |
| L3          | 54 - 1         | 4.653               | 12              | 0.8153 | 0.0002  |

### Critical Deflections and Radius of Curvature - Service Wind

| Elevation ft | Appurtenance                           | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|--------------|----------------------------------------|-----------------|---------------|--------|---------|------------------------|
| 150.00       | Nokia FASB Antenna w/ mount pipe       | 12              | 37.989        | 2.2225 | 0.0044  | 29613                  |
| 140.00       | (4) 96" x 12" x 3" Panel w/ mount pipe | 12              | 33.415        | 2.1272 | 0.0036  | 14806                  |
| 130.00       | (4) 96" x 12" x 3" Panel w/ mount pipe | 12              | 28.922        | 2.0270 | 0.0029  | 7402                   |

|                                                                                                                                                            |                |                                  |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>Michael F. Plahovinsak, P.E.</b><br>18301 State Route 161<br>Plain City, OH 43064<br>Phone: 614-398-6250<br>FAX: mike@mfpeng.com | <b>Job</b>     | 150-ft Monopole - MFP #23516-397 | <b>Page</b>        | 5 of 6            |
|                                                                                                                                                            | <b>Project</b> | TN-1959 Belle Oak                | <b>Date</b>        | 19:26:14 08/23/16 |
|                                                                                                                                                            | <b>Client</b>  | TAPP (TP-14553)                  | <b>Designed by</b> | Mike              |

| Elevation | Appurtenance                           | Gov. Load Comb. | Deflection | Tilt   | Twist  | Radius of Curvature |
|-----------|----------------------------------------|-----------------|------------|--------|--------|---------------------|
| ft        |                                        |                 | in         | °      | °      | ft                  |
| 120.00    | (4) 96" x 12" x 3" Panel w/ mount pipe | 12              | 24.592     | 1.9169 | 0.0022 | 4934                |
| 110.00    | (2) 96" x 12" x 3" Panel w/ mount pipe | 12              | 20.505     | 1.7921 | 0.0017 | 3699                |

### Maximum Tower Deflections - Design Wind

| Section No. | Elevation      | Horz. Deflection | Gov. Load Comb. | Tilt   | Twist  |
|-------------|----------------|------------------|-----------------|--------|--------|
|             | ft             | in               |                 | °      | °      |
| L1          | 150 - 96.75    | 153.653          | 2               | 8.9978 | 0.0060 |
| L2          | 101.25 - 48.25 | 69.658           | 2               | 6.7596 | 0.0018 |
| L3          | 54 - 1         | 18.867           | 2               | 3.3071 | 0.0006 |

### Critical Deflections and Radius of Curvature - Design Wind

| Elevation | Appurtenance                           | Gov. Load Comb. | Deflection | Tilt   | Twist  | Radius of Curvature |
|-----------|----------------------------------------|-----------------|------------|--------|--------|---------------------|
| ft        |                                        |                 | in         | °      | °      | ft                  |
| 150.00    | Nokia FASB Antenna w/ mount pipe       | 2               | 153.653    | 8.9978 | 0.0165 | 7632                |
| 140.00    | (4) 96" x 12" x 3" Panel w/ mount pipe | 2               | 135.187    | 8.6153 | 0.0137 | 3814                |
| 130.00    | (4) 96" x 12" x 3" Panel w/ mount pipe | 2               | 117.047    | 8.2126 | 0.0110 | 1904                |
| 120.00    | (4) 96" x 12" x 3" Panel w/ mount pipe | 2               | 99.559     | 7.7695 | 0.0085 | 1266                |
| 110.00    | (2) 96" x 12" x 3" Panel w/ mount pipe | 2               | 83.048     | 7.2658 | 0.0064 | 945                 |

### Pole Design Data

| Section No. | Elevation         | Size                   | L     | L <sub>u</sub> | Kl/r | A               | P <sub>u</sub> | φP <sub>n</sub> | Ratio P <sub>u</sub> /φP <sub>n</sub> |
|-------------|-------------------|------------------------|-------|----------------|------|-----------------|----------------|-----------------|---------------------------------------|
|             | ft                |                        | ft    | ft             |      | in <sup>2</sup> | K              | K               |                                       |
| L1          | 150 - 96.75 (1)   | TP32.21x22x0.2188      | 53.25 | 0.00           | 0.0  | 21.6129         | -16.44         | 1435.65         | 0.011                                 |
| L2          | 96.75 - 48.25 (2) | TP41.07x30.9097x0.3125 | 53.00 | 0.00           | 0.0  | 39.3330         | -29.41         | 2725.61         | 0.011                                 |
| L3          | 48.25 - 1 (3)     | TP49.5x39.3427x0.375   | 53.00 | 0.00           | 0.0  | 58.4710         | -48.63         | 4007.09         | 0.012                                 |

### Pole Bending Design Data

| Section No. | Elevation         | Size                   | M <sub>ux</sub> | φM <sub>nx</sub> | Ratio M <sub>ux</sub> /φM <sub>nx</sub> | M <sub>uy</sub> | φM <sub>ny</sub> | Ratio M <sub>uy</sub> /φM <sub>ny</sub> |
|-------------|-------------------|------------------------|-----------------|------------------|-----------------------------------------|-----------------|------------------|-----------------------------------------|
|             | ft                |                        | kip-ft          | kip-ft           |                                         | kip-ft          | kip-ft           |                                         |
| L1          | 150 - 96.75 (1)   | TP32.21x22x0.2188      | 827.77          | 919.73           | 0.900                                   | 0.00            | 919.73           | 0.000                                   |
| L2          | 96.75 - 48.25 (2) | TP41.07x30.9097x0.3125 | 2169.90         | 2222.53          | 0.976                                   | 0.00            | 2222.53          | 0.000                                   |
| L3          | 48.25 - 1 (3)     | TP49.5x39.3427x0.375   | 3840.45         | 4048.76          | 0.949                                   | 0.00            | 4048.76          | 0.000                                   |

|                                                                                                                                                            |                |                                  |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>Michael F. Plahovinsak, P.E.</b><br>18301 State Route 161<br>Plain City, OH 43064<br>Phone: 614-398-6250<br>FAX: mike@mfpeng.com | <b>Job</b>     | 150-ft Monopole - MFP #23516-397 | <b>Page</b>        | 6 of 6            |
|                                                                                                                                                            | <b>Project</b> | TN-1959 Belle Oak                | <b>Date</b>        | 19:26:14 08/23/16 |
|                                                                                                                                                            | <b>Client</b>  | TAPP (TP-14553)                  | <b>Designed by</b> | Mike              |

### Pole Shear Design Data

| Section No. | Elevation<br>ft      | Size                   | Actual<br>$V_u$<br>K | $\phi V_n$<br>K | Ratio<br>$\frac{V_u}{\phi V_n}$ | Actual<br>$T_u$<br>kip-ft | $\phi T_n$<br>kip-ft | Ratio<br>$\frac{T_u}{\phi T_n}$ |
|-------------|----------------------|------------------------|----------------------|-----------------|---------------------------------|---------------------------|----------------------|---------------------------------|
| L1          | 150 - 96.75 (1)      | TP32.21x22x0.2188      | 26.60                | 717.83          | 0.037                           | 0.44                      | 1841.69              | 0.000                           |
| L2          | 96.75 - 48.25<br>(2) | TP41.07x30.9097x0.3125 | 30.05                | 1362.80         | 0.022                           | 0.44                      | 4450.48              | 0.000                           |
| L3          | 48.25 - 1 (3)        | TP49.5x39.3427x0.375   | 32.60                | 2003.54         | 0.016                           | 0.44                      | 8107.41              | 0.000                           |

### Pole Interaction Design Data

| Section No. | Elevation<br>ft      | Ratio<br>$P_u$ | Ratio<br>$M_{ux}$ | Ratio<br>$M_{uy}$ | Ratio<br>$V_u$ | Ratio<br>$T_u$ | Comb.<br>Stress<br>Ratio | Allow.<br>Stress<br>Ratio | Criteria |
|-------------|----------------------|----------------|-------------------|-------------------|----------------|----------------|--------------------------|---------------------------|----------|
| L1          | 150 - 96.75 (1)      | 0.011          | 0.900             | 0.000             | 0.037          | 0.000          | 0.913                    | 1.000                     | 4.8.2 ✓  |
| L2          | 96.75 - 48.25<br>(2) | 0.011          | 0.976             | 0.000             | 0.022          | 0.000          | 0.988                    | 1.000                     | 4.8.2 ✓  |
| L3          | 48.25 - 1 (3)        | 0.012          | 0.949             | 0.000             | 0.016          | 0.000          | 0.961                    | 1.000                     | 4.8.2 ✓  |

### Section Capacity Table

| Section No. | Elevation<br>ft | Component Type | Size                   | Critical Element | P<br>K | $\phi P_{allow}$<br>K | %<br>Capacity        | Pass<br>Fail |
|-------------|-----------------|----------------|------------------------|------------------|--------|-----------------------|----------------------|--------------|
| L1          | 150 - 96.75     | Pole           | TP32.21x22x0.2188      | 1                | -16.44 | 1435.65               | 91.3                 | Pass         |
| L2          | 96.75 - 48.25   | Pole           | TP41.07x30.9097x0.3125 | 2                | -29.41 | 2725.61               | 98.8                 | Pass         |
| L3          | 48.25 - 1       | Pole           | TP49.5x39.3427x0.375   | 3                | -48.63 | 4007.09               | 96.1                 | Pass         |
|             |                 |                |                        |                  |        |                       | Summary              |              |
|             |                 |                |                        |                  |        |                       | Pole (L2)            | Pass         |
|             |                 |                |                        |                  |        |                       | <b>RATING = 98.8</b> | <b>Pass</b>  |

|                                                                                                                                         |                                                |                            |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------|
| <b>Michael F. Plahovinsak, P.E.</b><br>18301 State Route 161 W<br>Plain City, OH 43064<br>Phone: 614-398-6250<br>email: mike@mfpeng.com | <b>Job</b><br>150-ft monopole - MFP #23516-397 | <b>Page</b><br>BP-G        |
|                                                                                                                                         | <b>Project</b><br>TN-1959 Belle Oak            | <b>Date</b><br>2/2/2017    |
|                                                                                                                                         | <b>Client</b><br>TAPP TP-14553                 | <b>Designed by</b><br>Mike |

## Anchor Rod and Base Plate Calculation

ANSI/TIA-222-G-2

|                                 |                                      |                           |                           |
|---------------------------------|--------------------------------------|---------------------------|---------------------------|
| <b>Factored Base Reactions:</b> | <b>Pole Shape:</b>                   | <b>Anchor Rods:</b>       | <b>Base Plate:</b>        |
| Moment: 3840 ft-kips            | 18-Sided                             | (14) 2.25 in. A615 GR. 75 | 2.25 in. x 62.5 in. Round |
| Shear: 33 kips                  | <b>Pole Dia. (<math>D_f</math>):</b> | Anchor Rods Evenly Spaced | $f_y = 50$ ksi            |
| Axial: 49 kips                  | 49.50 in                             | On a 56.5 in Bolt Circle  |                           |

### Anchor Rod Calculation According to TIA-222-G section 4.9.9

|               |                                          |
|---------------|------------------------------------------|
| $\phi =$      | 0.80 TIA 4.9.9                           |
| $I_{bolts} =$ | 5586.44 in <sup>2</sup> Momet of Inertia |
| $P_u =$       | 233 kips Tension Force                   |
| $V_u =$       | 2 kips Shear Force                       |
| $R_{nt} =$    | 325.00 kips Nominal Tensile Strength     |
| $\eta =$      | 0.50 for detail type (d)                 |

The following Iteration Equation Shall Be Satisfied:

$$\left( \frac{P_u + \frac{V_u}{\eta}}{\phi R_{nt}} \right) \leq 1.0$$

$$0.914 \leq 1$$

### Base Plate Calculation According to TIA-222-G

|              |                                  |
|--------------|----------------------------------|
| $\phi =$     | 0.90 TIA 4.7                     |
| $M_{pL} =$   | 561.7 in-kip Plate Moment        |
| $L =$        | 11.1 in Section Length           |
| $Z =$        | 14.1 Plastic Section Modulus     |
| $M_p =$      | 702.9 in-kip Plastic Moment      |
| $\phi M_n =$ | 632.6 in-kip Factored Resistance |

Calculated Moment vs Factored Resistance

$$561.74 \text{ in-kip} \leq 633 \text{ in-kip}$$

|                          |                                           |
|--------------------------|-------------------------------------------|
| Anchor Rods Are Adequate | 91.4% <input checked="" type="checkbox"/> |
| Base Plate is Adequate   | 88.8% <input checked="" type="checkbox"/> |

|                                                                                                                                         |         |                                  |             |          |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------|-------------|----------|
| <b>Michael F. Plahovinsak, P.E.</b><br>18301 State Route 161 W<br>Plain City, OH 43064<br>Phone: 614-398-6250<br>email: mike@mfpeng.com | Job     | 150-ft monopole - MFP #23516-397 | Page        | FND      |
|                                                                                                                                         | Project | TN-1959 Belle Oak                | Date        | 2/2/2017 |
|                                                                                                                                         | Client  | TAPP TP-14553                    | Designed by | Mike     |

## Caisson Calculation

According to ANSI/TIA-222-G-2

- Foundation overturning resistance calculated with PLS Caisson, for Brom's method for rigid piles. Soil layers modeled after recommendations from the geotechnical report.
- Cohesion strength for the upper 21 ft has been reduced by 50%
- In lieu of a soil resistance factor  $f_s = 0.75$  (TIA-9.4.1) an additional safety factor against soil failure of 1.33 has been applied.
- Foundation is designed with a minimum safety factor resisting overturning of 2.0
- Foundation has been designed with factored loads per TIA-222-G.
- Geotechnical report indicates groundwater was not encountered within the depth of the foundation.

\*\*\* PIER PROPERTIES      CONCRETE STRENGTH (ksi) = 4.00      STEEL STRENGTH (ksi) = 60.00

DIAMETER (ft) = 7.000      DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.50

|                     |       |      |                   |                               |                  |             |       |                  |
|---------------------|-------|------|-------------------|-------------------------------|------------------|-------------|-------|------------------|
| *** SOIL PROPERTIES | LAYER | TYPE | THICKNESS<br>(ft) | DEPTH AT TOP OF LAYER<br>(ft) | DENSITY<br>(pcf) | CU<br>(psf) | KP    | PHI<br>(degrees) |
|                     | 1     | S    | 4.00              | 0.00                          | 0.0              |             | 1.000 | -0.00            |
|                     | 2     | C    | 16.00             | 4.00                          | 120.0            | 750.0       |       |                  |
|                     | 3     | S    | 30.00             | 20.00                         | 125.0            |             | 3.537 | 34.00            |

\*\*\* DESIGN (FACTORED) LOADS AT TOP OF PIER    MOMENT (ft-k) = 3840.0    VERTICAL (k) = 49.0    SHEAR (k) = 33.0  
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.33

\*\*\* CALCULATED PIER LENGTH (ft) = 24.000

\*\*\* CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

| TYPE | TOP OF LAYER BELOW TOP OF PIER<br>(ft) | THICKNESS<br>(ft) | DENSITY<br>(pcf) | CU<br>(psf) | KP    | FORCE<br>(k) | ARM<br>(ft) |
|------|----------------------------------------|-------------------|------------------|-------------|-------|--------------|-------------|
| S    | 0.50                                   | 4.00              | 0.0              |             | 1.000 | 0.00         | 3.17        |
| C    | 4.50                                   | 15.15             | 120.0            | 750.0       |       | 636.30       | 12.08       |
| C    | 19.65                                  | 0.85              | 120.0            | 750.0       |       | -35.70       | 20.08       |
| S    | 20.50                                  | 3.50              | 125.0            |             | 3.537 | -556.01      | 22.31       |

\*\*\* SHEAR AND MOMENTS ALONG PIER

| DISTANCE BELOW TOP OF PIER (ft) | WITH THE ADDITIONAL SAFETY FACTOR |               | WITHOUT ADDITIONAL SAFETY FACTOR |               |
|---------------------------------|-----------------------------------|---------------|----------------------------------|---------------|
|                                 | SHEAR (k)                         | MOMENT (ft-k) | SHEAR (k)                        | MOMENT (ft-k) |
| 0.00                            | 44.6                              | 5437.8        | 33.4                             | 4078.3        |
| 2.40                            | 44.6                              | 5544.8        | 33.4                             | 4158.6        |
| 4.80                            | 32.0                              | 5649.9        | 24.0                             | 4237.4        |
| 7.20                            | -68.8                             | 5605.7        | -51.6                            | 4204.3        |
| 9.60                            | -169.6                            | 5319.6        | -127.2                           | 3989.7        |
| 12.00                           | -270.4                            | 4791.6        | -202.8                           | 3593.7        |
| 14.40                           | -371.2                            | 4021.6        | -278.4                           | 3016.2        |
| 16.80                           | -472.0                            | 3009.8        | -354.0                           | 2257.3        |
| 19.20                           | -572.8                            | 1756.0        | -429.6                           | 1317.0        |
| 21.60                           | -393.5                            | 482.9         | -295.1                           | 362.2         |
| 24.00                           | -0.0                              | 0.0           | -0.0                             | 0.0           |

\*\*\* TOTAL REINFORCEMENT PCT = 0.50    REINFORCEMENT AREA (in^2) = 27.71  
\*\*\* USABLE AXIAL CAP. (k) = 49.0    USABLE MOMENT CAP. (ft-k) = 4342.3

**For Design:**

|                                                                               |
|-------------------------------------------------------------------------------|
| 7-ft Diameter caisson x 24-ft long (23.5-ft Embedded with 0.5-ft above grade) |
| Concrete strength = 4000 PSI @ 28 days. Estimated Concrete Volume = 34 CY3.   |
| (24) #10 Vertical Rebar. Steel Cross-Section = 30.48 in2                      |

Seismic Analysis per:

## 2006-2015 INTERNATIONAL BUILDING CODE

### Occupancy Category

I

IBC Table 1604.5

### Importance Factor

I = 1

ASCE 7-05 Table 11.5-1

### Site Classification

Site Class D

IBC Table 1613.5.2

### Site Coefficients

IBC Section 1613.5.3

$S_s$  0.82 Mapped Spectral Accel for short periods

$S_1$  0.29 Mapped Spectral Accel for a 1 sec period

### Design Spectral Response Acceleration Parameters

IBC Section 1613.5.4

$S_{DS}$  0.64 5% damped Spectral Accl. for short periods

IBC Eq: 16-39

$S_{D1}$  0.35 5% damped Spectral Accl for a 1 sec. period

IBC Eq: 16-40

### Equivalent Lateral Force Procedure

ASCE 7-05 Section 12.8

$C_t = 0.02$  Period Parameters

ASCE 7-05 Table 12.8-2

$X = 0.75$  Period Parameters

ASCE 7-05 Table 12.8-2

$h_n = 150\text{-ft}$  Height of Structure

$T = C_t h_n^X = 0.857$  Fundamental Period

ASCE 7-05 Eq: 12.8-7

$R = 1.5$  Response Modification Factor

ASCE 7-05 Table 12.2-1

$C_s = S_{DS}/[R/I] = 0.43$  Seismic Response Coef

ASCE 7-05 Eq: 12.8-2

$W = 49\text{ kips}$  Total Axial Weight of Pole

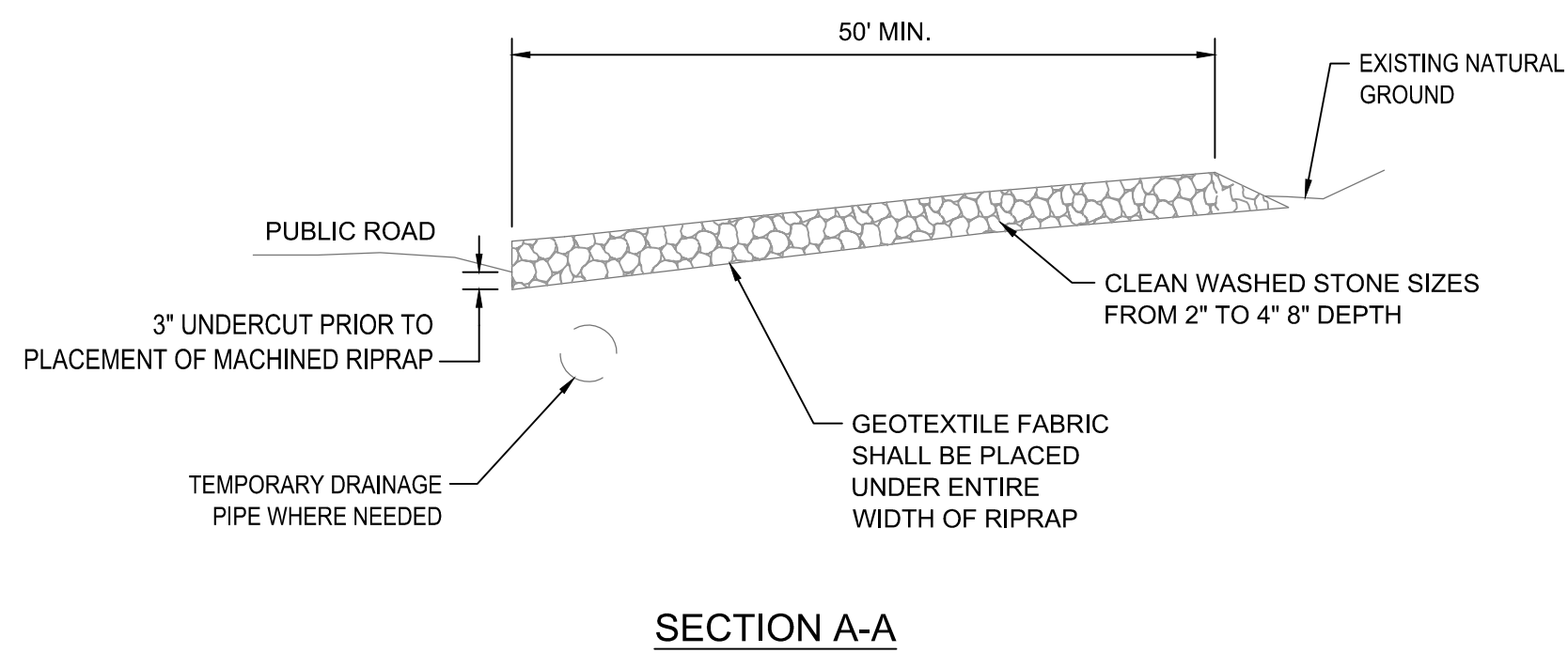
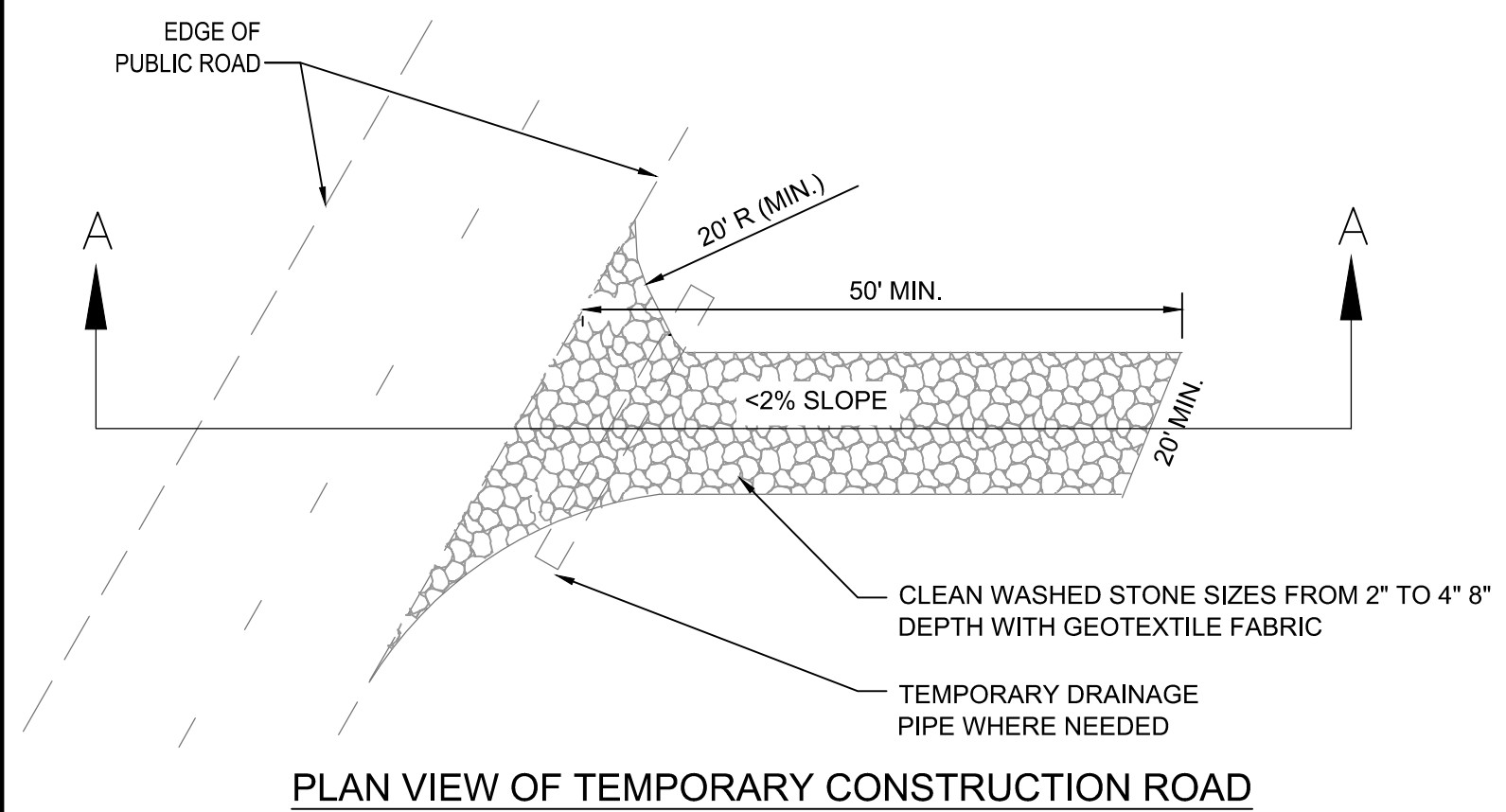
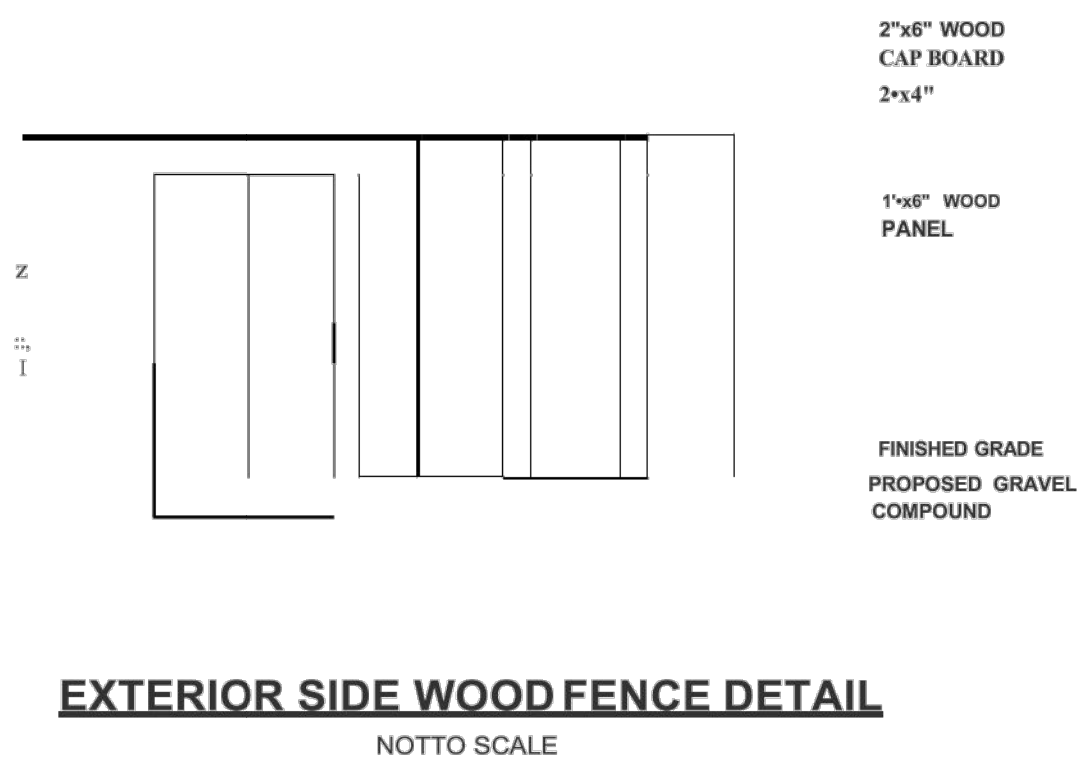
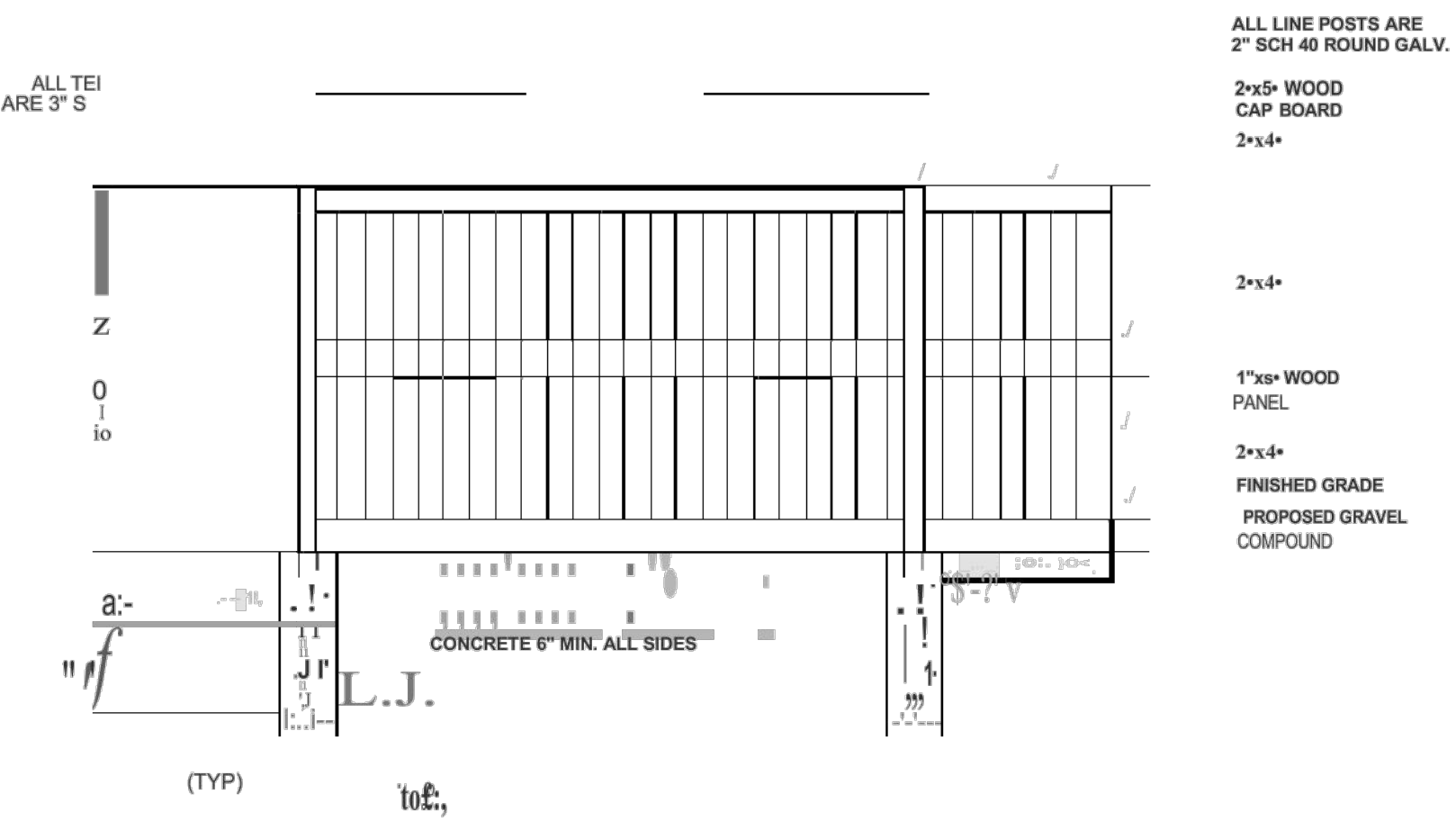
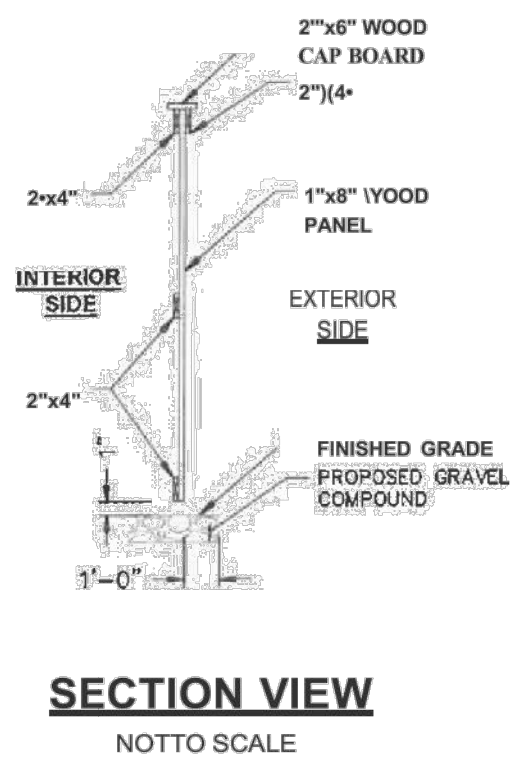
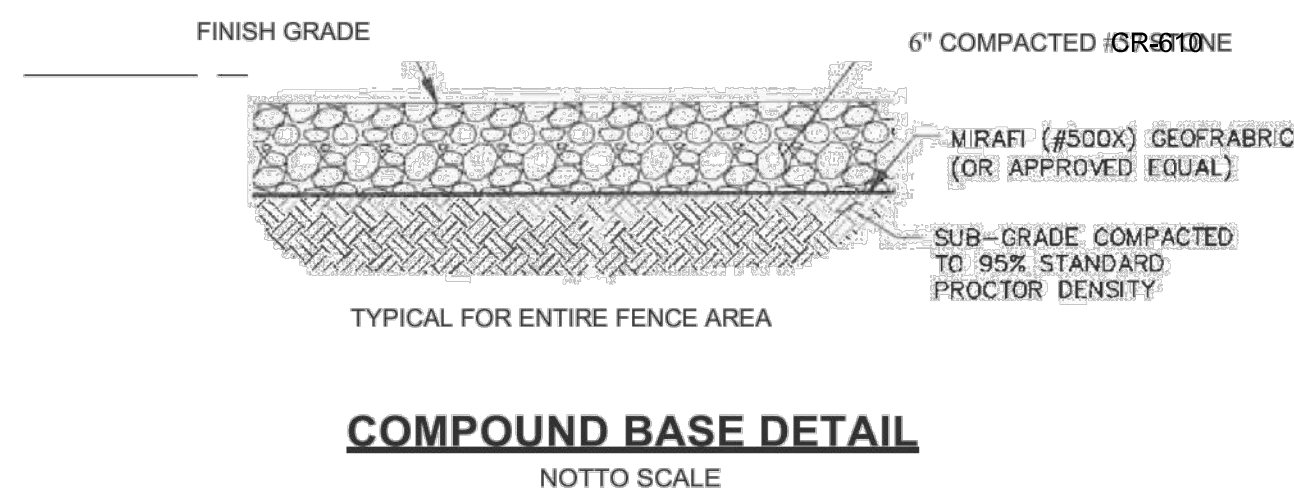
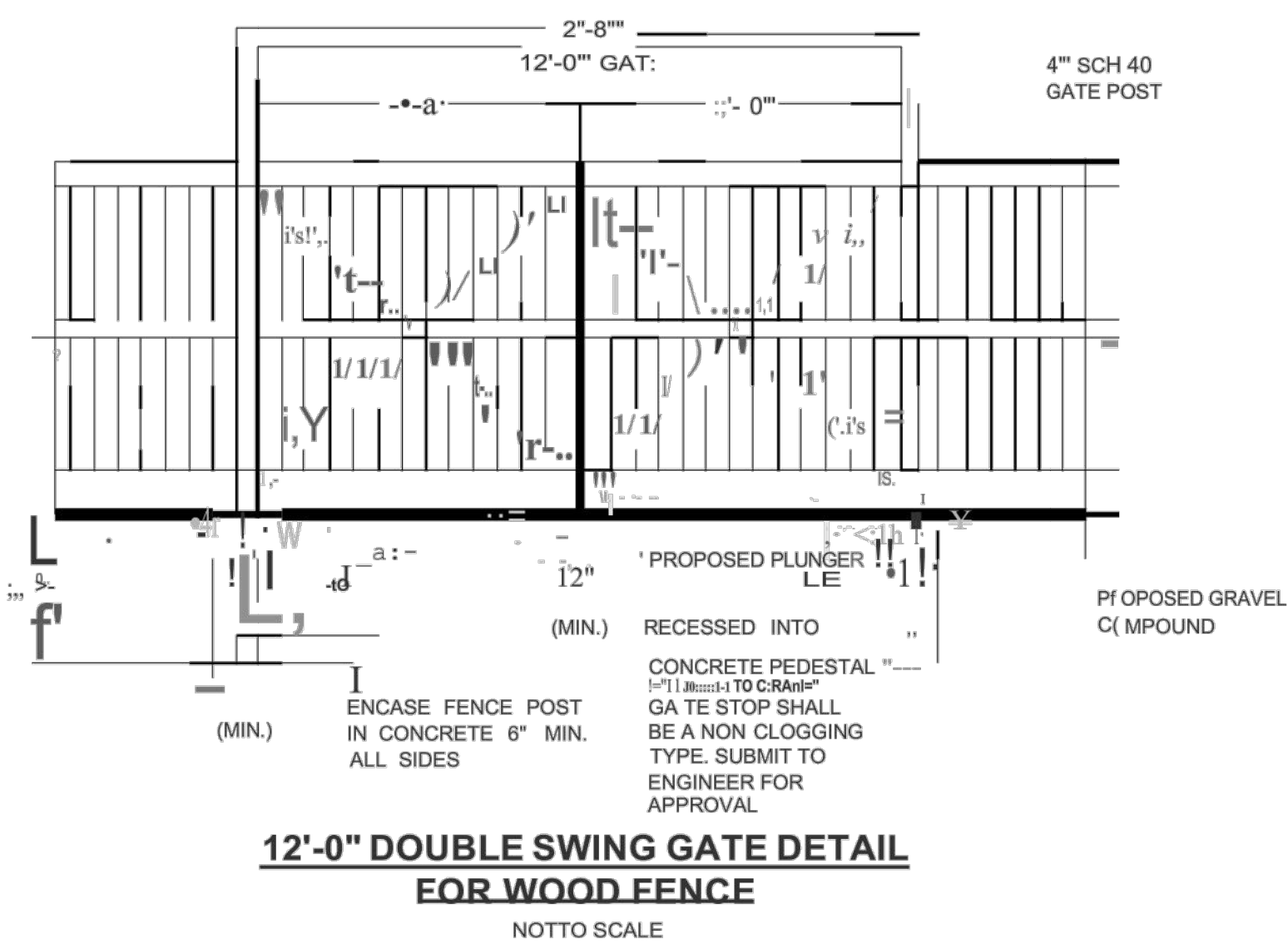
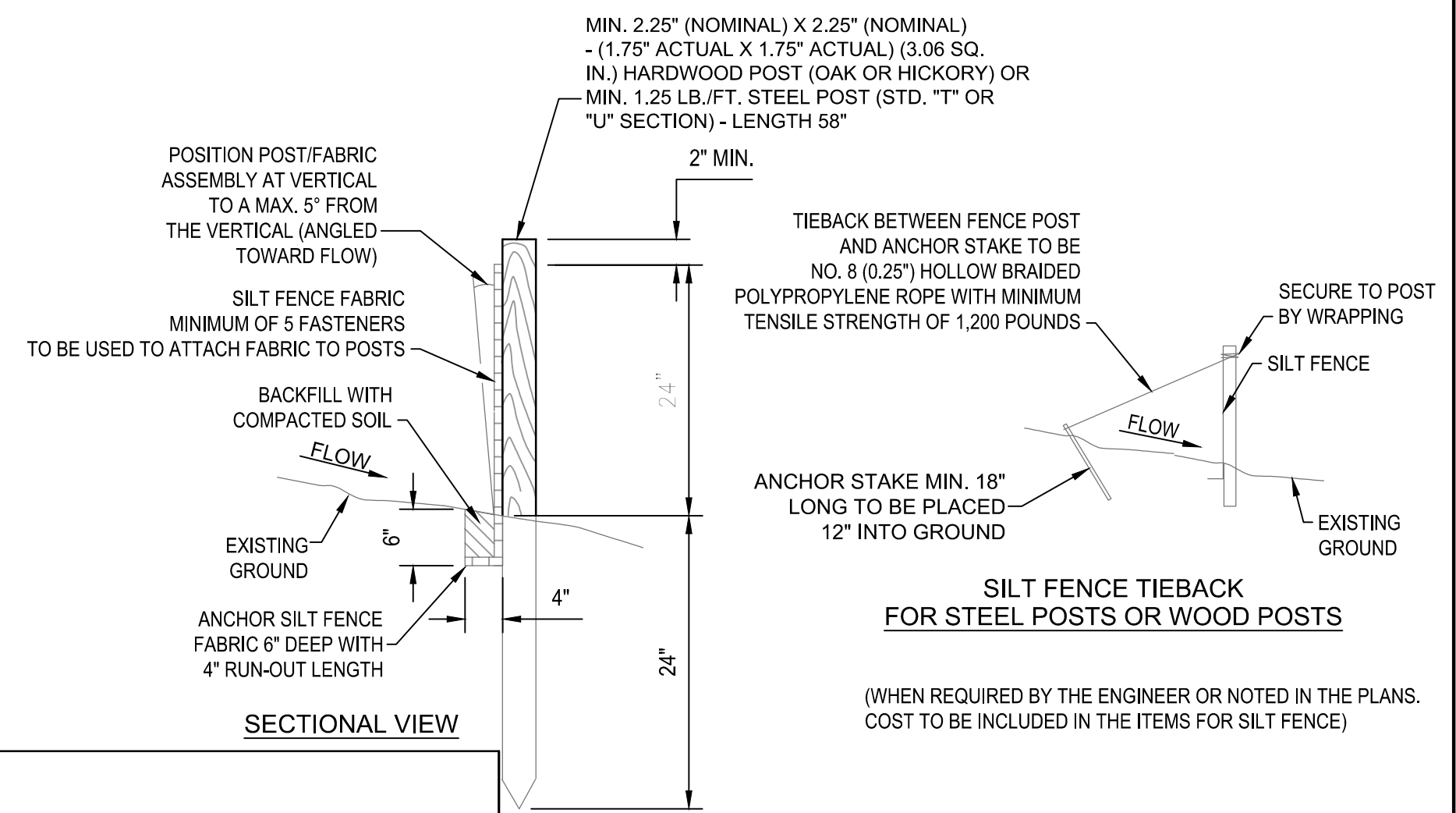
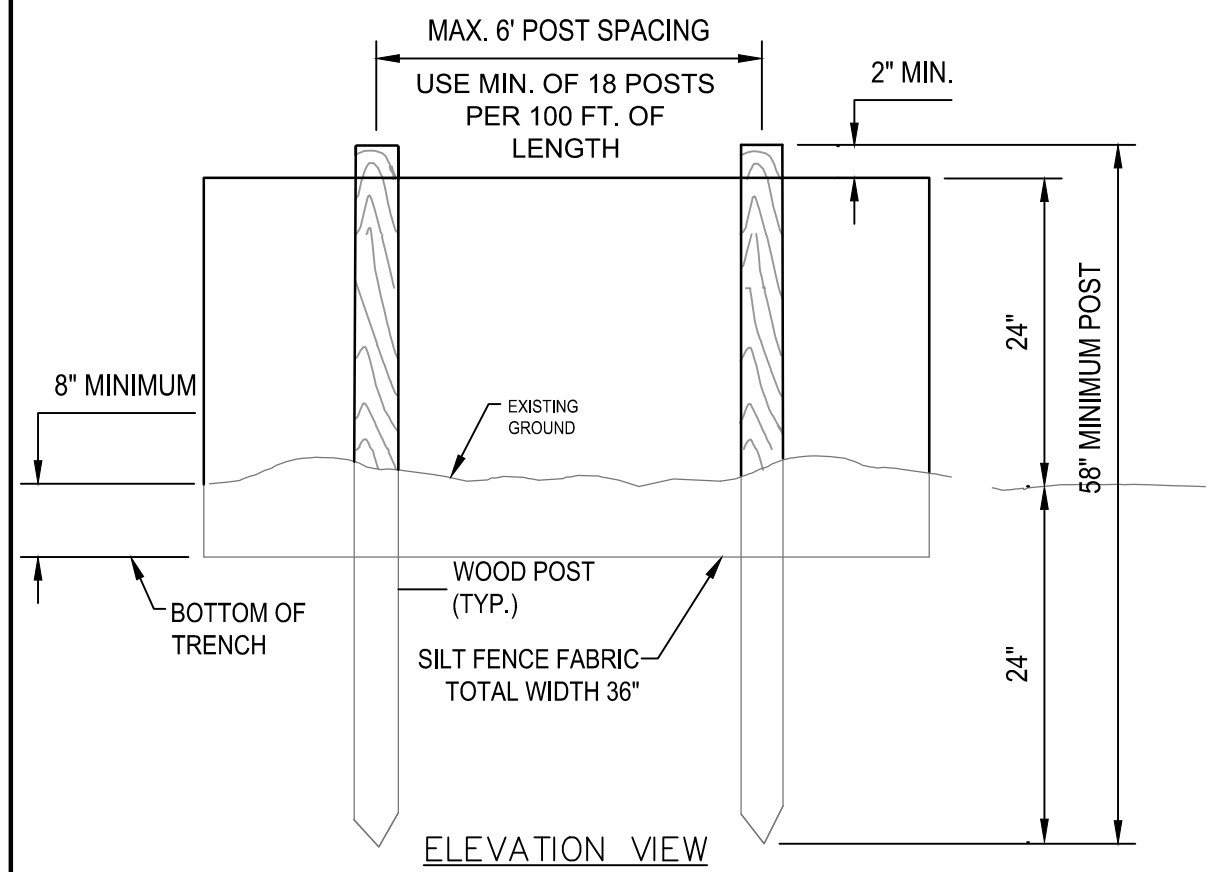
$V = C_s W = 20.928\text{ kips}$  Max. Equivalent Seismic Base Shear

ASCE 7-05 Eq: 12.8-1

20.9 kips < 33 kips  
Seismic < Wind Load from Design

**The wind controls the design of this monopole**





# FORESITE

**ForeiteGroup, Inc.** w | [www.fg-inc.net](http://www.fg-inc.net)  
3740 Davinci Ct. o | 770.368.1399  
Suite 100 f | 770.368.1944  
Peachtree Corners, GA 30092

SEAL:



**PROJECT:**

**TN 2744**  
**Stone Bridge**

LOCATED AT:  
8922 US HWY 64 Cell  
LAK&LAND, TN S8002

DEVELOPER:

**TOWER VENTURES**  
495 Tennessee ST Suite 152  
MEMPHIS, TN 38013

| REVISIONS | DATE |
|-----------|------|
|-----------|------|

~~2JS:CLIENT COMMENTS 07.11.2018~~

ISSUED FOR: PER IT/CONSTRUCTION

PROJECT MANAGER: DWB

DRAWING BY: BLY  
DATE: 6/21/2019

DATE: 5/31/2019

FILE:

FENCE &amp; COMPOUND

## DETAILS

SHEET NUMBER: C-5

100-FILE NUMBER: \_\_\_\_\_

C1

NTS

## FENCE AND COMPOUND DETAILS

D1

NTS

CONSTRUCTION EXIT

D1

NTS

SILT FENCE



## **Municipal Planning Commission / Design Review Commission**

---

Meeting Date: March 15, 2018  
Subject: Application for Site Plan Approval – Lighting Improvements  
Mobil Service Station – 3665 Canada Road  
Applicant: Mobil – Robert Lilani, Anis Kapadia  
Staff Contact: Cory Brady, Planning Director

---

### **REQUEST**

The applicant is seeking approval of a Lighting Plan as requested by the Board of Commissioners at their February 8<sup>th</sup> public hearing.

### **BACKGROUND**

At the February 8, 2018 Board of Commissioners directed the property owner to submit a complete DRC application for review at the March 15, 2018 joint MPC/DRC public hearing. At that meeting, the joint MPC/DRC approved a detailed landscape plan prepared by Greenscape with conditions. Although a lighting plan was required but not provided, leniency was granted to the applicant as their electrical engineer requested additional time to prepare the documents.

The applicant's lighting plan was prepared by Ethan Wright, a licensed electrical engineer employed by CSA Engineering.

### **ANALYSIS**

The proposed lighting plan generally complies the provisions of Article III.13 of the Lakeland Development Regulations.

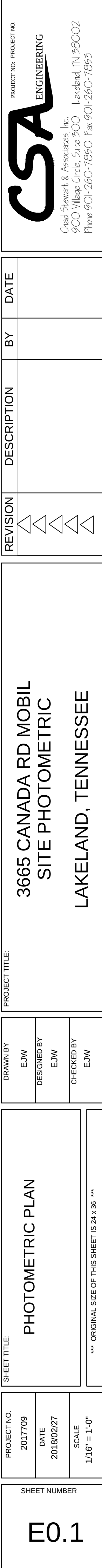
The plan specifies the following:

- Twenty four (24) direct mount LED canopy lights with flat lenses to replace the twenty four (24) facility's existing non-compliant lighting.
- Eleven (11) LED Pole Mounted, Shielded Luminaires to replace existing non-compliant pole mounted fixtures.
- Eleven (11) New 25' tall poles to replace the existing poles of similar height.
- Twelve (12) KR Series Down Lights at the perimeter of the building to replace existing non-compliant lights.

**STAFF RECOMMENDATION/MOTION**

Staff recommends approval with the following conditions:

1. Remove the existing pole mounted lights from the roof of the building.
2. Add dedicated flag light in accordance with the US Flag Code and City Ordinances.



## CPY250® LED Canopy/Soffit Luminaire

The CPY250® LED Canopy/Soffit Luminaire has an extremely thin profile constructed of rugged cast aluminum. It can be surface mounted easily from below the canopy deck and can be pendant mounted. Direct imaging of the LEDs is eliminated with a highly efficient patterned flat or 0.91" (23mm) drop glass lens.

## Performance Summary

Assembled in the U.S.A. of U.S. and imported parts

**Initial Delivered Lumens:** Up to 20,080

**Efficacy:** Up to 151 LPW

**CRI:** Minimum 70 CRI

**CCT:** 3000K (+/- 300K), 4000K (+/- 300K), 5700K (+/- 500K)

**Limited Warranty†:** 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

IP66 Rated (Direct Mount only)

Class I, Division 2 Hazardous Location for select models

<sup>†</sup> See <http://lighting.cree.com/warranty> for warranty terms

| Field-Installed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Direct Mount Luminaires</b></p> <p><b>Canopy Upgrade Kits (18 ga. steel)</b></p> <p>XA-BXCCMW – for use with Jet-Philips, 21.60" [549mm] square</p> <p>XA-BXCCNW – for use with Elco Franciscan, 22.06" [560mm] square</p> <p>XA-BXCCPW – for use with LSI Dakota or Masters, 22.50" [572mm] square</p> <p>XA-BXCCQW – for use with Whiteway Riviera or Rig-A-Lite, 20.60" [523mm] square</p> <p>XA-BXCCRW – for use with ElSCO Merrit, 18.06" [459mm] square</p> <p>XA-BXCCSW – for use with LSI Richmond or Whiteway Civic, 23.00" [584mm] L x 13.00" [330mm] W</p> <p><b>Direct Mount Junction Box/Stem Kit</b></p> <p>XA-BXCCJBOX – 6.0" [152mm] H x 3/4" [19mm] NPT Stem</p> <ul style="list-style-type: none"> <li>- Watertight</li> <li>- Rated for feed through 8 [4 in, 4 out] #12 AWC conductors</li> </ul> <p><b>Direct Mount Beauty Plates</b></p> <p>XA-BXCCBPW – 26.17" [665mm] Beauty Plate Only [18 ga. steel]</p> <p>XA-BXCCBPB12W – 26.17" [665mm] Beauty Plate [18 ga. steel] w/12" [305mm] Backer Plate [16 ga. steel]</p> <ul style="list-style-type: none"> <li>- For use in canopies where deck opening is larger than what is required for mounting the CPY250 luminaire. Maximum deck opening 10.75" x 15" [183mm x 375mm]</li> </ul> <p>XA-BXCCBPB16W – 26.17" [665mm] Beauty Plate [18 ga. steel] w/16" [406mm] Backer Plate [16 ga. steel]</p> <ul style="list-style-type: none"> <li>- For use in canopies where deck opening is larger than what is required for mounting the CPY250 luminaire. Maximum deck opening 12" x 15" [305mm x 375mm]</li> </ul> | <p><b>Pendant Mount Luminaires</b></p> <p><b>Pendant Mount Kits</b></p> <p>XA-PS12KIT* – 5" [127mm] pendant</p> <p>XA-PS18KIT* – 11" [279mm] pendant</p> <p>XA-PS22KIT* – 15" [381mm] pendant</p> <ul style="list-style-type: none"> <li>- Includes two conduit fittings and 3/4-14 NPT pipe threaded on two ends</li> </ul> <p><b>Hand-Held Remote</b></p> <p>XA-SENSREM</p> <ul style="list-style-type: none"> <li>- For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required</li> </ul> |

\* Must specify color

Example: CPY250-B-DM-D-A-UL-SV

| CPY250  | B       |                                                                         |                                                                |                                                                                              |                                                                                                                                                                                                                                                                |                                                                                        |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|---------|-------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product | Version | Mounting                                                                | Optic                                                          | Input Power Designator                                                                       | Voltage                                                                                                                                                                                                                                                        | Color Options                                                                          | CCT                                                               | Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CPY250  | B       | <b>DM</b><br>Direct<br><b>HC</b><br>Hook & Cord<br><b>PD</b><br>Pendant | <b>D</b><br>0.91" [23mm]<br>Drop Lens<br><b>F</b><br>Flat Lens | <b>A</b><br>60W<br><b>B</b><br>96W<br><b>C</b><br>31W<br><b>E</b><br>145W<br><b>F</b><br>85W | <b>UL</b><br>Universal<br>120-277V<br><b>UH</b><br>Universal<br>347-480V<br>- Available with B, E & F input power designators only<br><b>34*</b><br>347V<br>- A & C input power designators only<br><b>48*</b><br>480V<br>- A & C input power designators only | <b>BK</b><br>Black<br><b>BZ</b><br>Bronze<br><b>SV</b><br>Silver<br><b>WH</b><br>White | <b>30K</b><br>3000K<br><b>40K</b><br>4000K<br><b>57K</b><br>5700K | <b>DIM 0-10V Dimming</b><br>- Control by others<br>- Refer to Dimming spec sheet for details<br>- Can't exceed wattage of specified Input Power Designator<br><b>HZ Class I, Div. 2 Hazardous Location Certification</b><br>- Available with DM and PD mounts only<br>- Not available with DIM, K, or PML options<br>- A & C input power designators available in UL voltage only<br><b>K NSF 2 Certification</b><br>- Luminaires include NSF certification mark<br>- Available with the DM mount only<br>- Not available with the HZ or PML options<br><b>PML Programmable Multi-Level</b><br>- Available with UL voltage only<br>- Refer to PML spec sheet for details |

\* 347 and 480V with A & C input power designators utilize a magnetic step-down transformer. For input power for 347 and 480V, refer to the Electrical Data table



Rev. Date: V11 12/22/2017

Canada: [www.cree.com/canada](http://www.cree.com/canada)



T (800) 473-1234 F (800) 890-7507



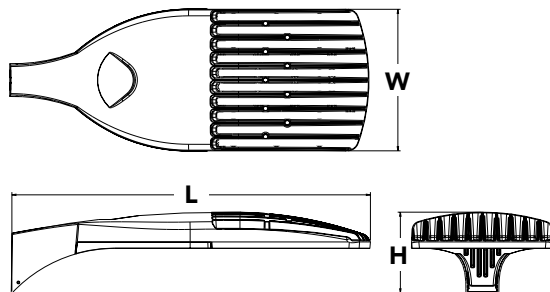
# D-Series Size 1 LED Area Luminaire

d#series



## Specifications

|               |                                                |
|---------------|------------------------------------------------|
| EPA:          | 1.01 ft <sup>2</sup><br>(0.09 m <sup>2</sup> ) |
| Length:       | 33"<br>(83.8 cm)                               |
| Width:        | 13"<br>(33.0 cm)                               |
| Height:       | 7-1/2"<br>(19.0 cm)                            |
| Weight (max): | 27 lbs<br>(12.2 kg)                            |



A+ Capable options indicated by this color background.

Catalog  
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

## A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a shaded background. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability<sup>1</sup>
- This luminaire is part of an A+ Certified solution for ROAM®2 or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background<sup>1</sup>

To learn more about A+, visit [www.acuitybrands.com/aplus](http://www.acuitybrands.com/aplus).

- See ordering tree for details.
- A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL DLL](#)

## Ordering Information

EXAMPLE: DSX1 LED 60C 1000 40K T3M MVOLT SPA DDBXD

| Series   | LEDs                                                                                                                                                                                 | Drive current                                         | Color temperature                                                                            | Distribution                                                                                                                                                                                                                                                                                                                                                                          | Voltage                                                                                                                                    | Mounting                                                                                                                                                                                                                                                                                                                                          |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DSX1 LED | <b>Forward optics</b><br>30C 30 LEDs (one engine)<br>40C 40 LEDs (two engines)<br><b>60C 60 LEDs (two engines)</b><br><b>Rotated optics<sup>1</sup></b><br>60C 60 LEDs (two engines) | 530 530 mA<br><b>700 700 mA</b><br>1000 1000 mA (1 A) | 30K 3000 K<br><b>40K 4000 K</b><br>50K 5000 K<br>AMBPC Amber phosphor converted <sup>2</sup> | T1S Type I short<br>T2S Type II short<br>T2M Type II medium<br>T3S Type III short<br>T3M Type III medium<br>T4M Type IV medium<br><b>TFTM Forward throw medium</b><br>T5VS Type V very short<br>T5S Type V short<br>T5M Type V medium<br>T5W Type V wide<br>BLC Backlight control <sup>2,3</sup><br>LCCO Left corner cutoff <sup>2,3</sup><br>RCCO Right corner cutoff <sup>2,3</sup> | MVOLT <sup>4</sup><br>120 <sup>4</sup><br>208 <sup>4</sup><br>240 <sup>4</sup><br>277 <sup>4</sup><br>347 <sup>5</sup><br>480 <sup>5</sup> | <b>Shipped included</b><br><b>SPA</b> Square pole mounting<br>RPA Round pole mounting<br>WBA Wall bracket<br>SPUMBA Square pole universal mounting adaptor <sup>6</sup><br>RPUMBA Round pole universal mounting adaptor <sup>6</sup><br><b>Shipped separately</b><br>KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) <sup>7</sup> |

| Control options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Other options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Finish (required)                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Shipped installed</b><br>PER NEMA twist-lock receptacle only (no controls) <sup>8</sup><br>PER5 Five-wire receptacle only (no controls) <sup>8,9</sup><br>PER7 Seven-wire receptacle only (no controls) <sup>8,9</sup><br>DMG 0-10V dimming extend out back of housing for external control (no controls) <sup>10</sup><br>DCR Dimmable and controllable via ROAM® (no controls) <sup>11</sup><br>DS Dual switching <sup>12,13</sup><br>PIR Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc <sup>14</sup><br>PIRH Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc <sup>14</sup><br>PIR1FC3V Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc <sup>14</sup> | PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc <sup>14</sup><br>BL30 Bi-level switched dimming, 30% <sup>13,15</sup><br>BL50 Bi-level switched dimming, 50% <sup>13,15</sup><br>PNMTDD3 Part night, dim till dawn <sup>16</sup><br>PNMTSD3 Part night, dim 5 hrs <sup>16</sup><br>PNMT6D3 Part night, dim 6 hrs <sup>16</sup><br>PNMT7D3 Part night, dim 7 hrs <sup>16</sup><br>FAO Field adjustable output <sup>17</sup><br><b>Shipped installed</b><br><b>HS</b> House-side shield <sup>18</sup><br>WTB Utility terminal block <sup>19</sup><br>SF Single fuse (120, 277, 347V) <sup>20</sup><br>DF Double fuse (208, 240, 480V) <sup>20</sup><br>L90 Left rotated optics <sup>21</sup><br>R90 Right rotated optics <sup>21</sup><br>BS Bird spikes | DDBXD Dark bronze<br><b>DBLXD Black</b><br>DNAXD Natural aluminum<br>DWHXD White<br>DDBTXD Textured dark bronze<br>DBLBXD Textured black<br>DNATXD Textured natural aluminum<br>DWHGXD Textured white |



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DSX1-LED  
Rev. 03/29/17  
Page 1 of 7

## Ordering Information

### Accessories

Ordered and shipped separately.

### Controls & Shields

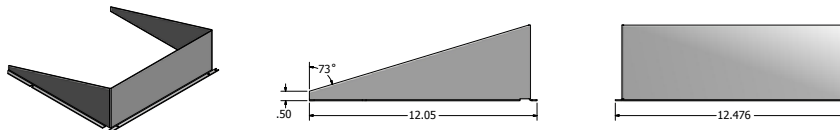
|                    |                                                                                 |
|--------------------|---------------------------------------------------------------------------------|
| DLL127F 1.5 JU     | Photocell - SSL twist-lock (120-277V) <sup>22</sup>                             |
| DLL347F 1.5 CUL JU | Photocell - SSL twist-lock (347V) <sup>22</sup>                                 |
| DLL480F 1.5 CUL JU | Photocell - SSL twist-lock (480V) <sup>22</sup>                                 |
| DSHORT SBK U       | Shorting cap <sup>22</sup>                                                      |
| DSX1EGS DDBXD U    | External glare shield                                                           |
| DSX1HS 30C U       | House-side shield for 30 LED unit <sup>18</sup>                                 |
| DSX1HS 40C U       | House-side shield for 40 LED unit <sup>18</sup>                                 |
| DSX1HS 60C U       | House-side shield for 60 LED unit <sup>18</sup>                                 |
| PUMBA DDBXD U*     | Square and round pole universal mounting bracket (specify finish) <sup>23</sup> |
| KMA8 DDBXD U       | Mast arm mounting bracket adaptor (specify finish) <sup>7</sup>                 |

For more control options, visit [DTL](#) and [ROAM](#) online.

### NOTES

- Rotated optics available with 60C only.
- Not available AMBPC, BLC, LCCO or RCCO.
- Not available with HS.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120V, 208V, 240V or 277V options only when ordering with fusing (SF, DF options).
- Not available with single board, 530mA product (30C 530 or 60C 530 DS). Not available with BL30, BL50 or PNMT options.
- Existing drilled pole only. Available as a separate combination accessory; for retrofit use only: PUMBA (finish) U; 1.5 G vibration load rating per ANCI C136.31.
- Must order fixture with SPA option. Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" mast arm (not included).
- Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option. Shorting Cap be order for correct operation when photocontrol is present.
- If ROAM<sup>®</sup> node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Not available with DCR. Node with integral dimming.
- DMG option for 347V or 480V requires 1000mA.
- Specifies a ROAM<sup>®</sup> enabled luminaire with 0-10V dimming capability; PER option required. Additional hardware and services required for ROAM<sup>®</sup> deployment; must be purchased separately. Call 1-800-442-6745 or email: [sales@roamservices.net](mailto:sales@roamservices.net). N/A with DS, PER5, PER7, BL30, BL50 or PNMT options. Node without integral dimming. Mvolt only. Not available with 347V and 480V. Not available with PIRH1FC3V.
- Requires 40C or 60C. Provides 50/50 luminaire operation via two independent drivers on two separate circuits. N/A with PER, DCR, WTB, PIR or PIRH.
- Requires an additional switched circuit.
- PIR and PIR1FC3V specify the [SensorSwitch SBGR-10-ODP](#) control; PIRH and PIRH1FC3V specify the [SensorSwitch SBGR-6-ODP](#) control; see [Outdoor Control Technical Guide](#) for details. Dimming driver standard. Ambient sensor disabled when ordered with DCR. Separate on/off required. PIR and PIRH options are used with PER5 and PER7, additional leads from receptacle are terminated and non-functioning. When PIR and PIRH options are selected with DCR, old style ROAM node must be used or PIRH and PIRH will not function correctly.
- Dimming driver standard. MVOLT only. Not available with 347V, 480V, DCR, DS, PER5, PER7 or PNMT options. Not available with PIR1FC3V or PIRH1FC3V.
- Dimming driver standard. MVOLT only. Not available with 347V, 480V, DCR, DS, PER5, PER7, BL30 or BL50. Not available with PIR1FC3V or PIRH1FC3V. Separate on/off required.
- Dimming driver standard. Not available with PER5, PER7, DMG, DCR, DS, BL30, BL50 or PNMT, PIR, PIRH, PIR1FC3V or PIRH1FC3V.
- Not available with BLC, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
- WTB not available with DS.
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- Available with 60 LEDs (60C option) only.
- Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item from Acuity Brands Controls.
- For retrofit use only.

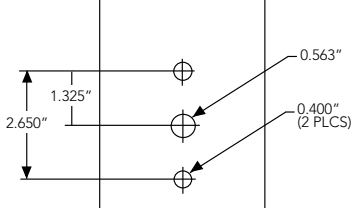
## External Glare Shield



## Drilling

Template #8

Top of Pole



DSX1 shares a unique drilling pattern with the AERIS<sup>™</sup> family. Specify this drilling pattern when specifying poles, per the table below.

|               |             |               |             |
|---------------|-------------|---------------|-------------|
| <b>DM19AS</b> | Single unit | <b>DM29AS</b> | 2 at 180°   |
| <b>DM28AS</b> | 2 at 180°   | <b>DM39AS</b> | 3 at 90°**  |
| <b>DM49AS</b> | 4 at 90°**  | <b>DM32AS</b> | 3 at 120°** |

**Example:** SSA 20 4C DM19AS DDBXD

Visit [Lithonia Lighting's POLES CENTRAL](#) to see our wide selection of poles, accessories and educational tools.

\*Round pole top must be 3.25" O.D. minimum.

\*\*For round pole mounting (RPA) only.

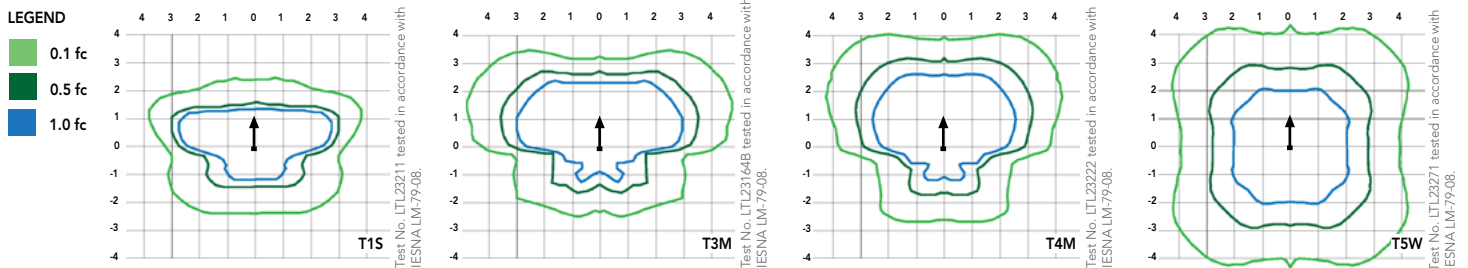
### Tenon Mounting Slipfitter \*\*

| Tenon O.D. | Single Unit | 2 at 180° | 2 at 90°  | 3 at 120° | 3 at 90°  | 4 at 90°  |
|------------|-------------|-----------|-----------|-----------|-----------|-----------|
| 2-3/8"     | AST20-190   | AST20-280 | AST20-290 | AST20-320 | AST20-390 | AST20-490 |
| 2-7/8"     | AST25-190   | AST25-280 | AST25-290 | AST25-320 | AST25-390 | AST25-490 |
| 4"         | AST35-190   | AST35-280 | AST35-290 | AST35-320 | AST35-390 | AST35-490 |

## Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit [Lithonia Lighting's D-Series Area Size 1 homepage](#).

Isofootcandle plots for the DSX1 LED 60C 1000 40K. Distances are in units of mounting height (20').



One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • [www.lithonia.com](http://www.lithonia.com)  
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DSX1-LED  
Rev. 03/29/17  
Page 2 of 7

## FEATURES & SPECIFICATIONS

**INTENDED USE** — Square Straight Steel is a general purpose light pole for up to 39-foot mounting heights. This pole provides a robust yet cost effective option for mounting area lights and floodlights.

**CONSTRUCTION** — **Pole Shaft:** The pole shaft is of uniform dimension and wall thickness and is made of a weldable-grade, hot-rolled, commercial-quality steel tubing with a minimum yield of 55 KSI (11-gauge, .1196"), or 50 KSI (7-gauge, .1793"). Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly square in cross-section with flat sides, small corner radii and excellent torsional qualities. Available shaft widths are 4", 5" and 6".

**Pole Top:** A top cap is provided for all poles that will receive drilling patterns for side-mount luminaire arm assemblies or when ordered with PT option.

**Handhole:** A reinforced handhole with grounding provision is provided at 18" from the base. Positioning the handhole lower may not be possible and requires engineering review; consult Tech Support-Outdoor for further information. Every handhole includes a cover and cover attachment hardware. The handhole has a nominal dimension of 2.5" x 5".

**Base Cover:** A durable ABS plastic two-piece full base cover, finished to match the pole, is provided with each pole assembly. Additional base cover options are available upon request.

**Anchor Base/ Bolts:** Anchor base is fabricated from steel that meets ASTM A36 standards and can be altered to match existing foundations; consult factory for modifications. Anchor bolts are manufactured to ASTM F1554 Standards grade 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Top threaded portion (nominal 12") is hot-dipped galvanized per ASTM A-153.

**HARDWARE** — All structural fasteners are high-strength galvanized carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

**FINISH** — Standard powder-coat finishes include Dark Bronze, White, Black, Medium Bronze and Natural Aluminum colors. Classic finishes include Sandstone, Charcoal Gray, Tennis Green, Bright Red and Steel Blue colors. Architectural Colors and Special Finishes are available by quote and include, but are not limited to Hot-dipped Galvanized, Paint over Hot-dipped Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes. Factory-applied primer paint finish is available for customer field-paint applications.

**WARRANTY** — 1-year limited warranty. Complete warranty terms located at: [www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx)

**NOTE:** Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.

|                |
|----------------|
| Catalog Number |
| Notes          |
| Type           |



Anchor Base Poles

# SSS

SQUARE STRAIGHT STEEL

### ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: SSS 20 5C DM19 DDB

| SSS    |                                                                                                                                                                      |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Series | Nominal fixture mounting height                                                                                                                                      | Nominal shaft base size/wall thickness <sup>1</sup>                                                                                                                                 | Mounting <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                   | Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Finish <sup>10</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| SSS    | (See technical information table for complete ordering information.)<br><br>10'-39'<br>(for 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.) | (See technical information table for complete ordering information.)<br><br>4C 4" 11g (.1196")<br>4G 4" 7g (.1793")<br>5C 5" 11g (.1196")<br>5G 5" 7g (.1793")<br>6G 6" 7g (.1793") | <p>Tenon mounting</p> <p>PT Open top (includes top cap)</p> <p>T20 2-3/8" O.D. (2" NPS)</p> <p>T25 2-7/8" O.D. (2-1/2" NPS)</p> <p>T30 3-1/2" O.D. (3" NPS)</p> <p>T35 4" O.D. (3-1/2" NPS)</p> <p>KAC/KAD/KSE/KSF/KVR/KVF Drill mounting<sup>3</sup></p> <p>DM19 1 at 90°</p> <p>DM28 2 at 180°</p> <p>DM28 PL 2 at 180° with one side plugged</p> <p>DM29 2 at 90°</p> <p>DM39 3 at 90°</p> <p>DM49 4 at 90°</p> <p>CSX/DSX/AERIS™/OMERO™/HLA/KAX Drill mounting<sup>3</sup></p> <p>DM19AS 1 at 90°</p> <p>DM28AS 2 at 180°</p> <p>DM29AS 2 at 90°</p> <p>DM39AS 3 at 90°</p> <p>DM49AS 4 at 90°</p> | <p>AERIS™ Suspend drill mounting<sup>3,4</sup></p> <p>DM19AST_ 1 at 90°</p> <p>DM28AST_ 2 at 180°</p> <p>DM29AST_ 2 at 90°</p> <p>DM39AST_ 3 at 90°</p> <p>DM49AST_ 4 at 90°</p> <p>OMERO™ Suspend drill mounting<sup>3,4</sup></p> <p>DM19MRT_ 1 at 90°</p> <p>DM28MRT_ 2 at 180°</p> <p>DM29MRT_ 2 at 90°</p> <p>DM39MRT_ 3 at 90°</p> <p>DM49MRT_ 4 at 90°</p> | <p>Shipped installed</p> <p>L/AB Less anchor bolts (Include when anchor bolts are not needed)</p> <p>VD Vibration damper</p> <p>TP Tamper resistant handhole cover fasteners</p> <p>HAXy Horizontal arm bracket (1 fixture)<sup>5,6</sup></p> <p>FDLxy Festoon outlet less electrical<sup>5</sup></p> <p>CPL12/xy 1/2" coupling<sup>5</sup></p> <p>CPL34/xy 3/4" coupling<sup>5</sup></p> <p>CPL1/xy 1" coupling<sup>5</sup></p> <p>NPL12/xy 1/2" threaded nipple<sup>5</sup></p> <p>NPL34/xy 3/4" threaded nipple<sup>5</sup></p> <p>NPL1/xy 1" threaded nipple<sup>5</sup></p> <p>EHHxy Extra handhole<sup>5,7</sup></p> <p>MAEX Match existing<sup>8</sup></p> <p>USPOM United States point of manufacture<sup>9</sup></p> <p>IC Interior coating<sup>10</sup></p> <p>UL UL listed with label (Includes NEC compliant cover)</p> <p>NEC NEC 410.30 compliant gasketed handhole (Not UL Labeled)</p> <p>Shipped separately (replacement kit available)</p> <p>(blank) FBC Full base cover (plastic)</p> <p>(blank) TC Top cap</p> <p>(blank) HHC Handhole cover</p> | <p>Standard colors</p> <p>DDB Dark bronze</p> <p>DWH White</p> <p>DBL Black</p> <p>DMB Medium bronze</p> <p>DNA Natural aluminum</p> <p>Classic colors</p> <p>DSS Sandstone</p> <p>DGC Charcoal gray</p> <p>DTG Tennis green</p> <p>DBR Bright red</p> <p>DSB Steel blue</p> <p>Architectural Colors and Special Finishes<sup>11</sup></p> <p>Galvanized, Paint over Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes available.</p> |

See footnotes next page.

# KR Series

KR4™ LED Specification Downlight – Round 4"

## Product Description

The KR4™ LED specification downlight features Cree TrueWhite® Technology and delivers beautiful, high-quality light with efficacy up to 73 lumens per watt. Designed for new construction applications, the KR Series is available in a variety of color temperatures, round and square trims with high-quality anodized aluminum reflector finishes, a sloped ceiling adaptor accessory and a variety of dimming options including Cree Sunset Dimming Technology which provides rich, warm light that transitions from 2700K to 1800K as naturally as an incandescent source.

## Performance Summary

Utilizes Cree TrueWhite® Technology

**Initial Delivered Lumens:** 700-3,200 lumens; Delivered lumen output is typical when using a SSGC type reflector

**Input Power:** 13-44 watts

**Emergency Performance:** Up to 1,210 Lumens; 10W; Minimum 90 Minutes

**CRI:** 90

**CCT:** 2700K, 3000K, 3500K, 4000K

**Controls:** Triac, 0/1-10V; See control availability chart on page 3

**Limited Warranty\*:** 10 years on KR4™ luminaire

**Limited Warranty Emergency Back Up (EB) Battery:** 1 Year Battery Back Up. Test regularly in accordance with local codes

\* See <http://lighting.cree.com/warranty> for warranty terms

## Accessories

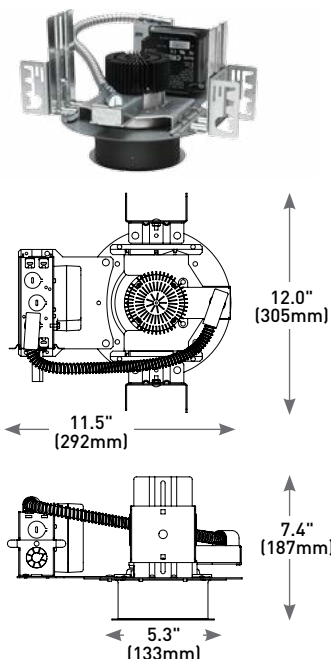
| Field-Installed                                                                      |                                                                                                                                                                                                           |                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sloped Ceiling Adaptor</b><br>KXKS4**WW<br>** 0-35 (order in 5 degree increments) | <b>C-Channel Hanger Bars</b><br>RBH30C<br>- Pair of 30" (762mm) rigid 3/4" x 1/2" (19mm x 13mm) C-Channel bars<br>RBH24C-1<br>- Pair of 24" (610mm) x 1-1/2" (38mm) x 1/2" (13mm) standard C-Channel bars | <b>T-Bar Clips</b><br>RARC7<br>- Set of four<br>- For use with RBH24C-1 hanger bars<br><b>Trim Ring</b><br>KR4TA<br>- White beauty ring to cover pan head fasteners on KR4T reflector |

## Ordering Information

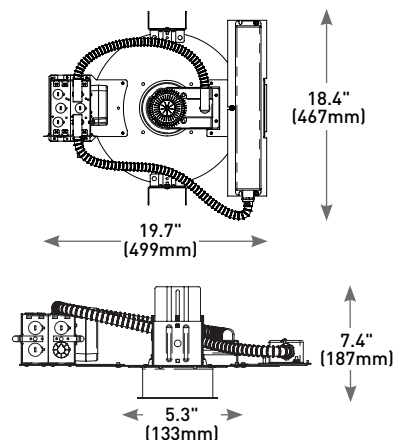
Fully assembled luminaire is composed of two components that must be ordered separately:  
 Example: **Housing:** KR4-20L-35K-120V-10V + **Reflector:** KR4T-SSGC-FF

| Reflector (Housing must be ordered separately)                                                         |                                    |                                                      |
|--------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------|
| KR4T                                                                                                   |                                    |                                                      |
| Series                                                                                                 | Reflector Finish                   | Flange Finish                                        |
| <b>KR4T Standard Trim</b><br>- Reflector attaches to housing with pan head fasteners and keyhole slots | <b>SSGC</b> Soft Satin Glow, Clear | <b>FF</b> Matches Reflector<br><b>WF</b> White Paint |

| Housing (Reflector must be ordered separately) |                |                |                                                                                                                                                                                           |                            |                                                                     |                                                                           |                                                                                                                                                                                |                                                                                                                                                                                               |
|------------------------------------------------|----------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KR4                                            |                |                |                                                                                                                                                                                           |                            |                                                                     |                                                                           |                                                                                                                                                                                |                                                                                                                                                                                               |
| Series                                         | Size           | Reflector      | Initial Delivered Lumens                                                                                                                                                                  | Optic                      | CCT                                                                 | Voltage                                                                   | Controls                                                                                                                                                                       | Options                                                                                                                                                                                       |
| KR                                             | 4<br>4<br>inch | Blank<br>Round | 9L<br>13W, 700 Lumens – 54 LPW<br><b>13L</b><br>18W, 1,000 Lumens – 56 LPW<br>20L<br>30W, 1,550 Lumens – 52 LPW<br>30L<br>39W, 2,350 Lumens – 60 LPW<br>40L<br>44W, 3,200 Lumens – 73 LPW | Blank<br>70° Beam<br>Angle | 27K<br>2700K<br>30K<br>3000K<br>35K<br>3500K<br><b>40K</b><br>4000K | 120V<br>120 Volts<br><b>277V</b><br>277 Volts<br><b>347V</b><br>347 Volts | <b>Blank</b><br>- For standard control offering refer to control availability chart on page 3<br><b>10V 0/1-10V Dimming</b><br>- Refer to control availability chart on page 3 | <b>WD Sunset Dim</b><br>- 9L and 13L @ 27K with Triac Dimming only<br><b>EB7 Emergency Backup</b><br>- Minimum 90 minutes<br>- 120V, 277V only<br>- Minimum operating temperature: 0°C (32°F) |



## Emergency Backup



Rev. Date: V13 02/12/2018



US: [lighting.cree.com](http://lighting.cree.com)



T (800) 236-6800 F (262) 504-5415



Canada: [www.cree.com/canada](http://www.cree.com/canada)



T (800) 473-1234 F (800) 890-7507

## FEATURES & SPECIFICATIONS

### INTENDED USE

The OLB LED Bullet Floodlight is a long-lasting energy-efficient landscape flood light. Available with spot or flood optics making it ideal for many commercial and residential outdoor applications such lighting of landscapes, building details and flag poles.

### CONSTRUCTION

Die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. The LED driver is mounted in the lower housing promoting a low operating temperature and long life. Housing is sealed against moisture and environmental contaminants (IP65).

Finish: Exterior parts are protected by a thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

### OPTICS

Optics are engineered for superior field-to-beam ratios, uniformity and spacing. Available with 5H x 4V flood optics for illuminating larger objects or 2H x 2V spot optics for illuminating targets up to 50 feet away. Light engines are available in 3000K (80 CRI min.) or 5000K (66 CRI min.) configurations.

### ELECTRICAL

MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).

Light engine consists of four (4) discrete LEDs directly mounted directly to the heat sink to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L82).

Driver is thermally isolated in base to promote long-life.

Operating temperature -30°C to 40°C.

### INSTALLATION

Integral adjustable knuckle with 1/2-14 NPS threaded pipe facilitates quick and easy installation in a variety of mounting methods.

### LISTINGS

UL Listed to U.S. and Canadian safety standards for wet locations within four feet of the ground.

Tested in accordance with IESNA LM-79 and LM-80 standards.

### WARRANTY

5-year limited warranty. Complete warranty terms located at

[www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx)

Actual performance may differ as a result of end-user environment and application.

Note: Specifications subject to change without notice.

Catalog  
Number

Notes

Type

# OLB

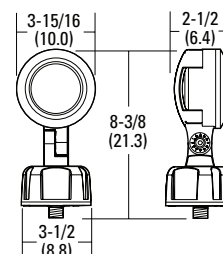
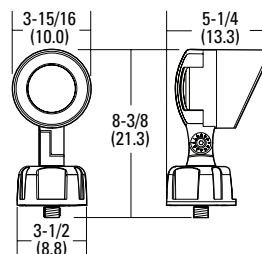
LED Bullet Flood Light



OLBF



OLBS



All dimensions are inches (centimeters) unless otherwise indicated.

### ORDERING INFORMATION

For shortest lead times, configure product using **bolded options**.

**Example: OLBF 8 30K DDB**

| Series                       | Light engine | Color temperature (CCT) | Voltage              | Finish                 |
|------------------------------|--------------|-------------------------|----------------------|------------------------|
| <b>OLBF</b> 5x4 flood optics | <b>8</b>     | <b>30K</b> 3000K        | <b>(blank)</b> MVOLT | <b>DDB</b> Dark bronze |
| <b>OLBS</b> 2x2 spot optics  |              | <b>50K</b> 5000K        |                      |                        |

**LAKELAND MUNICIPAL PLANNING COMMISSION  
MEETING MINUTES  
THURSDAY, MARCH 15, 2018, 5:30 PM  
CITY HALL, LAKELAND, TN.**

**I. CALL TO ORDER:** The meeting was called to order at 5:30 PM by Chairman Sal Feraci.

**II. ROLL CALL BY ACTING RECORDER:**

|                              |                                                          |
|------------------------------|----------------------------------------------------------|
| Maurice Denbow               | Present (at 5:38 pm)                                     |
| Kevin Hammeran               | Present                                                  |
| Carl Helton                  | Present                                                  |
| Jerry James                  | Absent (excused)                                         |
| Jim Willis                   | Present                                                  |
| Comm. Wesley Wright          | Present                                                  |
| (C) Sal Feraci               | Present                                                  |
| Others present:              |                                                          |
| Jim Atkinson, City Manager   | Reed Fenton, Interplan LLC (Rainbow Child Care)          |
| Cory Brady, Planner Director | Darren Bommarito, Herons Ridge Sec. C                    |
| Emily Harrell, City Engineer | Wesley Wooldridge, Renaissance Grp (Herons Ridge Sec. C) |
|                              | Pete Patel, Quantum Hotels (Motel 6)                     |
|                              | Ethan Wright, CSA Engineering (Mobil Service Station)    |
|                              | Donnie Culver, Renaissance Development (Winstead Farms)  |

**III. APPROVAL OF MEETING MINUTES:**

Commissioner Wright moved to approve the regular meeting minutes of February 15, 2018 as written.

Mr. Hammeran seconded the motion.

Motion passed, roll call vote, 4 in favor 0 against 1 abstention by Chairman Feraci (5 members present at time of vote).

|            |     |
|------------|-----|
| Hammeran   | Yea |
| Helton     | Yea |
| Willis     | Yea |
| Wright     | Yea |
| (C) Feraci | Yea |

**IV. PUBLIC DISCUSSION:**

*Public comments were heard from the following:*

Mr. James Tucker of 4335 Chapel Cove expressed his concerns of the lake not being contaminated by the development.

Mr. Wesley King of 4145 Herons Pond Lane inquired about the original proposal of the road cut and the current plan.

Mr. Ron Hooten of 10355 Herons Ridge Cove expressed his concerns of density, smaller lots, and the removal of trees.

Ms. Mary McCollum of 10375 Herons Ridge Cove expressed her concerns of crime, natural water way, drainage, tree removal, lot sizes, noise, and loss of open space.

Mr. Cary Cheston of 4225 Herons Pond Lane – President of Herons Ridge HOA, commented on home sizes, requirements, and standards being consistent with the by-laws.

**V. REPORTS OF OFFICERS AND COMMITTEES:**

- An update on planning activities was given by Cory Brady, Planning Director.

**VI. OLD BUSINESS: None**

**VII. NEW BUSINESS:**

Mr. Willis moved to change the order of business to move item # 3 to first on the agenda.

Commissioner Wright seconded the motion.

*Continued on the next page*

**LAKELAND MUNICIPAL PLANNING COMMISSION  
MEETING MINUTES  
THURSDAY, MARCH 15, 2018, 5:30 PM  
CITY HALL, LAKELAND, TN.**

*Continued from the previous page*

Motion passed unanimously, roll call vote, 6 in favor 0 against.

|            |     |
|------------|-----|
| Denbow     | Yea |
| Hammeran   | Yea |
| Helton     | Yea |
| Willis     | Yea |
| Wright     | Yea |
| (C) Feraci | Yea |

**3. Action on a recommendation to the Board of Commissioners to approve an amendment to Herons Ridge PD, Section C, Phase 2.**

Mr. Willis moved to bring this item to the floor.

Mr. Hammeran seconded the motion.

*For the record:* Chairman Feraci stated that he would like to be recused on this item.

*Public comments were heard from the following:*

Mr. Ron Hooten expressed his concerns of property values decreasing, and larger lots needed for buffering.

Mr. Wesley King stated his information was incorrect on Zillow.com.

Mr. Denbow moved to recommend to the Board of Commissioners approval of an amendment to Herons Ridge PD, Section C, Phase 2 as recommended by staff with the following conditions:

1. An amended Landscape Plan, Lighting Plan, and Sign Plan shall be required with the construction set for administrative review and approval. Any deviation from the original PDP/SDDP shall require MPC/DRC approval.
2. A statement of inclusion and compatibility with the "Amended and Restated Declaration of Covenants, Conditions, and Restrictions for the Heron's Ridge Subdivision" (with instrument numbers) shall be included on the Preliminary Plat and recorded on the Final Plat.

Mr. Willis seconded the motion.

Motion passed, roll call vote, 5 in favor 0 against 1 abstention.

|            |                            |
|------------|----------------------------|
| Denbow     | Yea                        |
| Hammeran   | Yea                        |
| Helton     | Yea                        |
| Willis     | Yea                        |
| Wright     | Yea                        |
| (C) Feraci | Abstain ( <i>recused</i> ) |

*For the record:* Without objection Agenda Items 1 & 2 were combined together as recommended by staff.

1. **Action on approval of Preliminary Plat for Rainbow Child Care located at U.S. Hwy 64 & Forest Edge Dr. – Parcel ID # L015900196.**
2. **Action on approval of Preliminary Site Plan for Rainbow Child Care located at U.S. Hwy 64 & Forest Edge Dr. – Parcel ID # L015900196.**

Mr. Hammeran moved to bring this item to the floor.

Mr. Helton seconded the motion.

*Continued on the next page*

**LAKELAND MUNICIPAL PLANNING COMMISSION  
MEETING MINUTES  
THURSDAY, MARCH 15, 2018, 5:30 PM  
CITY HALL, LAKELAND, TN.**

*Continued from the previous page*

*Public comments were heard from the following:*

Ms. Cindy Zelinski of 9573 Daly Drive expressed her concerns of one entrance and traffic.

Mr. Denbow moved to approve the Preliminary Plat for Rainbow Child Care as recommended by staff with the following condition:

1. Revise the Preliminary Plat to reflect dedication and improvement of the extended Bramblebush Lane right-of-way in accordance with the Subdivision Regulations.

Commissioner Wright seconded the motion.

Motion passed unanimously, voice vote, 6 in favor 0 against.

Mr. Hammeran moved to approve the Preliminary Site Plan for Rainbow Child Care with the following conditions:

1. Provide dimensions for the alternative "T-shaped" turn around in accordance with International Fire Code specifications.
2. Revise the Landscape Plan to comply with Article III, Section 5 – Landscape Requirements.
3. Revise the Lighting Plan to incorporate "carriage style" light fixtures at the building entrance.
4. Revise the building facades to replace vinyl siding with cementous siding.
5. Revise the building facades to remove the decorative tiles.
6. Revise the building facades to replace the blue paint application for the doors with a "muted, earthtone" paint color consistent with the building trim.
7. Provide a paint specification for all paint colors. All paint colors shall be in accordance with Article III, Section 3 – Building Type Standards.
8. Replace the AZEK material with Cementous trim material.
9. Replace the split face CMU with stone.
10. The approval of the site plan is contingent upon approval of a Final Plat.

Mr. Willis seconded the motion.

Motion passed unanimously, roll call vote, 6 in favor 0 against.

|            |     |
|------------|-----|
| Denbow     | Yea |
| Hammeran   | Yea |
| Helton     | Yea |
| Willis     | Yea |
| Wright     | Yea |
| (C) Feraci | Yea |

*For the record:* The meeting was recessed at 7:44 p.m. and reconvened at 7:46 p.m.

**4. Discussion and possible action on approval of Site Plan – Building Improvements for Quantum Hotels, LLC (Motel 6) located at 9822 Huff N Puff Road.**

Mr. Hammeran moved to bring this item to the floor.

Commissioner Wright seconded the motion.

Mr. Willis moved to deny the application, and encourage the applicant to work with staff, and other professionals to bring in a complete application that is compliant.

Commissioner Wright seconded the motion.

Motion passed unanimously, voice vote, 6 in favor 0 against.

*Continued on the next page*

**LAKELAND MUNICIPAL PLANNING COMMISSION  
MEETING MINUTES  
THURSDAY, MARCH 15, 2018, 5:30 PM  
CITY HALL, LAKELAND, TN.**

*Continued from the previous page*

**5. Action on Lighting Plan for Mobil Gas Station located at 3665 Canada Road.**

Mr. Willis moved to bring this item to the floor.

Mr. Hammeran seconded the motion.

Mr. Denbow moved to approve the Lighting Plan for the Mobil Gas Station with the following conditions:

1. Remove the existing pole mounted lights from the roof of the building.
2. Add dedicated flag light in accordance with the US Flag Code and City Ordinances.
3. Revise the lighting Plan to comply with Article III, Section 13 – Site Lighting Requirements.

Mr. Helton seconded the motion.

Motion passed, voice vote, 5 in favor 0 against 1 abstention (*Chairman Feraci was recused*)

**6. Discussion on Conceptual Plan for Winstead Farms PD – Lot A Amendment.**

Discussion only, no action was taken.

**7. Discussion and possible action on amendment to the Sign Ordinance.**

This item was removed from the agenda by unanimous consent.

**VIII. ANNOUNCEMENTS:**

**IX. ADJOURNMENT:**

Mr. Hammeran moved to adjourn the meeting. Mr. Denbow seconded the motion.

Motion passed unanimously, voice vote, 6 in favor 0 against. The meeting was adjourned at 8:41 p.m.

  
Jerry James, Secretary

ATTEST:

  
Jessica Millsbaugh, City Recorder

These minutes were approved on April 19, 2018.