APPENDIX D
ENERGY ANALYSIS

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April 8, 2022

AVELLANA

Senior Wellness

APN: 0435-015-13 & 35

San Bernardino County, California

PROFESSIONAL ENGINEER'S AFFIRMATIVE STATEMENT

I have examined and am familiar with the information in this document and all appendices, and based on my inquiries of individuals immediately responsible for obtaining the information in this document, I believe that the information is true, accurate, and complete

Prepared by

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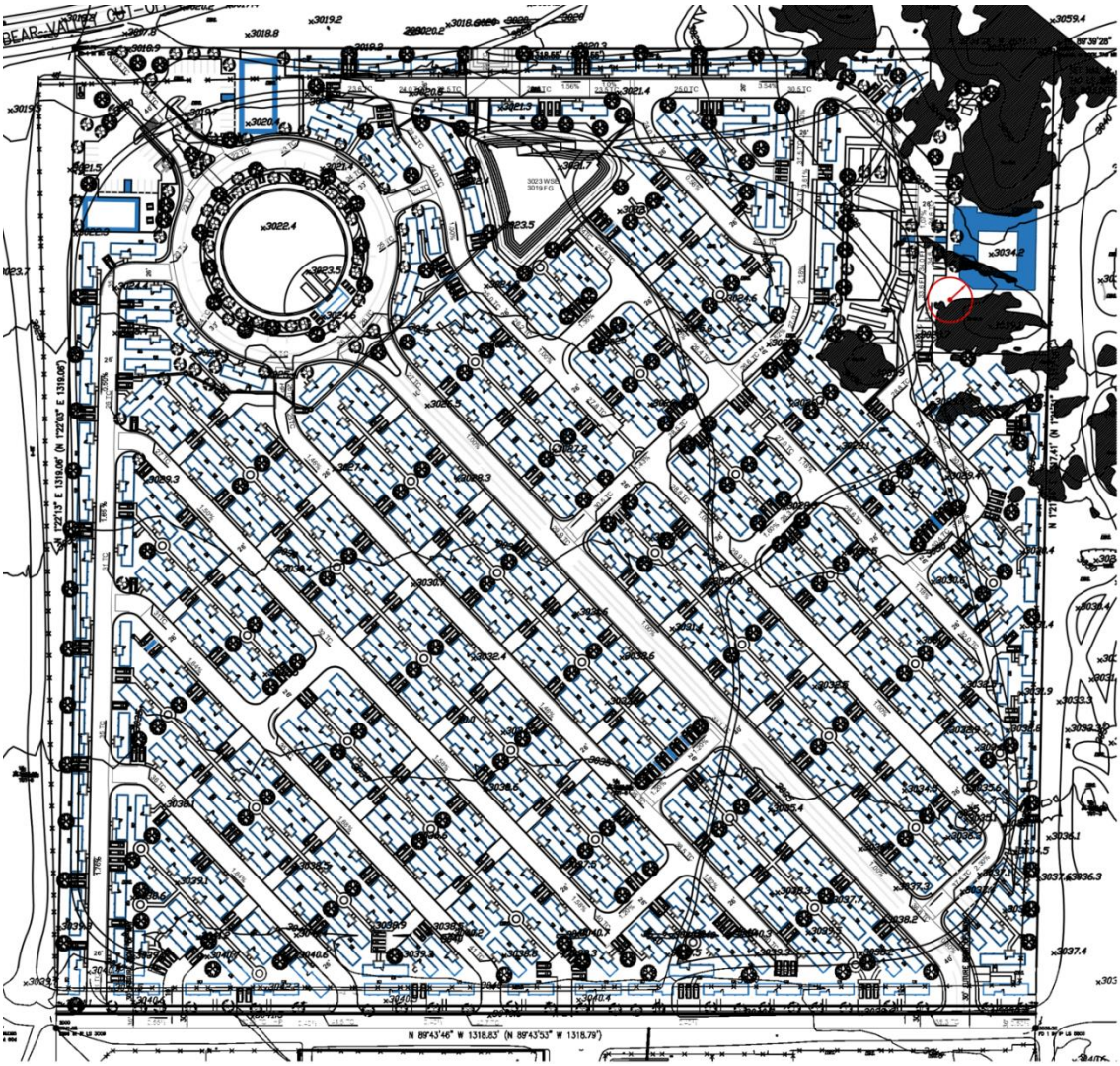
I. INTRODUCTION

A. LOCATION OF PROPERTY

The 40.2-acre project is a mixed-use retirement community that is located 1,425 feet west of the intersection of Bear Valley Road and Highway 18, east of the Town of Apple Valley, CA APN 0435-015-13. An additional 4.72-acres (APN 0435-015-35) just south of the site will be developed as a solar farm to support the site to the north.



B. PURPOSE AND SCOPE

The purpose of this study per Appendix G of the State CEQA Guidelines (1) is to analyzes the project's anticipated energy use during construction and operations to determine if the Project would:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

In order to mitigate the above, the project must achieve the following as outlined in Appendix F of the State's CEQA Guidelines:

1. decrease overall per capita energy consumption,
2. decrease reliance on fossil fuels such as coal, natural gas, and oil, and
3. increase reliance on renewable energy sources.

METHODOLOGY: Information from the Avellana Senior Living Mobile Homes Traffic Impact Analysis (TIA) prepared by TJW Engineering, Inc. (3) The Apple Valley Mobile Home Park – Air Quality and Green House Gas Emissions (AQGHG) Memorandum prepared by Kimley Horn, Inc. (4) were utilized in this analysis.

C. PROJECT DESCRIPTION

ENERGY REQUIREMENTS

As a "Sustainable living Community", Avellana has been designed to create a micro-living-environment that caters to almost all the needs of its future population without placing additional burdens on the neighboring resources as it embraces a minimal-carbon footprint lifestyle that can be described in the following terms:

1. Construction Operations
2. 399 custom designed "senior-optimized" mobile homes
3. A medical/dental clinic focused on geriatric care
4. A clubhouse, with serving kitchen.
5. A convenience store,
6. A lake, used for fire suppression storage, requiring pumps for aeration.
7. Package Sewer Treatment Plant
8. Community Well and associated pumps
9. Minimal Site Lighting.

As there are no sewer, water, or natural gas services currently serving the subject property Avellana will generate and provide its own utilities from entirely within the community property boundaries, with the exception of SB County Police and Fire services.

ENERGY SUPPLIES SERVING THE PROJECT

In order to most equitably deploy utility services Avellana has formed a special purpose California Mutual Corporation, Avellana Power Limited, to deploy water, water treatment, and electricity services within the property boundaries. This entity has already been designated by the IRS as a 501(c)(12) public benefit corporation and will provide comprehensive utility services to all Avellana residents.

ENERGY CONSERVATION EQUIPMENT AND DESIGN FEATURES

The project is designed to use infiltrating blocks in lieu of asphalt pavement eliminating petroleum based curing fumes and oils. Considering, all internal appliances, lighting, and mechanical equipment will be electric powered eliminating the need for Natural Gas and all power demand will

be supplied through solar energy, the project is presumed to have a less than significant energy impact per CEQA guidelines.

ESTIMATED DAILY VEHICLE TRIPS TO BE GENERATED BY THE PROJECT

Senate Bill (SB) 743 (4) was adopted in 2013 requiring the Governor's Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts within the California Environmental Quality Act (CEQA). For land use projects, OPR has identified Vehicle Miles Traveled (VMT) as the new metric for transportation analysis under CEQA. The regulatory changes to the CEQA guidelines that implement SB 743 were approved on December 28th, 2018 with an implementation date of July 1st, 2020 as the new metric.

Affordable and senior housing projects are often associated with low generating VMT. Several agencies (i.e. City of San Bernardino, City of Victorville, County of Riverside, and the County of Los Angeles), identify affordable housing projects and senior housing projects to have a less than significant impact on VMT and are screened from VMT analysis. OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018) outlines various sources indicating affordable housing as a low generating VMT land uses and presumption of a less than significant impact. (5) In addition, the County of San Bernardino's General Plan Housing Element (Goal H-4) outlines to "Assist in the development, maintenance, modernization, and preservation of affordable housing; provide assistance where feasible for residents to rent or purchase adequate housing in San Bernardino County." (6)

As this project provides affordable housing and aims to provide a self-contained living experience, the project is presumed to have a less than significant transportation impact per CEQA guidelines.

D. ENVIRONMENTAL SETTING

The area is currently serviced by SoCAL Edison along the southern boundary which feeds power to the existing residences south of the project.

E. ENVIRONMENTAL IMPACTS:

The project's energy requirements and its energy use after construction will be solely dependent on solar energy supplied internally. Additionally, extra power will be stored in a battery backup facility that will tied into the power grid as a peak power generation supply bank.

Thus, the effects of the project on local and regional energy supplies are insignificant or of no effect.

In addition, the project will store extra power using a battery backup power plant that can be tied to the local power grid to be used to offset peak and base period demands for electricity in the area eliminating the need to build additional peak power plants.

In order to receive USDA funding and classification as a California Mutual Power Company, the project will comply with existing energy standards.

F. MITIGATION MEASURES:

The project's energy requirements have been reduced by the following innovative design features:

1. Reduction of street hardscape through clustering homes to have a paseo in lieu of every other street. This reduces street lighting and heat energy gain.
2. Orientation: the homes are oriented along the solar azimuth to reduce the exterior walls exposure direct sunlight.

II. ENERGY FINDINGS AND RECOMMENDATIONS

A. ENERGY IMPACT 1

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

BUILDING ENERGY CONSERVATION STANDARDS

The California Energy Conservation and Development Commission (California Energy Commission) adopted Title 24, Part 6, of the California Code of Regulations; energy Conservation Standards for new residential and nonresidential buildings in June 1977 and standards are updated every three years. Title 24 ensures building designs conserve energy. The requirements allow for the opportunities to incorporate updates of new energy efficiency technologies and methods into new developments. In June 2015, the California Energy Commission (CEC) updated the 2016 Building Energy Efficiency Standards. Under the 2016 Standards, residential buildings are approximately 28 percent more energy efficient than the previous 2013 Energy Efficiency Standards. The 2016 Standards improved upon the previous 2013 Standards for new construction of and additions and alterations to residential and nonresidential buildings. The 2019 Title 24 standards state that residential buildings are anticipated to be approximately 7 percent more energy efficient. When the required rooftop solar is factored in for low-rise residential construction, residential buildings that meet the 2019 Title 24 standards would use approximately 53 percent less energy than residential units built to meet the 2016 standards. (7)

SENATE BILL 350

Senate Bill (SB) 350 (de Leon) was signed into law in October 2015. SB 350 establishes new clean energy, clean air and greenhouse gas reduction goals for 2030. SB 350 also establishes tiered increases to the Renewable Portfolio Standard: 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030.

SENATE BILL 100

Senate Bill 100 (SB 100) was signed into law September 2018 and increased the required Renewable Portfolio Standards. (8) SB 100 requires the total kilowatt-hours of energy sold by electricity retailers to their end-use customers must consist of at least 50 percent renewable resources by 2026, 60 percent renewable resources by 2030, and 100 percent renewable resources by 2045. SB 100 also includes a State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers

and 100 percent of electricity procured to serve all State agencies by December 31, 2045. Under the bill, the State cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

ELECTRICITY.

As supported by the preceding analyses, the Project construction and operations would not result in the inefficient, wasteful or unnecessary consumption of energy. The Project would therefore not cause or result in the need for additional energy producing or transmission facilities. The Project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California by incorporating 100% solar energy.

B. ENERGY IMPACT 2

Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

The Proposed Project would be designed to comply with the County of San Bernardino Greenhouse Gas Emissions Reduction Plan and the State Building Energy Efficiency Standards (Title 24). Project development would not cause inefficient, wasteful and unnecessary energy consumption, and no adverse impact would occur.

REFERNCES

1. **Association of Environmental Professionals**, **2022 CEQA California Environmental Quality Act. 2022**
2. **Traffic Impact Analysis.** TJW Engineering
3. **Air Quality and Green House Gas Emissions.** Kimley Horn, Inc.
4. **California Legislative Information, 2013.** https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201320140SB743
5. **Office of Planning and Research, CA.** https://opr.ca.gov/ceqa/guidelines/updates.html
6. **San Bernardino County Planning.** https://cms.sbcounty.gov/lus/Planning/HousingPlans.aspx
7. **California Energy Commission, 2019.** https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency
8. **California Legislative Information, 2015.** https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB350