BOARD OF ZONING APPEALS APPLICATION

Click on Meeting Schedule, Deadlines and Fees for information on submitting an application to be heard at a monthly Board meeting.

<table>
<thead>
<tr>
<th>APPLICANT INFORMATION</th>
<th>APPLICANT IS:</th>
<th>THIS PROPOSAL PERTAINS TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: Knoxville Utilities Board</td>
<td>Owner ☑</td>
<td>New Structure ☑</td>
</tr>
<tr>
<td>Street Address: 4505 Middlebrook Pike</td>
<td>Contractor ☐</td>
<td>Modification of Existing Structure ☐</td>
</tr>
<tr>
<td>City, State, Zip: Knoxville, TN 37921</td>
<td>Tenant ☐</td>
<td>Off Street Parking ☐</td>
</tr>
<tr>
<td>Phone Number: 865 558-2398</td>
<td>Other ☐</td>
<td>Signage ☐</td>
</tr>
<tr>
<td>Email: <a href="mailto:Daniel.Byrd@kub.org">Daniel.Byrd@kub.org</a></td>
<td>Other: Future structures ☑</td>
<td></td>
</tr>
</tbody>
</table>

**THIS IS A REQUEST FOR:**
- ☑ Zoning Variance (Building Permit Denied)
- ☐ Appeal of Administrative Official's Decision
- ☐ Extension of Non-Conforming Use/or Structure
- ☐ Map Interpretation

<table>
<thead>
<tr>
<th>PROPERTY INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Address: 1500 Lyons Bend Pike</td>
</tr>
<tr>
<td>See KGIS.org for Parcel #: 121JB00507</td>
</tr>
</tbody>
</table>

**VARIANCE REQUIREMENTS**

*City of Knoxville Zoning Ordinance Article 16.3*

The City of Knoxville Board of Zoning Appeals shall have the power and authority to grant variances from terms of this ordinance according to the procedure and under the restrictions set out in this section.

The purpose of the variance is to modify the strict application of the specific requirements of this ordinance in the case of exceptionally irregular, narrow, shallow or steep lots, or other exceptional physical conditions, whereby such strict application would result in practical difficulty or unnecessary hardship which would deprive an owner of the reasonable use of his land. The variance shall be used only where necessary to overcome some obstacle which is preventing an owner from using his property as the zoning ordinance intended.

**DESCRIPTION OF APPEAL**

Describe your project and why you need variances.

See attached letter

Describe hardship conditions that apply to this variance.

See attached letter

**APPLICANT AUTHORIZATION**

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

**APPLICANT'S SIGNATURE**

**DATE**

Digitally signed by OSY08880
Date: 2020.12.14 08:09:42 -05'00'
1. Decrease the minimum required floor elevation from 823.5 ft, one foot above the 500 year flood elevation, to 814.5 ft for the proposed improvements identified on the applicant's site plan. (Chapter 12 - Flood Damage Prevention and Control Ordinance: Article 3 Section 12-52 (2)).
December 23, 2020

City of Knoxville
Board of Zoning Appeals
400 Main Street
Knoxville, TN 37902

Re: Site Development Permit R20-1531
Fourth Creek WWTP Sodium Hypochlorite Conversion Design
Elevation Variance Request
1500 Lyons Bend Road

To Whom it May Concern:

This letter is included with the attached BZA to provide additional information requesting an appeal for comment CON0284766 of the referenced site development permit, dated 11.30.2020 “Proposed building is located in floodplain. The buildings FFE must be elevated to one foot above the BFE (822.5) or floodproofed per FEMA requirements”. The purpose of this letter is to summarize the existing conditions of the site to justify relief of this requirement for the proposed structure associated with the referenced project and for the future projects at Fourth Creek Wastewater Treatment Plant (FCWWTP) indicated in the attached site map. This letter is prepared on behalf of our client, Knoxville Utilities Board (KUB).

Site Background:

The existing Fourth Creek Wastewater Treatment Plant (FCWWTP) was constructed in the 1950’s at this location adjacent to Fourth Creek and the Tennessee River (Ft. Loudon Lake). A levee surrounds the entire plant to protect the site from a 100-year flood event and the project site has its own dedicated stormwater pumping system that collects runoff within the plant and pumps into Ft. Loudon Lake. All of the existing structures have finished floor elevations between 814 and 816.

Project Background:

The proposed project includes the installation of chemical disinfection system for the FCWWTP. This system will eliminate the use of chlorine gas at the FCWWTP and enhance the overall safety of the plant and the surrounding community. This project represents a further step in KUB’s long term safety goal of eliminating the use of chlorine gas at any of their facilities.

In 2016 an elevation variance was granted for electrical upgrades that revised the minimum finished floor elevation to 814.5. This request seeks the same variance elevation of 814.5. The previous approved elevation variance is attached for reference as all the same issues apply to this project which include:

- The entire FCWWTP predates the City’s flood damage and prevention ordinance. All existing structures have FFE’s between 814 and 816.
• There are no locations on the site that would it make it feasible for the proposed facility to be placed with an FFE of 822.5.

• All proposed structures as part of this project are within the extents of the existing levee and would not increase flood heights or floodway widths.

• The flood protection provided by the existing levee meets the requirements of the current (2020) Tennessee Department of Environment and Conservation Design Criteria for Review of Sewage Works by providing protection against the 100-year storm event. The elevation of the levee is set at the 100-year +1’ elevation.

Please consider these issues and the attached previously approved elevation variance as justification to set the minimum required finished floor elevation for the indicated projects at the FCWWTP site to 814.50.

Please let me know if have any further questions on this request.

Sincerely,

Andrew Howe, PE
Project Manager

cc: Daniel Byrd, KUB Project Manager
Billie Jo McCarley, KUB Director of Engineering
**BOARD OF ZONING APPEALS**

**NAME OF APPLICANT**: Knoxville Utilities Board  
**FILE NO.**: 4-F-16-V4

The applicant is: [ ] Owner  [ ] Tenant  [ ] Contractor  [ ] Other

This is a request for:  
[ ] Zoning Variance (Building Permit Denied)  [ ] Extension of Non-Conforming Use  
[ ] Appeal of Administrative Official's Decision  [ ] Map Interpretation

**PROPERTY INFORMATION**

<table>
<thead>
<tr>
<th>Street Address</th>
<th>1500 Lyons Bend Rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoning District</td>
<td>0-2</td>
</tr>
<tr>
<td>Ward and Block</td>
<td>49 and 49020</td>
</tr>
<tr>
<td>Zoning Map Number</td>
<td>121J800507</td>
</tr>
<tr>
<td>Lot/Parcel</td>
<td>Unplatted / 005.07</td>
</tr>
</tbody>
</table>

This proposal pertains to:  
[ ] New Structure  [ ] Extension of Existing Structure  [ ] Off-Street Parking  
[ ] Signage  [ ] Other

Is a plat required?  
[ ] Yes  [ ] No

**DESCRIPTION OF PROPOSAL**

This project consists of constructing a two new buildings to house electrical equipment at the Fourth Creek Wastewater Treatment Plant.

Describe specific ways in which this proposal fails to meet the requirements of the City of Knoxville Zoning Ordinance (please reference Section/Article of the Ordinance):

1. Decrease the minimum required floor elevation from 823.5, one foot above the 500-year elevation, to 814.5.  
   Reference: Flood Damage Protection and Control Ordinance: Article III, Section 12-52 (2)

**CITY OF KNOXVILLE BUILDING INSPECTOR**: Mark Johnson  
**DATE**: 3/21/16
APPLICANT’S HARDSHIP

Which special circumstance(s) of the property do not apply generally in the zoning district?
☐ Size  ☑ Elevation  ☐ Slope  ☐ Shape  ☐ Soil  ☐ Subsurface  ☐ Other

What legal hardship(s) prevents any reasonable use of your land under the terms of the Zoning Ordinance?

See attached letter.

I affirm that the hardship described above was not created by anyone having an ownership interest in the property since 1962. ☑ Yes  ☐ No  If answering no, explain:

Are the conditions on your property the result of other man-made changes (such as the relocation of a road or highway)?  ☑ No  ☐ Yes  If answering yes, describe:

APPLICANT’S AUTHORIZATION

I hereby certify that I am the authorized applicant, representing ALL property owners involved in this request or holders of options on same, as listed below.

Signature:  

Address to which all correspondence should be mailed regarding this application:
Name (Print)  Street Address  City  State  Zip  Telephone
Charles Robinson  1100 Marion St., Suite 300  Knoxville, TN  37921

Names of all property owners or holders of option on same must be listed here:
Name (Print)  Street Address  City  State  Zip  Telephone
Knoxville Utilities Board  4505 Middlebrook Pike, Knoxville, TN  37921

Date Filed:  3/21/2016  Fee Paid:  $250
Councilmanic District:  2  MPC Planning Sector:  SW County
General Location Description:  Near Lyons Bend Rd., SE corner of Lakeshore Park
Size:  Acres  15  Size:  Sq. Ft.

METROPOLITAN PLANNING COMMISSION  DATE  3/21/2016
March 21, 2015

Mr. Mark Johnson  
Plans Review & Inspections  
City of Knoxville  
400 Main Street, Room 505  
Knoxville, TN 3902

Subject: Site Development Permit Number: DSD16-0067  
Fourth Creek Wastewater Treatment Plant Electrical Upgrades  
1500 Lyons Bend Road, Knoxville, TN

Dear Mr. Johnson:

On behalf of our client, Knoxville Utilities Board (KUB), CDM Smith is requesting approval of a variance associated with CON0179801 (Dated 3/7/2016) "All proposed structures must have a finished floor elevation a minimum of 12 inches above 500-year flood elevation" identified during the Site Development Permit review for the above referenced project. In order to comply with this requirement all new structures located on the site would need to have a finished floor elevation of 823.5 or above. The purpose of this letter is to summarize the circumstances associated with this project and outline our justifications for seeking relief from this requirement. Other projects are also mentioned in order to provide a complete picture of KUB's planned major upgrades for this site.

**Background Information**

The Fourth Creek Wastewater Treatment Plant (FCWWTP) was constructed by the City of Knoxville at its present location in the 1950’s. The current treatment capacity of FCWWTP is approximately 34 MGD, though only about 17 MGD can receive full secondary treatment. FCWWTP is located on Ft. Loudoun Lake at the confluence of Fourth Creek and the Tennessee River. Ft. Loudoun Lake is a reservoir that is regulated by the Tennessee Valley Authority (TVA). There is a levee around the perimeter of the site to protect the plant from the 100-year flood event in the reservoir, which is elevation 818.3 according to the “Flood Insurance Study for Knox County, Tennessee and Incorporated Areas” published by FEMA (August 2013). Information on the TVA website indicates that the minimum winter water surface elevation in the reservoir is 807 and the typical summer operating elevation is between 812 and 813. The highest recorded stage in Ft. Loudoun Lake since the completion of the TVA system occurred on March 28, 1994 which resulted in a water surface elevation of approximately 819 at FCWWTP (FEMA). The 500-year flood elevation at FCWWTP is approximately 822.5 (FEMA).

All of the ten existing buildings that make up the plant facility have finished floor elevations that are between 814 and 816. All plant areas inside the levee drain to a dedicated stormwater wet
well. Pumped stormwater runoff is then combined with treated effluent and discharged to Pt. Loudoun Lake through the plant’s 54" outfall pipe.

Much of the plant electrical equipment, other than components that were replaced in 2013-2014 under Phase 1 of the consent decree mandated Composite Correction Program (CCP), has reached its useful life expectancy and needs to be replaced. A study was completed in 2015 and KUB has initiated a two phase program to replace aging electrical equipment that is no longer considered to be reliable due to age and other factors.

Under the Phase I project (subject of the reference permit application) KUB is seeking to replace motor controls that are needed to operate the aeration system, a critical part of the plant’s biological treatment process. The existing outdoor equipment is located on top of the aeration basin deck (approximate elevation 819). Exposure to high humidity levels and splashing from the aeration basin has resulted in significant corrosion of the existing equipment and temporary emergency backup measures are currently in place. KUB is seeking to construct a new building on-site to permanently house and protect the replacement electrical equipment, which they have already purchased. A new building will provide increased security, enhance worker safety, and prolong equipment life. This project is being fast-tracked due to the critical need to restore the reliability of power supply for the aeration process.

Phase II of the electrical upgrade also features a small new electrical building for replacement motor controls. The justification for locating the new equipment in a new building is similar to that for the Phase I building. In addition, the building that houses the existing electrical equipment does not meet current codes for electrical equipment and an upgrade would be very expensive.

Additionally, KUB currently has Phase 2 of the consent decree mandated CCP under design. This project includes a new aeration basin, however, the top of the walls will be above the 500-year flood elevation.

**Justifications for Variance Approval**

1. FCWWTP pre-dates both the City’s Flood Damage Prevention and Control Ordinance and the first flood hazard boundary maps issued for Knoxville in 1981. The very purpose of a wastewater treatment plant makes it necessary for this facility to be situated in a waterfront location.

2. The existing electrical equipment could be replaced in its current location without a Site Development Permit. However, the new equipment would also be located below the 500-year flood elevation and it would still be exposed to damaging corrosive factors.

3. There are no locations inside existing structures at the plant which are suitable to relocate the equipment to. Even if a suitable location were to be identified, none of the existing structures on the site have finished floor elevations above 823.5.
4. FCWWTP provides an important and necessary public works service to the community. Replacing the existing electrical equipment is critical to ensuring reliable plant operation. Providing dedicated, climate controlled buildings for electrical equipment will improve the safety, security and longevity of the new motor control equipment.

5. The level of protection provided by the existing levee (100-year event) meets the requirements of the current "Design Criteria for Sewage Works" published by TDEC Division of Water Pollution Control (March 2016). Raising the levee to provide protection from the 500-year event is a capital improvement project that KUB is considering as part of the FCWWTP Facilities Plan, however the electrical upgrades have been identified as an immediate priority due to concerns over the existing equipment including recent component failures, lack of available spare parts, etc.

6. The proposed buildings are compatible with the existing use of the property as a wastewater treatment plant. They have been designed to occupy the least amount of space necessary for the proposed use. The combined footprint of both structures will be less than 1,000 SF. The presence of these buildings will have a negligible impact on the site and surrounding areas in the event of a 500-year flood.

7. All proposed improvements associated with this project will be constructed within the portion of the plant that is already protected by the levee. Therefore, granting the requested variance will not result in increased flood heights or floodway widths or result in any additional threats to public safety.

8. Failure to grant this variance would result in exceptional hardship that would negatively impact KUB’s ability to maintain and operate FCWWTP.

Please don’t hesitate to contact me if you have any questions or require any further information associated with this request.

Sincerely,

[Signature]

Bernard F. Maloy, P.E.
Senior Project Manager
CDM Smith Inc.

cc: Mr. Derwin Hagood, Knoxville Utilities Board
    Ms. Jennifer Osgood, CDM Smith, Inc.