



November 4, 2022

Edward Rios  
Tower Engineering Professionals  
2300 Barington Road, Suite 467  
Hoffman Estates, IL 60165

Re: Acoustical Report – T-Mobile SE02377A S Marymoor PSE SE52XC065  
Site: 16852 NE 40<sup>th</sup> Street, Redmond, WA 98052

Dear Edward,

This report presents a noise survey performed in the immediate vicinity of the proposed T-Mobile telecommunications facility at 16852 NE 40<sup>th</sup> Street in Redmond, Washington. This noise survey extends from the proposed equipment to the nearest properties. The purpose of this report is to document the existing conditions and the impacts of the acoustical changes due to the proposed equipment. This report contains data on the existing and predicted noise environments, impact criteria and an evaluation of the predicted sound levels as they relate to the criteria.

### **Code Requirements**

The site is located within the City of Redmond zoning jurisdiction on property with an R-4 zoning designation. All of the receiving properties are zoned R-4 and R-5. Redmond Municipal Code 6.36.030 identifies all R zones as Class A EDNA.

The proposed new equipment includes equipment support cabinets, which are expected to run 24 hours a day.

Redmond Municipal Code 6.36.030 limits noise from equipment on a Class A EDNA property as follows:

Class A EDNA Receiver: Noise is limited to 55 dBA during daytime hours. During nighttime hours, between the hours of 10 p.m. and 7 a.m., the maximum permissible sound level is decreased by 10 decibels. Since the support cabinets are expected to operate 24 hours a day, they must meet the 45 dBA nighttime limit.

### **Ambient Conditions**

Existing ambient noise levels were measured on site with a Svantek 971 sound level meter on October 17, 2022. Measurements were conducted as close to the proposed location as possible and the property lines in accordance with the State of Washington code for Maximum Environmental Noise Levels WAC 173-60-020. The average ambient noise level was 45 dBA.

**Predicted Equipment Sound Levels**

*24-Hour Operation Equipment*

The following table presents a summary of the equipment and their associated noise levels:

**Table 1: Equipment Noise Levels**

| Equipment                                | dBA (each)   | Quantity | Combined dBA @ 5 ft |
|--|--------------|----------|---------------------|
| Purcell HPL3                             | 68 dBA @ 5ft | 1        | 68                  |
| Purcell LB3                              | 68 dBA @ 5ft | 1        | 68                  |
| <b>Total dBA (All cabinets combined)</b> |              |          | <b>71</b>           |

Methods established by ARI Standard 275-2010 and ASHRAE were used in predicting equipment noise levels to the receiving properties. Application factors such as location, height, and reflective surfaces are accounted for in the calculations.

The equipment will be located at grade within an equipment shed. The nearest receiving property is approximately 11 feet east of the equipment. The following table presents the predicted sound levels at the nearest receiving property:

**Table 2: Predicted Noise Levels: Proposed Equipment Cabinets**

| Line | Application Factor  | E         |
|------|---|-----------|
| 1    | Sound Pressure Level 5 ft (dBA), Lp1  | 71        |
| 2    | Noise Amplification – Near Reflective Surfaces  | +6        |
| 3    | Noise Reduction – Equipment Shed  | 30        |
| 4    | Distance Factor (DF)<br>Inverse-Square Law (Free Field): $DF = 20 \cdot \log(d1/d2)$<br>(11 ft) | -7        |
| 5    | New Equipment Sound Pressure Level at Receiver, Lpr<br>(Add lines 1 through 4)                  | <b>40</b> |

As shown in Table 2, the sound pressure level from the proposed equipment is predicted to be 40 dBA at the nearest receiving property to the east, which meets the 45 dBA nighttime code limit. Noise levels at the other properties, which are further away, will be lower and within the code limits.

Please contact our office if you have questions or need further information.

Sincerely,  
SSA Acoustics, LLP



Steven Hedback  
Acoustical Consultant

This report has been prepared for the titled project or named part thereof and should not be used in whole or part and relied upon for any other project without the written authorization of SSA Acoustics, LLP. SSA Acoustics, LLP accepts no responsibility or liability for the consequences of this document if it is used for a purpose other than that for which it was commissioned. Persons wishing to use or rely upon this report for other purposes must seek written authority to do so from the owner of this report and/or SSA Acoustics, LLP and agree to indemnify SSA Acoustics, LLP for any and all resulting loss or damage. SSA Acoustics, LLP accepts no responsibility or liability for this document to any other party other than the person by whom it was commissioned. The findings and opinions expressed are relevant to the dates of the works and should not be relied upon to represent conditions at substantially later dates. Opinions included therein are based on information gathered during the study and from our experience. If additional information becomes available which may affect our comments, conclusions or recommendations SSA Acoustics, LLP reserves the right to review the information, reassess any new potential concerns and modify our opinions accordingly.

