California Environmental Quality Act

Initial Study

(As required by Sec. 15063 of the Public Resources Code)
Prepared: February 2018

1.	**Project Title:**	Gateway Mixed Use Development
2.	**Lead Agency Name and Address:**	City of Sonoma Planning Department
3.	**Contact Person and Phone Number:**	David Goodison, Planning Director (707) 938-3681
4.	**Project Location:**	870 Broadway
5.	**Project Sponsor's Name and Address:**	Broadway-MacArthur LLC 1090 Main Street Napa, CA 94559
6.	**General Plan Designation:**	Mixed Use
7.	**Zoning:**	Mixed Use/Historic Overlay Zone/Creek Setback Overlay Zone

8. Description of Project:

The proposal envisions the redevelopment of the site with a mixed-use development featuring 35 residences and a 4,100-square foot commercial space, accommodating up to three tenant spaces. The development plan places a mixed-use building at the southeast corner of the site, aligned with Broadway. The lower floor would consist of the commercial space, with four two-bedroom flats located on the second floor. This building would have a height of 30 feet. Eight apartment units divided between two two four-plex buildings would be located north of the mixed use building, fronting Broadway, while three detached units would be placed along with the West MacArthur Street frontage. The remaining 20 residences would take the form of townhomes grouped among five building clusters located within the interior of the site. These would all be three-story buildings with heights ranging from 32 feet to 35 feet. The northeast corner of the site, which partially lies within a creek setback, would be used as a common space area.

As shown on the table below, unit sizes (excluding garage area) range from 486 square feet to 1,934 square feet. The townhouse units all feature 2-car garages. A network of interior sidewalks would allow pedestrian circulation throughout the site, including access to the common open space areas. For vehicular circulation, access would be limited to a single driveway on East MacArthur Street. However, a secondary emergency access point would be provided, also connecting to East MacArthur Street. Each townhouse unit would have a two-car garage and ten additional covered parking spaces would be located on the east side of the mixed-use building. In addition, 21 uncovered parking spaces are proposed, for a total of 77 spaces. To accommodate the proposed development, all structures on the site would be demolished. Requested entitlements include a Use Permit, a Tentative Map, and Site Design and Architectural Review.

Sonoma Gateway Project: Schedule of Unit Types				
Unit Type	**# of Units**	**Living Area (sq. ft.)**	**# of Bedrooms**	**% of Total**
Apartments	8	486	1	23%
Flats	4	1,275	2	11%
Detached	3	1,934	4	9%
Townhome B	7	1,261	2	20%
Townhome C	6	1,386	3	17%
Townhome D	7	1,458	3	20%

Additional details are provided in the project narrative, site plan, floor plans, and elevations (attached).

9. Site, Setting, and Context:

The subject property is a 1.86-acre site at the northeast corner of Broadway and MacArthur Street. The site had been used for auto sales, rentals, and repairs since 1925, but that use closed in 2011. Development on the property consists of a 6,000 square-foot auto showroom, a 3,000 square-foot building with the appearance of barn that had been used for storage and as an automotive paint shop, and a 1,000 square-foot wood-framed garage building. Large areas of the site have been paved for use as vehicle display areas and storage.

The site has a General Plan land use designation of Mixed Use and a corresponding Mixed Use zoning designation. In addition, the site is located within the Historic Overlay zone. The northeast corner of the property lies within a creek setback area associated with Nathanson Creek.

Adjoining uses are are as follows:

North: A mixed-use development (office and apartments).

South: The MacArthur Place hotel (across East MacArthur Street).

East: A duplex and an open space preserve.

West: An apartment development and commercial uses (across Broadway).

10. Other public agencies whose approval is required (e.g. permits, financing approval, or participation agreement).

Improvements within the Highway 12 right-of-way will require Caltrans review and the issuance of an encroachment permit.

11. Application of CEQA requirements.

This Project is subject to the requirements of the California Environmental Quality Act (CEQA). The City of Sonoma is the CEQA lead agency. Prior to making a decision to approve the Project, the City must identify and document the potential significant environmental effects of the Project in accordance with CEQA. This Initial Study has been prepared under the direction of the City to fulfill the CEQA requirements.

Vicinity Map

Project Summary

Project Name:	Sonoma Gateway
Property Address:	870 Broadway
Applicant:	Broadway MacArthur LLC
Property Owner:	Sonoma Gateway Commons, LLC
General Plan Land Use:	Mixed Use
Zoning - Base:	Mixed Use
Zoning - Overlay:	Historic/Creek
Summary:	

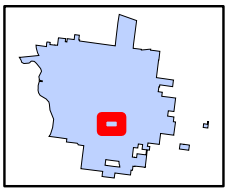
Proposed mixed-use project featuring a 4,100 square foot commercial space and 35 residential units.

0 95 190 380 Feet

1 inch = 200 feet

Zoning Designations

R-HS	Hillside Residential (1 D.U./10acres, maximum)
R-R	Rural Residential (2 D.U./acre, maximum)
R-L	Low Density Residential (2-5 D.U./acre)
R-S	Sonoma Residential (3-8 D.U./acre)
R-M	Medium Denisty Residential (6-10 D.U./acre)
R-H	High Density (9-12 D.U./acre)
R-O	Housing Opportunity (15-20 D.U./acre)
R-P	Mobile Home Park (7 D.U./acre, maximum)
MX	Mixed Use (12 D.U./acre, maximum)
C	Commercial (15 D.U./acre, maximum)
C-G	Commercial-Gateway (15 D.U./acre, maximum)
W	Wine Production
P	Public Facility
Pk	Park
A	Agriculture



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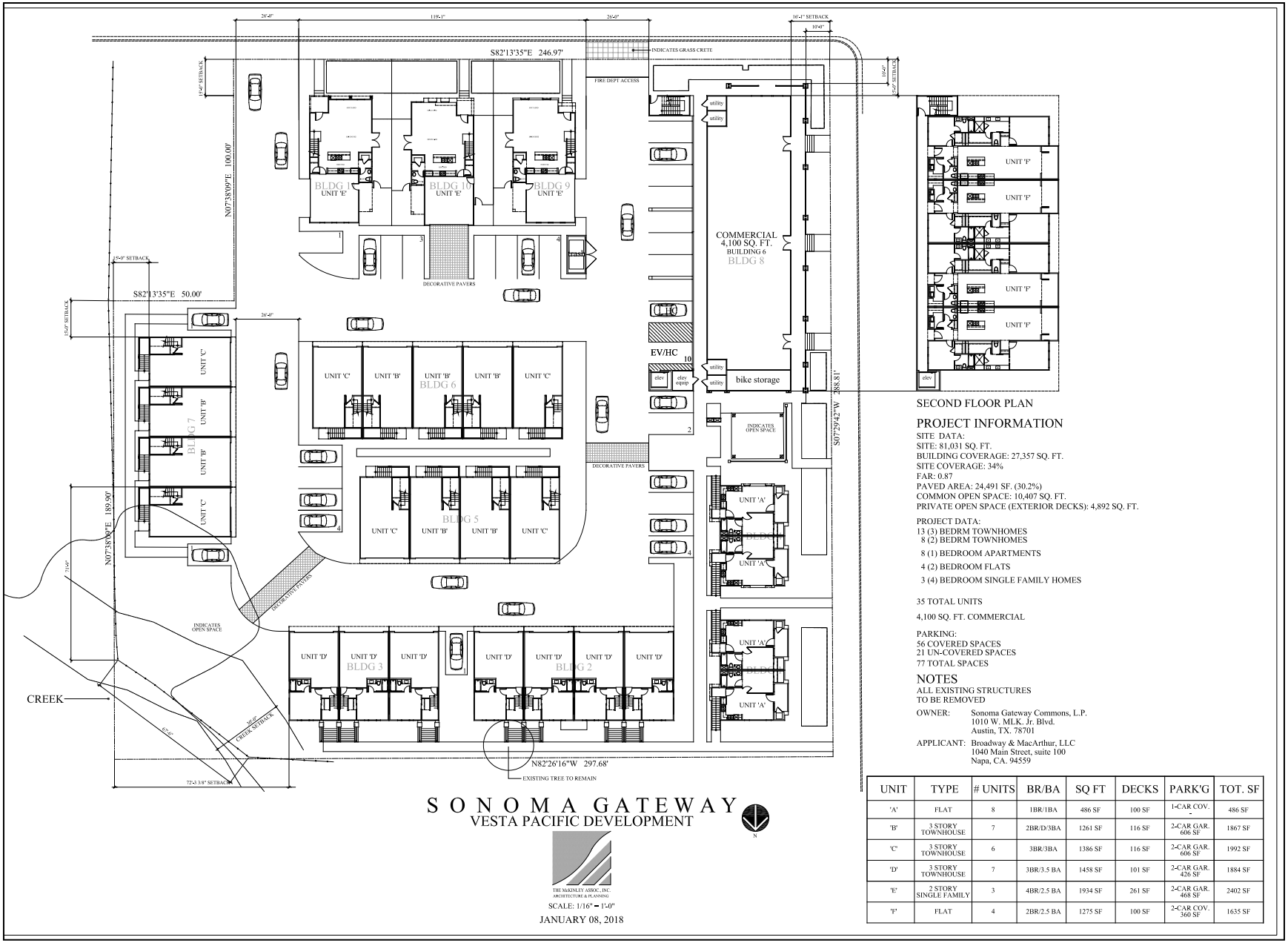

SECOND FLOOR PLAN

PROJECT INFORMATION

SITE DATA:
SITE: 81,031 SQ. FT.
BUILDING COVERAGE: 27,357 SQ. FT.
SITE COVERAGE: 34%
FAR: 0.87
PAVED AREA: 24,491 SF. (30.2%)
COMMON OPEN SPACE: 10,407 SQ. FT.
PRIVATE OPEN SPACE (EXTERIOR DECKS): 4,892 SQ. FT.

PROJECT DATA:
13 (3) BEDRM TOWNHOMES
8 (2) BEDRM TOWNHOMES
8 (1) BEDROOM APARTMENTS
4 (2) BEDROOM FLATS
3 (4) BEDROOM SINGLE FAMILY HOMES

35 TOTAL UNITS

4,100 SQ. FT. COMMERCIAL

PARKING:
56 COVERED SPACES
21 UN-COVERED SPACES
77 TOTAL SPACES

NOTES

ALL EXISTING STRUCTURES
TO BE REMOVED

OWNER: Sonoma Gateway Commons, L.P.
1010 W. MLK. Jr. Blvd.
Austin, TX. 78701

APPLICANT: Broadway & MacArthur, LLC
1040 Main Street, suite 100
Napa, CA. 94559

UNIT	TYPE	# UNITS	BR/BA	SQ FT	DECKS	PARK'G	TOT. SF
'A'	FLAT	8	1BR/1BA	486 SF	100 SF	1-CAR COV. -	486 SF
'B'	3 STORY TOWNHOUSE	7	2BR/D/3BA	1261 SF	116 SF	2-CAR GAR. 606 SF	1867 SF
'C'	3 STORY TOWNHOUSE	6	3BR/3BA	1386 SF	116 SF	2-CAR GAR. 606 SF	1992 SF
'D'	3 STORY TOWNHOUSE	7	3BR/3.5 BA	1458 SF	101 SF	2-CAR GAR. 426 SF	1884 SF
'E'	2 STORY SINGLE FAMILY	3	4BR/2.5 BA	1934 SF	261 SF	2-CAR GAR. 468 SF	2402 SF
'F'	FLAT	4	2BR/2.5 BA	1275 SF	100 SF	2-CAR COV. 360 SF	1635 SF

SONOMA GATEWAY
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/16" = 1'-0"

JANUARY 08, 2018

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Hazards & Hazardous Materials	☐ Public Services
☐ Agriculture Resources	☑ Hydrology / Water Quality	☐ Recreation
☑ Air Quality	☐ Land Use / Planning	☐ Storm Water
☑ Biological Resources	☐ Mineral Resources	☑ Transportation / Traffic
☑ Cultural Resources	☑ Noise	☑ Utilities / Service Systems
☐ Geology / Soils	☐ Population / Housing	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☑ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

2-20-2018

Signature Date

David Goodison, Planning Director City of Sonoma, Planning Department

Printed name For *(Lead Agency)*

Figure 2: Vicinity Map

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to Projects like the one involved (e.g. the Project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on Project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a Project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as Project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a. Earlier Analysis Used. Identify and state where they are available for review.
   b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the Project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a Project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a. The significance criteria or threshold, if any, used to evaluate each question; and
   b. The mitigation measure identified, if any, to reduce the impact to less than significance.

1. AESTHETICS: Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☑	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☑	☐
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

Discussion:

a) Have a substantial adverse effect on a scenic vista?

The City of Sonoma Municipal Code (SMC 19.43.130.C) defines "scenic vistas" as follows:

"… a public view, benefitting the community at large, of significant features, including hillside terrain, ridgelines, canyons, geologic features, and community amenities (e.g., parks, landmarks, permanent open space)."

Additionally, SMC section 19.40.130.D, states that new structures should be constructed in a manner that preserves scenic vistas by maintaining view corridors. This section states that examples of view corridors include unbuilt space between buildings, view opportunities created from undeveloped lots, airspace created from public parks and open spaces, and open spaces created from the deliberate spacing of buildings on the same lot or adjacent lots.

Based on these definitions, scenic vistas potentially affected by the Project consist of views of the hills to the north and west as seen from adjoining public streets and sidewalks (Broadway and East MacArthur Street). The site itself, because it is not a park, a landmark, or permanent open space, is not considered to be part of a "scenic vista" as defined in the Municipal Code. Existing buildings on the Project site block views of the hills to north. Views of the hills to west across the Project site (from the south side of East MacArthur Street) are limited as they are substantially obscured by existing buildings and vegetation. Consequently, construction of the Project would not have a substantial adverse impact on a scenic vista and would result in a ***less-than-significant impact***.

b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

The Project is not located along a Scenic Highway; therefore, the Project would have ***no impact*** on scenic resources associated with a Scenic Highway.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

The Project would redevelop the property with a two-story mixed-use building, three detached residences, seven multi-family residential buildings, and associated parking and landscaping, thereby altering the existing visual character of the Project site and its surroundings. The proposed buildings range in height from 25 to 35 feet. Buildings adjoining the public street frontages would not exceed 30 feet in height. The Project site is located within an urban

setting with development on three sides, including a hotel, a mixed-use development, and commercial and multi-family development. In addition, the redevelopment of the site with higher density housing and commercial development is anticipated in the City's General Plan, through the Mixed Use designation applied to the property.

The factors used by the City of Sonoma to ensure new development is visually compatible with its surroundings include compliance with applicable standards as set forth in the Development Code, consistency with applicable design guidelines, and an analysis of Project-specific site design and architecture as it relates to the visual character of the area.

1) Consistency with Development Standards

Applicable development standards that relate to the visual character of proposed development include height limits, setback requirements, and limitations on Floor Area Ratio and building coverage.

Summary of Development Code Compliance (Standards Related to Building Height and Mass)		
Development Feature	**Development Code Allowance (SMC Chapter 19.32, Table 3-24)**	**Project**
Building Setbacks	Front/Streetside: 15 ft; Side: 13 ft.; Rear 15 ft	Front/Streetside: 15-18 ft; Side: 15 ft.; Rear 14 ft, 7 inches
Floor Area Ratio	1.0	0.87
Building Coverage	60%	34%
Maximum Roof Height*	36 feet*	25-35 feet

*Pursuant to SMC 19.40.040.B.1, a height of 36 feet may be allowed, subject to Use Permit approval, to accommodate third-floor residential units.

As shown in the Table above, the Project substantially complies with Development Code standards relating to massing, setbacks, and building height.

2) Consistency with Design Guidelines

The design guidelines of the Development Code applicable to the proposed Project are set forth in Chapter 19.42 of the Sonoma Municipal Code (Historic Preservation and Infill in the Historic Overlay District). An analysis of Project consistency with these design guidelines is set forth below:

Review of Project Consistency with the Design Guidelines for Infill Development in the Historic Overlay District (SMC 19.42.050)	
Guideline	**Project Response/Compliance**
Site Plan Considerations	
a. New development should continue the functional, on-site relationships of the surrounding neighborhood. For example, common patterns that should be continued are entries facing the public right-of-way, front porches, and garages/parking areas located at the rear of the parcel.	Consistent with the overall development pattern of Broadway and East MacArthur Street, the the placement of buildings is intended to engage the street. All structures adjoining street frontages are designed with doors, window, and porches facing the street.

Review of Project Consistency with the Design Guidelines for Infill Development in the Historic Overlay District (SMC 19.42.050)	
Guideline	**Project Response/Compliance**
b. Front setbacks for new infill development should follow either of the following criteria: i) Equal to the average front setback of all residences on both sides of the street within 100 feet of the property lines of the new project; or ii) Equal to the average front setback of the two immediately adjoining structures on each side of the new project.	The front setbacks range from 15 feet to 18 feet, which is consistent with traditional development along Broadway.
In cases where averaging between two adjoining existing structures is chosen, the new structure may be averaged in a stepping pattern. This method can work especially well where it is desirable to provide a large front porch along a portion of the front facade.	Not applicable.
Architectural Considerations	
a. New infill structures should support the distinctive architectural characteristics of development in the surrounding neighborhood, including building mass, scale, proportion, decoration/detail, door and window spacing/rhythm, exterior materials, finished-floor height, porches, and roof pitch and style.	Each of the buildings adjoining the street features porches, entry walks, and low landscaping fences designed to engage the street, which is characteristic of older development along Broadway. The building forms are simple, with sloping gable roofs, but the elevations feature porches, eaves, and insets that help reduce the scale of the buildings and incorporate traditional design elements.
b. Because new infill structures are likely to be taller than one story, their bulk and height can impose on smaller-scale adjoining structures. The height of new structures should be considered within the context of their surroundings. Structures with greater height should consider providing greater setbacks at the second-story level, to reduce impacts (e.g., blocking or screening of air and light, privacy, etc.) on adjoining single-story structures.	Building heights along the street frontages do not exceed 30 feet, which is compatible with two-story development elsewhere along Broadway.
c. The incorporation of balconies and porches is encouraged for both practical and aesthetic reasons. These elements should be integrated to break up large front facades and add human scale to the structures.	The development incorporates porches, eaves, and inset building elements as integrated architectural elements.
d. The proper use of building materials can enhance desired neighborhood qualities (e.g., compatibility, continuity, harmony, etc.). The design of infill structures should incorporate an appropriate mixture of the predominant materials in the surrounding neighborhood whenever possible. Common materials are brick, horizontal siding, shingles, stone, stucco, and wood.	A variety of building materials and colors are proposed, subject to the review and approval of the Design Review and Historic Preservation Commission. The proposed building materials, which include wood and stucco, draw from historical materials found on Broadway.
e. Color schemes for infill structures should consider the color schemes of existing structures in the surrounding neighborhood in order to maintain compatibility and harmony. Avoid sharp contrasts with existing building colors.	The colors of the development will be subject to the review and approval of the Design Review and Historic Preservation Commission.

Review of Project Consistency with the Design Guidelines for Infill Development in the Historic Overlay District (SMC 19.42.050)	
Guideline	**Project Response/Compliance**
Sustainable Construction Techniques	
a. Building forms that reduce energy use may be radically different than traditional architectural types. Careful and sensitive design is required in order to produce a contrast that is pleasing rather than jarring. The use of appropriate colors and textures on exterior materials is one method of linking a contemporary building design to a traditional neighborhood context.	With the exception of the Buildings 5 and 6, which are located in the interior of the site, the building forms employed in the Project represent traditional architectural types. As noted above, the design details and colors of the development would be subject to the review and approval of the Design Review and Historic Preservation Commission.
b. Roof gardens, solar panels, and other sustainable construction features should be fully integrated into the design of new construction, rather than applied at the conclusion of the design process.	The project has been designed to incorporate an array of sustainable design features in a comprehensive manner, including the potential for the future installation of solar panels. The siding, the deep wall thickness, and trusses are designed for thermal efficiency. Dual-pane windows prevent heat transfer and the Energy Star composition shingle roof is light-colored for high solar reflectance.

In summary, the Project is substantially consistent with the design guidelines applicable to infill development in the Historic Overlay zone.

3) *Site Design and Architecture*

Site Planning: The proposal envisions the redevelopment of the site with a mixed-use development featuring 35 residences and a 4,100-square foot commercial space, accommodating up to three tenant spaces. The development plan places a mixed-use building at the southeast corner of the site, aligned with Broadway. The lower floor would consist of the commercial space, with four two-bedroom flats located on the second floor. This building would have a height of 30 feet. Eight apartment units divided between two two four-plex buildings would be located north of the mixed use building, fronting Broadway, while three detached units would be placed along with the West MacArthur Street frontage. The remaining 20 residences would take the form of townhomes grouped among five building clusters located within the interior of the site. These would all be three-story buildings with heights ranging from 32 feet to 35 feet. The northeast corner of the site, which partially lies within a creek setback, would be used as a common space area. Vehicular access would be limited to an entry/exit off of East MacArthur Street, with an emergency access designed to meet Fire Department requirements also located on East MacArthur Street.

Broadway: Because of the prominence of the site on Broadway corridor, the Broadway elevations of the Project represent an important element in the evaluation of potential impacts on visual character. The development plan calls for a two-story mixed use building at the southwest corner of the site that would serve as the visual anchor of the project. Along the Broadway frontage, moving north, this building is followed by a common open space and two 2-story four-plexes. This development pattern places the highest concentration of uses at the street corner, while creating a transition to lower intensity development to the north. The mixed-use building features a 16-foot setback along Broadway and the four-plexes are setback 18 feet. Pedestrian paths provide access throughout the site. Parking is placed behind buildings and screened from view. In general, and as shown in the perspective

simulation below, the Project appropriately addresses the Broadway frontage and the proposed setback exceptions would not result in a significant impact with respect to the visual character of the area.

Broadway/East MacArthur Street, Existing Condition.

Broadway/East MacArthur Street, Proposed.

East MacArthur Street: The East MacArthur Street elevation is another key factor in the evaluation of visual compatibility, as this element of the Project serves as a transition to the residential neighborhood to the east. At the southwest corner of the site, the mixed use building presents its narrow face to East MacArthur Street, limiting its mass on that frontage. Three detached residences are laced along the frontage further to the east, creating a clear transition to a lower density, single-family development pattern which is characteristic of the neighborhoods east off the Project site. Each the three residences presents its narrow face to the street and features porches, entry walks, and low landscaping fences designed to engage the street. Setbacks between the buildings are a minimum of sixteen feet and the setback from East MacArthur Street is 16 feet. As shown in the

perspective simulation below, the East MacArthur Street elevation of the Project engages the street and creates an appropriate transition to the residential neighborhood on the east.

East MacArthur Street, Existing Condition.

East MacArthur Street, Proposed.

In summary, the Project is substantially consistent with the applicable standards and guidelines of the Development Code intended to ensure that new development is visually compatible with its surroundings. In addition, in its site planning and architecture, the Project has been designed to appropriately address Broadway and East MacArthur Street. Although the development of the Project would change the visual character of the site, the Project is consistent with the development objectives of the General Plan and and in it its design it is visually compatible with its surroundings. Based on these on these considerations, the Project would not substantially degrade the existing visual character or quality of the site or its surroundings and the impact would therefore be ***less-than-significant.***

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Exterior lighting would be necessary for the development, such as exterior building lighting and parking lot lighting for safety and security. However, this lighting would be typical of residential development throughout the City. In addition, all proposed exterior lighting would require review and approval by the City's Design Review and Historic Preservation Commission (DRHPC) and would be subject to the exterior lighting standards of the City's

Development Code[1], which specify that exterior light fixtures must be shielded to reduce or eliminate light spillage off-site. For these reasons, the Project will not create a new source of substantial light or glare that would adversely affect daytime or night-time views in the area. This would be a ***less-than-significant*** impact.

2. AGRICULTURAL RESOURCES: **In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.** **Would the Project:**	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), or timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☑
d) Result in the loss of forest land, conversion of forest land to non-forest use, or involve other changes in the existing environment, which, due to their location or nature, could result in conversion of forest land to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Important Farmland or other agricultural resources, to non- agricultural use?	☐	☐	☐	☑

Discussion:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The Project site is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation. The Project site is identified as "Urban and Built-up Lands" on the Important Farmland Map maintained by the Department of Conservation[2]. ***No impact*** would occur.

[1] City of Sonoma Development Code § 19.40.030

[2] http://maps.conservation.ca.gov/ciff/ciff.html

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

Because the subject property is not under a Williamson Act contract, ***no impact*** would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), or timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

The Project site does not contain any forest lands as defined in Public Resources Code section 12220(g) and is not zoned for forest uses. In addition, the Project is not located in the vicinity of offsite forest resources. For these reasons, there would be ***no impact***.

d) Result in the loss of forest land, conversion of forest land to non-forest use, or involve other changes in the existing environment, which, due to their location or nature, could result in conversion of forest land to non-forest use?

See response 2.c. There would be ***no impact***.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Important Farmland or other agricultural resources, to non- agricultural use.?

Because neither the Project site nor any parcels in proximity to it support farmland or other agriculture uses or resources, the development of the Project would have ***no impact*** in this area.

3. AIR QUALITY: **Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.** **Would the Project:**	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑	☐
b) Violate any air quality standard or contribute substantially to an existing or Projected air quality violation?	☐	☑	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☑	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
e) Create objectionable odors or airborne dust affecting a substantial number of people?	☐	☑	☐	☐

Discussion:

In May 2017, the Bay Area Air Quality Management District (BAAQMD) adopted updated guidelines[3] for analyzing air quality impacts under CEQA, including suggested thresholds of significance and associated screening criteria for the analysis of air quality impacts from development projects.

(a) Conflict with or obstruct implementation of the applicable air quality plan?

The San Francisco Bay Area Air Basin (SFBAAB) is classified by BAAQMD as non-attainment for ozone and inhalable particulates (PM10). To address these exceedances, BAAQMD, in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments, prepared the Bay Area 2005 Ozone Strategy (BAOS) in September 2005 and Particulate Matter Implementation Schedule (PMIS) in November 2005. The PMIS discusses how BAAQMD implements the California Air Resources Board's 103 particulate matter control measures. Later, BAAQMD adopted the 2010 Bay Area Clean Air Plan (Plan), which updates the BAOS. BAAQMD guidance states that *"if approval of a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project would be considered consistent with the 2010 [Plan]"* (BAAQMD, 2010a). As indicated under Topics 3(b) through 3(e), below, the project would not result in significant and unavoidable air quality impacts. Therefore, the Project would be consistent with the Plan, and the impact would be ***less-than-significant***.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Operational Emissions

As indicated under Topic 3(a), above, the SFBAAB is classified by BAAQMD as non-attainment for ozone and inhalable particulates (PM10). BAAQMD sets forth screening criteria in the 2017 BAAQMD CEQA Guidelines to indicate the minimum development size (by land use category) at which air pollutant emissions could exceed significance thresholds and result in potentially significant impacts related to violation of air quality standards or cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment. The Guidelines set forth the following screening criteria for multi-family development based on the above thresholds: 451 townhome/apartment units for operational emissions and 240 units for construction emissions. For shopping centers, the screening criteria are 99,000 square feet for operational emissions and 277,000 square feet for construction emissions. The Guidelines also specify that the project must also meet two other criteria: (1) the BAAQMD's Basic Construction Mitigation Measures must be implemented during construction; and (2) the project does not include demolition, simultaneous occurrence of more than two construction phases, simultaneous construction of more than one land use type; extensive site preparation; or extensive material transport (more than 10,000 cubic yards of soil). As further explained below, the Project would meet these criteria, and therefore the impact would be ***less-than-significant with mitigation***.

Construction-Related Emissions

Project-related excavation, grading, and other construction activities at the Project site may cause wind-blown dust that could generate particulate matter into the atmosphere. Fugitive dust includes not only PM10 and PM2.5 that

[3] BAAQMD, Air Quality Guidelines, May 2017

could contribute to violation of air quality standards, but also larger particles that can represent a nuisance impact. Dust can be an irritant, causing watering eyes or irritation to the lungs, nose, and throat. To assess whether a proposed project would result in the generation of construction-related criteria air pollutants and/or precursors that exceed BAAQMD thresholds of significance, the BAAQMD guidelines set forth screening criteria as set forth below.

1. *The project is below the applicable screening level size, (identified as 240 units for townhouse development and 277,000 square feet for shopping centers).*

   The Project features 35 units and 4,100 square feet of commercial spaces, both of which are well below the screening thresholds.

2. *All BAAQMD Basic Construction Mitigation Measures would be included in the project design and implemented during construction.*

   All basic construction mitigation measures would be required through Mitigation Measure 3.c.

3. *Construction-related activities would not include any of the following:*

   - *Demolition activities inconsistent with District Regulation 11, Rule 2: Asbestos Demolition, Renovation and Manufacturing.*
   - *Simultaneous occurrence of more than two construction phases (e.g., paving and building construction would occur simultaneously).*
   - *Simultaneous construction of more than one land use type (e.g., project would develop residential and commercial uses on the same site) (not applicable to high density infill development).*
   - *Extensive site preparation (i.e., greater than default assumptions used by the Urban Land Use Emissions Model [URBEMIS] for grading, cut/fill, or earth movement); or*
   - *Extensive material transport (e.g., greater than 10,000 cubic yards of soil import/export) requiring a considerable amount of haul truck activity.*

   The Project would not result include any of the activities identified above. There are no buildings on the site, so no demolition would occur. The Project would be developed in a single construction phase. The Project consists of a single land use type. Project construction would not entail extensive site preparation or materials transport.

As shown above, the Project complies with BAAQMD screening criteria.

Depending on exposure, adverse health effects can also occur due to specific contaminants, such as lead or asbestos from existing buildings, or contaminated soils from excavation, that may be constituents of dust. As discussed in Section 8, the Project site has been reviewed for possible contamination with hazardous materials through a Phase 1 Environmental Site Assessment, prepared in 2010, which led to recommendations of the remediation of the site, which was implemented in 2011. Based on the completion of necessary remediation, the site was recommended for closure with respect to potential contamination with hazardous materials.

As discussed above, BAAQMD recommends using specific best management practices, which have been a practical and effective approach to control fugitive dust emissions. The guidelines note that individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to more than 90 percent. Absent the implementation of these measure, the Project could have a significant impact with respect to construction dust emissions. To address this issue, the following mitigation measure is required:

Mitigation Measure 3.c: **To limit the Project's construction-related dust and criteria pollutant emissions, the following Bay Area Air Quality Management District (BAAQMD)-recommended Mitigation Measures shall be included in the Project's grading plan, building plans, and contract specifications:**

1. **All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.**
2. **All haul trucks transporting soil, sand, or other loose material off-site shall be covered.**
3. **All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.**
4. **All vehicle speeds on unpaved roads shall be limited to 15 mph.**
5. **All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.**
6. **Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Clear signage shall be provided for construction workers at all access points.**
7. **All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.**
8. **Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.**

With this requirement, potential impacts in this area would be reduced to a ***less-than-significant level***.

(d) Expose sensitive receptors to pollutant concentrations

BAAQMD specifically defines sensitive receptors as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals and residential areas. Sensitive receptors in the vicinity of the Project site include the following:

- The Sonoma Valley High School, located 360 feet to the south.
- The Adele Harrison Middle School, located 1,350 feet to the south.

Construction of the Project would result in short-term diesel exhaust particulate matter (DPM), which is defined as a toxic air contaminants (TAC), from onsite heavy-duty equipment, as well as from soils–hauling activities. Exposure of sensitive receptors is the primary factor used to determine health risk. Exposure is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance.

According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period. As explained in the BAAQMD Guidelines, *"current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities."* The State Office of Environmental Health Hazard Assessment (OEHHA) recommends that districts assume a minimum of two years of exposure for health risk analysis. Based on the estimated construction duration of approximately 18 months, construction activities would fall below the minimum two-year exposure criteria for preparation of a Health Risk Assessment. Further, although on-road heavy-duty diesel vehicles and off-road equipment would be used during construction, emissions would be temporary and variable in nature and would not be expected to expose sensitive receptors to substantial air pollutants. In addition, the proposed Project would be subject to City regulations limiting idling to no more than five minutes, which would further reduce nearby sensitive receptor exposure to temporary and variable DPM emissions. Finally, based on the BAAQMD Guidelines for conducting health risk assessments, the Project's construction period would not trigger longer-term exposure periods of 9, 40, and 70 years that are typical of health risk assessment. As such, the limited construction duration of the Project would be sufficient to avoid TAC health impacts to nearby sensitive receptors and the Project impact in this area would be ***less-than-significant***.

BAAQMD recommends that risk and hazard screening analyses identify all emission sources within 1,000 feet of a Project site. Common stationary source types of TAC and PM2.5 emissions include gasoline stations and dry cleaners, all of which are subject to BAAQMD permit requirements. Regarding mobile sources, proposed projects that would attract high numbers of diesel-operated equipment—such as distribution centers, quarries, or manufacturing facilities —would potentially expose existing or future sensitive receptors to substantial risk levels or health hazards (BAAQMD, 2011). No such uses are located within 1,000 feet of the Project site. Moreover, the proposed Project is a 48-unit residential development that would not include permitted stationary source generators of toxic air contaminants. Therefore, the impacts to sensitive receptors from pollutant concentrations would be ***less-than-significant***.

e) Create objectionable odors and/or airborne dust affecting a substantial number of people?

Land uses associated with odor complaints typically include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. Although the Project would include compost bins in the community garden at the center of the site, these bins would be typical of those found in residential areas within the City of Sonoma and would not result in substantial new odors affecting a substantial number of people.

During the construction phase, operation of diesel equipment on-site, as well as from architectural coatings and asphalt off-gassing, could generate construction-related odors. These odors would be short-term in nature and would cease soon after Project completion. Impacts to adjacent land uses would be ***less-than-significant***.

As discussed in Section 3.b-c, above, dust generated by construction activities associated with the Project could result in a significant impact. However, the implementation of Mitigation 3.c., as set forth above, would reduce the impact in this area to a ***less-than-significant*** level.

4. BIOLOGICAL RESOURCES – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☑	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☑	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☑	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☑	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Discussion:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The Project site has been developed and used for automobile sales and repairs and repairs since 1925. Development on the site includes several large commercial buildings and significant areas of paving and other graded surfaces. The site is bordered by urban development on three sides. At its northeast corner, the site abuts a 55-foot long segment of Nathanson Creek. However, the Project site does not provide connectivity between the creek segment and other undeveloped open space. There are 48 living trees on the site, including 12 oak trees and three California Buckeyes[4]. Of these, seven of the oak trees would be preserved, but all of the Buckeyes would be removed. The remaining trees include Black Locust, Black Walnut, Wild Plum, and other non-native species. In accordance with the City's Tree Ordinance (SMC 12.08), trees to be removed shall be replaced at a minimum ration of 1:1.

[4] *Tree Preservation and Mitigation Report Sonoma Gateway Project,* John C. Meserve, December 27, 2017.

According to the California Natural Diversity Database (CNDDB) there are three Federally/State listed endangered or threatened species for the USGS quadrangle that covers the Project site: California freshwater shrimp (Syncaris pacifica), Sonoma sunshine (Blennosperma bakeri), and bank swallow (Riparia riparia). In addition, Coho Salmon have been observed in Nathanson Creek. Other species of special concern that have been documented to occur in the Sonoma quadrangle would likely not be present on-site given the lack of suitable habitat in conjunction with existing conditions on and around the Project site, including the former commercial development noted above, which has greatly diminished the value of the site for wildlife. No special status plan or animal species have been observed on the site. However, the possibility of disturbing nesting migratory birds on the property as a result of tree removal is a potentially significant impact. A mitigation measure has been included addressing the timing of tree removal, consistent with the requirements of the City's Tree Ordinance. With implementation of Measure 4.a, below, potential impacts to nesting birds would be ***less-than-significant***.

Mitigation Measure 4.a: **The following measures shall be implemented as necessary during the construction phase of the project for the protection of nesting birds:**

1. **Grading or removal of nesting trees and habitat shall be conducted outside the nesting season, which occurs between approximately February 15 and August 15, if feasible.**
2. **If grading between August 15 and February 15 is infeasible and groundbreaking must occur within the nesting season, a pre-construction nesting bird (both passerine and raptor) survey of the grassland and trees shall be performed by a qualified biologist within 7 days of ground breaking.**
3. **If no nesting birds are observed no further action is required and grading shall occur within one week of the survey to prevent "take" of individual birds that could begin nesting after the survey. If active bird nests (either passerine and/or raptor) are observed during the pre-construction survey, a disturbance-free buffer zone shall be established around the nest tree(s) until the young have fledged, as determined by a qualified biologist.**
4. **The radius of the required buffer zone can vary depending on the species, (i.e., 75-100 feet for passerines and 200-300 feet for raptors), with the dimensions of any required buffer zones to be determined by a qualified biologist in consultation with CDFG. To delineate the buffer zone around a nesting tree, orange construction fencing shall be placed at the specified radius from the base of the tree within which no machinery or workers shall intrude.**
5. **After the fencing is in place there will be no restrictions on grading or construction activities outside the prescribed buffer zones. The buffer zone shall remain in place until after the young have fledged.**

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

As described above, the Project site adjoins a 55-long segment of Nathanson Creek at its northeast corner. This area of the site lies within the Creek Setback Overlay zone, which mandates a 30-foot setback from the top of the creek bank. The proposed development plan complies with the setback requirement and would preserve and enhance the area adjoining the creek as open space. Because the Project would not encroach within the required Creek Setback and because potential construction and post-construction run-off associated with the Project would be addressed through a required mitigation measure as set forth in Section 9 of the Initial Study, potential impacts on the riparian area and associated habitat would be ***less-than-significant with mitigation.***

c) Have a substantial adverse effect on federally-protected wetlands?

There are no federally-protected wetlands on the site, therefore, ***no impact*** would occur.

d) Interfere substantially with the movement of any fish or wildlife species or on any wildlife corridor, or impede the use of native wildlife nursery sites?

See Responses 4.a., 4.b., and 4.c. The Project site has been developed and used for automobile sales and repairs and repairs since 1925. Development on the site includes several commercial large buildings and significant areas of paving and other graded surfaces. The site is bordered by urban development on three sides. At its northeast corner, the site abuts a 55-foot long segment of Nathanson Creek. However, the Project site does not provide connectivity between the creek segment and other undeveloped open space. This portion of the site lies within the Creek Setback Overlay zone, which mandates a 30-foot setback from the top of the creek bank. The proposed development plan complies with the setback requirement and would preserve and enhance the area adjoining the creek as open space. Potential construction and post-construction run-off associated with the Project would be addressed through a required mitigation measure as set forth in Section 9 of the Initial Study. As a result, the Project would not interfere with the movement of any fish or wildlife species or any wildlife corridors. Based on these factors, potential impacts would be ***less-than-significant***.

e) Conflict with any local policies or ordinances protecting biological resources?

The proposal would not conflict with any local policies or ordinances protecting biological resources, including the City's Tree Ordinance (Chapter 12.08 of the Sonoma Municipal Code). As required by Section 12.08.035 of the Tree Ordinance, an arborist report has been prepared for the Project, as described above. The Tree Ordinance requires that tree removal associated with project development shall be offset with the planting of replacement trees at a minimum ratio of 1:1, a requirement that is implemented through standard conditions of project approval. Because of the limited number of trees that would be removed and the requirement for the their replacement, impacts in this area would be ***less-than-significant***.

f) Conflict with the provisions of any adopted or approved local, regional, or state habitat conservation plan?

No habitat conservation plans have been prepared addressing the subject property. As a result, the Project would not conflict with any adopted or approved habitat conservation plans. ***No impact*** would occur.

5. CULTURAL RESOURCES: **Would the project:**	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☑
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☑	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☑	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☑	☐	☐
e) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?	☐	☑	☐	☐

Discussion:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

The historic use of the subject property dates back to 1864, when it was developed as college that later served as Sonoma's first public high school. However, through the conversion of the site to auto sales in the 1920's, the structures associated with the school use were either torn down or substantially modified. The recorded history of the site and a thorough analysis of the structures that remain on it are documented in a Historic Resources Evaluation[5]. As set forth in the evaluation: *"None of the buildings associated with the auto development of 870 Broadway demonstrate distinctive characteristics of a type, period, or method of construction (Criterion C or 3). Rather, the complex illustrates a largely functional design sensibility that includes modest Mission Revival allusions designed to obscure a standard utilitarian design. In contrast to the richly stylized auto related development in regional centers and cities including Sacramento and San Francisco, this modest facility does not convey any important design associations related to the architectural development of showrooms or service centers. Further, even the modest decorative embellishments of Building 1, including showroom windows and entry areas, have been altered in the modern period and replaced with aluminum frame members that lack integrity to the development period."* The HRE concludes that the site does not appear eligible for individual listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) because the property lacks significance and integrity. The City of Sonoma Commissioned a peer review of the HRE, which found that it was prepared in accordance with appropriate professional standards[6].

Because there are no historic resources on the site, the redevelopment of the property as proposed by the Project would have ***no impact***.

b) Cause a substantial adverse change in the significance of an archaeological resource?

To assess the site for archaeological resources, a professional evaluation was performed, including archival research. No such resources were found[7]. However, the potential exists for the accidental discovery of archaeological resources during Project construction., which represents a potential significant impact. To address this contingency, a mitigation measure is required to address the potential for the accidental discovery, as follows:

Mitigation Measure 5.b: **Construction personnel involved with earthmoving shall be alerted to the potential for the discovery of prehistoric materials and tribal cultural resources. Such materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.**

If prehistoric or historic-period archaeological/tribal cultural resources are encountered, all construction activities within 50 feet shall halt and the Planning Director shall be notified. A

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[5] *Historic Structure Study, DPR 523A for the Sonoma Truck and Auto Center,* 870 Broadway, Polly S. Allen, JRP Historical Consulting, LLC, January 13, 2012.

[6] *Letter to Associate Planner Wendy Atkins,* Tom Origer and Associates, November 7, 2017.

[7] *Letter to Eileen Barrow of Tom Origer and Associates from Sharaya Souza, Staff Services Analyst, Native American Heritage Commission,* November 7, 2017.

Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code (PRC) Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning and construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with the Planning Department. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2.

Implementation of Mitigation Measure 5.b would reduce this impact to a ***less-than-significant level***.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Paleontological resources (fossils) are the remains or traces of prehistoric animals and plants. The National Resources Conservation Service has classified site soils as belonging to the Wright loam series. The Wright loam series, which generally extends to a depth of 7-8 feet, was formed from a mixture of old weathered basic alluvium and sedimentary alluvium and is underlain by the Sonoma Volcanics. Because the Wright loam series and the Sonoma Volcanics are not typically associated with fossils, it is unlikely fossils will be encountered during construction activities. However, it is possible that paleontological resources may be encountered during Project ground-disturbing activities where such activities as grading or trenching would occur below the Project area's soil layers (approximately 5 feet). This is a potentially significant impact. Should a paleontological resource be encountered, the following mitigation measure will reduce impacts to a ***less-than-significant level***.

Mitigation Measure 5.c: If paleontological resources are identified during construction activities, all work in the immediate area will cease until a qualified paleontologist has evaluated the finds in accordance with the standard guidelines established by the Society of Vertebrate Paleontology. If the paleontological resources are considered to be significant, a data recovery program will be implemented in accordance with the guidelines established by the Society of Vertebrate Paleontology.

d) Disturb any human remains, including those interred outside of formal cemeteries?

Although impacts to human remains are not anticipated, there is always the remote possibility that human remains are present below the ground surface and could be unearthed during ground disturbing activities. This is a potentially significant impact. Implementation of Mitigation Measure 5.d would reduce this impact to a ***less-than-significant level***.

Mitigation Measure 5.d: If human remains are encountered, all work shall stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist shall be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission shall be contacted by the Coroner so that a "Most Likely Descendant" can be designated and further recommendations regarding treatment of the remains is provided.

e) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?

The cultural resource survey and archival research did not identify any such resources on the site. However, the potential exists for the accidental discovery of tribal resources during Project construction, a possibility which represents a potentially significant impact. To address this contingency, procedures should be established to address the potential for the accidental discovery. This recommendation would be implemented through Mitigation Measure 5.b, as set forth above. With the requirement of this mitigation measure, potential impacts would be reduced to a ***less-than-significant*** level.

6. GEOLOGY AND SOILS: **Would the project:**	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☑
ii. Strong seismic ground shaking?	☐	☐	☑	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☑	☐
iv. Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☑
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☑	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☑

Discussion:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

The Project site would not be subject to surface fault rupture. In general, surface fault rupture occurs along active faults. While the Project site is located in a seismically active region, the City of Sonoma, including the Project site, is not affected by an Alquist-Priolo Earthquake Fault Zone pursuant to Division of Mines and Geology Special Publication 42[8]. Therefore, ***no impact*** would occur.

ii) Strong seismic ground shaking?

The City of Sonoma is located in the seismically active San Francisco Bay Area, in proximity to several mapped active or potentially active regional faults. The Rodgers Creek fault is nearest to the Project site, located approximately five miles to the southwest on the western side of the Sonoma Mountains. As a result, the Project could result in the exposure of people, structures, and/or property to seismic ground shaking. While hazards associated with potential ground shaking cannot be eliminated, potential impacts resulting from seismic ground shaking would be reduced to the greatest extent feasible through compliance with the City of Sonoma's building code requirements, which requires that new structures be designed and constructed in a manner to maximize seismic safety, in conformance with the 2016 California Building Code. This would be considered a ***less-than-significant*** impact.

iii) Seismic-related ground failure, including liquefaction?

Refer to Section 6.a.ii and 6.c. The Project impact would be ***less-than-significant***.

iv) Landslides?

The site is relatively flat and is not located in proximity to any hillside area. Therefore, ***no impact*** would occur.

b) Result in substantial soil erosion or the loss of topsoil?

The Project site is relatively flat, ranging in elevation between 69.10 to 73.5 feet above mean sea level. Given this topography, the development of the Project is not expected to generate significant soil erosion and/or loss of topsoil. Nonetheless, grading and/or earthmoving activity associated with construction of the Project could result in a substantial temporary increase in erosion or the loss of topsoil. However, erosion control measures to be implemented during construction would be identified in the erosion and sediment control plan (ECP) required for the Project under the City's grading ordinance (Chapter 14.20 of the Sonoma Municipal Code) and included in the Project Storm Water Pollution Prevention Plan (SWPPP) for construction. See response to Item 9.a and 9.c regarding construction-related erosion. With the implementation of ECP and Phase II NPDES requirements, as required in Mitigation Measures 9.a.1 and 9.a.2, construction-related impacts associated with erosion and/or siltation would be considered ***less-than-significant***.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Existing development on and around the Project site, constructed on similar soils and bedrock geology has not experienced landslides, lateral spreading, subsidence, liquefaction, or collapse. Based on this past experience, it is not anticipated that unstable geologic units or soil would affect the Project. In addition, pursuant to Chapter 4 of the

[8] *Fault-Rupture Hazard Zones in California,* Earl W. Hart and William A. Bryant, California Geological Survey, Special Publication 42, supplements 1 and 2 1999.

California Residential Code (CRC) and Chapter 18 of the California Building Code (CBC), a soils and geotechnical investigation (prepared by a licensed geotechnical engineer) is required for multi-family and commercial developments. As normally required, the recommendations identified in the soils and geotechnical investigation, such as appropriate foundation systems, soil stability measures, on-site soil preparation and compaction levels, must be incorporated into the permits and construction plans for the Project (i.e., improvement plans, grading permit, and building permits), which are subject to review and approval by the City Engineer and Plans Examiner prior to the issuance of any building permits for grading or building construction. Incorporation of the recommendations into the plans and permits for the Project would ensure that potential impacts relating to unstable geologic units or soils would be ***less-than-significant***.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Refer to Section 6.c. Impacts in this area would be ***less-than-significant***.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal or wastewater?

There are no septic systems on the site and the use of septic systems would not be allowed in conjunction with the development of the Project. ***No impact*** would occur.

7. GREENHOUSE GAS EMISSIONS: Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☑	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

Discussion:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

On June 2, 2010 the Bay Area Air Quality Management District (BAAQMD) adopted guidelines for analyzing air quality impacts under CEQA, including suggested thresholds of significance and associated screening criteria for the analysis of greenhouse gas (GHG) impacts from development projects. Under the most recent BAAQMD guidelines, which were updated in May 2017, land use development projects that generate GHG emissions below 1,100 metric tons of carbon dioxide equivalent (MTC2e) per year are considered to have a less than significant impact. The BAAQMD screening criteria indicate that residential development projects of less than 78 dwelling units and shopping center developments of less than 19,000 square feet would not exceed the GHG operational threshold of 1,100 MTC2e per year. The proposed Project would result in a net increase of 35 residential units on the site and 4,100 square feet of commercial space, well below the BAAQMD thresholds. Accordingly, the Project would be considered to have a ***less than significant impact*** with respect to GHG emissions.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The proposed development would be consistent with the following State and local plans, policies, and requirements addressing GHG reduction:

State Regulations Addressing GHG Reduction:

California Building Code – Building and Energy Efficiency Standards: Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2008 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On May 31, 2012, the CEC adopted the 2013 Building and Energy Efficiency Standards, which went into effect on July 1, 2014. Buildings that are constructed in accordance with the 2013 Building and Energy Efficiency Standards are 25 percent (residential) to 30 percent (non-residential) more energy efficient than the 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses. Most recently, the CEC adopted the 2016 Building and Energy Efficiency Standards. The 2016 Standards improve upon the current 2013 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. These standards went into effect on January 1, 2017. Under the 2016 Standards, residential buildings are required to be 28 percent more energy efficient than the 2013 Standards while non-residential buildings are required to be 5 percent more energy efficient than the 2013 Standards.

California Building Code – CALGreen: The California Green Building Standards Code (Part 11, Title 24, known as "CALGreen") establishes planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011, were updated in 2013, and became effective January 1, 2014.

2006 Appliance Efficiency Regulations: The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. Though these regulations are often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

The Project will be developed in compliance with these requirements, as enforced through the normal application of the Building Permit plan check process.

Local Plans, Policies, and Regulations addressing GHG Reduction:

City of Sonoma General Plan/Green Building Code: The City of Sonoma *2020 General Plan* sets forth policies promoting sustainable practices such as not using renewable resources faster than they can regenerate, not consuming non-renewable resources faster than renewable alternatives can be substituted for them, and ensuring that pollution and waste are not emitted faster or in greater volumes than natural systems can absorb, recycle, or render them harmless. As part of the implementation of these policies, the City adopted the State of California Green Building Code which raised the level of construction standards in the City to encourage water and resource conservation, reduce water use generated by construction projects, increase energy efficiency, provide durable buildings that are efficient and economical to own and operate, and promote the health and productivity of residents, workers, and visitors to the

City. Beginning January 1, 2014, the 2013 California Green Building Standards Code (CALGreen) became effective for new buildings and certain addition or alteration projects throughout California. The City of Sonoma has adopted and amended CALGreen as part of the City's Municipal Code to require CALGreen+Tier 1 level of compliance for all new buildings (except the Tier 1 Energy Efficiency measures). The City of Sonoma requires that project applicants hire a third-party green building special inspector to verify compliance with CALGreen requirements as amended by the City of Sonoma. Revisions to CALGreen became effective on July 1, 2015. The Project will be developed in compliance with CalGreen requirements, as enforced through the normal application of the Building Permit plan check process.

2016 Climate Action Plan Measures: Beginning in May of 2013, the City began participating in the development of a County-wide Greenhouse Gas Reduction Implementation Program, subsequently renamed Climate Action 2020. Climate Action 2020 is a collaborative effort among all nine cities and the County of Sonoma to take coordinated action in reducing GHG emissions on a county-wide basis. Through the implementation of this program, participating jurisdictions would achieve compliance with Bay Area Air Quality Management District (BAAQMD) guidelines and other related policies that establish reduction targets for GHG emissions, including AB 32, CEQA, and local GHG reduction goals. The development of the draft Plan was led by the Regional Climate Protection Authority (RCPA), with the assistance of a Working Group comprised of planning staff from each of the 10 jurisdictions of Sonoma County, including the City of Sonoma.

On August 15, 2016, the City Council began its review of the draft Climate Action 2020 Plan (CAP). For Sonoma, a total of 22 Climate Action Measures were recommended for Council consideration. Although the County-wide adoption of Climate Action 2020 Plan was subsequently postponed as a result of litigation brought against the RCPA, the City Council decided to take separate action to begin implementation of the measures identified in the CAP planning process. On November 21, 2016, the City Council adopted Resolution 40-2016, adopting the local measures identified for Sonoma through the CAP planning process. The proposed Project is consistent with and would help implement measure 2-L1 (Solar in new residential development), measure 4-L4 (affordable housing linked to transit), and measure 11-L2 (water conservation for new construction).

Because the proposed development would not conflict with State and local plans, policies, and requirements addressing GHG reduction, it would have ***no impact*** in this area.

8. HAZARDS AND HAZARDOUS MATERIALS: Would the project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☑
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☑

c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑

Discussion:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The proposed mixed-use development would not involve the routine transport, use, or disposal of hazardous materials and would not be expected to generate hazardous emissions. Thus, ***no impact*** would occur.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials (including, but not limited to, oil, pesticides, chemicals, or radiation) into the environment?

Refer to Section 8.a. ***No impact*** would occur.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The Project site is located within one-quarter mile of the Sonoma Valley High School and the Adele Harrison Middle School. As discussed in Section 8.d., the potential for hazardous materials on the site resulting from the previous use of the site for automobile sales, service, and repair activities, including a former service station use, was evaluated in a Phase 1 Environmental Review and subsequent soils and groundwater testing. Based on these reviews a site remediation plan was prepared and implemented. Because the site has been remediated, there would be ***no impact*** in this area.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

In 2010, the Project site was reviewed for possible contamination with hazardous materials through a Phase 1 Environmental Site Assessment[9]. This evaluation identified the potential for contamination on the site and set forth the following recommendations:

- Perform active site investigation to determine ifUST(s) are or were present at the project site and to determine if such uses has resulted in impacts to the project site as a result of this use.
- Remove the remaining hydraulic hoist in accordance with applicable regulatory agency requirements. Soil sampling should be performed in the area of the hoist upon removal.
- Perform active site investigation in the former area of the two former hydraulic hoists to determine if impacts to the project site have occurred as a result of this use.
- Perform active site investigation to determine if impacts to the project site have occurred as a result of site uses including automotive repair specifically in the area of soil staining between the main building and the historic building, as well as the alignment shop where autobody repair was performed.
- Dispose of hazardous materials and waste in a timely manner in accordance with applicable laws to minimize accumulation of these substances.

These measures, including the recommended soil borings, soils sampling, groundwater testing, and a geophysical survey, were subsequently implemented over the course of 2010-11, as documented in a subsequent investigatory report[10]. The findings and outcomes of these studies may be summarized as follows:

- Based on soil and groundwater testing data, there appears to be no impacts to soil or groundwater from the historic uses of the autobody/alignment building.
- Based on soils testing data, there appears to be no impacts from the former hydraulic hoists located in the main shop building arid the alignment shop.
- The geophysical survey did not indicate the presence of buried metallic objects such as hydraulic hoists or Underground Storage Tanks.
- Soil and groundwater samples in the area of the former gasoline service station did not indicate the presence of petroleum hydrocarbons or volatile organic compounds.
- Soil data collected from the area located between the main shop and the former school structure indicated shallow surface impacts from middle to heavy range petroleum hydrocarbons in the diesel and motor oil weight range. In addition, significant concentrations of lead were detected in the surface soil samples in this area of the project site. The concentrations of these compounds exceeded regulatory limits as defined by the Environmental Screening Levels as published by the San Francisco Bay Regional Water Quality Control Board. Deeper soil samples collected from this area indicated significantly lower to non-detectable levels of these compounds.

To address the shallow surface contamination, the investigation recommended the removal petroleum hydrocarbon and lead impacted soil from the area between the main shop and the former school structure. As documented in a

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[9] *Phase 1 Environmental Site Assessment 870 Broadway,* EBA Engineering, July 2010.

[10] *Report of Investigation 870 Broadway (Testing and Investigation),* EBA Engineering, January 2011.

subsequent closure report[11], this work was performed in March 2011, with the excavation of impacted soil. A total of 19.44 tons (38,880 pounds) of material was excavated from the east side of the shop and hauled for disposal to a licensed disposal facility. Soils testing performed in conjunction with the excavation showed that it was successful in removing the contaminated soil. In summary, the Project site has been thoroughly investigated with respect to potential continuation with hazardous materials. These investigations identified requirements for subsequent testing, study, and remediation, all of which were implemented. Because the site has been successfully remediated, the development of the Project would have ***no impact*** with respect to hazardous materials.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Because the Project is not within within an airport land use plan or within two miles of a public airport or public use airport, ***no impact*** would occur.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

Because the Project is not located within the vicinity of a private airstrip, ***no impact*** would occur.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The City of Sonoma adopted an Emergency Operations Plan in 2009 to plan responses to emergency situations and disasters that may affect the city. The Project would not involve any changes that would interfere with or impair implementation of the Emergency Operations Plan. As set forth in the Transportation analysis, the Project would provide adequate emergency access in compliance with Fire Department requirements. Therefore, ***no impact*** would occur.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The Project site is not located within or adjacent to a wildland area. ***No impact*** would occur.

9. HYDROLOGY AND WATER QUALITY: **Would the project:**	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements?	☐	☑	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☑	☐

[11] *Report of Investigation 870 Broadway (Site Closure),* EBA Engineering, April 2011.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☑	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☑	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☑	☐
f) Otherwise substantially degrade water quality?	☐	☐	☑	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☑	☐	☐
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☑	☐	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☑	☐	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑

Discussion:

a) Violate any water quality standards or waste discharge requirements?

As discussed in Section 4 of the Initial Study, the Project site adjoins a 55-long segment of Nathanson Creek at its northeast corner. This area of the site lies within the Creek Setback Overlay zone, which mandates a 30-foot setback from the top of the creek bank. The proposed development plan complies with the setback requirement and would preserve and enhance the area adjoining the creek as open space. However, if construction or post-construction run-off associated with the Project were to enter Nathanson Creek, the water quality of the creek and its habitat value could be adversely affected, which would represent a ***significant impact***.

The Clean Water Act (CWA) prohibits the discharge of pollutants from point sources to Waters of the U.S. except where those discharges are authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Stormwater runoff from the Project site (a pollutant) will discharge to Fryer Creek (a Water of the U.S.) via the City of Sonoma's Municipal Separate Storm Sewer System (MS4), which is a point source. All stormwater discharges from the Project site are thereby prohibited except to the extent that they are authorized following implementation of applicable waste discharge requirements in the City of Sonoma's NPDES Permit (CAS000004) and in the statewide Construction General Permit (CAS000002).

The City's NPDES permit requires that all applicable projects prepare and submit an Erosion and Sediment Control Plan for review and approval by the City prior to issuance of a building or grading permit. The Erosion and Sediment

Control Plan outlines Best Management Practices (BMPs) that, when implemented, reduce the quantity of construction-related pollutants in stormwater runoff discharging from a project site to the maximum extent practicable.

Under the statewide Construction General Permit, the applicant would be required to submit a Notice of Intent (NOI) with the State Water Resource Control Board's (SWRCB) Division of Water Quality. The NOI would include general information on the types of construction activities that would occur on the site. The applicant would also be required to submit a site-specific plan called the Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would include a description of appropriate Best Management Practices (BMPs) to minimize the discharge of pollutants from the site.

Construction-related erosion control and water quality BMPs identified in the SWPPP generally include soil stabilization techniques such as: hydroseeding and short-term biodegradable erosion control blankets; silt fences or some kind of inlet protection at downstream storm drain inlets; post-construction inspection of all drainage facilities for accumulated sediment; and post-construction clearing of all drainage facilities of debris and sediment. Finally, the Project applicant would be required to submit a Notice of Termination (NOT) once construction is complete and final stabilization of the site has been achieved.

The City's NPDES permit also requires that all applicable projects prepare and submit a Stormwater Control Plan (SCP) for review and approval by the City prior to issuance of a building or grading permit. The SCP outlines BMPs that, when implemented, reduce the quantity of pollutants in stormwater runoff discharging from a project site to the maximum extent practicable. The SCP also outlines BMPs that, when implemented, reduce the total volume of stormwater runoff from the Project site (retention) and attenuate peak flows (detention). In addition, the SCP will outline a mechanism for ensuring maintenance of the planned BMPs in perpetuity. The preliminary grading and drainage plan developed for the Project demonstrates that BMPs have been accounted for in the site plan (see Figure 8, below).

To ensure that the water quality of and habitat value of Nathanson Creek is protected, the following mitigation measures are required:

Mitigation Measure 9.a.1: **The Project applicant shall prepare and submit an Erosion and Sediment Control Plan (SCP) for review and approval by the City Engineer prior to issuance of a building or grading permit. The Erosion and Sediment Control Plan outlines Best Management Practices (BMPs) that, when implemented, reduce the quantity of construction-related pollutants in stormwater runoff discharging from a project site to the maximum extent practicable. The SCP shall include measures to ensure that ensure that construction-relied pollutants and run-off do not enter Nathanson Creek.**

Mitigation Measure 9.a.2: **Project drainage improvements shall be designed to capture and direct runoff away from Nathanson creek to on-site stormwater BMP facilities, and thence to the existing storm drain infrastructure located along Broadway. The design of these measures shall be documented in a Stormwater Control Plan that shall be subject to the review and approval of the City Engineer.**

With the implementation of this mitigation measure, the water quality of and habitat value of Nathanson Creek would be protected and the Project impact would be ***less-than-significant***.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

The Department of Water Resources (DWR) defines groundwater basins based on geologic and hydrogeologic conditions. According to the DWR, the Project site is located within the Sonoma Valley groundwater sub-basin. Natural recharge in the sub-basin predominantly occurs where stream channels cut into the alluvial fan deposits. Areas of low relief and sufficiently permeable soil also allow for some slow infiltration from precipitation. The Project would increase the amount of impervious surface on the site. However, the area of the site proposed for development does not include a stream channel. In addition, previous development activities on the site have resulted in substantial compaction and coverage with impervious materials and thus would not allow for a significant amount of infiltration of runoff into the underlying groundwater basin. Regardless, a Stormwater Mitigation Plan will be required for the Project to address the treatment and infiltration of surface run-off. For these reasons, the Project would not significantly interfere with groundwater recharge. In addition, the Project would not involve the construction of new groundwater wells for Project water supplies. Water for the proposed Project would be supplied by the City of Sonoma. The City of Sonoma obtains its water from the Sonoma County Water Agency (SCWA) and City wells. The majority of water used in the City is supplied by SCWA. City wells are considered a secondary water source used only to supplement deliveries from SCWA during peak demands. On an annual basis, water drawn from City wells typically constitutes approximately 10% of total municipal water use. Based on these factors, the proposed Project would not result in the substantial depletion of groundwater supplies. Project impacts on groundwater resources are therefore considered ***less-than-significant***.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Potential impacts associated with erosion and/or siltation are considered to be primarily related to construction-related activities. The Project would involve clearing, grading, and trenching activities for the installation of required drainage, roadway, and utility improvements as well as site preparation. Existing vegetative cover and structural improvements that currently help to stabilize site soils would be removed from most of the site and construction operations associated with the Project could present a threat of soil erosion from soil disturbance by subjecting unprotected bare soil areas to the erosional forces of runoff. However, erosion control measures to be implemented during construction would be included in the required Storm Water Pollution Prevention Plan (SWPPP) for the Project as well as the erosion and sediment control plan (ECP) required by the City's grading ordinance (Chapter 14.20 of the Sonoma Municipal Code). See also responses to Items 6.b and 9.a regarding construction-related erosion. With the implementation of ECP and Phase II NPDES requirements, construction-related impacts associated with erosion and/or siltation would be considered ***less-than-significant***.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

The Project site is relatively flat, ranging between 69.1 to 73.5 feet above mean sea level. The portion of the project site adjoining Nathanson Creek will remain undeveloped and Project storm drainage will be directed away from that area to the storm drain collection system in Broadway. As normally required, the Project would require installation of on-site drainage improvements that would locally alter the existing drainage pattern of the site. Through these improvements, the Project will drain into an existing storm drain located in Broadway.

The proposed development would increase the amount of impervious surface on the site, which would increase the volume and peak rate of stormwater runoff from the site. The City's NPDES Permit requirements call for the implementation of post-construction Best Management Practices to prevent increases in storm water runoff from development and redevelopment. Consistent with the NPDES requirements, the Project would be required to submit a Stormwater Control Plan demonstrating how the site drainage will be designed to retain the first inch of rainfall on-site (see response to Item 9.a).

Subject to the City's standard NPDES requirements, as set forth above, the Project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. As a result, this would be considered a ***less-than-significant impact***.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Pollutants from the proposed Project would likely be consistent with medium-density urban residential areas. Increases in the levels of oil and grease, petroleum hydrocarbons, metals, and possibly nutrients on the Project site are likely. However, the City's NPDES Permit requires implementation of post-construction Best Management Practices to treat and filter storm water runoff prior to it leaving the site or entering the public storm drainage system. Pursuant to the City's NPDES requirements, a Final Stormwater Control Plan would be required as part of the public improvement plans submittal, subject to review and approval by the City Engineer prior to issuance of a building or grading permit. Compliance with the City's NPDES requirements would ensure that potential adverse impacts to water quality are ***less-than-significant***.

f) Otherwise substantially degrade water quality?

See responses to Items 9.a, 9.c, and 9.e. Impacts will be ***less-than-significant.***

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

According to the applicable Flood Insurance Rate Map (Map Number 06097C0936E, Panel 936 of 1150), the majority of the property is located within an area designated as "Other Areas, Zone X," which are areas determined to be outside of the 0.2% annual chance floodplain. However, the northeast portion of the Project site is located within a 100-year flood hazard area. As normally required in this circumstance, the following Mitigation Measure would be required:

Mitigation Measure 9.g/h: **In accordance with FEMA requirements, residences and other structures proposed on the Project site will be required to be built on foundations such that the finished floor of the structure is above the 100-year flood elevation. This requirement will be documented with a Flood Elevation Certificate prepared by a qualified engineer or licensed land surveyor, subject to the review and approval of the Building Official and the City Engineer.**

With the implementation of this mitigation measure, potential flooding issues would be avoided, resulting is a ***less-than-significant*** impact.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

As discussed in Section 9.g/h above, a portion of the Project site lies within a 100-year flood zone. Therefore, in accordance with FEMA requirements, residences and other structures proposed on the Project site will be required to be built on foundations such that the finished floor of the structure is above the 100-year flood elevation, as documented by the issuance of a Flood Elevation Certificate (see mitigation measure 9.g/h). The Project site is not located below a levee or dam. With the implementation of this mitigation measure, potential flooding issues would be avoided, resulting is a ***less-than-significant*** impact.

j) Expose people or structures to inundation by seiche, tsunami, or mudflow?

Sonoma is not located in the vicinity of a large inland water body, along coastal waters, or in the path of a potential mudflow. ***No impact*** would occur.

10. LAND USE AND PLANNING: **Would the project:**	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Physically divide an established community?	☐	☐	☐	☑
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☑	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

Discussion:

a) Physically divide an established community?

The Project site is an infill parcel located within an urban setting and is largely surrounded by commercial and residential development. As a result, the proposed mixed-use development would not physically divide the community. ***No impact*** would occur.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

General Plan Consistency: The Project site has a land use designation of "Mixed Use," a designation that encompasses a variety of purposes, including to provide additional opportunities higher density housing as well as commercial and mixed use development. The designation allows a density up to 20 residential units per acre; however, the land use definition specifically acknowledges that higher densities may be allowed through the State-mandated density bonus process. The proposed Project density amounts to 19 units per acre, which complies with the normal base density allowance.

Project consistency with applicable General Plan policies adopted for the purpose of avoiding or mitigating an environmental effect is summarized in the following table:

Summary of General Plan Policy Consistency	
General Plan Policy	**Project Response**
Community Development Element	
Protect important scenic vistas and natural resources, and incorporate significant views and natural features into project designs. (CD 5.3)	As discussed in Section 1 of the Initial Study, the Project will not have a significant impact on scenic vistas.
Promote higher density, infill development, while ensuring that building mass, scale, and form are compatible with neighborhood and town character. (5.5)	The Project is an infill development proposed at the high end of allowable density. As discussed in Section 1 of the Initial Study, the Project will be visual compatible with its surroundings and will not degrade the visual quality of the site or its surroundings.
Environmental Resources Element	
Preserve habitat that supports threatened, rare, or endangered species identified by State or federal agencies. (ER 2.2)	As discussed in Section 4 of the Initial Study, the Project site does not support any threatened, rare, or endangered species identified by State or federal agencies, with the possible exception of nesting migratory birds. Mitigation Measure 4.a would reduce potential impacts in this area to a less-than-significant level.
Protect and, where necessary, enhance riparian corridors. (ER 2.3)	As discussed in Sections 4 and 9 of the Initial Study, the portion of the Project site adjoining Nathanson Creek would be preserved as open space and the Project would be designed to protect the water quality of Nathanson Creek.
Protect Sonoma Valley watershed resources, including surface and ground water supplies and quality. (ER 2.4)	As discussed in Section 9 of the Initial Study, the Project will not have a significant impact on groundwater resources and the Project would be designed to protect the water quality of Nathanson Creek.
Require erosion control and soil conservation practices that support watershed protection. (ER 2.5)	The Project will incorporate erosion control and soil conservation practices that support watershed protection (see Sections 4 and 9 of the Initial Study).
Preserve existing trees and plant new trees. (ER 2.6)	There are 48 living trees on the site, including 12 oak trees. The remaining trees are primarily fruit trees and black walnuts. Seven of the oak trees are proposed to be preserved. As required under the City's Tree Ordinance, replacement trees will be required at a minimum ratio of 1:1 (see Section 4 of the Initial Study).
Require development to avoid potential impacts to wildlife habitat, air quality, and other significant biological resources, or to adequately mitigate such impacts if avoidance is not feasible. (ER 2.9)	Potential impacts on wildlife and other biological resources are discussed above. In addition, Mitigation Measures have been identified to reduce potential inspects on Air Quality to a less-than-significant level (see Section 3 of the Initial Study).

Encourage construction, building maintenance, landscaping, and transportation practices that promote energy and water conservation and reduce greenhouse gas emissions. (ER 3.2)	The Project provides for the future installation of roof-top solar panels, low-water use landscaping, and the use of sustainable building materials. The Project complies with applicable local policies aimed at reducing greenhouse gas emissions (see Section 7 of the Initial Study).
Circulation Element	
Ensure that new development mitigates its traffic impacts. (CE 3.7)	The Project will not result in unacceptable intersection operation at Broadway/MacArthur Street. To ensure consistency with the City's 2003 Traffic Calming Plan, contingent upon Caltrans approval, the Project shall be required to install a curb extension at the northwest crosswalk entry adjoining the Project site and to implement any required striping that may be associated with the improvement.
Public Safety Element	
Require development to be designed and constructed in a manner that reduces the potential for damage and injury from natural and human causes to the extent possible. (PS 1.1)	The finished floors within the Project will be built at an elevation above the flood zone. The Project site plan incorporates a fire-truck turnaround. The buildings within the Project will be constructed with fire sprinkler systems.
Ensure that all development projects provide adequate fire protection. (PS 1.3)	
Noise Element	
Apply the following standards for maximum Ldn levels to citywide development: 45 Ldn: For indoor environments in all residential units. 60 Ldn: For outdoor environments around all residential developments and outdoor public facilities. (NE 1.1)	As discussed in Section 12 of the Initial Study, a noise study was prepared, evaluating Project consistency with State and local noise standards. Mitigation measures have been identified to ensure that the City's noise standards are met.
Require adequate mitigation of potential noise from all proposed development. (NE 1.3)	
Evaluate proposed development using the Noise Assessment Guide and require an acoustical study when it is not certain that a proposed project can adequately mitigate potential noise impacts. (NE 1.4)	
Encourage all development to minimize noise intrusions through project design. (NE 1.5)	

As shown through the preceding analysis, the Project is consistent with General Plan policies intended to mitigate or avoid environmental impacts. In addition, the Project is consistent with the Mixed Use land use designation and would fulfill a number of General Plan policies, especially as related to housing diversity.

Development Code Consistency: The Project site has a zoning designation of "Mixed Use". The MX zone is intended to allow for higher density housing types in conjunction with commercial and office development, in order to increase housing opportunities, reduce dependence on the automobile, and provide a pedestrian presence in commercial areas. Multi-family dwellings (including townhomes and apartments) and retail and office uses are allowed in the MX zone, subject to review and approval of a Use Permit by the Planning Commission. Project consistency with the

development standards associated with development in the Mixed Use zone within the Broadway Corridor is summarized in the table below.

Summary of Development Code Compliance: Development Standards		
Development Feature	**Development Code Allowance (SMC Chapter 19.32, Table 3-24)**	**Project**
Building Setbacks	Front/Streetside: 15 ft; Side: 13 ft.; Rear 15 ft	Front/Streetside: 15-18 ft; Side: 15 ft.; Rear 14 ft, 7 inches
Floor Area Ratio	1.0	0.87
Building Coverage	60%	34%
Open Space	36 feet*	25-35 feet
Maximum Roof Height	Front/Streetside: 15 ft; Side: 13 ft.; Rear 15 ft	Front/Streetside: 15-18 ft; Side: 15 ft.; Rear 14 ft, 7 inches
Parking	66-80 stalls	77 stalls

*A 36-foot height may be allowed for third-floor residential development, subject to Use Permit approval by the Planning Commission (SMC 19.40.040.B.1)

In summary, the Project is substantially consistent with the General Plan and the Development Code and it complies with the State-mandated parking requirement for affordable housing developments. Therefore, impacts in this regard would be ***less-than significant***.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

No habitat conservation plans or natural community conservation plans have been prepared addressing the site and adjoining lands. Therefore, ***no impact*** would occur.

11. MINERAL RESOURCES: Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

Discussion:

a) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the state?

The Project site is not identified as containing any valuable mineral resources. Bedrock geology in the vicinity of the Project site is dominated by tuff and andesitic to basaltic lava flows of the Sonoma Volcanics. In the Sonoma Valley and at the Project site, the Sonoma Volcanics are overlain by moderately to highly dissected alluvial fan deposits consisting

of coarse to very coarse weathered gravels. The National Resources Conservation Service has classified site soils as belonging to the Wright loam (WgC) series (0 to 9 percent slopes). As a result, the Project would have ***no impact*** on mineral resources.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Refer to Section 11.a. ***No impact*** would occur.

12. NOISE: **Would the project result in:**	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Exposure of persons to, or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☑	☐	☐
b) Exposure of persons to, or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☑
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity due to construction activities above levels existing without the project?	☐	☑	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Discussion:

a) Exposure of persons to, or generation of noise levels in excess of, standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Environmental Noise: According to the Noise Element of the General Plan, the primary source of noise locally is traffic on major streets, including Broadway. Figures NE-1 and NE-2 of the Noise Element show that existing and projected outdoor noise levels from roadway traffic on Broadway could exceed the State and City general dBA standards for many units within the proposed development, as well as the central outdoor common area. To evaluate this issue, an environmental noise assessment was prepared by a qualified acoustical consultant[12]. The noise assessment sets forth

[12] *870 Broadway Mixed Use Residential/Commercial Project Environmental Noise Assessment,* Illingworth and Rodkin, January 12, 2018.

the regulatory criteria used in the assessment, the results of on-site noise monitoring, an evaluation of the compatibility of the noise environment at the Project site in relation to the Project site plan, and recommendations for mitigation. The primary environmental noise factor associated with the project site is traffic noise.

With respect to the main outdoor open space area, which is located at the northeast corner of the site, the assessment found that it will be acoustically shielded by intervening Project structures from roadway noise such that sound levels in that area is expected to be below 60 dBA Ldn. Such exterior noise levels are considered "normally acceptable" by the City of Sonoma General Plan Noise Element. With respect to interior noise levels within the residences, the study found that the proposed construction methods would result in compliance with State and local standards in conditions where windows are kept closed. However, when windows are open, for most of the units within the Project (Building #6 is the only exception), noise attenuation would be reduced to the point where interior noise levels could exceed the interior noise standard of 45 dBA Ldn, which represents a potentially significant impact. To address this issue, the environmental noise assessment identifies the following mitigation measure:

Mitigation Measure 12.a.1: **Buildings 1, 2, 3, 4, 5, 7, and 8 shall be equipped with a mechanical ventilation system capable of providing adequate fresh air to the residence while allowing the windows to remain closed to control noise.**

With the implementation of this mitigation measure, potential impacts with respect to environmental noise would be reduced to a ***less-than-significant*** level.

Operational Noise: The noise assessment identified two issues in this regard. First, residents within the Project could be exposed to noise from the commercial parking area and from mechanical systems, such as HVCAC. Second, the Project adjoins a duplex along its eastern property line and the driveway serving the Project would be located along the the shared property line. The noise assessment found that both of these conditions represent a potentially significant impact, for which the following mitigation measures were identified:

Mitigation Measure 12.a.2: **Locate the heating, ventilation, and air conditioning (HVAC) equipment serving the project away from equipment with rooftop screens or perimeter parapet walls, employ noise control baffles, sound attenuators, or enclosures where required. HVAC noise controls shall be analyzed and reviewed by a qualified acoustical consultant prior to issuance of a building permit.**

Mitigation Measure 12.a.3: **To attenuate parking lot and HVAC noise at the adjacent residence to the south east and HVAC noise at the commercial use to the north to levels which comply with City noise standards the proposed 6-foot-high wood good neighbor fence on these property lines in the shown in Figure 3 should be constructed as a noise barrier fence. To be effective as a noise barrier the fence should have a minimum surface weight of 3.0 lbs. per square feet and be built with a double layer of 1-inch nominal thickness fence boards, where the second layer of boards installed to cover the joints of the first layer would meet these surface weight and noise reduction requirements.**

With the implementation of these mitigation measures, the Project impact with respect to operational noise would would be ***less-than-significant.***

Refer to subsection d, below, for a discussion of construction noise impacts.

b) Exposure of persons to, or generation of excessive groundborne vibration or groundborne noise levels?

The proposed residential development does not include features or activities that would expose persons to or generate excessive groundborne vibration or groundborne noise levels. In addition, the construction of the Project

will not involve the use of vibratory rollers or other forms of equipment that would result in excessive vibration levels. There would be ***no impact.***

c) A substantial permanent increase in ambient noise levels in the project vicinity?

With the implementation of mitigation measures 12.a.2 and 12.a.3, any permanent increase in ambient noise levels resulting from the Project will be ***less-than-significant*** with respect to existing ambient noise levels in the area.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity due to construction activities above levels existing without the project?

Construction activities typically associated with new development, including grading, excavation, paving, material deliveries, and building construction, would result in a substantial temporary increase in ambient noise levels in the Project vicinity. Although this impact is temporary in nature, increased noise levels throughout the construction period, may adversely affect residents in the area. Project construction is anticipated to last approximately one year. The grading/excavation phase of Project construction tends to be the shortest in duration, but creates the highest construction noise levels because of the operation of heavy equipment. Pursuant to the City's Noise Ordinance (Chapter 9.56 of the Sonoma Municipal Code), construction activities and material deliveries are restricted to the hours between 8 a.m. and 6 p.m. Monday through Friday, between 9 a.m. and 6 p.m. on Saturday, and between 10 a.m. and 6 p.m. on Sundays and holidays; however, the noise level at any point outside of the property plane of the Project shall not exceed (90) dBA. In addition, the City's Noise Ordinance requires sign postings at all site entrances upon commencement of construction to inform contractors and subcontractors, their employees, agents, and materialmen of the allowable construction hours.

Despite its temporary nature, because of the proximity of the project to adjoining mixed use and residential development on the north and east, the noise assessment found that construction noise has the potential to result in a significant impact. Therefore, in addition to compliance with the City's Noise Ordinance as normally required, the following mitigation measure shall be required:

Mitigation Measure 12.d: **Develop a construction mitigation plan in close coordination with adjacent noise-sensitive land uses so that construction activities can be scheduled to minimize noise disturbance. The construction mitigation plan shall consider the following available controls to reduce construction noise levels to levels that do not exceed noise standards. The implementation of some combination of the following measures would reduce this impact to a less than significant level.**

1. **Pursuant to the Noise Ordinance, restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 8:00 a.m. and 6:00 p.m., Monday through Friday, 9:00 a.m. to 6:00 p.m. on Saturday, and 10:00 a.m. to 6:00 p.m. on Sundays and city observed holidays.**
2. **Install a temporary construction noise barrier with a height of 8 feet above grade on the project property lines shared with the residential property to the southeast and the commercial property to the northwest before loud construction activities begin and keep in place until construction within 100 feet of the barrier location is complete. The placement of the barriers should not allow clear line of sight, or openings for site access between the site activities and adjacent land uses. The barriers may be composed of mass loaded construction blankets on temporary fencing or solid plywood construction barriers and should have a minimum surface weight of 1.0 lb. /ft2 and an equivalent STC rating of 25 or more.**

3. **Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;**
4. **Prohibit all unnecessary idling of internal combustion engines;**
5. **Route construction related traffic to and from the site via designated truck routes and avoid residential streets where possible;**
6. **Utilize "quiet" models of air compressors and other stationary noise sources where technology exists;**
7. **Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent residential and commercial land uses;**
8. **Shield adjacent sensitive uses from stationary equipment with individual noise barriers or partial acoustical enclosures;**
9. **Locate staging areas and construction material storage areas as far away as possible from adjacent land uses;**
10. **Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.**
11. **Hold a pre-construction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are completed.**

The implementation of this mitigation measure would ensure that potential impacts from temporary construction noise are reduced to a ***less-than-significant level***.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Because the Project is not located within an airport land use plan or within two miles of a public airport or public use airport, ***no impact*** would occur.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Because the Project is not in the vicinity of a private airstrip, ***no impact*** would occur.

13. POPULATION AND HOUSING: Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☑	☐
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Discussion:

a) Induce substantial population growth in an area, either directly or indirectly?

The proposed development would result in an increase of 35 residential units on the Project site. The Project site has a zoning designation of Mixed Use, which provides for a maximum base density of 20 units per acre, plus a density bonus consistent with the parameters of State law. The number of units proposed for the Project is consistent with these allowances. In addition, the units developed as part of the Project are accounted for in the City's growth management system, which limits residential growth within the city to an average of 65 units per year. Lastly, the Project does not require the extension of any public streets and it will connect to existing utility lines. Based on these factors, the development of the Project would constitute a ***less-than-significant impact***.

b) Displace substantial numbers of existing housing units?

The Project site is not developed with any housing units. Hence there would be ***no impact***.

c) Displace substantial numbers of people?

See response 13.b, above.

14. PUBLIC SERVICES: Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☑	☐

ii. Police protection?	☐	☐	☑	☐
iii. Schools?	☐	☐	☑	☐
iv. Parks?	☐	☐	☑	☐
v. Other public facilities?	☐	☐	☐	☑

Discussion:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i. *Fire protection?*

Fire protection services within the City of Sonoma are provided by Sonoma Valley Fire & Rescue Authority (SVFRA). According to the Fire Marshall, the Project would not require new or physically altered fire department facilities, nor will it induce growth and demand for services in excess of what is allowed through the Growth Management Ordinance or anticipated in the General Plan as a whole. It is also noted that the Project site plan incorporates a compliant fire-truck turnaround within the parking lot and that all of the buildings in the Project would be developed with fire-sprinkler systems. Therefore, the incremental increase in the demand for fire services is considered to be ***less-than-significant***.

ii. *Police protection?*

In 2004 the City of Sonoma entered into a contract with the Sonoma County Sheriff's Office to provide law enforcement services for the city. The Sonoma Police Department (SPD), managed by the County Sheriff's Office, is responsible for the area within the city limits of the city of Sonoma and is staffed by one police chief, two sergeants, nine deputies, a school resource officer, a traffic officer, two community service officers and two administrative positions. The police department operates a "store front" type operation within city limits, with all the dispatching, record and property management, and investigative services are provided by resources at the Sheriff's main office in Santa Rosa. The police facility also operates serves as the city's Emergency Operation Center. The SPD is organized into the following divisions: Administration Division, Patrol Division, Parking Enforcement, Animal Control, School Resource Officer, Sonoma Valley Youth and Family Services, Volunteers in Policing, and Police Explorers. A school resource officer is assigned to the Sonoma Valley School District and supports both the SPD and the Sheriff's Sonoma Valley Substation. The SPD is also supported by a cadre of volunteers from the Sheriff's Volunteers in Policing Services (VIPS) program. The proposed Project would primarily be served by the police station located at 175 First Street West in the city of Sonoma. This station was built in 1981 and underwent major renovations in 2009.

According to Police Department staff, the Project would not require new or physically altered police department facilities, nor will it induce demand for services in excess of what is allowed through the Growth Management Ordinance or anticipated in the General Plan as a whole. The incremental increase in demand for police services is therefore considered to be ***less-than-significant***.

iii. *Schools?*

The Project site is located within the Sonoma Valley Unified School District (SVUSD), which operates five elementary schools, two middle schools, and one comprehensive high school. As normally required, the applicant/developer would have to pay school impact fees to offset potential impacts to the SVUSD. As set forth in California Government Code Section 65995, the payment of development fees mitigates any impact to school districts, and no additional mitigation beyond the payment of these fees is permitted. This would be a ***less-than-significant impact***.

iv. Parks?

Policy 4.2 of the Environmental Resources Element of the General Plan established a minimum parkland ration of 5 acres per 1,000 residents. The current population of the City is 10,989 and the amount of City parkland and open space (excluding State parkland and the Maxwell Farms County Regional park) is 157 acres, resulting in a parkland to population ratio of 14.27 acres per 1,000 residents. Because the minimum parkland/population ratio called for in the General Plan has been greatly exceeded, the incremental increase in usage of City and County park facilities is considered to be a ***less-than-significant impact***.

v. Other Public Facilities?

The proposed Project would not require the provision or construction of other public facilities. ***No impact*** would occur.

15. RECREATION	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☑	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☑

Discussion:

a) Would the project increase the use of existing neighborhood or regional parks, or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

In combination with State and County parks that are maintained within and adjacent to the city limits, the City of Sonoma has roughly 250 acres of parkland and other recreational facilities. With the acquisition of the Montini Preserve, an additional 95 acres of open space developed with hiking trail systems has become available to the public. As discussed above in Section 14.a.iv (Parks), City-owned parkland and open space totals 157 acres, resulting in a parkland to population ratio of 14.27 acres per 1,000 residents, which greatly exceeds the minimum ratio established in the City's General Plan of 5 acres of parkland and open space per 1,000 residents. The Project itself includes two common open space areas to provide for some recreational needs of residents. The Project would not create a significant demand for recreational facilities and there are currently a sufficient number of parks and recreational

facilities within the city and region to serve residents of the proposed development. Based on these considerations, the Project would not result in a substantial deterioration of local/regional recreational facilities and its impact in this regard would be ***less-than-significant***.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The Project includes two privately-maintained common open space areas to help provide for the recreational and social needs of residents. These facilities do not raise any prospect of creating an adverse physical impact on the environment. ***No impact*** would occur.

16. TRANSPORTATION/TRAFFIC: **Would the project:**	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☑	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☑	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☐	☑
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☑

Discussion:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

To evaluate the potential impacts of the Project with respect to transportation and traffic, a traffic impact study[13] was prepared by a qualified Transportation Engineer. The study addresses: 1) traffic conditions and potential impacts on intersection level of service; 2) alternative transportation modes, including bicycling, walking, and transit; and, 3) traffic safety. The study area includes the segments of Broadway and East MacArthur Street adjoining the Project site, the proposed Project access point on the East MacArthur Street, the intersection of Broadway and East MacArthur Street, and nearby transportation facilities, such as bike paths, sidewalks, and transit stops. Broadway is an element of State Highway 12 and is classified in the City's Circulation Element as an arterial. In the immediate vicinity of the Project site, Broadway is configured with two travel lanes in each direction, with a two-way left-turn lane south of East MacArthur street is classified as a collector street. It is configured with two travel lanes, along with on-street parking on each side.

Level of Service (LOS): Broadway/East MacArthur Street is a four-legged signalized intersection. Traffic counts taken at the a.m. and p.m. peak weekday periods show that the intersection operates at LOS B during the peak a.m. period and LOS C during the peak p.m. period. The project is expected to generate an average of 386 trips per day, including 19 trips during the a.m. peak hour and 35 during the p.m. peak hour. (Note: this estimate is based on an iteration of the Project that featured 39 units, rather than currently proposed 35 units). Under current conditions, the level of service conditions at the intersection would not change as a result of additional traffic generated by the Project. Under the traffic conditions projected for the year 2040, the peak a.m. period would remain at LOS C, while the peak p.m. period would change from LOS B to LOS C. The City and Caltrans both use LOS D as the lowest level of operation that is considered to be normally acceptable. Because the traffic generated by the Project would not cause the LOS at the intersection of Broadway and East MacArthur Street to exceed LOS D under existing and future conditions, its impact on the operation of the intersection is considered to be ***less-than-significant***.

Sight Distance: Sight distance at the proposed driveway location was field measured. Based on a design speed of 25 mph, the minimum stopping sight distance needed is 150 feet. Under current conditions, this standard is met.

Traffic Calming Improvements: In 2003, the City Council adopted a Traffic Calming Plan[14]. The plan addresses the need for traffic calming improvements throughout Sonoma, including along the Broadway corridor. At the intersection of Broadway and East MacArthur Street, the Plan recommends the installation of curb extensions at each of the Broadway crosswalks as a means of shortening the pedestrian crossing distance and improving visibility. To ensure consistent with the adopted Traffic Calming Plan, the following mitigation measure is required:

Mitigation Measure 16.a: **Contingent upon Caltrans approval, the Project shall be required to install a curb extension at the northwest crosswalk entry adjoining the Project site and to implement any required striping that may be associated with the improvement. The design of the curb extension and any re-striping shall be subject to the review and approval of Caltrans and City Engineer.**

With the implementation of this mitigation measure, potential Project impacts on compliance with adopted transportation plans would be ***less-than-significant***.

Pedestrian Facilities: The sidewalk system in the vicinity of the Project site is continuous, including the connection to the Sonoma Valley High School and the Adele Harrison Middle School. The traffic study concludes that pedestrian facilities serving the Project site are adequate and that the Project impact in this area would be ***less-than-significant***.

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[13] *Traffic Impact Study for the Sonoma Gateway Project,* W-Trans, February 2018.

[14] Traffic Calming and Pedestrian Plan, Fehr and Peers/City of Sonoma, July 2003.

Bicycle Facilities: The development of the Project will not interfere with the future installation of Class 2 bike lanes on Broadway as called for the City of Sonoma Bicycle and Pedestrian Master Plan. In addition, in compliance with City General Plan policy, the Project will incorporate bicycle facilities, including secured bicycle parking. The traffic study concludes that the bicycle facilities serving the Project are adequate and that the Project impact in this area would be ***less-than-significant***.

Transit: The Project site site is located within easy walking distance of transit stops. The traffic study concludes that the transit facilities serving the Project are adequate; therefore, the Project impact in this regard would be ***less-than-significant***.

In summary, with the implementation of Mitigation Measures 16.a.1 and 16.a.2, Project impacts with respect to sight distance and vehicle access will be ***less-than-significant***.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?

Project traffic volumes would not exceed the level of service standards established in the Circulation Element of the City of Sonoma General Plan. ***No impact*** would occur.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The proposed Project does not include any strategy or measure that would directly or indirectly affect air traffic patterns. Therefore, ***no impact*** would occur.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

See response 16.a, above. Sight distance associated with the Project driveway is adequate and the Project will not result in the introduction of any hazardous features. Therefore, ***no impact*** would occur.

e) Result in inadequate emergency access?

Because the Project site plan incorporates a compliant fire-truck turnaround within its parking lot, there would be ***no impact***.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

See response 16.a, above. The Project site is located along a bus route and within proximity of a bus turn-out. The Project complies with General Plan policies supporting the development of higher density residential development along transit routes. The City of Sonoma Development Code requires new multi-family and commercial development to provide bicycle parking, the amount and location of which is determined on a case-by-case basis by the review authority. As a discretionary project, the location and design of bicycle parking would be subject to review by the Design Review and Historic Preservation Commission, following consideration of the Project by the Planning Commission. Accordingly, the Project would not conflict with policies, plans and programs supporting alternative transportation, nor would it decrease the safety or performance of any such facilities. The Project would not interfere with the future placement of Class 2 bike lanes along the Broadway frontage of the site. ***No impact*** would occur.

17. UTILITIES AND SERVICE SYSTEMS: Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☑	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☑	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☑	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☑	☐	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☑

Discussion:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

The proposed Project is within the Sonoma Valley County Sanitation District (SVCSD). The SVCSD's service area extends from the unincorporated community of Glen Ellen in the north to Schellville in the south. The wastewater collection system consists of approximately 188 miles of pipeline and two lift stations. The collection system conveys wastewater to the District's treatment facility located in the southern portion of the Sonoma Valley. The treatment facility currently provides tertiary level treatment of wastewater. The SVCSD treatment plant operates under a National Pollutant Discharge Elimination System (NPDES) permit which was granted by the San Francisco Regional Water Quality Control Board. While the estimated maximum capacity of the treatment plant is 20 MGD, the NPDES permit limits the permitted average dry weather flow (ADWF) of the treatment plant to 3.0 million gallons per day (MGD). According to the most recent inspection report prepared by the RWQCB, the average dry weather flow through the facility in 2016 amounted to 1.78 MGD[15].

[15] Sonoma Valley County Sanitation District Wastewater Treatment Plant (NPDES No. CA0037800) Compliance Evaluation Inspection Report, December 2, 2016

Each ESD in the existing service area is assigned a sewer flow of 200 gallons per day to calculate the average dry weather flow. Based on preliminary estimates, The proposed Project would generate 34.1 ESDs, or 6,820 gallons per day. Because this level of increased treatment would not exceed the permitted treatment capacity of the plant, the impact of the Project would be ***less-than-significant***.

b) Require or result in the construction of new or expanded water or wastewater treatment facilities?

The Project proposal was referred to the Sonoma County Water Agency (SCWA) and the Sonoma County Department of Permits and Resource Management (PRMD) for comment with respect to wastewater infrastructure. These agencies note that their modeling of the sanitation system infrastructure in the vicinity of the project indicates that the main on Broadway between West Napa Street and Newcomb Street may be approaching capacity under peak conditions, such as occur in period of heavy rainfall. To address this issue, projects determined to contribute to this problem are required to pay for or to implement upgrades to segments of the affected main, based on system capacity simulations performed under the supervision of the SCWA. Applying the ESD generation factors established by District to the proposed additional uses, a preliminary estimate of the increase in ESDs generated by the project is 34.1, as set forth in the Table below.

Building Expansion and Increase in ESDs		
Use	**Units/Square Feet**	**Preliminary ESD Estimate (1)**
Townhomes	27 units	27
Apartments	8 units	6.4
Commercial Building	4,100 square feet	0.7
Total		**34.1**

1. Based on "Equivalent Single Family Dwelling Unit ESD for the Sonoma Valley County Sanitation District", as follows:
   A. Townhome: 1 ESD/unit.
   B. Apartment: 0.8 ESD/unit.
   C. Retail: 0.16 ESDs/1,000 square feet.

Note: this estimate does not subtract out the level of ESDs traditionally generated by the former commercial use of the site.

The possibility that the increase in ESDs generated by the project could adversely affect the capacity of the local sanitation collection system, represents a ***significant impact,*** for which mitigation is required:

Mitigation Measure 17.b: ***Prior to the issuance of any building permit, the Applicant shall provide the Sanitation Section of PRMD with a statement from the Sonoma County Water Agency (SCWA), addressing the estimated net increase in ESD generation resulting from the project. If it is determined by SCWA that modeling of potential capacity impacts on the Broadway main is warranted, the Applicant shall undertake to have this study prepared, subject to the review and approval of the SCWA. Based the outcome of any required capacity modeling, the Applicant may be required to implement measures to compensate for any shortfall in the capacity in that area of the existing system.***

With the implementation of this mitigation measure, potential project impacts on the capacity of the sanitation collection system would be ***less-than-significant*** with mitigation.

c) Require or result in the construction of new or expanded storm water drainage facilities, the construction of which could cause significant environmental effects?

The Project would involve on-site drainage improvements to convey surface runoff from the site to an existing storm drain located on Broadway. Impacts associated with the actual construction of these drainage improvements, such as erosion and sedimentation from grading and/or trenching activities, would be reduced to a less-than-significant level through implementation of the erosion control measures required by the City's Grading Ordinance and the Storm Water Pollution Prevention Plan (SWPPP) for the Project. See also response to Items 6.b, 9.a, and 9.c regarding construction-related erosion. Based on these factors, the impact of the Project would be ***less-than-significant***.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources?

The City of Sonoma supplies potable water to a population of approximately 11,000 people and approximately 300 businesses. The City's potable water supply is primarily water purchased from the Sonoma County Water Agency (SCWA) and water pumped from six groundwater wells owned and operated by the City. The SCWA water supply is delivered to the City through the SCWA aqueduct system and is supplied with water from the natural flow of the Russian River. The City is one of eight water contractors under contract with the SCWA, known as the Restructured Agreement for Water Supply. Under the Restructured Agreement, the SCWA is obligated to deliver up to 6.3 million gallons of water per day (mgd) during any month and 3,000 acre-feet of water during a fiscal year. The term of the agreement is through 2037 and can be extended by amendment.

The City's water service area encompasses the city limits, as well as portions of Sonoma County to the east of the city limits, as well as pocket areas that have outside service area agreements with the City along Thornsberry Road, Lovall Valley Road, East Napa Road, East MacArthur Street, and Denmark Street. The City's service area is approximately 2.5 square miles. The City's water distribution system contains three pressure zones that are each served by one or more storage tanks. The principal water mains in the distribution system range in size from 6 to 16 inches. Most of the distribution grid piping in the older sections of the City range in size from 1½ to 4 inches, while the newer areas are served by pipes 6 to 8 inches in diameter.

In compliance with the SB X7-7 and the Urban Water Management Planning Act, the City of Sonoma has prepared and adopted an Urban Water Management Plan (UWMP) that evaluates water demands over a 25-year planning horizon. This analysis addresses a variety of scenarios, including years with normal water conditions, single-dry years, and multiple dry year conditions. Additionally, the UWMP attempts to accomplish the following:

- Identify measures to be implemented or projects to be undertaken to reduce water demands and address water supply shortfalls;
- Identify stages of action to address up to 50 percent reduction in water supplies during dry water years;
- Identify actions to be implemented in the event of a catastrophic interruption in water supplies;
- Assess the reliability of the sources during normal, single-dry, and multiple-dry water years; and
- Identify when, how, and what measures the City could undertake in order to meet the State Legislature's call for a 20 percent per capita reduction in urban water use statewide by 2020.

Overall, the City's UWMP, which was updated in 2015[16], determined that the City's combined projected water supplies are sufficient to meet projected demands during normal and multiple-year dry year conditions. During a severe drought condition, under the single-dry year condition, the City would not have adequate supplies and would need to impose mandatory water conservation. However, the City's water customers have been successful in reducing its water demands during water shortages, such as what occurred in 2009 when the City's water deliveries were reduced by 18 percent of normal. Moreover, in compliance with State mandates to reduce water usage, the city of Sonoma has reduced its water use by 29 percent from July 2015 through November 2015, when compared to the same period in 2013. In addition, the City can produce more groundwater on a short-term basis during peak summer months to supplement the SCWA supply. Because the development of the site is consistent with the water demand projections of the City's UWMP and because the UWMP sets forth a plan in which combined projected water supplies are sufficient to meet projected demands during normal and multiple-year dry year conditions, the development of the Project would have a ***less-than-significant impact*** with respect to water supplies.

e) Result in a determination by the wastewater treatment provider that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

See 17.a. The impact of the Project would be ***less-than-significant***.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project?

The County of Sonoma owns the Central Disposal Site and four other transfer stations located throughout Sonoma County. The Central Disposal Site landfill, located at 500 Mecham Road in Petaluma, California, accommodates solid waste from the City of Sonoma. The Central Disposal Site has a permitted capacity of 19.59 million tons (32.65 million cubic yards). This site includes two landfills, including Landfill 1, which has a permitted capacity of 18.27 million tons (25.65 million cubic yards), and Landfill 2, which has a permitted capacity of 4.98 million tons (7.0 million cubic yards). Landfill 1 currently contains approximately 12.83 million tons (21.38 million cubic yards) of solid waste, and Landfill 2 currently has 1.12 million tons (1.87 million cubic yards) of solid waste. Therefore, remaining capacity at Landfill 1 is 5.44 million tons (4.27 million cubic yards), and remaining capacity at Landfill 2 is 3.86 million tons (5.13 million cubic yards. Further, permitted daily tonnage at the Central Disposal Site is 2,500 tons; however, average daily tonnage is 1,250 tons. Therefore, the landfill is currently receiving less than its permitted daily tonnage of solid waste.

According to the Sonoma County Waste Management Agency, there is sufficient capacity at these facilities to accommodate the Project. However, to ensure compliance with the waste diversion programs required under the California Integrated Waste Management Act of 1989 (AB939) the following mitigation measure has been included to address recycling.

Mitigation Measure 17.f: ***The Project applicant shall be required to prepare and implement a recycling plan for the major materials generated through construction of new buildings and shall identify the means to divert these materials away from landfill disposal. Typical materials included in such a plan are soil, brush and other vegetative growth, sheetrock, dimensional lumber, metal scraps, cardboard packaging, and plastic wrap.***

[16] 2015 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update, City of Sonoma, July 1, 2015.

With implementation of Mitigation Measure 17.f above, the solid waste generated by the Project would have a ***less-than-significant impact*** on landfills that serve the City of Sonoma.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

In order for Sonoma County to help meet the diversion requirements of the California Integrated Waste Management Act of 1989 (AB939), Chapter 22 of the Sonoma County Code (Section 2207A) explicitly bans the disposal at County disposal sites of yard debris, recyclable wood waste, scrap metal and corrugated cardboard. The Project would be subject to these limitations. All applicable federal, state, and local regulations related to solid waste would be complied with as part of the Project. As a result, ***no impact*** would occur.

18. MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☑	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☑	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☑	☐	☐

Discussion:

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The implementation of measures identified in this Initial Study would reduce the severity of potential impacts on biological and cultural resources to ***less-than-significant*** levels. No further mitigation beyond Mitigation Measures 4.a, 5.b, 5.c, and 5.d, 9.a.1, and 9.a.2 would be required.

b) Does the project have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

The proposed development would not result in cumulative impacts deemed considerable. Impacts on public services, traffic, and utilities could contribute incrementally, but the combined effect would not be significant. As described in this Initial Study, implementation of Mitigation Measures 9.a.1, 9.a.2, 17.b, and 17.f would reduce the magnitude of potential cumulative impacts to a ***less-than-significant level***.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The Project could have temporary short-term air quality effects on people in vicinity of the site during construction which, with implementation of Mitigation Measure 3.c would be ***less-than-significant***. With implementation of standard practices required of all projects approved in the City (compliance with the Uniform Building Code, etc.), the Project would not pose a hazard to future residents through exposure to geologic hazards.

Attachments:

1. List of Mitigation Measures
2. Project Narrative
3. Site Plan/Elevations/Tentative Map
4. Tree Preservation and Mitigation Report Sonoma Gateway Project, John C. Meserve, December 27, 2017.
5. Historic Structure Study, DPR 523A for the Sonoma Truck and Auto Center, 870 Broadway, Polly S. Allen, JRP Historical Consulting, LLC, January 13, 2012.
6. Report of Investigation 870 Broadway (Site Closure), EBA Engineering, April 2011.
7. 870 Broadway Mixed Use Residential/Commercial Project Environmental Noise Assessment, Illingworth and Rodkin, January 12, 2018.
8. Traffic Impact Study for the Sonoma Gateway Project, W-Trans, February 20, 2018.

Available for Download

1. *Report of Investigation 870 Broadway (Testing and Investigation), EBA Engineering, January 2011.*
2. *Phase 1 Environmental Site Assessment 870 Broadway, EBA Engineering, July 2010* (https://www.sonomacity.org/gateway-project/)

List of Mitigation Measures

Air Quality

Mitigation Measure 3.c: To limit the Project's construction-related dust and criteria pollutant emissions, the following Bay Area Air Quality Management District (BAAQMD)-recommended Mitigation Measures shall be included in the Project's grading plan, building plans, and contract specifications:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Biological Resources

Mitigation Measure 4.a: The following measures shall be implemented as necessary during the construction phase of the project for the protection of nesting birds:

1. Grading or removal of nesting trees and habitat shall be conducted outside the nesting season, which occurs between approximately February 15 and August 15, if feasible.
2. If grading between August 15 and February 15 is infeasible and groundbreaking must occur within the nesting season, a pre-construction nesting bird (both passerine and raptor) survey of the grassland and trees shall be performed by a qualified biologist within 7 days of ground breaking.
3. If no nesting birds are observed no further action is required and grading shall occur within one week of the survey to prevent "take" of individual birds that could begin nesting after the survey. If active bird nests (either passerine and/or raptor) are observed during the pre-construction survey, a disturbance-free buffer zone shall be established around the nest tree(s) until the young have fledged, as determined by a qualified biologist.
4. The radius of the required buffer zone can vary depending on the species, (i.e., 75-100 feet for passerines and 200-300 feet for raptors), with the dimensions of any required buffer zones to be determined by a qualified biologist in consultation with CDFG. To delineate the buffer zone around a nesting tree, orange

construction fencing shall be placed at the specified radius from the base of the tree within which no machinery or workers shall intrude.

5. After the fencing is in place there will be no restrictions on grading or construction activities outside the prescribed buffer zones. The buffer zone shall remain in place until after the young have fledged.

See also Mitigation Measures 9.a.1 and 9.a.2.

Cultural Resources

Mitigation Measure 5.b: Construction personnel involved with earthmoving shall be alerted to the potential for the discovery of prehistoric materials and tribal cultural resources. Such materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.

If prehistoric or historic-period archaeological/tribal cultural resources are encountered, all construction activities within 50 feet shall halt and the Planning Director shall be notified. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code (PRC) Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning and construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with the Planning Department. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2.

Mitigation Measure 5.c: If paleontological resources are identified during construction activities, all work in the immediate area will cease until a qualified paleontologist has evaluated the finds in accordance with the standard guidelines established by the Society of Vertebrate Paleontology. If the paleontological resources are considered to be significant, a data recovery program will be implemented in accordance with the guidelines established by the Society of Vertebrate Paleontology.

Mitigation Measure 5.d: If human remains are encountered, all work shall stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist shall be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission shall be contacted by the Coroner so that a "Most Likely Descendant" can be designated and further recommendations regarding treatment of the remains is provided.

Hydrology and Water Quality

Mitigation Measure 9.a.1: The Project applicant shall prepare and submit an Erosion and Sediment Control Plan (SCP) for review and approval by the City Engineer prior to issuance of a building or grading permit. The Erosion and Sediment Control Plan outlines Best Management Practices (BMPs) that, when implemented, reduce the quantity of construction-related pollutants in stormwater runoff discharging from a project site to the maximum extent

practicable. The SCP shall include measures to ensure that ensure that construction-relied pollutants and run-off do not enter Nathanson Creek.

Mitigation Measure 9.a.2: Project drainage improvements shall be designed to capture and direct runoff away from Nathanson creek to on-site stormwater BMP facilities, and thence to the existing storm drain infrastructure located along Broadway. The design of these measures shall be documented in a Stormwater Control Plan that shall be subject to the review and approval of the City Engineer.

Mitigation Measure 9.g/h: In accordance with FEMA requirements, Residences and other structures proposed on the Project site will be required to be built on foundations such that the finished floor of the structure is above the 100-year flood elevation. This requirement will be documented with a Flood Elevation Certificate prepared by a qualified engineer or licensed land surveyor, subject to the review and approval of the Building Official and the City Engineer.

Noise

Mitigation Measure 12.a.1: Buildings 1, 2, 3, 4, 5, 7, and 8 shall be equipped with a mechanical ventilation system capable of providing adequate fresh air to the residence while allowing the windows to remain closed to control noise.

Mitigation Measure 12.a.2: Locate the heating, ventilation, and air conditioning (HVAC) equipment serving the project away from equipment with rooftop screens or perimeter parapet walls, employ noise control baffles, sound attenuators, or enclosures where required. HVAC noise controls shall be analyzed and reviewed by a qualified acoustical consultant prior to issuance of a building permit.

Mitigation Measure 12.a.3: To attenuate parking lot and HVAC noise at the adjacent residence to the south east and HVAC noise at the commercial use to the north to levels which comply with City noise standards the proposed 6-foot-high wood good neighbor fence on these property lines in the shown in Figure 3 should be constructed as a noise barrier fence. To be effective as a noise barrier the fence should have a minimum surface weight of 3.0 lbs. per square feet and be built with a double layer of 1-inch nominal thickness fence boards, where the second layer of boards installed to cover the joints of the first layer would meet these surface weight and noise reduction requirements.

Mitigation Measure 12.d: Develop a construction mitigation plan in close coordination with adjacent noise-sensitive land uses so that construction activities can be scheduled to minimize noise disturbance. The construction mitigation plan shall consider the following available controls to reduce construction noise levels to levels that do not exceed noise standards. The implementation of some combination of the following measures would reduce this impact to a less than significant level.

1. Pursuant to the Noise Ordinance, restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 8:00 a.m. and 6:00 p.m., Monday through Friday, 9:00 a.m. to 6:00 p.m. on Saturday, and 10:00 a.m. to 6:00 p.m. on Sundays and city observed holidays.

2. Install a temporary construction noise barrier with a height of 8 feet above grade on the project property lines shared with the residential property to the southeast and the commercial property to the northwest before loud construction activities begin and keep in place until construction within 100 feet of the barrier location is complete. The placement of the barriers should not allow clear line of sight, or openings for site access between the site activities and adjacent land uses. The barriers may be composed of mass loaded construction blankets on temporary fencing or solid plywood construction barriers and should have a minimum surface weight of 1.0 lb. / ft2 and an equivalent STC rating of 25 or more.

3. Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;
4. Prohibit all unnecessary idling of internal combustion engines;
5. Route construction related traffic to and from the site via designated truck routes and avoid residential streets where possible;
6. Utilize "quiet" models of air compressors and other stationary noise sources where technology exists;
7. Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent residential and commercial land uses;
8. Shield adjacent sensitive uses from stationary equipment with individual noise barriers or partial acoustical enclosures;
9. Locate staging areas and construction material storage areas as far away as possible from adjacent land uses;
10. Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.
11. Hold a pre-construction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are completed.

Traffic and Transportation

Mitigation Measure 16.a: Contingent upon Caltrans approval, the Project shall be required to install a curb extension at the northwest crosswalk entry adjoining the Project site and to implement any required striping that may be associated with the improvement. The design of the curb extension and any re-striping shall be subject to the review and approval of Caltrans and City Engineer.

Utilities and Service Systems

Mitigation Measure 17.b: Prior to the issuance of any building permit, the Applicant shall provide the Sanitation Section of PRMD with a statement from the Sonoma County Water Agency (SCWA), addressing the estimated net increase in ESD generation resulting from the project. If it is determined by SCWA that modeling of potential capacity impacts on the Broadway main is warranted, the Applicant shall undertake to have this study prepared, subject to the review and approval of the SCWA. Based the outcome of any required capacity modeling, the Applicant may be required to implement measures to compensate for any shortfall in the capacity in that area of the existing system.

Mitigation Measure 17.f: The project applicant shall be required to prepare and implement a recycling plan for both the deconstruction of existing structures and new construction detailed in the project description. The recycling plan shall address the major materials generated through deconstruction of existing structures and construction of new buildings, and shall identify the means to divert these materials away from landfill disposal. Typical materials included in such a plan are soil, brush and other vegetative growth, sheetrock, dimensional lumber, metal scraps, cardboard packaging, and plastic wrap.

PROJECT DESCRIPTION:
870 Broadway

Existing Condition: The project would be constructed on the site at 870 Broadway, which is comprised of two parcels and has an area of 1.86 acres, with frontage on Broadway and East MacArthur Street. The site is roughly square-shared, except that it appears that a parcel was divided off of the west side (fronting East MacArthur Street) and subsequently developed with a single-family residence. The site had been used for auto sales, rentals, and repairs since 1925, but that use closed approximately three years ago. Development on the property consists of a 6,000 square-foot auto showroom, a 3,000 square-foot building with the appearance of barn that had been used for storage and as an automotive paint shop, and a 1,000 square-foot wood-framed garage building. Large areas of the site have been paved for use as vehicle display areas and storage. Adjoining uses include a mixed-use development to the north (offices and apartments), a single-family residence and an open space preserve to the east, a hotel development to the south, and apartments and commercial development to the west (across Broadway).

The site has a General Plan land use designation of Mixed Use and a corresponding Mixed Use zoning designation. In addition, the site is located within the Historic Overlay zone. The northeast corner of 870 Broadway lies within a creek setback area associated with Nathanson Creek.

Proposed Project: We received considerable input last Fall on our original design from both the community and the planning commission and wherever possible have responded to those suggestions. One limiting factor are fire regulations (such as 40' turning radii and proximity of fire trucks to buildings) which all but dictated some of the circulation decisions. In addressing how the project interacts with the street and surrounding neighborhoods, all of the E. MacArthur and Broadway buildings are outward facing, 2-story and 30 feet in height or less. The taller buildings, as suggested, are pushed into the interior of the project. Taken together, these modifications will enhance the streetscape and pedestrian experience on Broadway and E. MacArthur. Additionally, addressing the desire for a project more in keeping with the variety inherent in the Sonoma Vernacular, we have reduced the density of the project, increased open space well above the required amount and provided a selection of property types and architectural styles, from single family homes, to apartments and townhomes, and single level condominiums. As before, in keeping with the mixed-use zoning designation we are planning 4,100 square feet of retail which will provide space for one to three businesses. Our goal in filling that space is to find businesses that will serve some unmet needs of the surrounding neighborhood, such as a limited-service food coop where residents of the neighborhood can pick up fresh milk, a bottle of wine some local cheese or produce.

The project now consists of 35 residential units and a commercial space. There are 23 townhome units in five buildings. These units range in size from 1,261 square feet to 1,458 square feet each with a two-car attached garage. These units are three stories in height. There are three 1,934 square foot single family residences each with an attached two car garage. These units are two stories. There are 4 two-bedroom flats over a 4,100-square foot commercial space in a single building. These units are each 1,275 square feet and have two dedicated parking spaces. This building is two

stories. There are 8 apartment units in two fourplex buildings. The apartments are one bedroom and 486 square feet in size. Each unit has a single parking space.

	# of Units			
		Size	#BR/#BA	Total S.F.
Plan A	8	486	1/1	3,888
Plan B	8	1,261	2/3	10,088
Plan C	5	1,386	3/3	6,930
Plan D	7	1,458	3/3.5	10,206
Plan E	3	1,934	3/3.5	5,802
Plan F	4	1,275	2/2.5	5,100
TOTAL	**35**			**42,014**

General Plan Policies

As noted above, the site has a land use designation of "Mixed Use," a designation that is intended to accommodate uses that provide a transition between commercial and residential districts, to promote a pedestrian presence in adjacent commercial areas, and to provide neighborhood commercial services to adjacent residential areas. The designation allows a density up to 20 residential units per acre and a residential component equal to 50% of the area of new construction is normally required in new development, unless a reduction or an exemption is granted by the Planning Commission through the use permit review process. Hotels, retail uses, and multi-family development are identified as a conditionally-allowed uses.

Development Code Consistency

Mixed Use Zone. The site is zoned Mixed Use (MX). The MX zone is intended to allow for higher density housing types, such as apartments and condominiums, in conjunction with commercial and office development, to increase housing opportunities, reduce dependence on the automobile, and provide a pedestrian presence in commercial areas. Hotels, retail uses, and multi-family dwellings are allowed in the MX zone, subject to review and approval of a Use Permit by the Planning Commission.

In excess of 50% of the site is used for the residential component.

Planning Area Standards and Guidelines. The property is in the "Broadway Planning Area" as defined in the Development Code. Applicable standards include the following:

Density: The maximum residential density allowed in the MX zone is 20 dwellings units per acre.

The project proposes 35 units on the 1.86-acre site, representing a density of approximately 18.8 units per acre.

Setbacks: As shown in the table below, the proposed project complies with setback requirements.

Building	*South (Streetside) Minimum/Proposed*	*West (Front) Minimum/Proposed*	*East (Rear) Minimum/Proposed*	*North (Side) Minimum/Proposed*
Comml/Apts (Building 8)	15 feet/15 feet	15 feet/16 feet	15/193 feet	5 feet/150 feet
Building 1	15 feet/231 feet	15 feet/15 feet	15 feet/251 feet	5 feet/15 feet
Building 2	15 feet/237 feet	15 feet/65 feet	15 feet/149 feet	9 feet/15 feet
Building 3	15 feet/237 feet	15 feet/162 feet	15 feet/72 feet	9 feet/15 feet
Building 4	15 feet/176 feet	15 feet/15 feet	15 feet/251 feet	9 feet/70 feet
Building 5	15 feet/173 feet	15 feet/116 feet	15 feet/97 feet	9 feet/82 feet
Building 6	15 feet/119 feet	15 feet/111 feet	15 feet/82 feet	9 feet/136 feet
Building 7	9 feet/14 feet	15 feet/247 feet	15 feet/15 feet	9 feet/9 feet
Building 9	15 feet/15 feet	15 feet/105 feet	15 feet/115 feet	5 feet/222 feet
Building 10	15 feet/15 feet	15 feet/147 feet	15 feet/73 feet	5 feet/222 feet
Building 11	15 feet/15 feet	15 feet/189 feet	15 feet/31 feet	5 feet/222 feet

Floor Area Ratio (FAR)/Site Coverage: The maximum FAR in the MX zone is 1.0. The project would result in a FAR of 0.87 on the site. The maximum coverage in the MX zone is 60% of the total lot area.

The project would result in site coverage of 34%.

Building Height: The maximum building height in the MX zone is 30 feet, except that within the Commercial, Gateway Commercial, and Mixed-Use zoning districts, a maximum height of 36 feet may be allowed to accommodate third-floor multifamily residential development.

Proposed building heights are as follows:

-Commercial/Apartments: 30 feet 0 inches.
-Residential Buildings 1 and 4: 25 feet 3 inches
-Residential Buildings 9, 10 and 11: 25 feet 1 inches
-Residential Buildings 5, 6 and 7: 32 feet 11 inches
-Residential Buildings 2 and 3: 35 feet 2 inches

As proposed, the project would comply with applicable height limits.

Open Space: Per the MX zone in the Broadway Corridor, the project is required to have 300 square feet of open space per unit or 10,500 square feet. This open space may be provided in a combination of private patios/decks and common areas. Each unit has a deck or patio that is a minimum of 7 feet in depth and at least 100 square feet. These decks/patios provide a total of 4,892

square feet of private open space. In addition, there is 10,407 square feet of common open space that meets the requirement of the zoning ordinance.

The total open space is 15,299 square feet.

Bicycle Parking: Bicycle parking is required for new commercial and multi-family development.

The project will provide dedicated bicycle parking on site within the northside of the commercial/apartment building. This space will be enclosed and lockable. There will also be bike parking for the commercial located in the area between Building 4 and 8.

Inclusionary Units: Developments of five or more residential units must designate 20% of the total number of units as affordable. Therefore, a minimum of seven units within the development must be affordable.

There are eight units designated as affordable.

Architecture: The buildings are designed in diverse but complementary architectural styles. The three single family detached units have three distinct styles, Spanish, Modern Farmhouse and Ranch. Pitched roofs add to the traditional look. The commercial building is Traditional and is designed to look more residential in nature with a covered porch and decks. The apartment buildings are designed in a ranch style. The multifamily units are in Traditional and Contemporary styles. The main facades of all buildings have multiple offsetting planes in order to break up the massing of the buildings.

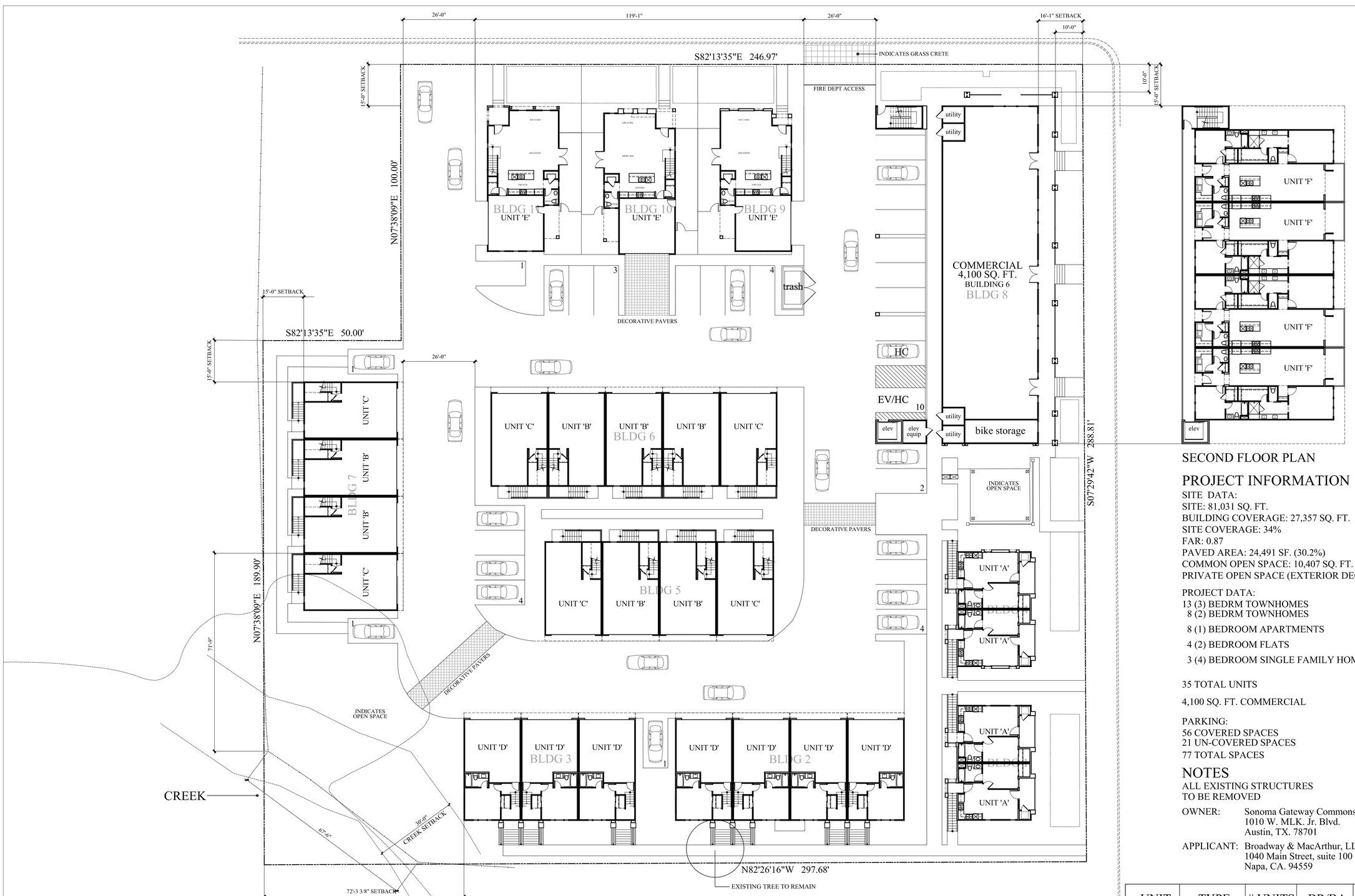
There is a retaining wall required along the Broadway and a portion of the MacArthur frontage of the commercial building. It is the intent of the project to preserve material from the stone foundation of the existing building in the back and use this material as the façade for this retaining wall.

Parking: There are a total of 62 parking spaces provided for the residential units including guest and 61 required.

There are 15 and commercial spaces provided onsite. In addition to the onsite parking, there is space along Broadway at the north end of the project for 8 additional spaces.

Trash: The commercial/apartment building has a trash enclosure for both a recycling and trash bin. The 23 townhomes will be handled with individual toters for trash and recycling. These units will have a dedicated space in the garage for the toters.

The site plan was reviewed and approved by Sonoma Sanitation.



SONOMA GATEWAY

VESTA PACIFIC DEVELOPMENT

N

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/16" = 1'-0"

JANUARY 08, 2018

SECOND FLOOR PLAN

PROJECT INFORMATION

SITE DATA:
SITE: 81,031 SQ. FT.
BUILDING COVERAGE: 27,357 SQ. FT.
SITE COVERAGE: 34%
FAR: 0.87
PAVED AREA: 24,491 SF. (30.2%)
COMMON OPEN SPACE: 10,407 SQ. FT.
PRIVATE OPEN SPACE (EXTERIOR DECKS): 4,892 SQ. FT.

PROJECT DATA:
13 (3) BEDRM TOWNHOMES
8 (2) BEDRM TOWNHOMES
8 (1) BEDROOM APARTMENTS
4 (2) BEDROOM FLATS
3 (4) BEDROOM SINGLE FAMILY HOMES

35 TOTAL UNITS

4,100 SQ. FT. COMMERCIAL

PARKING:
56 COVERED SPACES
21 UN-COVERED SPACES
77 TOTAL SPACES

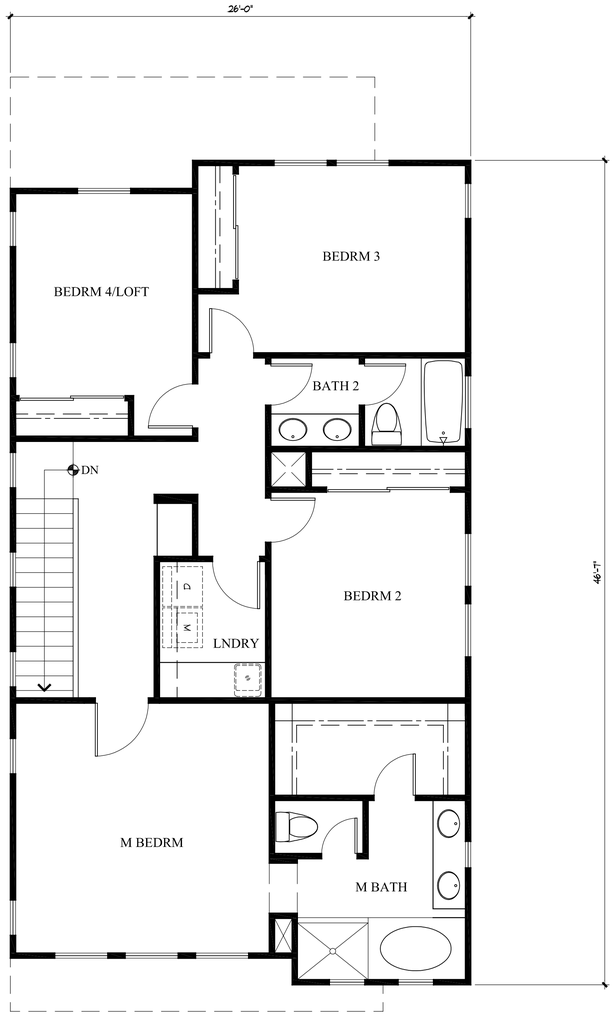
NOTES

ALL EXISTING STRUCTURES
TO BE REMOVED

OWNER: Sonoma Gateway Commons, L.P.
1010 W. MLK. Jr. Blvd.
Austin, TX. 78701

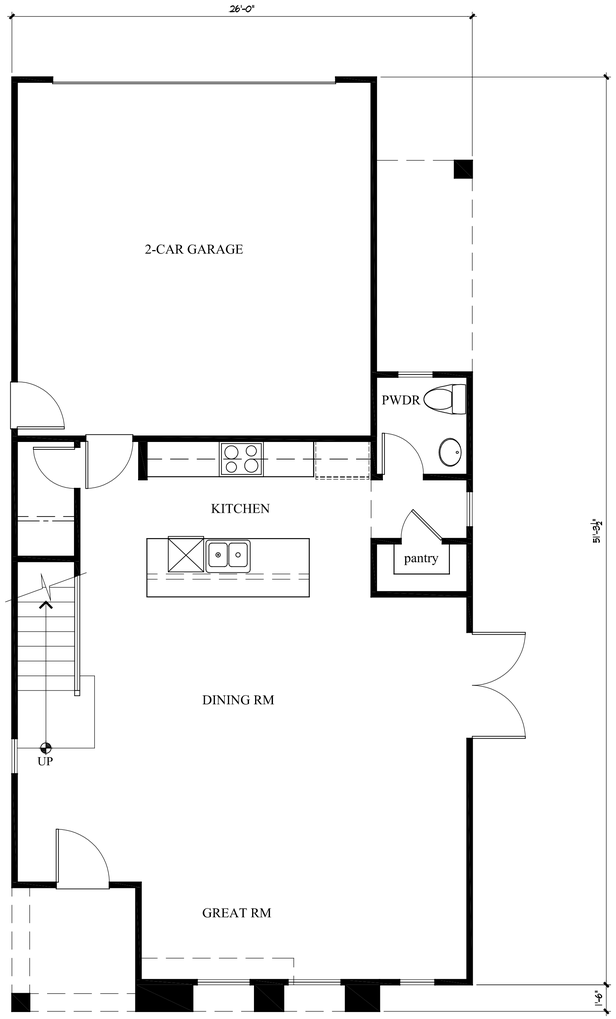
APPLICANT: Broadway & MacArthur, LLC
1040 Main Street, suite 100
Napa, CA. 94559

UNIT	TYPE	# UNITS	BR/BA	SQ FT	DECKS	PARK'G	TOT. SF
'A'	FLAT	8	1BR/1BA	486 SF	100 SF	1-CAR COV. -	486 SF
'B'	3 STORY TOWNHOUSE	7	2BR/D/3BA	1261 SF	116 SF	2-CAR GAR. 606 SF	1867 SF
'C'	3 STORY TOWNHOUSE	6	3BR/3BA	1386 SF	116 SF	2-CAR GAR. 606 SF	1992 SF
'D'	3 STORY TOWNHOUSE	7	3BR/3.5 BA	1458 SF	101 SF	2-CAR GAR. 426 SF	1884 SF
'E'	2 STORY SINGLE FAMILY	3	4BR/2.5 BA	1934 SF	261 SF	2-CAR GAR. 468 SF	2402 SF
'F'	FLAT	4	2BR/2.5 BA	1275 SF	100 SF	2-CAR COV. 360 SF	1635 SF



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

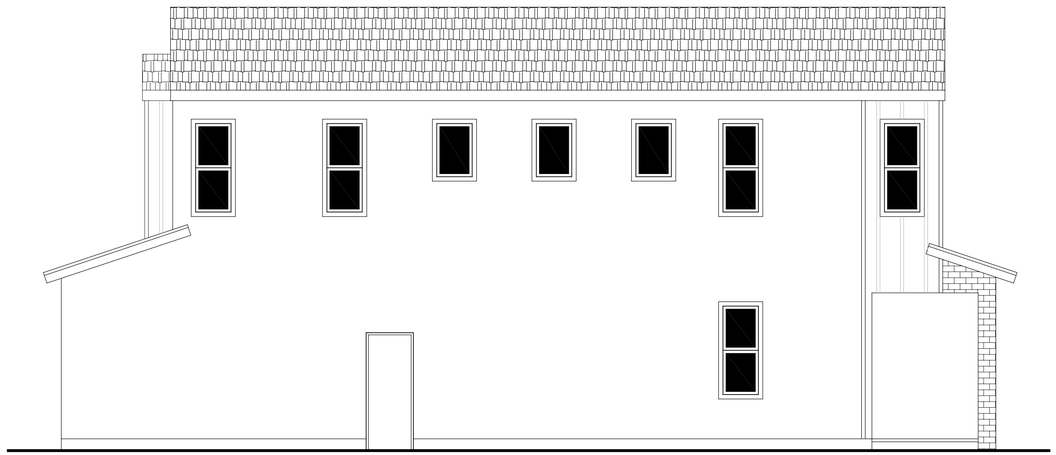
SONOMA GATEWAY
SINGLE FAMILY - BLDG 10
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.2

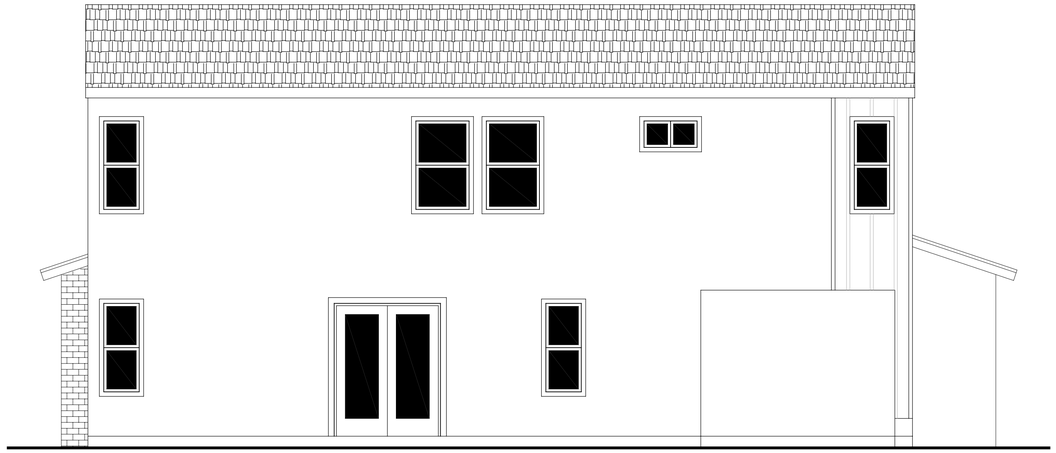


WEST ELEVATION

SCALE: 1/4" = 1'-0"

SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



EAST ELEVATION

SCALE: 1/4" = 1'-0"

NORTH ELEVATION

SCALE: 1/4" = 1'-0"

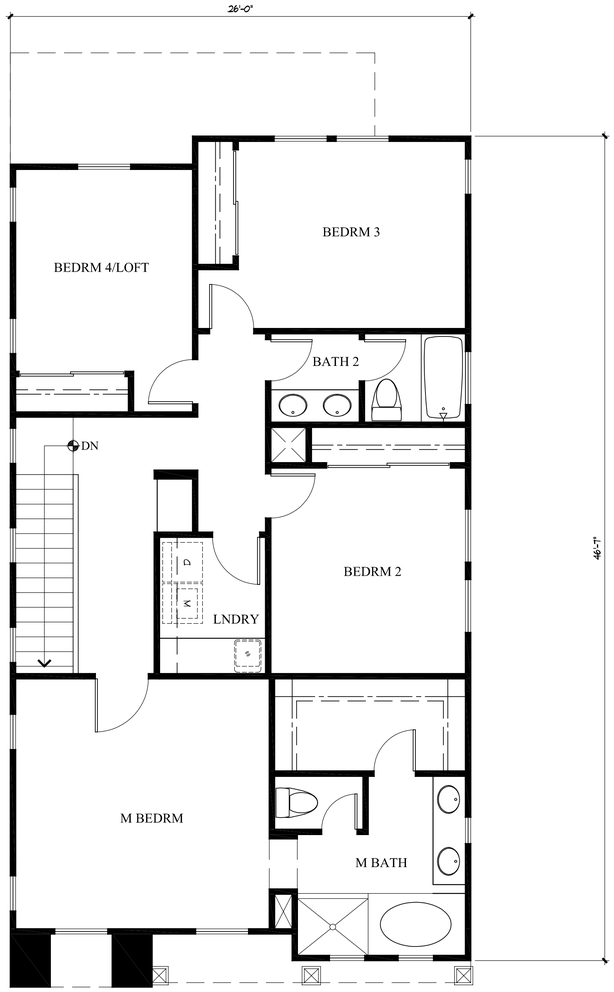
SONOMA GATEWAY
SINGLE FAMILY - BLDG 10
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

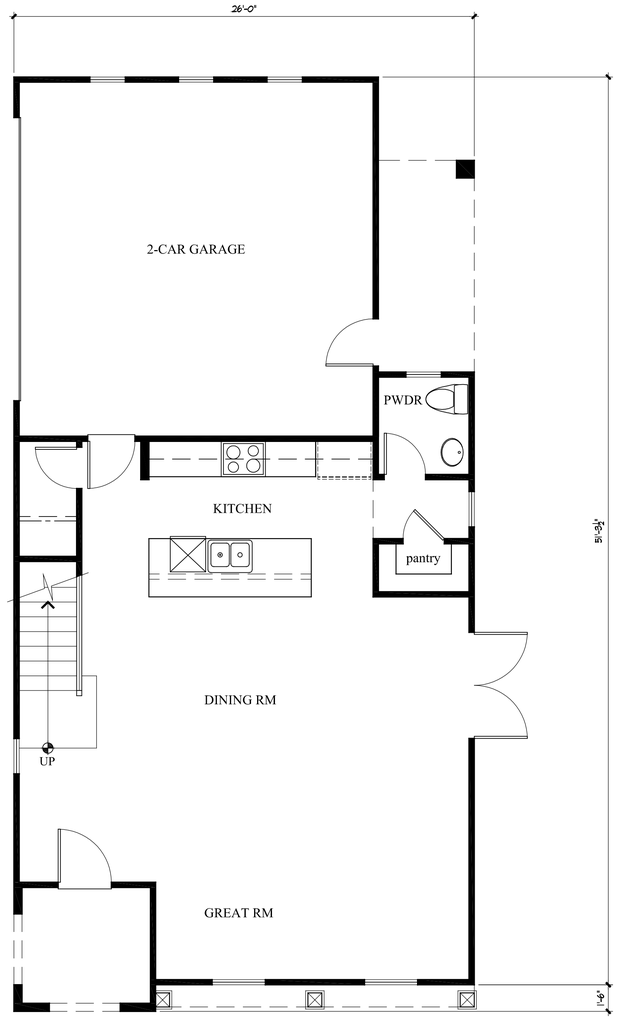
JANUARY 08, 2018

A.3



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

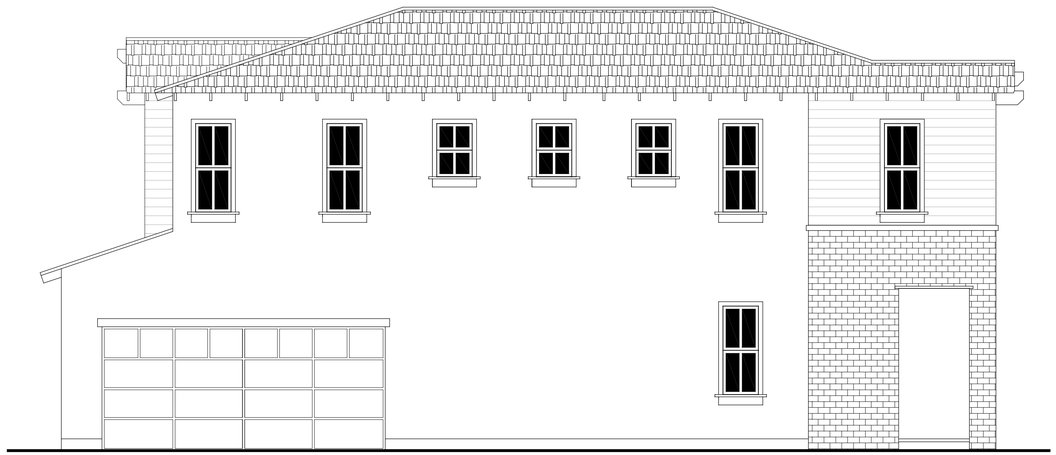
SONOMA GATEWAY
SINGLE FAMILY - BLDG 11
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.4



WEST ELEVATION

SCALE: 1/4" = 1'-0"

SOUTH ELEVATION

SCALE: 1/4" = 1'-0"

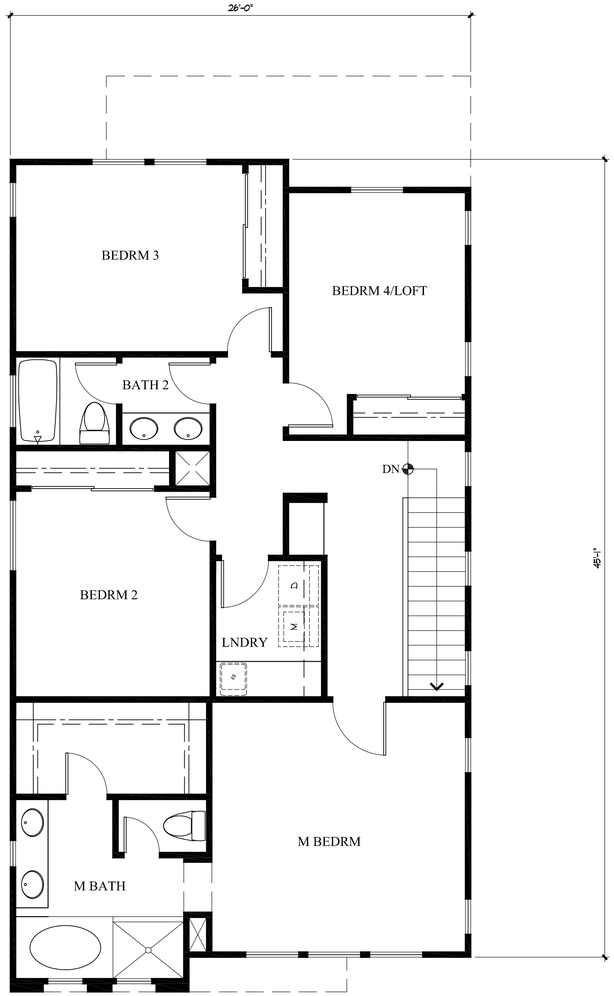
SONOMA GATEWAY
SINGLE FAMILY - BLDG 11
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

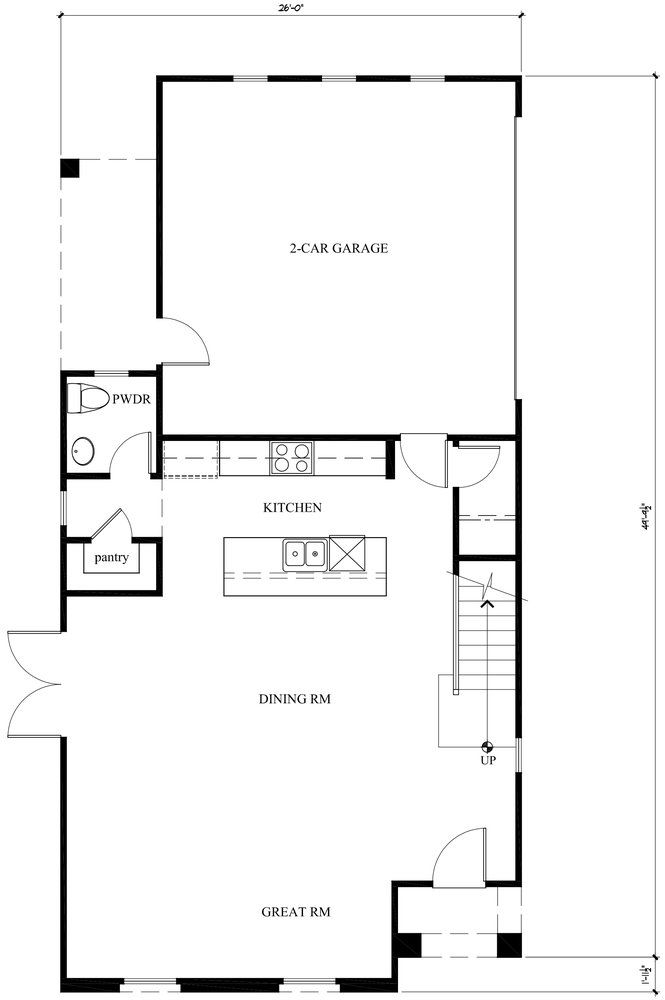
JANUARY 08, 2018

A.5



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

SONOMA GATEWAY
SINGLE FAMILY - BLDG 9
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

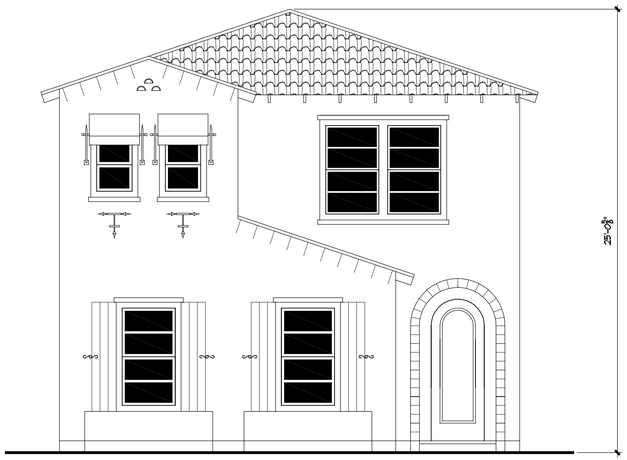
SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.6

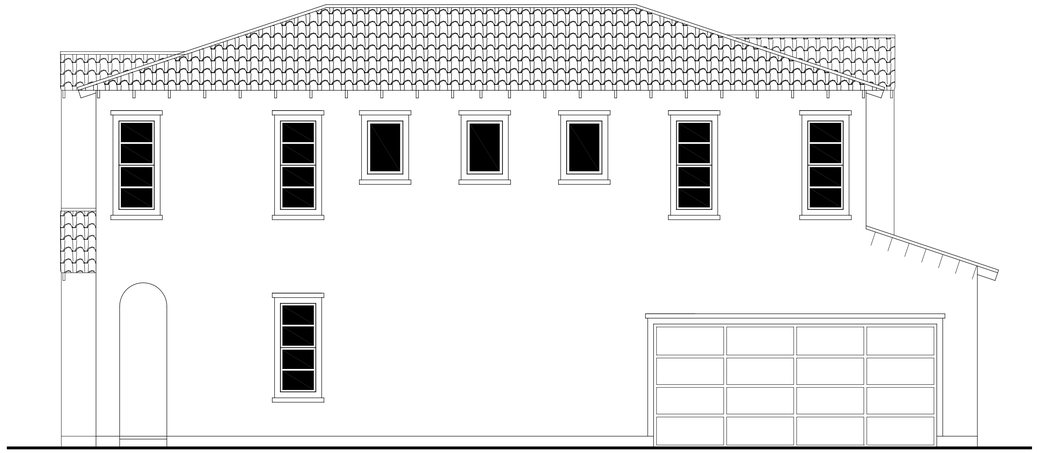
WEST ELEVATION

SCALE: 1/4" = 1'-0"



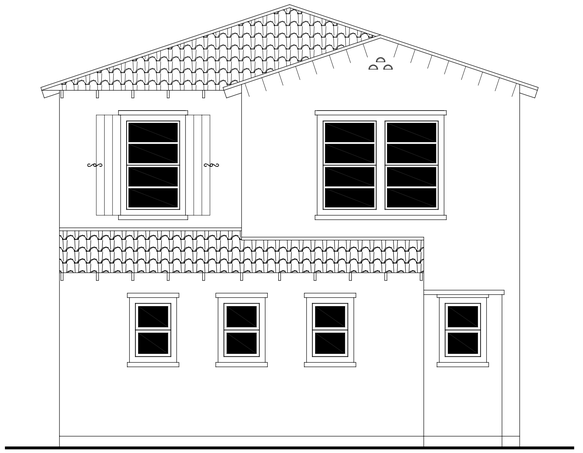
SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



EAST ELEVATION

SCALE: 1/4" = 1'-0"



NORTH ELEVATION

SCALE: 1/4" = 1'-0"

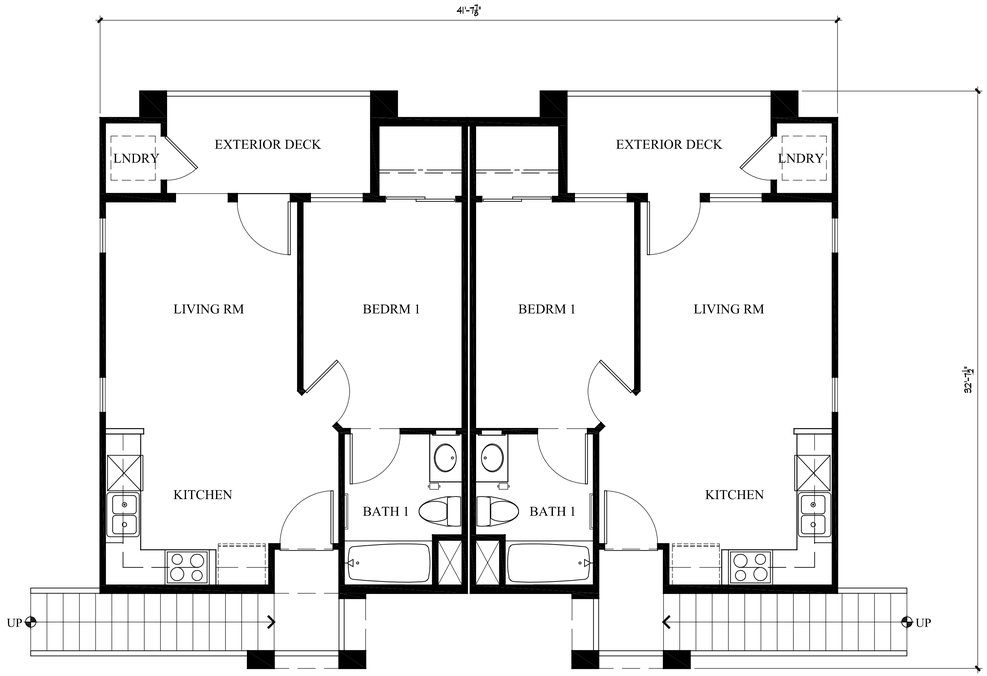
SONOMA GATEWAY
SINGLE FAMILY - BLDG 9
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.7



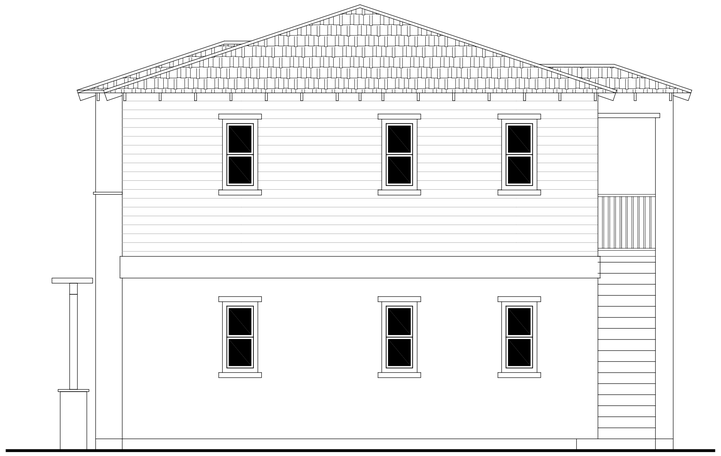
SONOMA GATEWAY
APARTMENTS - BLDG 1
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.8

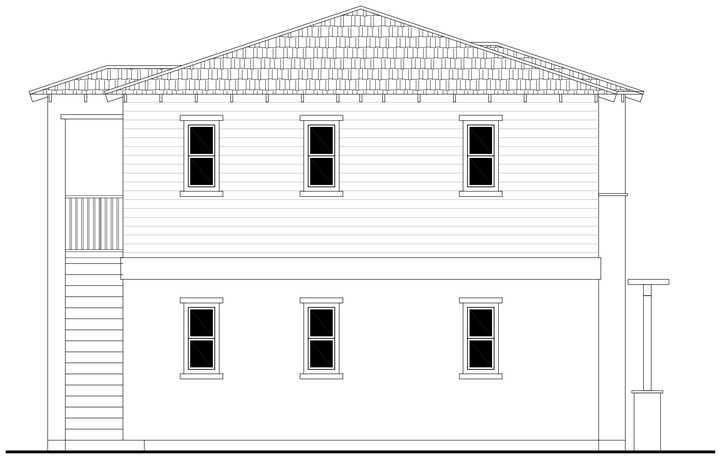


WEST ELEVATION

SCALE: 1/4" = 1'-0"

SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



EAST ELEVATION

SCALE: 1/4" = 1'-0"

NORTH ELEVATION

SCALE: 1/4" = 1'-0"

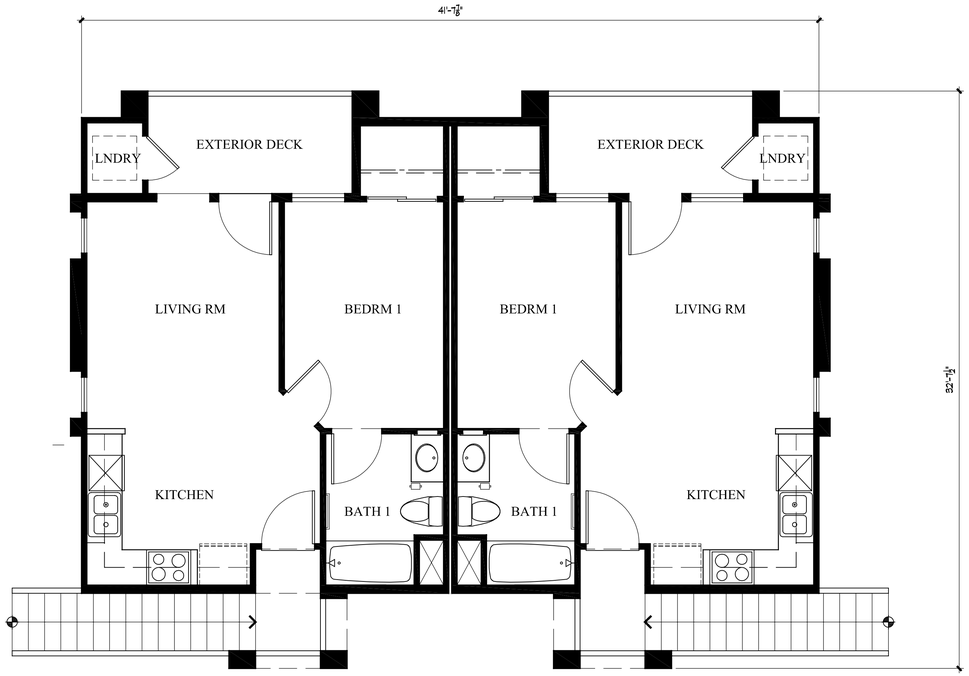
SONOMA GATEWAY
APARTMENTS - BLDG 1
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.9



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0" FIRST FLOOR SIMILAR

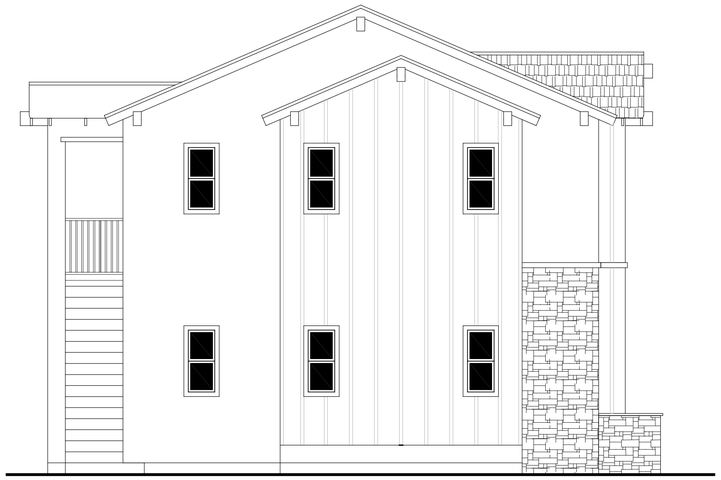
SONOMA GATEWAY
APARTMENTS - BLDG 4
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.10

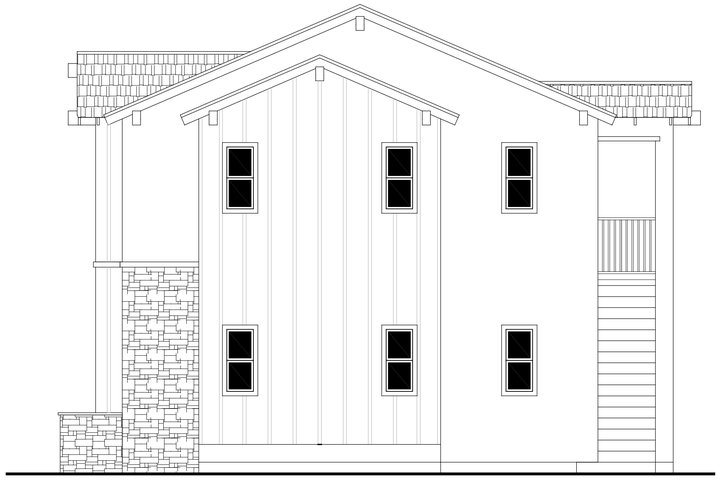


WEST ELEVATION

SCALE: 1/4" = 1'-0"

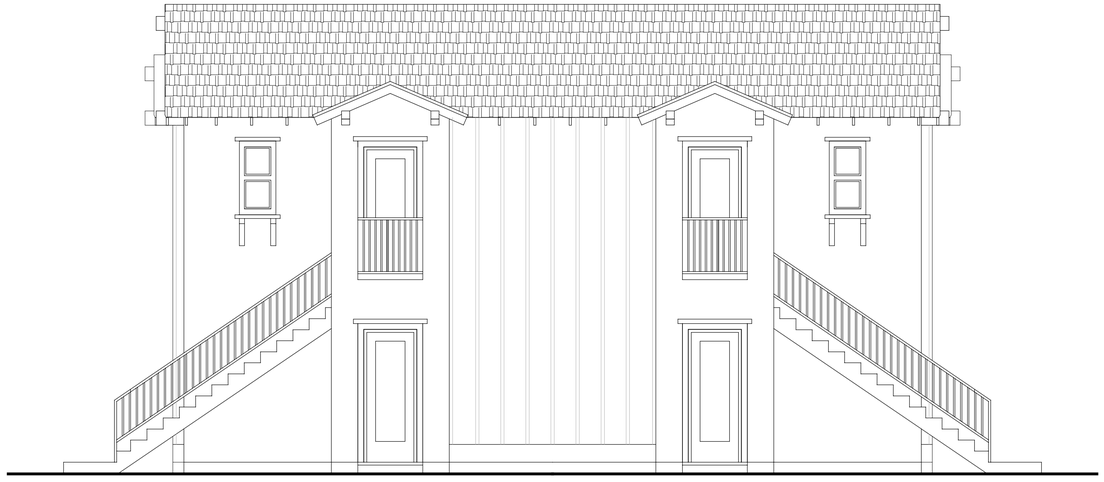
SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



EAST ELEVATION

SCALE: 1/4" = 1'-0"



NORTH ELEVATION

SCALE: 1/4" = 1'-0"

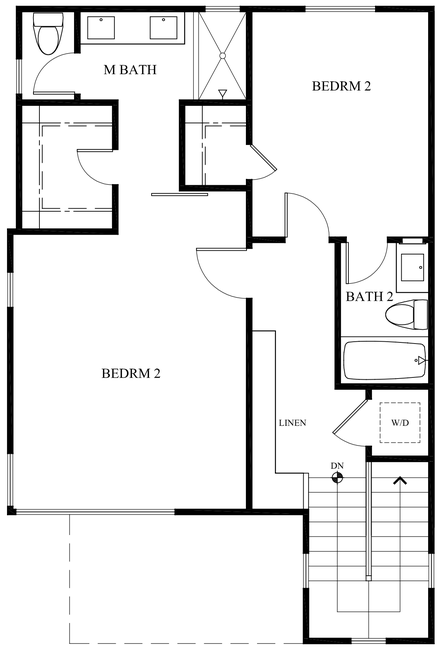
SONOMA GATEWAY
APARTMENTS - BLDG 4
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

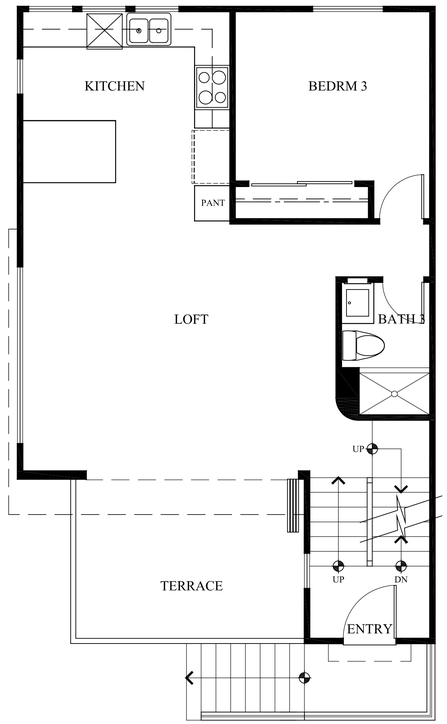
JANUARY 08, 2018

A.11



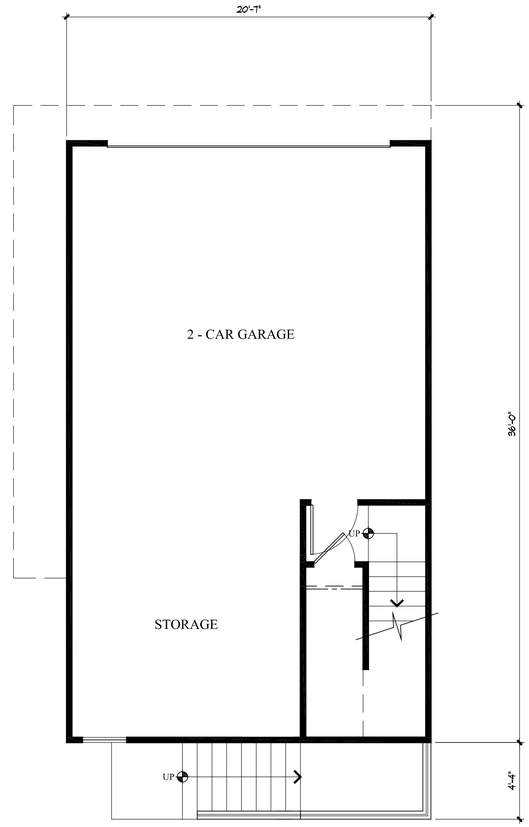
THIRD FLOOR PLAN - UNIT C

SCALE: 1/4" = 1'-0"



SECOND FLOOR PLAN - UNIT C

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN - UNIT C

SCALE: 1/4" = 1'-0"

FIRST FLOOR:	101 SQ. FT.
SECOND FLOOR:	618 SQ. FT.
THIRD FLOOR:	667 SQ. FT.
TOTAL:	1,386 SQ. FT.
GARAGE:	606 SQ. FT.
EXTERIOR DECK:	116 SQ. FT.

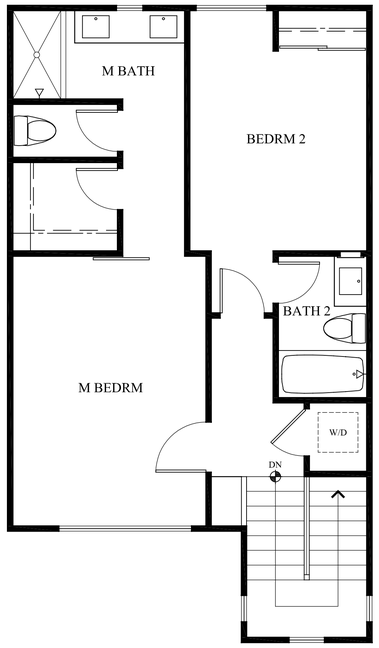
SONOMA GATEWAY
UNIT C FLOOR PLANS
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

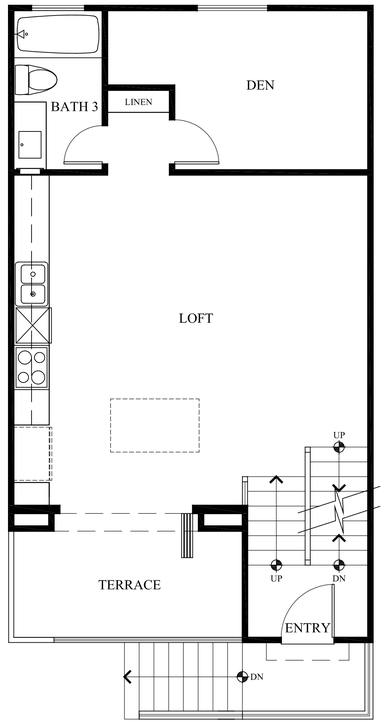
JANUARY 08, 2018

A.12



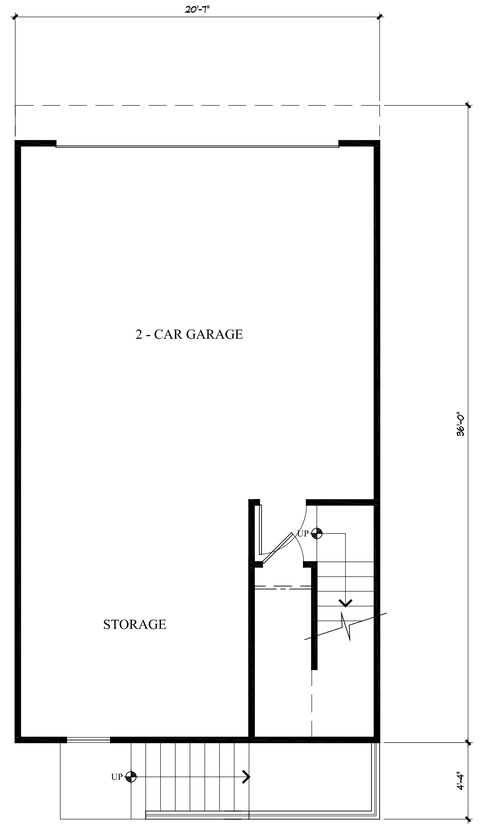
THIRD FLOOR PLAN - UNIT B

SCALE: 1/4" = 1'-0"



SECOND FLOOR PLAN - UNIT B

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN - UNIT B

SCALE: 1/4" = 1'-0"

FIRST FLOOR:	101 SQ. FT.
SECOND FLOOR:	570 SQ. FT.
THIRD FLOOR:	590 SQ. FT.
TOTAL:	1,261 SQ. FT.
GARAGE:	606 SQ. FT.
EXTERIOR DECK:	116 SQ. FT.

SONOMA GATEWAY
UNITS A & B FLOOR PLANS
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

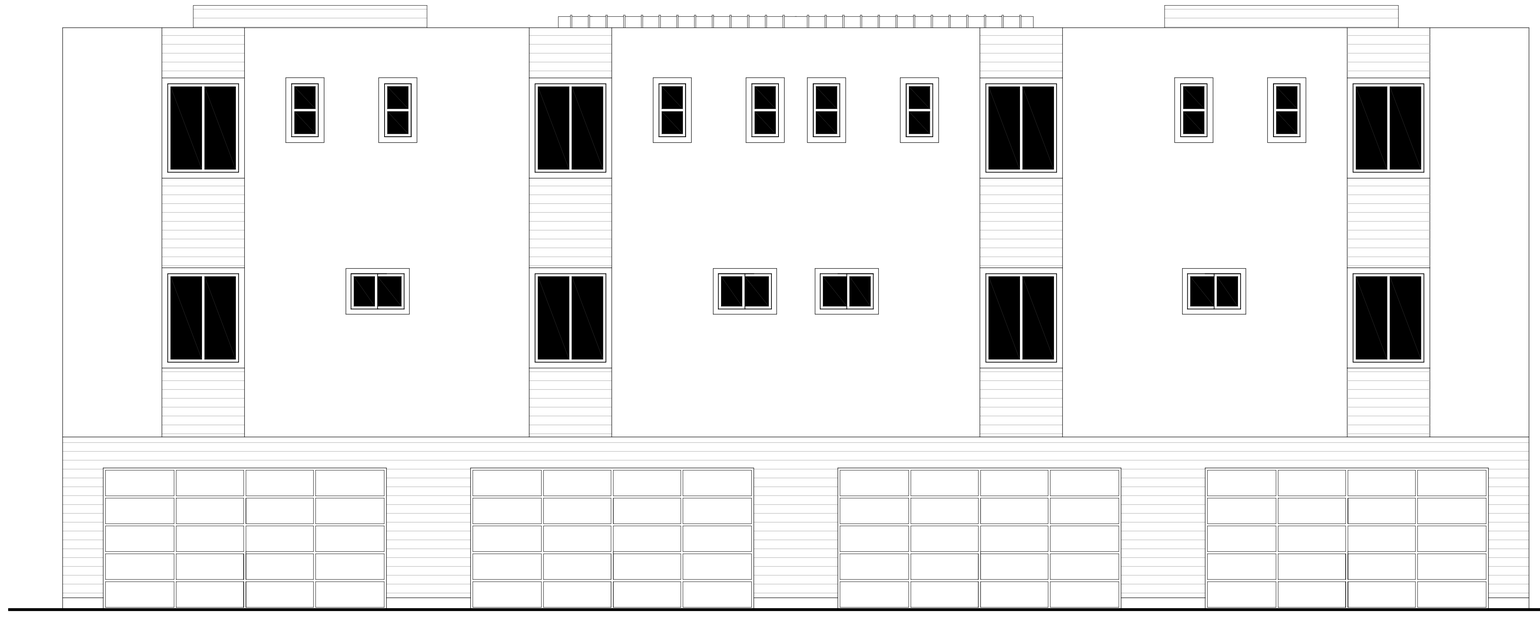
SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.13

FRONT ELEVATION

SCALE: 1/4" = 1'-0"



REAR ELEVATION

SCALE: 1/4" = 1'-0"

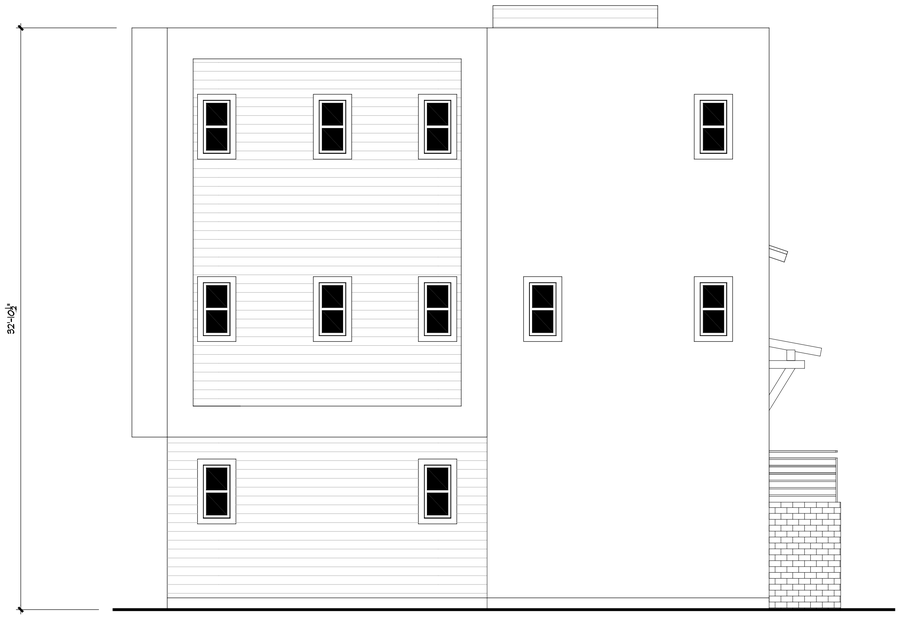
SONOMA GATEWAY
BUILDINGS - BLDGS 5 & 7 (6 SIMILAR)
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

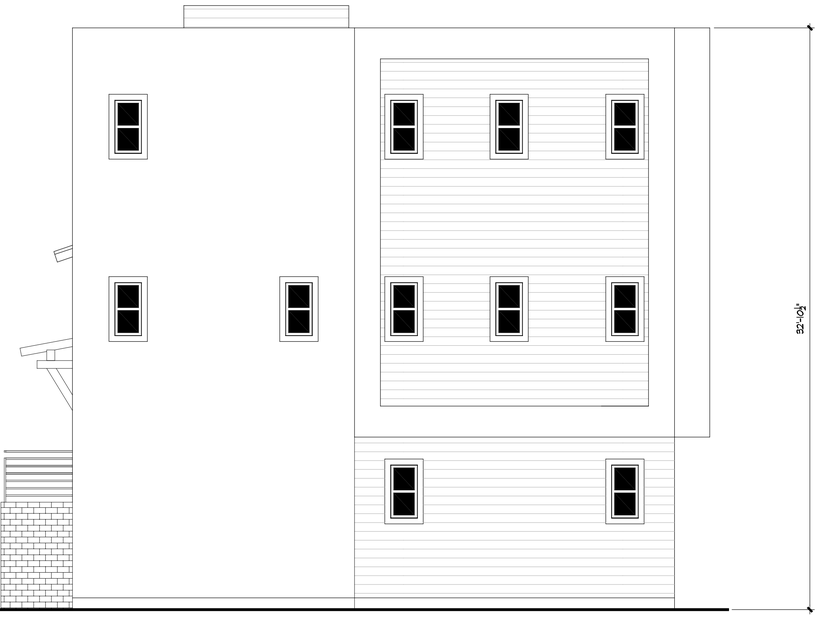
JANUARY 08, 2018

A.14



LEFT ELEVATION

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

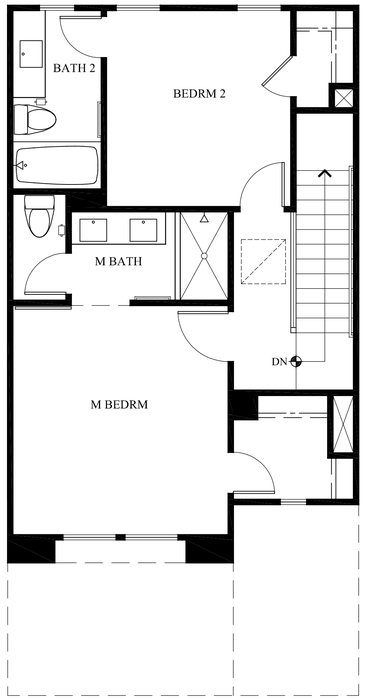
SONOMA GATEWAY
BUILDINGS - BLDGS 5 & 7 (6 SIMILAR)
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

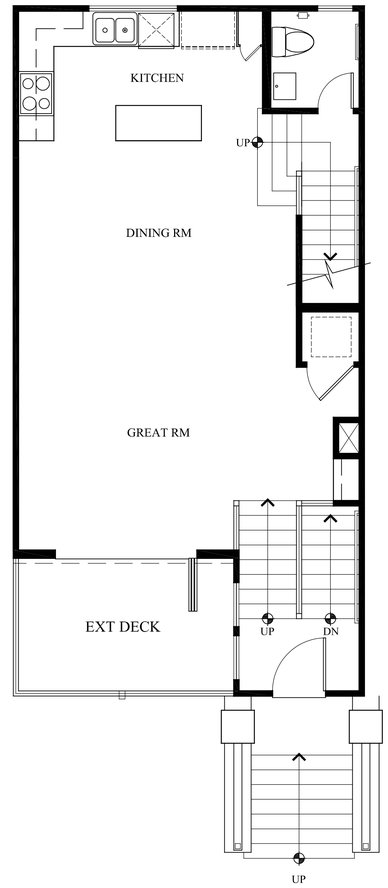
JANUARY 08, 2018

A.15



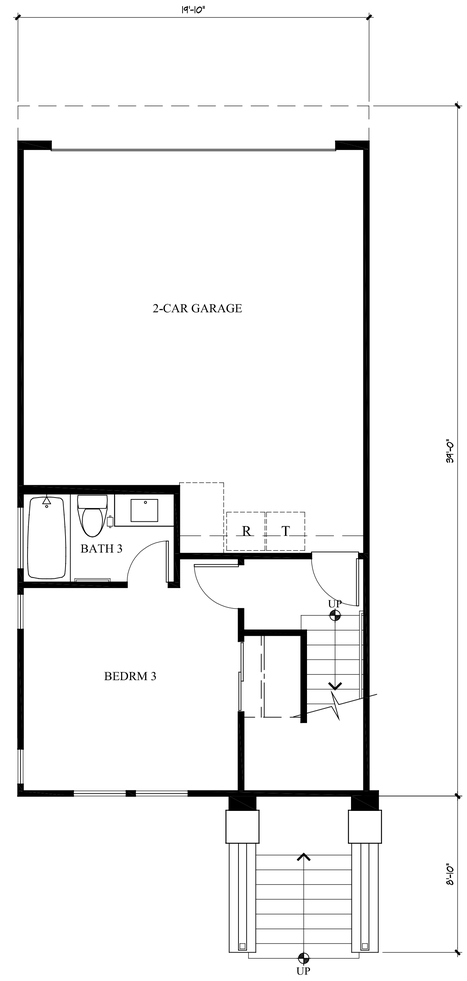
THIRD FLOOR PLAN - UNIT D

SCALE: 1/4" = 1'-0"



SECOND FLOOR PLAN - UN IT D

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN - UNIT D

SCALE: 1/4" = 1'-0"

FIRST FLOOR:	308 SQ. FT.
SECOND FLOOR:	621 SQ. FT.
THIRD FLOOR:	529 SQ. FT.
TOTAL:	1,458 SQ. FT.
GARAGE:	426 SQ. FT.
EXTERIOR DECK:	101 SQ. FT.

SONOMA GATEWAY
UNIT D FLOOR PLANS
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

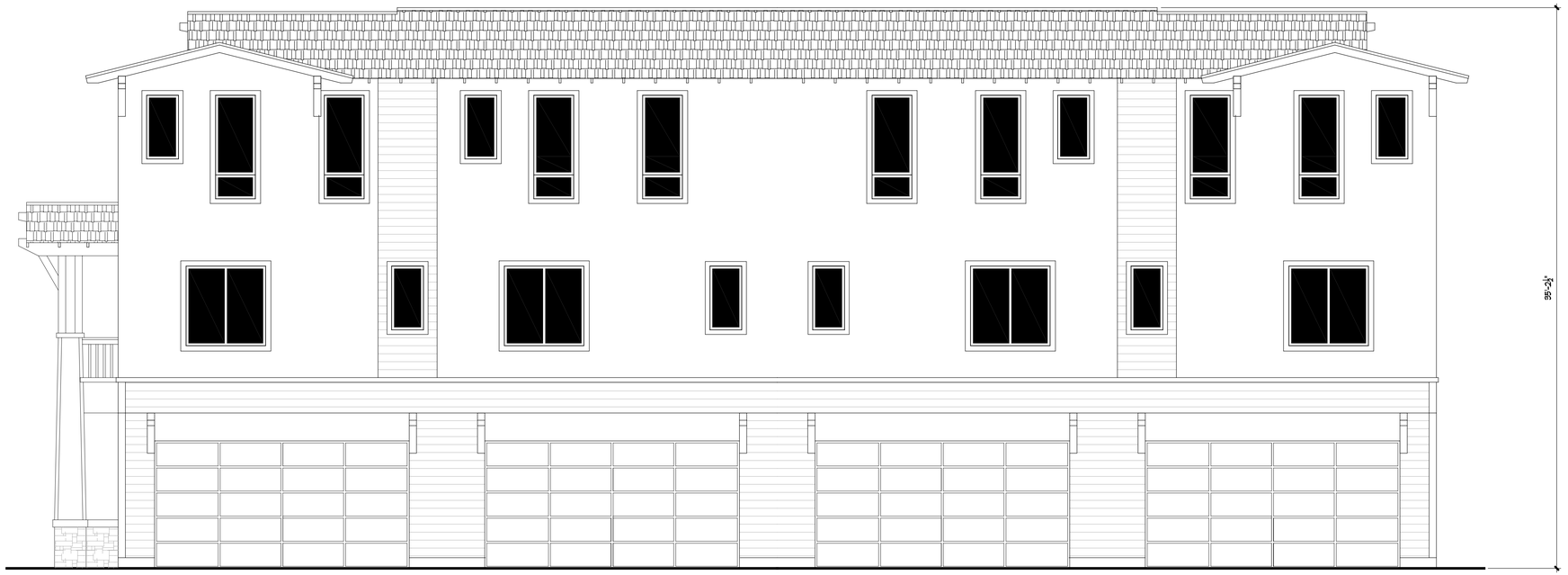
SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.16

NORTH ELEVATION

SCALE: 1/4" = 1'-0"



REAR

SONOMA GATEWAY
BUILDINGS - BLDGS 2 & 3
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.17

LEFT

RIGHT

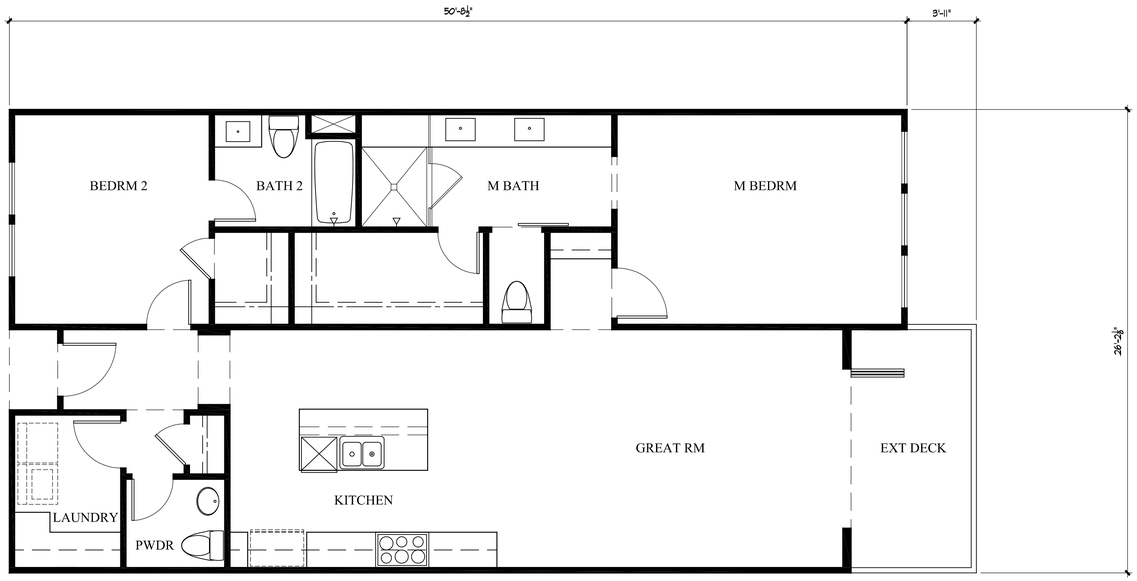
SONOMA GATEWAY
BUILDINGS - BLDGS 2 & 3
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.18



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

FIRST FLOOR: 1,275 SQ. FT.
EXTERIOR DECK: 100 SQ. FT.

SONOMA GATEWAY FLATS

VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.19

WEST ELEVATION

SCALE: 1/4" = 1'-0"

EAST ELEVATION

SCALE: 1/4" = 1'-0"

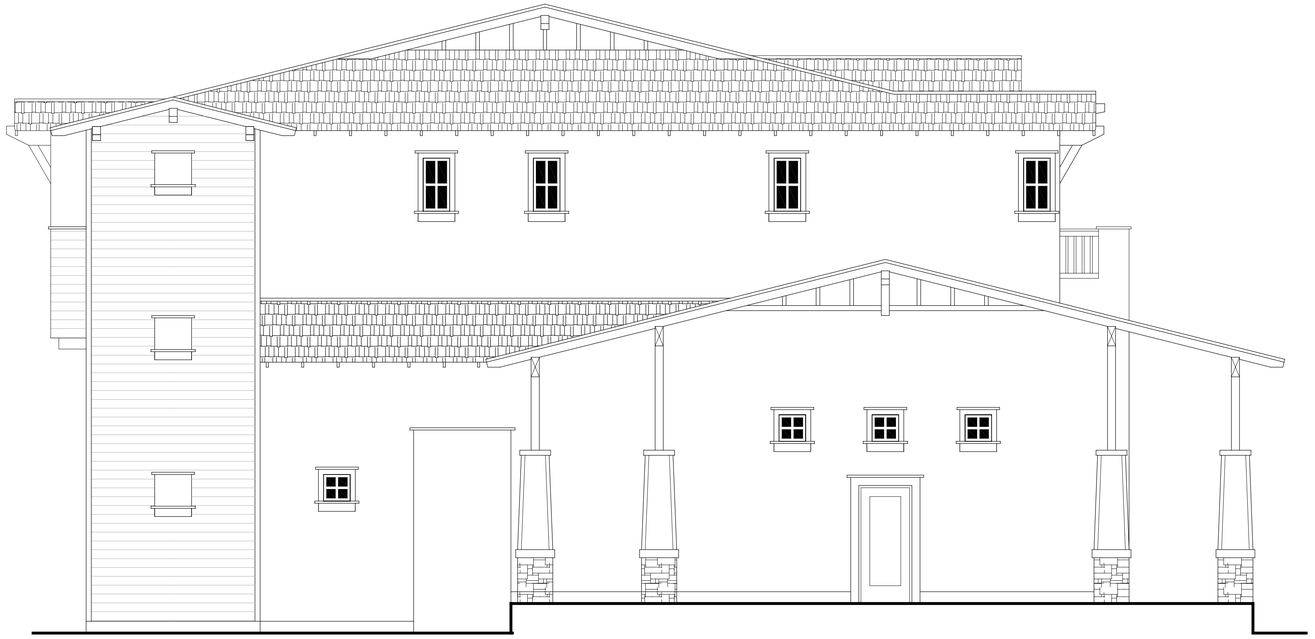
SONOMA GATEWAY
BUILDING - BLDG 8
VESTA PACIFIC DEVELOPMENT

THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.20



NORTH ELEVATION

SCALE: 1/4" = 1'-0"

SOUTH ELEVATION

SCALE: 1/4" = 1'-0"

SONOMA GATEWAY
BUILDING - BLDG 8
VESTA PACIFIC DEVELOPMENT

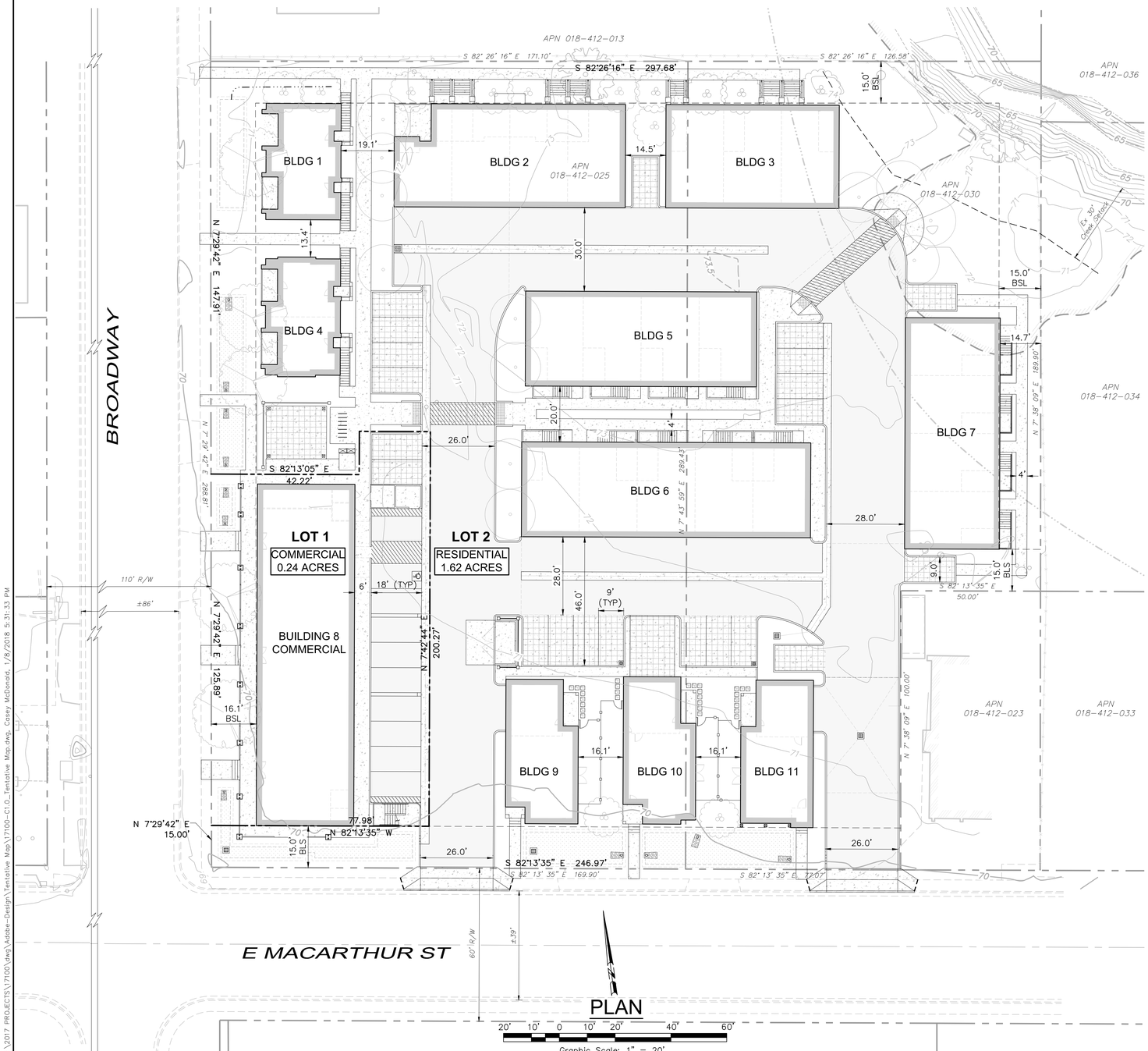
THE McKINLEY ASSOC., INC.
ARCHITECTURE & PLANNING

SCALE: 1/4" = 1'-0"

JANUARY 08, 2018

A.21

TENTATIVE MAP
SONOMA GATEWAY
870 BROADWAY
Sonoma, California
APN: 018-412-025 & 030



PLAN

20' 10' 0 10' 20' 40' 60'

Graphic Scale: 1" = 20'

SHEET INDEX

OWNER

SONOMA GATEWAY COMMONS LTD
110 W. MARTIN LUTHER KING JR BLVD
AUSTIN, TX 78701

SUBDIVIDER

MACARTHUR & BROADWAY, LLC
1818 1ST AVENUE, STE. 100
SAN DIEGO, CA 92101
CONTACT: PAM MACKELL
(619) 238-1134

ENGINEER

TIM SCHRAM, RCE 67890
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SAN DIEGO, CA 92101
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(619) 238-1134

SURVEYOR

AARON SMITH, PLS 7901
ADOBE ASSOCIATES, INC.
1220 N DUTTON AVENUE
SANTA ROSA, CALIFORNIA 95401
PHONE: (707) 541-2300
FAX: (707) 541-2301

LEGEND

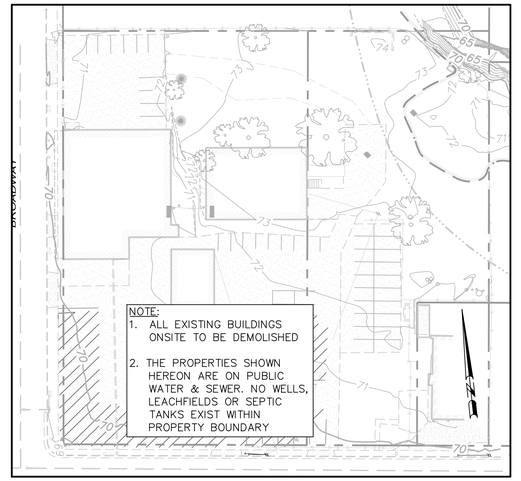
PROPOSED	EXISTING	DESCRIPTION
		PROPERTY BOUNDARY
		CURB & GUTTER
SSMH		6" SANITARY SEWER (0.003 MIN SLOPE) & MANHOLE
SSCO		4" SANITARY SEWER LATERAL (0.02 MIN SLOPE) & CLEANOUT
DI		STORM DRAIN & DRAIN INLET (DI)
		GATE VALVE

ABBREVIATIONS

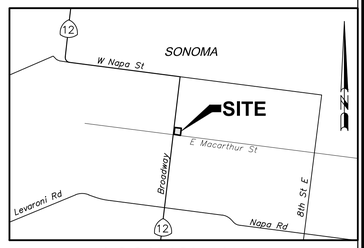
AAI	ADOBE ASSOCIATES, INC.	LF	LINEAR FEET
AB	AGGREGATE BASE	MAX	MAXIMUM
AC	ASPHALT CONCRETE	MH	MANHOLE
AD	AREA DRAIN	MIN	MINIMUM
BLDG	BUILDING	MRR	MEN'S RESTROOM
BM	BENCH MARK	NTS	NOT TO SCALE
C	COMPACT PARKING	NO	NUMBER
CB	CATCH BASIN	PIV	POST INDICATOR VALVE
CL	CLASS	PL	PROPERTY LINE
℄	CENTERLINE	PP	POWER POLE
CO	CLEANOUT	PUE	PUBLIC UTILITY EASEMENT
CONC	CONCRETE	RCE	REGISTERED CIVIL ENGINEER
DI	DROP INLET	RCP	REINFORCED CONCRETE PIPE
DWY	DRIVEWAY	R/W	RIGHT OF WAY
EG	EXISTING GROUND	S	SLOPE
EP	EDGE OF PAVEMENT	SD	STORM DRAIN
EL	ELEVATION	SS	SANITARY SEWER
EX	EXISTING	STA	STATION
FL	FLOWLINE	STD	STANDARD
FG	FINISH GRADE	TC	TOP OF CURB
FH	FIRE HYDRANT	TYP	TYPICAL
FS	FINISHED SURFACE	USP	UNDER SEPARATE PERMIT
FSS	FIRE SAFE STANDARD	W	WATER
GB	GRADE BREAK	WM	WATER METER
GR	GRATE	WRR	WOMEN'S RESTROOM
HC	HANDICAPPED	WV	WATER VALVE
IG	INVERT GRATE		

PAVING LEGEND:

- AC OVER CL II AB
- PERMEABLE PAVERS (SLD)
- HARDSCAPE (SLD)
- BIORETENTION AREA



EXISTING CONDITIONS MAP
SCALE: 1" = 50'



LOCATION MAP
NOT TO SCALE

LOT 1:

COMMERCIAL

LOT 2:

CONDO PARCEL OF 29 UNITS

SITE AREA:

81,031 SF = 1.86 ACRES

COMMERCIAL LOT SIZE:

10,250 = 0.24 ACRES

RESIDENTIAL LOT SIZE:

70,781 SF = 1.62 ACRES

BUILDING TYPES:

1 RESIDENTIAL 2-STORY BUILDING 24'-3" HIGH
2 RESIDENTIAL 3-STORY BUILDING 35'-2" HIGH
3 RESIDENTIAL 3-STORY BUILDING 35'-2" HIGH
4 RESIDENTIAL 2-STORY BUILDING 24'-3" HIGH
5 RESIDENTIAL 3-STORY BUILDING 32'-11" HIGH
6 RESIDENTIAL 3-STORY BUILDING 32'-11" HIGH
7 RESIDENTIAL 3-STORY BUILDING 32'-11" HIGH
8 MIXED USE BUILDING 1ST FLOOR COMMERCIAL 2ND FLOOR APARTMENTS 36'-0" HIGH
9 RESIDENTIAL 2-STORY BUILDING 25'-1" HIGH
10 RESIDENTIAL 2-STORY BUILDING 25'-1" HIGH
11 RESIDENTIAL 2-STORY BUILDING 25'-1" HIGH

No.	Date	Revisions	Description	Approved

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Timothy L. Schram, RCE 67890
My license expires 6/30/2019

REGISTERED PROFESSIONAL ENGINEER * TIMOTHY LEE SCHRAM * No. C67890 * Exp. 6/30/2019 * CIVIL * STATE OF CALIFORNIA

SONOMA GATEWAY
TENTATIVE MAP
870 Broadway
Sonoma, California
APN 018-412-025 & 030

SCALE: As NOTED
Date: January 04, 2018
Design by: W.R
Drawn by: JBC
Checked by: TLS

Sheet
C1.0
1 of 4 Sheets
Job 17100

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BROADWAY

E MACARTHUR ST

APN 018-412-013

APN 018-412-036

APN 018-412-025

APN 018-412-030

APN 018-412-034

APN 018-412-023

APN 018-412-033

Nathanson Creek

Ex Top of Bank

Ex 30' Creek Setback

Ex Edge of Floodway

Approximate FEMA Extent

Ex Fence

Ex Structure

Ex Conc Curb

Ex Sidewalk

Ex Dwy

Ex Curb, Gutter & Sidewalk

Ex Gas Pump

Ex Curb & Gutter

Ex Conc Pad

Ex Building

431 SF BIORETENTION

373 SF BIORETENTION

235 SF BIORETENTION

103 SF BIORETENTION

593 SF BIORETENTION

486 SF BIORETENTION

719 SF BIORETENTION

BLDG 1
73.00 FF

BLDG 2
73.50 FF

BLDG 3
74.00 FF

BLDG 4
72.50 FF

BLDG 5
73.50 FF

BLDG 6
72.60 FF

BLDG 7
72.75 SLAB

BLDG 8
71.75 SLAB

BLDG 9
72.25 FF

BLDG 10
72.00 FF

BLDG 11
71.50 FF

ELEVATOR LIFT

TRASH

DI

GB

15.0' BSL

28.0'

26.0'

18' (TYP)

16.1' BSL

GRADING & DRAINAGE PLAN

20' 10' 0 10' 20' 40' 60'

Graphic Scale: 1" = 20'

PAVING LEGEND:

- AC OVER CL II AB
- PERMEABLE PAVERS (SLD)
- HARDSCAPE (SLD)
- BIORETENTION AREA

KEY NOTES:

1. PROPOSED BIKE RACKS
2. PROPOSED MAIL BOXES

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Revisions

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SONOMA GATEWAY

GRADING & DRAINAGE PLAN

870 Broadway
Sonoma, California
APN 018-412-025 & 030

SCALE: AS NOTED
Date: January 04, 2018
Design by: WJR
Drawn by: JSC
Checked by: TLS

Sheet
C2.0
2 of 4 Sheets
Job 17100

BROADWAY

E MACARTHUR ST

APN 018-412-013

APN 018-412-025

APN 018-412-036

APN 018-412-030

APN 018-412-034

APN 018-412-023

APN 018-412-033

BLDG 1 73.00 FF

BLDG 2 73.50 FF

BLDG 3 74.00 FF

BLDG 4 72.50 FF

BLDG 5 73.50 FF

BLDG 6 72.60 FF

BLDG 7 72.75 SLAB

BLDG 8 71.75 SLAB

BLDG 9 72.25 FF

BLDG 10 72.00 FF

BLDG 11 71.50 FF

Ex Building

Ex Structure

Ex Fence

Ex Edge of Floodway

Approximate FEMA Extent

Nathanson Creek

Ex Top Bank

Ex 30' Creek Setback

Ex Conc Pad

TRASH

ELEVATOR LIFT

Ex Conc Curb

Ex Sidewalk

Ex Curb, Gutter & Sidewalk

Ex Gas Pump

Ex Transformer

Ex Curb & Gutter

Ex Light Std & Box

Ex SSCO

Ex PG&E Box

Ex WM

Ex Tele Box

Ex Stlt & Std

Ex Dwy

Ex SS

Ex SSMH 69.10 Rim

Ex SSMH

Ex 8" W

Ex FH

Ex WV

Ex WV's

Ex Utility Pole

Ex Traffic Signal Box

Ex Traffic Signal Pole & Box

WV

(17) 1" WATER METERS

431 SF BIORETENTION

373 SF BIORETENTION

235 SF BIORETENTION

103 SF BIORETENTION

593 SF BIORETENTION

486 SF BIORETENTION

719 SF BIORETENTION

WATER & FIRE POC (TYP)

SSCO (TYP)

DI

6" SD

WATER

6" SS MAIN (PRIVATE)

SSMH

4" SS LAT (TYP)

23' PUBLIC UTILITY EASEMENT

8" FW

FH PER FSS

6" SS MAIN

11'

SSCO

DI 70.89 FL, GR

DI 70.10 GR

WATER POC APPARTMENTS

WATER POC COMMERCIAL

FIRE POC

8" SD

4" SS LAT

IRR METER

(1) WATER METER (RESIDENTIAL)

(1) WATER METER (COMMERCIAL)

(10) 1" WATER METERS

WATER & FIRE POC (TYP)

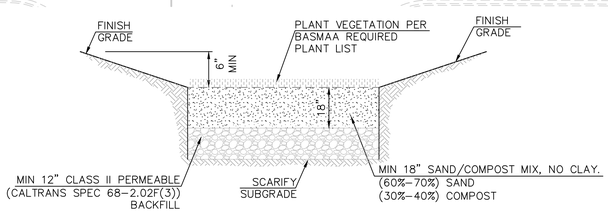
UTILITY PLAN

20' 10' 0 10' 20' 40' 60'

Graphic Scale: 1" = 20'

PAVING LEGEND:

- AC OVER CL II AB
- PERMEABLE PAVERS (SLD)
- HARDSCAPE (SLD)
- BIORETENTION AREA



TYPICAL BIORETENTION FACILITY

NTS

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SONOMA GATEWAY

UTILITY PLAN

870 Broadway
Sonoma, California
APN 018-412-025 & 030

SCALE: AS NOTED
Date: January 04, 2018
Design by: WJR
Drawn by: JBC
Checked by: TLS

Sheet
C3.0
3 of 4 Sheets
Job 17100

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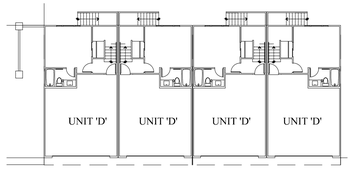
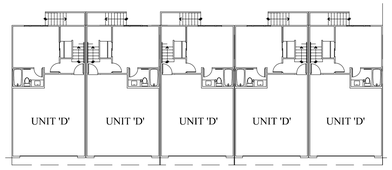
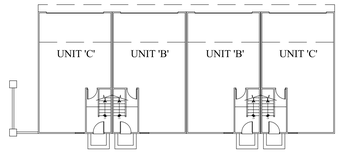


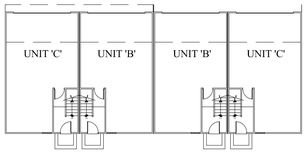
BUILDING 1
RESIDENTIAL



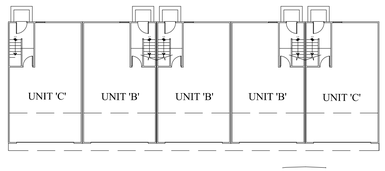
BUILDING 2
RESIDENTIAL



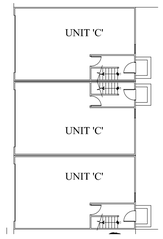
BUILDING 3
RESIDENTIAL



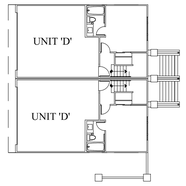
BUILDING 4
RESIDENTIAL



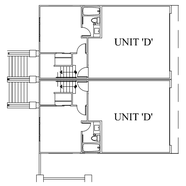
BUILDING 5
RESIDENTIAL



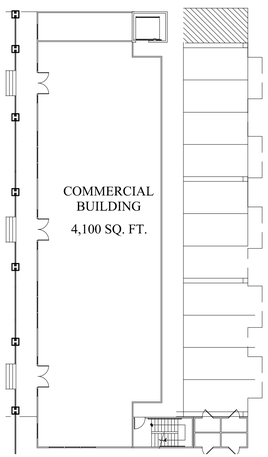
BUILDING 6
RESIDENTIAL



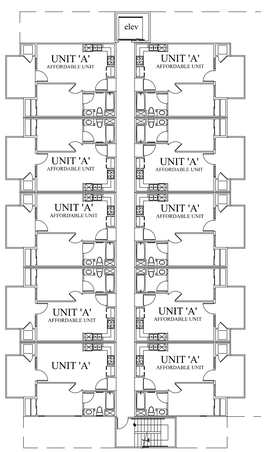
BUILDING 7
RESIDENTIAL



BUILDING 8
RESIDENTIAL



BUILDING 9
COMMERCIAL
FIRST FLOOR PLAN



BUILDING 9
RESIDENTIAL
SECOND FLOOR PLAN

UNIT	TYPE	# UNITS	BR/BA	SQ FT	DECKS	PARK'G	TOT. SF
'A'	FLAT	10 (9 TO BE AFFORDABLE)	1BR/1BA	486 SF	100 SF	1-CAR COV. 180 SF	486 SF
'B'	3 STORY TOWNHOUSE	8	2BR/3BA	1261 SF	116 SF	2-CAR GAR. 606 SF	1867 SF
'C'	3 STORY TOWNHOUSE	8	3BR/3BA	1386 SF	116 SF	2-CAR GAR. 606 SF	1992 SF
'D'	3 STORY TOWNHOUSE	13	3BR/3.5 BA	1458 SF	101 SF	2-CAR GAR. 426 SF	1884 SF

20' 10' 0 10' 20' 40' 60'
Graphic Scale: 1" = 20'

No.	Date	Revisions	Description	Approved

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Website: www.adobeinc.com
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Timothy L. Schram, RCE 67890
My license expires 6/30/2019

TIMOTHY LEE SCHRAM * No. C67890 * Exp. 6/30/2019 * CIVIL * STATE OF CALIFORNIA * REGISTERED PROFESSIONAL ENGINEER

SONOMA GATEWAY
TOWNHOME PLAN

870 Broadway
Sonoma, California
APN 018-412-025 & 030

SCALE: AS NOTED
Date: January 04, 2018
Design by: W.R.
Drawn by: JEC
Checked by: TLS

Sheet
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HORTICULTURAL
Associates

Consultants in Horticulture and Arboriculture

TREE PRESERVATION AND MITIGATION REPORT

SONOMA GATEWAY PROJECT
Sonoma, CA

Prepared For:

City of Sonoma
#1 The Plaza
Sonoma, CA 95476

Prepared by:

John C. Meserve
Consulting Arborist and Horticulturist
ISA Certified Arborist, WE #0478A
ISA Tree Risk Assessment Qualified

December 27, 2017

HORTICULTURAL Associates

Consultants in Horticulture and Arboriculture
P.O Box 1261, Glen Ellen, CA 95442

December 27, 2017

Wendy Atkins
Public Works Department
City of Sonoma
No. 1, The Plaza
Sonoma, CA 95476

Re: Completed *Tree Preservation and Mitigation Report*, Sonoma Gateway Project, Sonoma

Wendy,

Attached you will find our completed *Tree Preservation and Mitigation Report* for the above noted site in Sonoma. A total of 48 trees were evaluated on the property, and overhanging the property, and this includes all trees that are present, per the Sonoma Tree Ordinance.

Each tree in this report was evaluated and documented for species, size, health, and structural condition. The *Tree Inventory Chart* also includes information about expected impacts of the proposed development plan and recommendations for action based on the plan reviewed. The *Tree Location Plan* shows the location and numbering sequence of all evaluated trees. A *Tree Protection Fence* detail is included, as well as *Tree Protection Guidelines* and *Pruning Standards.*

This report is intended to be a basic inventory of trees present at this site, which includes a general review of tree health and structural condition. No in-depth evaluation has occurred, and assessment has included only external visual examination without probing, drilling, coring, root collar examination, root excavation, or dissecting any tree part. Failures, deficiencies, and problems may occur in these trees in the future, and this inventory in no way guarantees or provides a warranty for their condition.

EXISTING SITE CONDITION SUMMARY

The project site consists of existing commercial structures, parking lots, and bare ground.

EXISTING TREE SUMMARY

Native tree species found on the site include Coast Live Oak, Valley Oak, California Buckeye, Oregon Ash, and Big Leaf Maple.

Ornamental tree species include Glossy Privet, Wild Plum, Tree of Heaven, Olive, Black Locust, Italian Buckthorn, Silver Wattle, American Arborvitae, and Black Walnut.

CONSTRUCTION IMPACT SUMMARY

Of the 48 trees in this inventory the following impacts can be expected:

(12) Preservation appears to be possible

(18) Removal required due to expected development impacts and poor existing condition

(16) Removal required due to expected development impacts

(2) Removal required due to poor existing condition

No grading, drainage, or utility plans were reviewed as part of this assignment, and these activities may have impacts on trees that are considered preservable in this study. Further review may be necessary after this information becomes available.

Please feel free to contact me if you have questions regarding this report, or if further discussion would be helpful.

Regards,

John C. Meserve
Consulting Arborist and Horticulturist
ISA Certified Arborist, WE #0478A
ISA Tree Risk Assessment Qualified

TREE INVENTORY CHART

TREE INVENTORY
City of Sonoma
Sonoma Gateway Project

December 27, 2018

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Tree Protection Zone (Diameter feet)	Health 1 - 5	Structure 1 - 4	Expected Impact	Recommendations
1	*Robinia pseudoacacia*	Black Locust	24+21	60	21	45	3	2	3	4
2	*Robinia pseudoacacia*	Black Locust	10+7.5	38	18	40	3	2	3	4
3	*Acer macrophyllum*	Big Leaf Maple	14+16	28	19	40	3	3	3	4
4	*Quercus lobata*	Valley Oak	18	40	20	42	3	3	3	4
5	*Ailanthus altissima*	Tree of Heaven	18	35	18	40	3	2	3	4
6	*Thuja occidentalis*	American Arborvitae	15.5	35	16	36	3	2	3	4
7	*Juglans nigra*	Black Walnut	5	12	6	15	2	2	3	4
8	*Prunus* sp.	Wild Plum	2+3+3+2	12	8	18	2	2	3	4
9	*Ailanthus altissima*	Tree of Heaven	14.5	35	14	30	2	2	3	4
10	*Thuja occidentalis*	American Arborvitae	18	45	16	36	3	3	3	4
11	*Quercus lobata*	Valley Oak	14	38	15	33	3	3	3	2
12	*Juglans nigra*	Black Walnut	4+2.5+5	18	12	26	3	3	3	2
13	*Quercus agrifolia*	Coast Live Oak	5+4.5+4.5	20	16	36	4	3	3	2
14	*Ligustrum lucidum*	Glossy Privet	3+4+1x8	15	10	22	4	3	3	2
15	*Quercus lobata*	Valley Oak	22	50	30	63	3	3	3	2
16	*Robinia pseudoacacia*	Black Locust	7	25	14	30	3	2	3	4
17	*Robinia pseudoacacia*	Black Locust	11	27	9	21	3	2	3	4

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TREE INVENTORY
City of Sonoma
Sonoma Gateway Project

December 27, 2018

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Tree Protection Zone (Diameter feet)	Health 1 - 5	Structure 1 - 4	Expected Impact	Recommendations
18	*Aesculus californica*	California Buckeye	5	15	12	26	3	3	2	1, 6, 7, 8, 9
19	*Aesculus californica*	California Buckeye	14	25	18	39	3	3	2	1, 6, 7, 8, 9
20	*Aesculus californica*	California Buckeye	12+12+12+12	30	24	51	3	3	2	1, 6, 7, 8, 9
21	*Robinia pseudoacacia*	Black Locust	3	22	6	15	4	4	3	2
22	*Robinia pseudoacacia*	Black Locust	3	20	6	15	4	4	3	2
23	*Robinia pseudoacacia*	Black Locust	3	18	6	15	4	4	3	2
24	*Olea europaea*	Olive	4+2+2	15	6	15	4	4	3	2
25	*Rhamnus alaternus*	Italian Buckthorn	2+2+2	16	6	15	4	4	2	1, 6, 7, 8, 9
26	*Fraxinus latifolia*	Oregon Ash	16+11.5	32	20	42	3	2	2	3
27	*Robinia pseudoacacia*	Black Locust	13+14	38	18	39	4	2	2	3
28	*Quercus lobata*	Valley Oak	16	36	24	51	3	3	2	1, 6, 7, 8, 9
29	*Quercus lobata*	Valley Oak	10	36	24	51	3	3	0	1, 6, 7, 8, 9
30	*Quercus lobata*	Valley Oak	12+12	42	26	55	3	3	0	1, 6, 7, 8, 9
31	*Quercus lobata*	Valley Oak	16	42	25	53	3	3	0	1, 6, 7, 8, 9
32	*Quercus lobata*	Valley Oak	6.5	25	12	26	3	3	0	1, 6, 7, 8, 9
33	*Fraxinus latifolia*	Oregon Ash	5.5	25	20	42	2	3	0	1, 6, 7, 8, 9
34	*Quercus lobata*	Valley Oak	7.5	25	14	30	3	3	0	1, 6, 7, 8, 9

TREE INVENTORY
City of Sonoma
Sonoma Gateway Project

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Tree Protection Zone (Diameter feet)	Health 1 - 5	Structure 1 - 4	Expected Impact	Recommendations
35	*Robinia pseudoacacia*	Black Locust	20+13	34	20	42	4	2	3	4
36	*Robinia pseudoacacia*	Black Locust	14+15+13	35	24	51	3	2	3	4
37	*Robinia pseudoacacia*	Black Locust	12.5	30	20	42	3	2	3	4
38	*Acacia dealbata*	Silver Wattle	11	25	20	42	4	2	3	4
39	*Acacia dealbata*	Silver Wattle	13+10+10+8+8	30	25	53	4	2	3	4
40	*Quercus lobata*	Valley Oak	7+2	32	16	36	4	4	3	2
41	*Prunus* sp.	Wild Plum	4	20	6	15	4	4	3	2
42	*Prunus* sp.	Wild Plum	5.5+7.5+6	20	5	12	1	1	3	4
43	*Robinia pseudoacacia*	Black Locust	14	32	16	36	3	3	3	2
44	*Robinia pseudoacacia*	Black Locust	26	46	22	46	3	3	3	2
45	*Ligustrum lucidum*	Glossy Privet	7.5	28	12	26	4	4	3	2
46	*Ligustrum lucidum*	Glossy Privet	8	28	12	26	4	4	3	2
47	*Ailanthus altissima*	Tree of Heaven	12	30	18	39	4	4	3	2
48	*Quercus lobata*	Valley Oak	16	34	25	52	4	3	1	1, 6, 7, 8, 9

KEY TO TREE INVENTORY CHART

KEY TO TREE INVENTORY CHART

Sonoma Gateway Project
Sonoma, California

Tree Number

Each tree has been identified in the field with an aluminum tag and reference number. Tags are attached to the trunk at approximately eye level and the *Tree Location Plan* illustrates the location of each numbered tree.

Species

Each tree has been identified by genus, species and common name. Many species have more than one common name.

Trunk

Each trunk has been measured, to the nearest one half inch, to document its diameter at 4 feet above adjacent grade. Trunk diameter is a good indicator of age, and is commonly used to determine mitigation replacement requirements.

Height

Height is estimated in feet, using visual assessment.

Radius

Radius is estimated in feet, using visual assessment. Since many canopies are asymmetrical, it is not uncommon for a radius estimate to be an average of the canopy size.

Health

The following descriptions are used to rate the health of a tree. Trees with a rating of 4 or 5 are very good candidates for preservation and will tolerate more construction impacts than trees in poorer condition. Trees with a rating of 3 may or may not be good candidates for preservation, depending on the species and expected construction impacts. Trees with a rating of 1 or 2 are generally poor candidates for preservation.

(5) Excellent - health and vigor are exceptional, no pest, disease, or distress symptoms.

(4) Good - health and vigor are average, no significant or specific distress symptoms, no significant pest or disease.

(3) Fair - health and vigor are somewhat compromised, distress is visible, pest or disease may be present and affecting health, problems are generally correctable.

(2) Marginal - health and vigor are significantly compromised, distress is highly visible and present to the degree that survivability is in question.

(1) Poor - decline has progressed beyond the point of being able to return to a healthy condition again. Long-term survival is not expected. This designation includes dead trees.

Structure

The following descriptions are used to rate the structural integrity of a tree. Trees with a rating of 3 or 4 are generally stable, sound trees which do not require significant pruning, although cleaning, thinning, or raising the canopy might be desirable. Trees with a rating of 2 are generally poor candidates for preservation unless they are preserved well away from improvements or active use areas. Significant time and effort would be required to reconstruct the canopy and improve structural integrity. Trees with a rating of 1 are hazardous and should be removed.

(4) Good structure - minor structural problems may be present which do not require corrective action.

(3) Moderate structure - normal, typical structural issues which can be corrected with pruning.

(2) Marginal structure - serious structural problems are present which may or may not be correctable with pruning, cabling, bracing, etc.

(1) Poor structure - hazardous structural condition which cannot be effectively corrected with pruning or other measures, may require removal depending on location and the presence of targets.

Development Impacts

Considering the proximity of construction activities, type of activities, tree species, and tree condition - the following ratings are used to estimate the amount of impact on tree health and stability. Most trees will tolerate a (1) rating, many trees could tolerate a (2) rating with careful consideration and mitigation, but trees with a (3) rating are poor candidates for preservation due to their very close proximity to construction or because they are located within the footprint of construction and cannot be preserved.

(3) A significant impact on long term tree integrity can be expected as a result of proposed development.

(2) A moderate impact on long term tree integrity can be expected as a result of proposed development.

(1) A very minor or no impact on long term tree integrity can be expected as a result of proposed development.

(0) No impact is expected

Recommendations

Recommendations are provided for removal or preservation. For those being preserved, protection measures and mitigation procedures to offset impacts and improve tree health are provided.

(1) Preservation appears to be possible.

(2) Removal is required due to significant development impacts.

(3) Removal is recommended due to poor health or hazardous structure.

(4) Removal is required due to significant development impacts and poor existing condition.

(5) Removal is recommended due to poor species characteristics.

(6) Install temporary protective fencing at the edge of the dripline, or edge of approved construction, prior to beginning grading or construction. Maintain fencing in place for duration of all construction activity in the area.

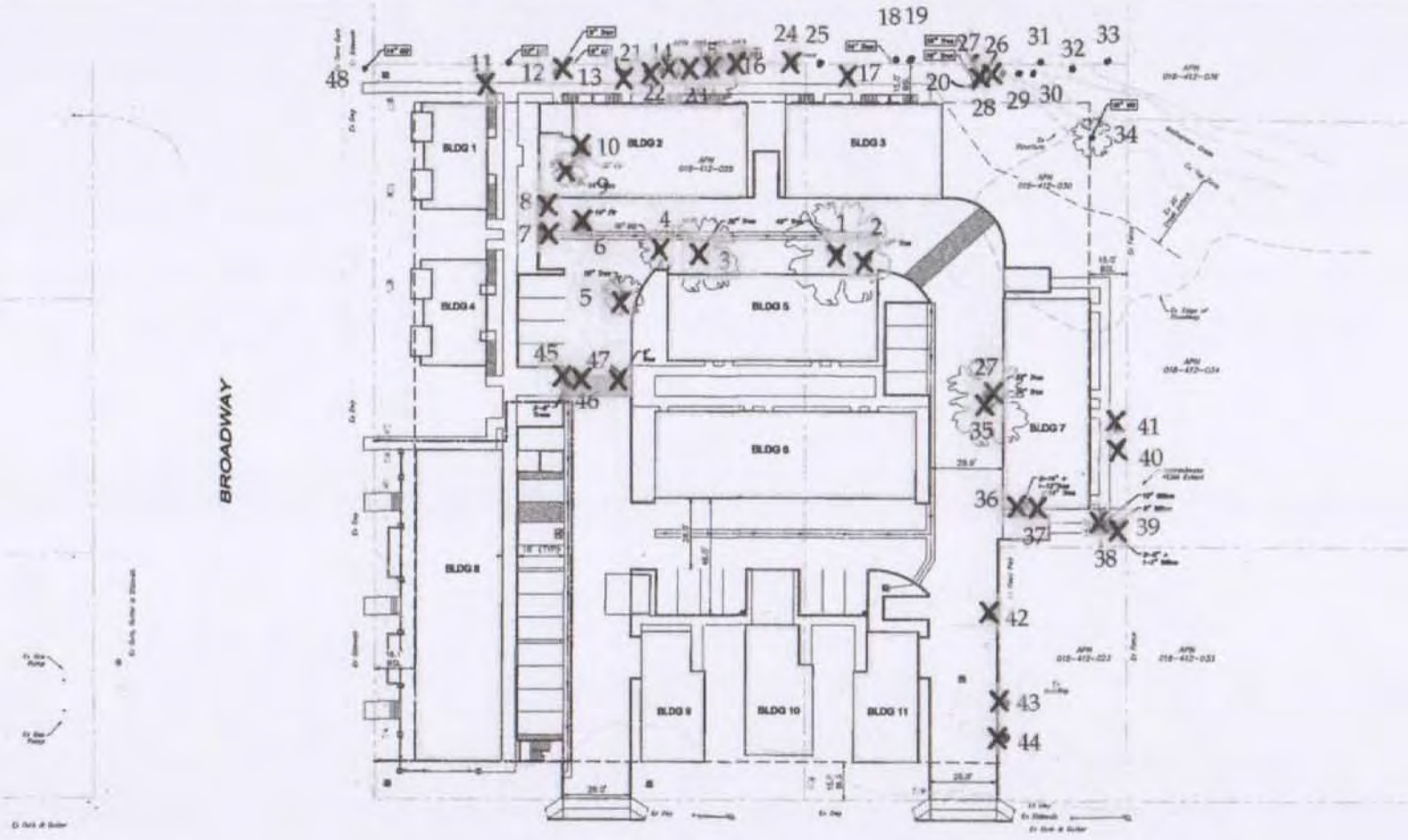
(7) Maintain existing grade within the fenced portion of the dripline. Route drainage swales and all underground work outside the dripline.

(8) Place a 4" layer of chipped bark mulch over the soil surface within the fenced dripline prior to installing temporary fencing. Maintain this layer of mulch throughout construction.

(9) Prune to clean, raise, or provide necessary clearance. Prune to reduce branches that are over-loaded, over-extended, largely horizontal, arching, or have foliage concentrated near the branch ends, per International Society of Arboriculture Pruning Standards.

Pruning to occur by, or under the supervision of, an Arborist certified by the International Society of Arboriculture. Pruning Standards are attached to this report.

TREE LOCATION PLAN



TREE LOCATION AND NUMBERING PLAN

Sonoma Gateway Project
Sonoma, California

THIS PLAN TO BE USED IN CONJUNCTION WITH TREE PRESERVATION AND MITIGATION REPORT DATED 12/27/17

JOHN C. MESERVE

CONSULTING ARBORIST
American Society of Consulting Arborists
International Society of Arboriculture, WCISA #0478A

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TREE PROTECTION GUIDELINES

TREE PROTECTION GUIDELINES

FOR CONSTRUCTION AROUND PRESERVED TREES

TREE PROTECTION ZONE

The Tree Protection Zone around each tree, or group of trees, must be protected at all times with tree protection fencing. No encroachment into the Tree Protection Zone is allowed at any time without approval from the project arborist, and unauthorized entry may be subject to civil action and penalties.

The protected area beneath the canopy of each tree will be designated by the project arborist as the Tree Protection Zone at a location determined to be adequate to ensure long term tree viability and health. The Tree Protection Zone may not be consistent with the canopy dripline in many locations.

TREE PROTECTION FENCING

Prior to initiating any construction activity on a construction project, including demolition, vegetation or approved tree removal, grubbing, or grading, temporary protective fencing shall be installed at each tree or group of trees. Fencing shall be located at the edge of the Tree Protection Zone as specifically designated by the project arborist.

Fencing shall be minimum 4' height at all locations, and shall form a continuous barrier without entry points around all individual trees, or groups of trees. Barrier type fencing such as *Tensar* plastic fencing is recommended, but any fencing system that adequately prevents entry will be considered for approval by the project arborist. The use of post and cable fencing is not acceptable.

Fencing shall be installed in a professional manner using standard quality farm 'T' posts that are placed no more than 8 feet on center. Fencing shall be attached to each post at 5 locations with plastic electrical ties. Fencing shall be stretched tightly between posts in all locations. See fencing detail.

Fencing shall serve as a barrier to prevent encroachment of any type by construction activities including equipment, building materials, storage, outhouses, or personnel.

All encroachment into the fenced Tree Protection Zone must be approved in writing and supervised by the project arborist. Fencing relocation from original placement must also be approved in writing and be approved by the project arborist. Approved Tree Protection Zone encroachment may require additional

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mitigation or protection measures that will be determined by the project arborist at the time of the request.

Contractors and subcontractors shall direct all equipment and personnel to remain outside the fenced area at all times until project is complete, and shall instruct personnel and sub-contractors as to the purpose and importance of fencing and preservation. All contractors and subcontractors are notified by this specification that there will be no exceptions without prior written approval.

Fencing shall be upright and functional at all times prior to demolition and grading and through completion of construction in the specific area of protected trees. If the project is to occur in phases fencing may be removed as each phase is completed.

GRADING AND TRENCHING

Any construction activity that necessitates soil excavation in the vicinity of preserved trees shall be avoided where possible, or be appropriately mitigated under the guidance of the project arborist. All contractors must be aware at all times that specific protection measures are defined, and non-conformance may generate stop-work orders.

The designated Tree Protection Zone is defined around all site trees to be preserved. Fences protect the designated areas. No grading or trenching is to occur within this defined area unless so designated by the Improvement Plan, and where designated shall occur under the direct supervision of the project arborist.

Trenching should be routed around the Tree Protection Zone whenever possible. Where trenching has been designated within the Tree protection Zone, utilization of underground technology to bore, tunnel or excavate with high-pressure air or water will be specified. Hand digging will be generally discouraged unless site conditions restrict the use of alternate technology.

All roots greater than one inch in diameter shall be cleanly hand-cut as they are encountered in any trench or in any grading activity. The tearing of roots by equipment of any type shall not be allowed. Mitigation treatment of pruned roots shall be specified by the project arborist as determined by the degree of root pruning, location of root pruning, and potential exposure to desiccation. No pruning paints or sealants shall be used on cut roots.

Where significant roots are encountered mitigation measures such as supplemental irrigation and/or organic mulches may be specified by the project arborist to offset the reduction of root system capacity.

Retaining walls are effective at holding grade changes outside the area of the Tree Protection Zone and are recommended where necessary. Retaining walls shall be constructed in post and beam or drilled pier construction styles where they are necessary near or within the Tree Protection Zone.

Placement of fill soils is generally discouraged within the Tree Protection Zone, but in some approved locations may be approved to cover up to 30% of this area. The species and condition of the tree shall be considered, as well as site and soil conditions, and depth of fill. Retaining walls should be utilized to minimize the area of fill within the Tree Protection Zone Type of fill soil and placement methods shall be specified by the project arborist.

Grade changes near or within the Tree Protection Zone shall be designed so that surface drainage will not diverted toward or around the root crown in any manner. Grade shall drain away from root crown at a minimum of 2%. If grading toward the root collar is unavoidable, appropriate surface and/or subsurface drain facilities shall be installed so that water is effectively diverted away from root collar area.

Approved fill soils within the Tree Protection Zone may also be mitigated using aerated gravel layers as specified by the project arborist.

Tree roots will be expected to grow into areas of soil fill, and quality of imported soil shall be considered. Fill soil shall be site topsoil that closely matches that present within the root zone area. When import soil is utilized it must be the same or slightly coarser texture than existing site soil, should have a pH range comparable to site soils, and generally should have acceptable chemical properties for appropriate plant growth. A soil analysis is required prior to soil importation to evaluate import soil for these criteria.

Grade reduction within the designated Tree Protection Zones shall be generally discouraged, and where approved, shall be conducted only after careful consideration and coordination with the project arborist.

Foundations or footings of any type within the Tree Protection Zone shall be constructed using design techniques that eliminate the need for trenching into natural grade. These techniques might include drilled piers, grade beams, bridges, or cantilevered structures.

TREE DAMAGE

Any form of tree damage which occurs during the demolition, grading, or construction process shall be evaluated by the project arborist. Specific mitigation measures will be developed to compensate for or correct the damage. Fines and penalties may also be levied.

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Measures may include, but are not limited to, the following:

- pruning to remove damaged limbs or wood
- bark scoring to remove damaged bark and promote callous formation
- alleviation of compaction by lightly scarifying the soil surface
- installation of a specific mulching material
- supplemental irrigation during the growing season for up to 5 years
- treatment with specific amendments intended to promote health, vigor, or root growth
- vertical mulching or soil fracturing to promote root growth
- periodic post-construction monitoring at the developer's expense
- tree replacement, or payment of the established appraised value, if the damage is so severe that long term survival is not expected

MULCHING

Trees will generally benefit from the application of a 4 inch layer of chipped bark mulch over the soil surface within the greater root zone area. Ideal mulch material is a chipped bark containing a wide range of particle sizes. Bark mulches composed of shredded redwood, bark screened for uniformity of size, or chipped lumber are not acceptable.

Chipped bark mulch may not originate from any tree infected with, or exhibiting symptoms of, Sudden Oak Death (SOD) due to the potential of infecting existing site trees.

TREE PRUNING AND TREATMENTS

All recommendations for pruning or other treatments must be completed prior to acceptance of the project. It is strongly recommended that pruning be completed prior to the start of grading to facilitate optimum logistics and access.

All pruning shall be conducted in conformance with International Society of Arboriculture pruning standards and all pruning must occur under the direct supervision of an arborist certified by the International Society of Arboriculture.

TREE PRUNING STANDARDS

PRUNING STANDARDS

WESTERN  CHAPTER

WESTERN CHAPTER

International Society of Arboriculture

ARIZONA CALIFORNIA HAWAII NEVADA

Certification Committee • P.O. Box 424 • St. Helena, California 94574

WESTERN CHAPTER

ISA

PRUNING STANDARDS

Purpose:

Trees and other woody plants respond in specific and predictable ways to pruning and other maintenance practices. Careful study of these responses has led to pruning practices which best preserve and enhance the beauty, structural integrity, and functional value of trees.

In an effort to promote practices which encourage the preservation of tree structure and health, the W.C. ISA Certification Committee has established the following Standards of Pruning for Certified Arborists. The Standards are presented as working guidelines, recognizing that trees are individually unique in form and structure, and that their pruning needs may not always fit strict rules. The Certified Arborist must take responsibility for special pruning practices that vary greatly from these Standards.

I. Pruning Techniques

A. A thinning cut removes a branch at its point of attachment or shortens it to a lateral large enough to assume the terminal role. Thinning opens up a tree, reduces weight on heavy limbs, can reduce a tree's height, distributes ensuing invigoration throughout a tree and helps retain the tree's natural shape. Thinning cuts are therefore preferred in tree pruning.

When shortening a branch or leader, the lateral to which it is cut should be at least one-half the diameter of the cut being made. Removal of a branch or leader back to a sufficiently large lateral is often called "drop crotching."

B. A heading cut removes a branch to a stub, a bud or a lateral branch not large enough to assume the terminal role. Heading cuts should seldom be used because vigorous, weakly attached upright sprouts are forced just below such cuts, and the tree's natural form is altered. In some situations, branch stubs die or produce only weak sprouts.

C. When removing a live branch, pruning cuts should be made in branch tissue just outside the branch bark ridge and collar, which are trunk tissue. *(Figure 1)* If no collar is visible, the angle of the cut should approximate the angle formed by the branch bark ridge and the trunk. *(Figure 2)*

D. When removing a dead branch, the final cut should be made outside the collar of live callus tissue. If the collar has grown out along the branch stub, only the dead stub should be removed, the live collar should remain intact, and uninjured. *(Figure 3)*

E. When reducing the length of a branch or the height of a leader, the final cut should be made just beyond (without violating) the branch bark ridge of the branch being cut to. The cut should approximately bisect the angle formed by the branch bark ridge and an imaginary line perpendicular to the trunk or branch cut. *(Figure 4)*

F. A goal of structural pruning is to maintain the size of lateral branches to less than three-fourths the diameter of the parent branch or trunk. If the branch is codominant or close to the size of the parent branch, thin the branch's foliage by 15% to 25%, particularly near the terminal. Thin the parent branch less, if at all. This will allow the parent branch to grow at a faster rate, will reduce the weight of the lateral branch, slow its total growth, and develop a stronger branch attachment. If this does not appear appropriate, the branch should be completely removed or shortened to a large lateral. *(Figure 5)*

G. On large-growing trees, except whorl-branching conifers, branches that are more than one-third the diameter of the trunk should be spaced along the trunk at least 18 inches apart, on center. If this is not possible because of the present size of the tree, such branches should have their foliage thinned 15% to 25%, particularly near their terminals. *(Figure 6)*

H. Pruning cuts should be clean and smooth with the bark at the edge of the cut firmly attached to the wood.

I. Large or heavy branches that cannot be thrown clear, should be lowered on ropes to prevent injury to the tree or other property.

J. Wound dressings and tree paints have not been shown to be effective in preventing or reducing decay. They are therefore not recommended for routine use when pruning.

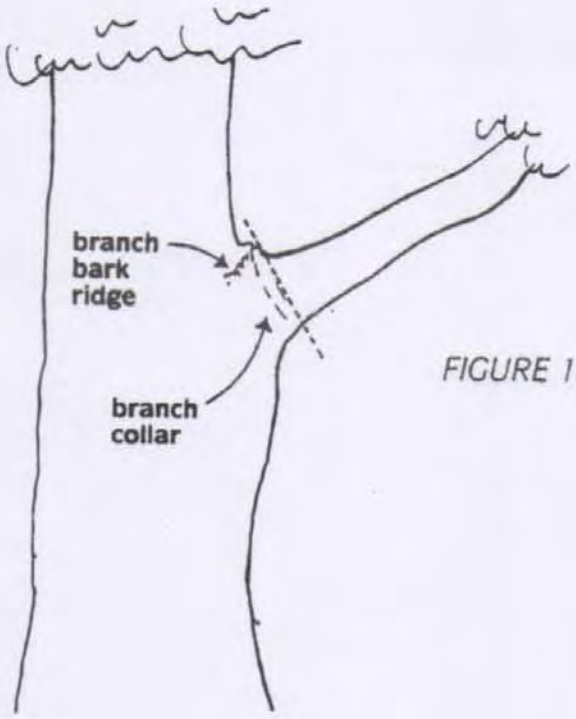


FIGURE 1. *When removing a branch, the final cut should be just outside the branch bark ridge and collar.*

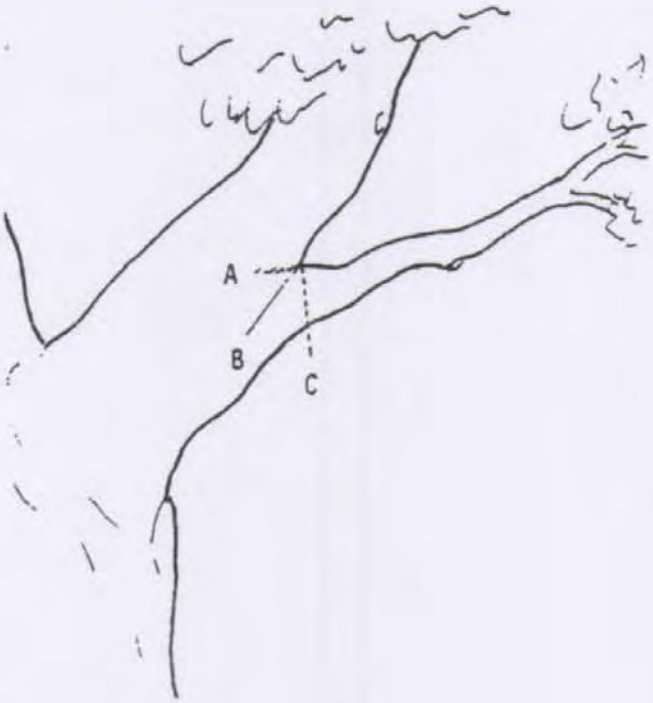


FIGURE 2. *In removing a limb without a branch collar, the angle of the final cut to the branch bark ridge should approximate the angle the branch bark ridge forms with the limb. Angle AB should equal Angle BC.*

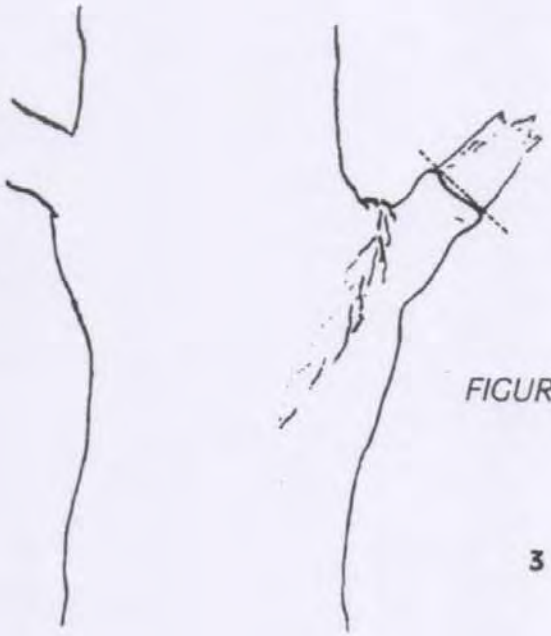


FIGURE 3. *When removing a dead branch, cut outside the callus tissue that has begun to form around the branch.*

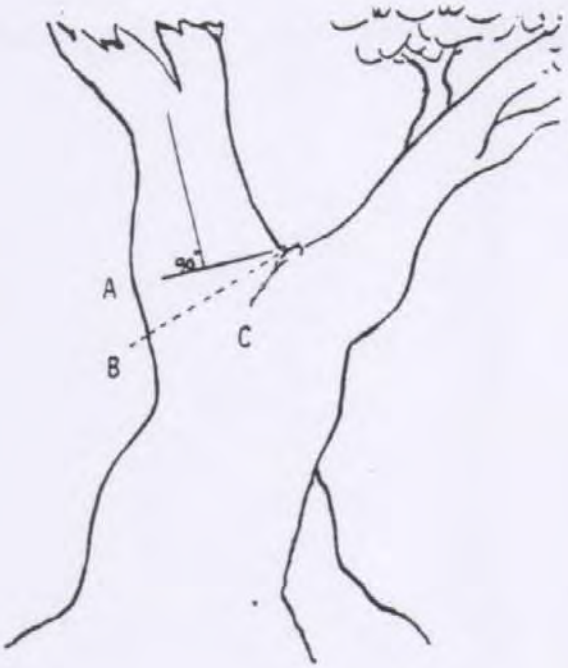


FIGURE 4. *In removing the end of a limb to a large lateral branch, the final cut is made along a line that bisects the angle between the branch bark ridge and a line perpendicular to the limb being removed. Angle AB is equal to Angle BC.*

FIGURE 5. *A tree with limbs tending to be equal-sized, or codominant. Limbs marked B are greater than ¾ the size of the parent limb A. Thin the foliage of branch B more than branch A to slow its growth and develop a stronger branch attachment.*

FIGURE 6. *Major branches should be well spaced both along and around the stem.*

II. Types of Pruning — Mature Trees

A. CROWN CLEANING

Crown cleaning or cleaning out is the removal of dead, dying, diseased, crowded, weakly attached, and low-vigor branches and watersprouts from a tree crown.

B. CROWN THINNING

Crown thinning includes crown cleaning and the selective removal of branches to increase light penetration and air movement into the crown. Increased light and air stimulates and maintains interior foliage, which in turn improves branch taper and strength. Thinning reduces the wind-sail effect of the crown and the weight of heavy limbs. Thinning the crown can emphasize the structural beauty of trunk and branches as well as improve the growth of plants beneath the tree by increasing light penetration. When thinning the crown of mature trees, seldom should more than one-third of the live foliage be removed.

At least one-half of the foliage should be on branches that arise in the lower two-thirds of the trees. Likewise, when thinning laterals from a limb, an effort should be made to retain inner lateral branches and leave the same distribution of foliage along the branch. Trees and branches so pruned will have stress more evenly distributed throughout the tree or along a branch.

An effect known as "lion's-tailing" results from pruning out the inside lateral branches. Lion's-tailing, by removing all the inner foliage, displaces the weight to the ends of the branches and may result in sunburned branches, watersprouts, weakened branch structure and limb breakage.

C. CROWN REDUCTION

Crown reduction is used to reduce the height and/or spread of a tree. Thinning cuts are most effective in maintaining the structural integrity and natural form of a tree and in delaying the time when it will need to be pruned again. The lateral to which a branch or trunk is cut should be at least one-half the diameter of the cut being made.

D. CROWN RESTORATION

Crown restoration can improve the structure and appearance of trees that have been topped or severely pruned using heading cuts. One to three sprouts on main branch stubs should be selected to reform a more natural appearing crown. Selected vigorous sprouts may need to be thinned to a lateral, or even headed, to control length growth in order to ensure adequate attachment for the size of the sprout. Restoration may require several prunings over a number of years.

II. Types of Pruning — Mature Trees *(continued)*

E. CROWN RAISING

Crown raising removes the lower branches of a tree in order to provide clearance for buildings, vehicles, pedestrians, and vistas. It is important that a tree have at least one-half of its foliage on branches that originate in the lower two-thirds of its crown to ensure a well-formed, tapered structure and to uniformly distribute stress within a tree.

When pruning for view, it is preferable to develop "windows" through the foliage of the tree, rather than to severely raise or reduce the crown.

III. Size of Pruning Cuts

Each of the Pruning Techniques (Section I) and Types of Pruning (Section II) can be done to different levels of detail or refinement. The removal of many small branches rather than a few large branches will require more time, but will produce a less-pruned appearance, will force fewer watersprouts and will help to maintain the vitality and structure of the tree. Designating the maximum size (base diameter) that any occasional undesirable branch may be left within the tree crown, such as ½", 1" or 2" branch diameter, will establish the degree of pruning desired.

IV. Climbing Techniques

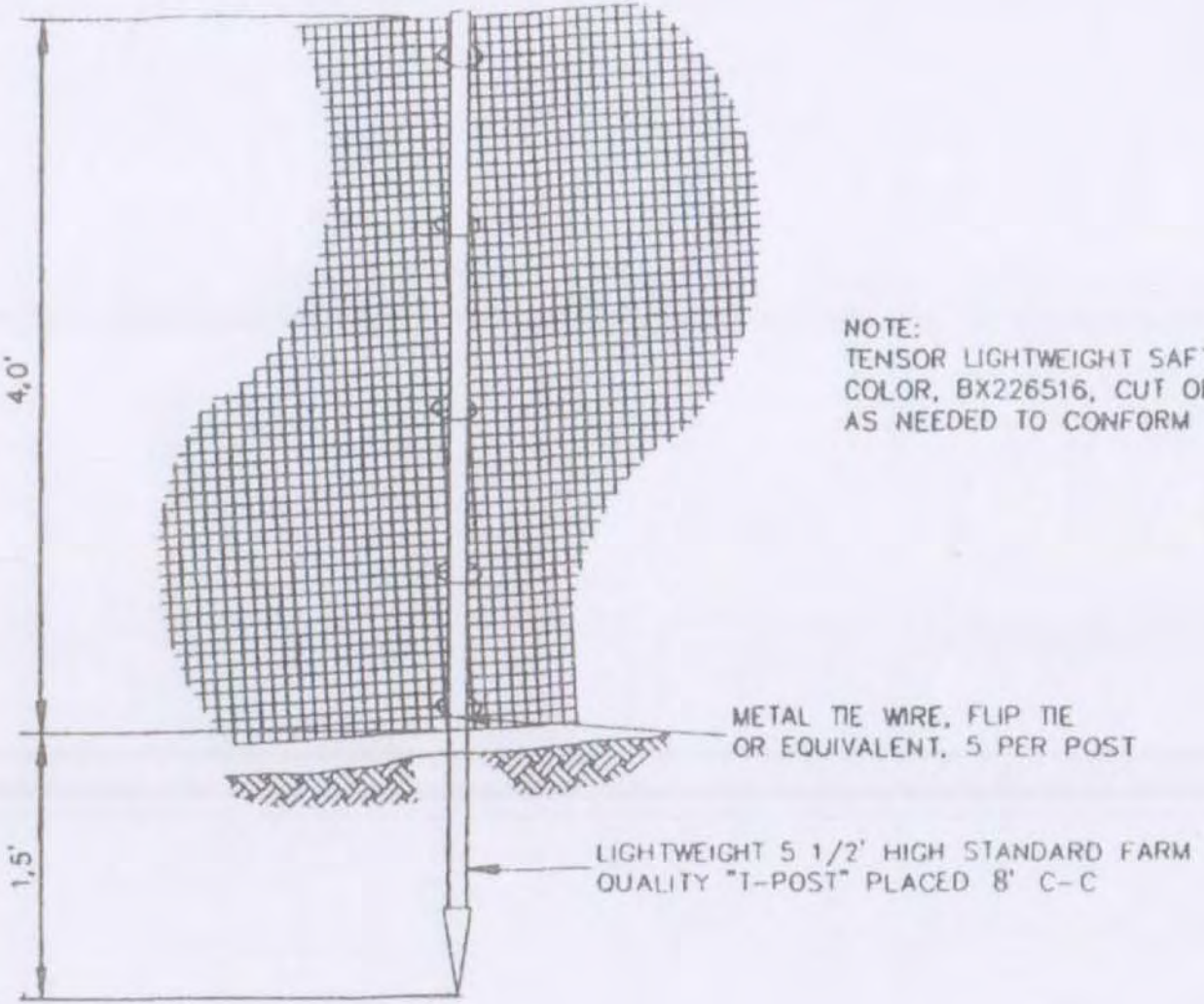
A. Climbing and pruning practices should not injure the tree except for the pruning cuts.

B. Climbing spurs or gaffs should not be used when pruning a tree, unless the branches are more than throw-line distance apart. In such cases, the spurs should be removed once the climber is tied in.

C. Spurs may be used to reach an injured climber and when removing a tree.

D. Rope injury to thin barked trees from loading out heavy limbs should be avoided by installing a block in the tree to carry the load. This technique may also be used to reduce injury to a crotch from the climber's line.

TREE FENCING DETAIL



NOTE:
TENSOR LIGHTWEIGHT SAFTY GRID, ORANGE
COLOR, BX226516, CUT OR FOLD AT POSTS
AS NEEDED TO CONFORM TO SLOPING TERRAIN.

TREE PROTECTION FENCING DETAIL

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

***Resource Name or #** (Assigned by recorder) Sonoma Truck and Auto Center

P1. Other Identifier: Former Cumberland College / Sonoma High School Site

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County** Sonoma

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Sonoma, T 5N R 5 W Section **Date** 1951

c. Address 870 Broadway City Sonoma Zip 95467

d. UTM: (give more than one for large and/or linear resources) Zone _____; _____mE/ _____mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

018-412-025; 018-412-030

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Sonoma Truck and Auto Center is located at the intersection of Broadway and MacArthur Street in downtown Sonoma (**Photograph 1**). The property is 1.91 acres in size and is surrounded by a mixture of commercial and residential uses. The property includes three buildings: an auto sales and service building (Building 1); a large warehouse and storage building (Building 2); and a two-bay auto service building (Building 3). All of the buildings are inventoried and evaluated herein and are labeled on the accompanying Sketch Map (See Continuation Sheet P3a).

***P3b. Resource Attributes:** (List attributes and codes) HP6. One-Story Commercial Building

***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) Overview of 870 Broadway. Camera facing northeast.

***P6. Date Constructed/Age and Sources:**
☒ Historic ☐ Prehistoric ☐ Both
Building 1: circa 1925; Building 2: foundation wall 1864, portions of floor and framing 1908, remaining framing, cladding, and roof added circa 1925; Building 3: circa 1930.

***P7. Owner and Address:**
Estate of Robert H. Bohna
P.O. Box G
Sonoma, CA 95476

***P8. Recorded by:** (Name, affiliation, address)
Polly S. Allen
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** 1/13/2012

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") None

***Attachments:** ☐ None ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) _____

***NRHP Status Code** 6Z

***Resource Name or #** (Assigned by recorder) Sonoma Truck and Auto Center

B1. Historic Name: Cumberland College; Sonoma High School; Country Motors; Whitehead Motor Company

B2. Common Name: Sonoma Truck and Auto Center

B3. Original Use: School; Auto Sales and Repair B4. Present Use: Auto Sales and Repair

***B5. Architectural Style:** Mission Revival; Utilitarian

***B6. Construction History:** (Construction date, alteration, and date of alterations) Building 2 is a foundational remnant of Cumberland College, which was constructed in 1864. In 1908, this original building was demolished and a new building constructed atop the existing stone foundation. This second building was subsequently demolished circa 1925, with the walls and roof of existing Building 2 added atop the original 1864 foundation. Building 1 was constructed circa 1925. Building 3 was constructed circa 1930. Buildings 1 and 2 have been altered since construction. Building 1 has had its original windows, doors, and interior sales and service spaces modified in the modern period, with the addition of modern aluminum frame features. Building 2 has had ongoing alterations including the addition of plywood to the exterior and replacement of remnant circa 1908 features including window openings and doors. Building 3 appears little changed from the circa 1930 construction period.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** **Original Location:**

***B8. Related Features:**

B9. Architect: Unknown b. Builder: Unknown

***B10. Significance: Theme** n/a **Area** n/a

Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

This intensive survey and evaluation finds that 870 Broadway does not appear eligible for individual listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) because the property lacks significance and integrity. The property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code, and is not a historical resource for the purposes of CEQA. Please refer to the Continuation Sheets for the complete historic context and evaluation of the property.

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:** Historical Collection of Robert Parmelee; Sonoma League for Historic Preservation; Sonoma Valley Historical Society; Sonoma County Assessor's Office; Menefee *Historical and Descriptive Sketchbook of Napa, Sonoma, Lake, and Mendocino* (1873); Zauner *Wine Country The Sonoma and Napa Valleys* (1983); Lynch *The Sonoma Valley Story* (1997); Clarke *Trust and Power;* Rae *The American Automobile* (1965);Ling *America and the Automobile*; *Sonoma Valley Sun*; *The Golden Bear*; Personal Communication with Robert Parmelee and Jerry Schaffer, 1/13/2012 (See footnotes for additional references).

B13. Remarks:

***B14. Evaluator:** Polly S. Allen

***Date of Evaluation:** February 1 2012

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

See Continuation Sheet

P3a. Description (continued):

Building 1 was constructed circa 1925 as an auto sales and service building and is of a modest Late Mission Revival commercial design (**Photograph 2**). The building is approximately 6,300 square feet in size and fronts the Broadway thoroughfare. The stucco façade features a prominent stepped parapet, which serves as one of the sole decorative features of the otherwise utilitarian structure. Generous metal frame commercial windows run along the length of the façade, all of which appear to be replacements to the original. Several panels of the windows have been boarded in plywood. A single glazed aluminum door is centered on the façade, also a replacement of the original. A metal-frame and canvas canopy runs along the length of the façade, sheltering the entry below. A relatively spare commercial sign is centered above the canopy, reading "Sonoma Truck/Auto."

All of the secondary sides of the building are clad in corrugated metal, reflecting a more utilitarian design mandate for the service portions of the building. The north side of the building features a single large garage bay, accessing the auto service room (**Photograph 3**). Five irregularly-spaced metal frame windows flank the door, some of which are sliding and others fixed. The south side of the building also includes a single garage bay to the service room (**Photograph 4**). In addition, the southwest corner of the building features a glass and aluminum-framed customer entry area surrounded by several small fixed windows. The area surrounding the customer entry is clad in particle board and painted white with green trim. A prominent sign reading "Sonoma Truck and Auto Center" is hung above the entry.

Building 2 stands directly to the east of Building 1 and is oriented from east-to-west on the lot (**Photograph 5**). The wood-frame building serves as a general storage facility and automotive paint shop and is approximately 3,000 square feet in size, with a rectangular plan and corrugated metal gable roof. The rough-quarried stone and mortar foundation of the building dates from 1864, and was originally part of the Cumberland College building (**Photograph 6**). As discussed in Section B6., this 1864 building was demolished in 1908 and another erected in its place over the existing foundation. This building, in turn, was demolished circa 1925, with the current structure built utilizing some of the 1908 framing and cladding, and sitting atop the original stone foundation. Currently, the standing building is an amalgamation of the 1864 foundation and the 1908 floor and lower framing walls, along with circa 1925 and onward cladding, roofing structure, and roof sheathing. In general, the condition of the building appears to be poor, with apparent structural deterioration throughout.

The west side of Building 2 fronts Building 1 (**Photograph 7**). Portions of the stone foundation on this side of the building are sheathed in stucco, dating from the 1908 period. The wall cladding also dates to this period and consists of deteriorated wood siding, which was once clad in stucco. Large hinged doors are centered on this side, however they are largely inaccessible as the original exterior entry stairway has been removed. Surrounding the door, circa 1908 window framing lines the building; however, all windows have been removed, with the majority of window openings boarded over or open to the air. A tree is growing from the foundation, causing structural damage. The north side of the building is partially clad in stucco from the 1908 period (**Photograph 8**). Four large window openings line this side, all of which are partially boarded over or open to the air. Large sections of the north walls are boarded in modern plywood. The east side of the building is also boarded in plywood (**Photograph 9**). A service ramp extends from this side of the building, as does a metal frame carport canopy. Both features date from after the buildings conversion to auto-related use. The south side of the building has been modified in the modern period, and features a large expanse of plywood punctuated only by three offset aluminum frame sliding windows (**Photograph 5**).

Building 3 is a small circa 1930 garage building located directly south of Buildings 1 and 2 (**Photograph 10**). The building is approximately 1,000 square feet in size and is of wood frame gable-roof construction clad in corrugated metal. The west side of the building features two garage bays with sliding doors; the south side two off-set windows, one aluminum frame

sliding and the other wood frame fixed; and the east side a single garage bay with a modern roll-up door and a single wood frame window (**Photograph 11**). The north side of the building is directly adjacent to the service area of Building 1.

The entire assemblage is surrounded by a large parking lot, which serves as an auto sales area, customer parking lot, and storage and maintenance area. Remnants of several auto-related buildings and structures are evident in the parking lot, including a concrete platform for gasoline tanks at the southwest corner of the property, which were part of a circa 1930 filling station that has since been removed.

B10. Significance (continued):

Historic Context

The historic context of 870 Broadway relates to several distinct periods of Sonoma's development. The site was originally developed by Cumberland College in 1864, with construction of a prominent Second Empire Style school building on the lot (**Photograph 12**). The building remained until 1906, serving as first a private Presbyterian school and later as the public Sonoma High School. The Earthquake of 1906 caused extensive structural damage to the massive concrete building, however, and it was torn down and replaced with a second Mission Revival Style school in 1908 (**Photograph 13**). By the early 1920s the growing town of Sonoma had commissioned construction of a new high school several blocks south, however, and the property was abandoned and sold to auto salesman Ernie Coates. Coates developed an auto sales and service room on the lot, fronting the prominent Broadway thoroughfare (**Photograph 2**). Under his ownership, the former school building was substantially modified, with the removal of virtually all of its original design features excepting the rough quarry foundation (**Photographs 5** and **6**). Additionally, Coates added a number of smaller service buildings, including a small two-bay garage that currently remains on the property (**Photograph 10**). The property has remained in auto use through a succession of owners, most recently Robert H. Bohna, who owned and operated Sonoma Truck and Auto Center at the site.

At the time of the 1864 development of Cumberland College, the town of Sonoma was characterized by modest development around the original Sonoma Plaza, laid out in 1835 by General Mariano Guadalupe Vallejo. This compact development was surrounded by extensive vineyards and agricultural settlement extending outward across Sonoma Valley. Although the town had been the center of a number of critical events in the preceding decades, most notably the Bear Flag Revolt of 1846, by the early 1860s its status as one of the North Bay's most prominent settlements had been undermined by California's rampant growth following statehood. Development during this period was dictated by an 1850 survey by Jasper O'Farrell, largely based on earlier survey by Vallejo, which laid out the lands surrounding the Plaza in an orderly grid. The Plaza continued to be both the social and commercial center of the town, with Broadway running south from the Plaza and acting as the primary commercial and transportation corridor.[1]

Throughout the 1850s, educational institutions in Sonoma remained relatively informal, with a school located in the home of General Vallejo as well as several parochial schools. In 1857, the Cumberland Presbyterian Church founded a small school in Salvadore Vallejo's adobe, located on the northwest corner of Sonoma Plaza (currently the El Dorado Hotel). Called "The Academy," the school was intended for both Sonoma residents and boarding students from across the state and country. The school was operated under the supervision of the Cumberland Presbyterian Church, a reform church founded during the

[1] J.P. Munro-Fraser, History of Sonoma County, California (San Francisco: Alley, Bowen, and Co. Publishers, 1880) 443-465; Jasper O'Farrell, Map of Sonoma, 1850 (William H. Ranlett and Company, 1854).

Second Great Awakening in the early 1800s. The church placed a great deal of emphasis on education, and sponsored a number of schools across the country during the period, particularly throughout the South.[2]

By the early 1860s, Cumberland Presbyterian sought to construct a more substantial building, and in 1862 purchased Lot 121, current-day 870 Broadway. By 1864 construction was complete, with an imposing three-story building in the popular Second Empire Style (**Photograph 12**). The building was surrounded by a meadow and rustic plantings and featured an elegant mansard roof, a centered cupola, and an orderly façade punctuated by generous windows. While the architect of this building is unknown, the Cumberland Presbyterian Church was notable for its relatively high-profile commissions, including a design by William Strickland for one of its colleges in Tennessee. In its relatively grand architectural aspirations, the Sonoma school was in keeping with this ambitious design sensibility.[3]

Throughout the 1860s the school attracted a large number of day and boarding students. By the early 1870s, however, continued growth was undermined by establishment of the University of California in Berkeley. While the 1850s and 1860s had been characterized in large part by upheaval relating to newly acquired statehood and a rapidly settling population, by the 1870s California was becoming increasingly well-ordered, with a strong system of publicly-funded schools supplanting the rather ad-hoc mixture of parochial and individualistic institutions that characterized the early settlement period. As a result of this shift, the school closed in 1872. The building stood vacant for a number of years until it was occupied by Sonoma Public High School, who leased the building for several years and ultimately purchased the property in 1896.[4]

Classes continued at the site until 1906, when the building was badly damaged by the Great Earthquake that shook much of the region. Deemed structural unsound by the Board of Trustees, the building was condemned and torn down in 1907 amidst much controversy over the expense and feasibility of constructing a new school. An initial $7,000 bond for new construction was rejected by voters, however in 1908 the Board of Supervisors bypassed the voters and levied a $15,000 special tax for construction of a high school. The building was completed in that year, and was of a modest Mission Revival design that differed markedly from the grand allusions of its predecessor. Perhaps in a nod to the parsimonious mood of the town's citizens, the building utilized the existing foundation of the old structure. Upon construction, students of the school deemed their new building a success, noting that "the Mission style of architecture is applied to good effect"…"and the grounds are quite beautiful." Several shortcomings were noted, however, with the student newsletter remarking that many modern conveniences were missing, including electric lights, water supply to laboratories, and blackboards in classrooms.[5]

By the early 1920s, initial praise for the building had been replaced by vocal criticism of the modest structure. *The Sonoma Index Tribune* decried the building's "wretched heating system with its 12 wood stoves, poor ventilation, lack of hoods in the laboratory for poisonous fumes, defective plumbing, and crumbling condition of the walls," asserting that the, "whole appearance of the plant is such as to provoke the ridicule of visitors." In 1921, the Board of Trustees proposed a bond issue for $115,000, which was handily approved by voters that year. Esteemed Bay Area architect William H. Weeks designed the new building, which was completed in 1923 and located several blocks south of 870 Broadway.[6]

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[2] Clara Johnson, *Saga of Sonoma: Pioneer Schools* (n.d. on file at Sonoma Valley Historical Society; Honoria Toumey, *History of Sonoma County* (Massachusetts: Higginson Book Company, 1926) 547; *Cumberland Presbyterian History* (Nashville: Cumberland Presbyterian Board of Publication, 1899) 348-352.

[3] Sonoma County Book of Deeds, 1862 (Collection of Robert Parmelee); *Cumberland Presbyterian History* (Nashville: Cumberland Presbyterian Board of Publication, 1899) 348-352.

[4] Clara Johnson, *Saga of Sonoma: Pioneer Schools* (n.d. on file at Sonoma Valley Historical Society; Honoria Toumey, *History of Sonoma County* (Massachusetts: Higginson Book Company, 1926) 547; Emma Bushnell, Cumberland College (n.d. on file at Sonoma Valley Historical Society); Robert M. Lynch, The Sonoma Valley Story (Sonoma: The Sonoma Index-Tribune, Inc., 1997) 108.

[5] The Golden Bear (Sonoma Valley Union High School Newsletter,1908, on file at Sonoma League for Historic Preservation); Myron Delong, New Sonoma Grammar and High School Built (Sonoma Index Tribune, 1979, on file at Sonoma League for Historic Preservation.

[6] Kathy Swett, Golton Hall Built (n.d. on file at Sonoma League for Historic Preservation).

Upon abandonment by the Sonoma School District, the 870 Broadway site was purchased by Ernie Coates, an automobile salesman who had been selling Ford's Model T car in Sonoma since 1914. Coates had a modest Mission Revival Style showroom and service building erected on the site, with a large Broadway frontage (**Photograph 2**). The building was largely an open plan wood frame warehouse fronted by a stucco clad commercial façade. Rather than completely tear the school building down, Coates incorporated portions of the building into a service and storage facility for the dealership, largely gutting the interior and stripping most of the exterior features. Coates retained structural portions of the first level, however, including the masonry foundation from the original Cumberland College Building.[7]

Coates' modest Ford dealership was part of a wave of auto-related development that was sweeping across towns and cities in California during the period. By the 1920s California was awash in automobile sales and service businesses, particularly in urbanized areas like San Francisco, Oakland, and Los Angeles. Emerging as a captivating modern marvel in the close of the nineteenth century, the automobile had quickly became a potent symbol of the democratizing capability of industrial development. In its earliest years, auto excursions were the domain of only the most privileged, like monarchs in Europe or American leaders such as Theodore Roosevelt; but by the second decade of the twentieth century, farmers in the Sonoma Valley were driving the machines across their fields. The rampant growth in automobile use in California mirrored trends across the country. Although only one percent of the population owned a car in 1910, by 1930 the number had grown to a full sixty percent. During the period dealerships and service rooms sprung up in smaller towns across the state, including Sonoma, selling and maintaining a rapidly growing fleet of California cars.[8]

Prior to arriving in Sonoma, Ernie Coates had lived in Detroit, and while there been impressed by the efficiency and mechanical reliability of Ford's Model T. Further, Coates' business partner, Ralph Busby, was a Ford employee in the Windsor, Canada production plant in the 1910s. These associations led the two to apply for a coveted dealership license with Ford, which was granted in 1914. The two operated a small shop further north on Broadway for several years before Coates' 1920s purchase of 870 Broadway. Coates continued to sell Ford products until 1945, when he sold the dealership to Joe Honey. His early bet on Ford proved prescient, as the company came to be a preeminent power in the auto industry. In its early years, the auto manufacturing sector was remarkably broad, with upward of 1,500 identifiable companies producing more than 3,000 makes of cars between 1900 and 1920. By the 1930s most were gone, however, leaving a small number of major players, including Ford, in the market.[9]

The auto property continued in operation under a succession of owners, including Joe Honey, Hutch Whitehead, Web Willert and George McDaniel, and lastly Robert Bohna, who owned the property through his death in 2010. During this period of auto development, the site continued to be altered and modified for use. Coates' 1925 auto showroom and shop appears to have been altered in the mid-century period, with the replacement of showroom windows and doors as well as interior alterations to the salesroom and garages. The former Sonoma High School Building was also altered over time, with removal of remnant features and the insertion of new framing and window and door units. Additionally, a number of small buildings, including a detached garage (Building 3) and a filling station (since demolished) were added to the site, reflecting ongoing functional and commercial requirements of the auto site. The areas surrounding the property, once characterized by relatively sparse commercial growth, have grown increasingly dense and developed, with a mixture of light industrial, commercial, and boutique retail functions.[10]

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[7] *Ernie Coates: 1882-1969* (an undated manuscript from the collection of Robert Parmelee).

[8] Peter J. Ling, *America and the Automobile: Technology, Reform, and Social Change.* (Manchester and New York: Manchester University Press, 1990) 13, 96-97; John B. Rae, *The American Automobile* (Chicago: The University of Chicago Press, 1965) 18.

[9] *Ernie Coates: 1882-1969* (an undated manuscript from the collection of Robert Parmelee); John B. Rae, *The American Automobile* (Chicago: The University of Chicago Press, 1965) 18.

[10] *Ernie Coates: 1882-1969* (an undated manuscript from the collection of Robert Parmelee); Sonoma Businessman Bob Bohna Passes Away, *Sonoma Valley Sun*, January 25, 2010.

Evaluation

As stated in the historic context, the development history of 870 Broadway includes two distinct themes: Sonoma's early educational development and twentieth century auto development. This evaluation addresses each theme in turn, and finds that the property does not possess sufficient significance or integrity to convey direct associations related to either of these themes under any of the NRHP or CRHR criteria.

Educational Development

While portions of 870 Broadway possess significant associations to the early educational and institutional development of Sonoma, a lack of integrity precludes the property from conveying significance under any of the NRHP or CRHR criteria. As originally developed, remnants of Building 2 housed Cumberland College, one of the town's first major educational institutions. Following this, the site was occupied by the earliest incarnation of Sonoma High School. Under NRHP Criterion A (CRHR Criterion 1), these associations are significant as they directly relate to the educational and civic development of Sonoma in the post-statehood period. Additionally, under NRHP Criterion C (CRHR Criterion 3), the architectural development of these educational facilities was significant in that the design of the buildings represented important aesthetic aspirations on the part of both Cumberland Presbyterian Church and the developers of Sonoma's public educational system. Both the Second Empire Style Cumberland College building and the more modest Mission Revival Style high school building were indicative of the prevalence of period revival design features in nineteenth and early twentieth century institutional development, with each erected as prominent civic symbols for both the Cumberland Presbyterian Church and Sonoma community.

The property is unable to convey these significant associations, however, as both of the former school buildings no longer exist in any discernible form on the property. The sole remnant of these early occupation periods, Building 2, has been modified to such an extent that it is no longer recognizable as an early educational building. Further, the setting of the building has been altered dramatically, with the former pastoral surroundings replaced by a light industrial auto facility. As it currently stands, the building is almost entirely a product of the twentieth century auto period, with new cladding, structural elements, and massing that departs entirely from that of the earlier development periods. While the original foundation of the building does remain, this remnant design feature is not enough to convey direct significant associations, as it is an isolated structural vestige that lacks any remaining design context. Thus, under both Criterion A (Criterion 1) and Criterion C (Criterion 3) the building cannot convey significance as an early representative of the institutional or architectural development of Sonoma, as it lacks integrity of materials, design, workmanship, setting, feeling, and association. While the foundation has remained in the same location, this aspect of integrity in isolation is not enough to convey the necessary associations required for recognition under the NRHP or CRHR.

While this evaluation finds that Building 2 does possess significant associations—although a lack of integrity—under Criterion A (Criterion 1) and Criterion C (Criterion 3), it does not appear that Building 2 possesses significant associations under either of the remaining criteria. Under Criterion B, the building is not directly associated with any single prominent individual in the history of Sonoma's development. Rather, the institutional and architectural development of the educational facilities were associated with a broad range of people, including students, teachers, and administrators, none of whom are individually significant. Under Criterion D (Criterion 4) the building does not appear to be an important source of information regarding construction techniques, materials, or technology. The engineering and design of both incarnations of the school, including the use of the masonry foundation wall, was of a common form that did not depart from prevailing technologies during the period. Such techniques are found in residences, commercial, and institutional buildings across Sonoma, the state, and the nation. Additionally, any potential information value has been largely undermined by the wholesale loss of integrity discussed above.

Auto Development

The second evaluation context for the property relates to its use as an auto facility through much of the twentieth century. Beginning in 1925, the site was developed with a number of auto-related features, including an auto showroom and service shop (Building 1) and service garage (Building 3) as well as several other features, including a filling station, that no longer remain on the property. None of this auto-related development appears to possess significance under the criteria for listing on the NRHP or CRHR, as the modest complex lacks any direct associations to important themes in auto or general commercial development. Further, while the property remains in use as an auto facility, ongoing alterations to the auto buildings, including removal of original commercial fenestration features, erodes the property's ability to convey associations to the historic period.

As a modest auto sales and service property, 870 Broadway does not convey direct associations with significant themes of development in either the American auto industry or Sonoma's commercial development (Criterion A or 1). While the building housed a number of auto related functions, first as a Ford Dealership and subsequently as a generalized sales and service business, the property was a standardized speculative venture undertaken when auto development was rampant across the region, state, and nation. At the time of this property's development, small sales and service centers were springing up across the country, with thousands of dealerships developed across California during the 1910s and 1920s.

Similarly, the property is not associated with any historically significant individual (Criterion B or 2). While Ernie Coates was a successful Sonoma businessman who maintained a prominent position in Sonoma's auto sales from the 1910s to the 1940s, he does not appear to have significant associations that merit recognition under either the NRHP or CRHR. Similarly, subsequent owners of the property, including Hutch Whitehead and Robert Bohna, appear to lack significance in this regard.

None of the buildings associated with the auto development of 870 Broadway demonstrate distinctive characteristics of a type, period, or method of construction (Criterion C or 3). Rather, the complex illustrates a largely functional design sensibility that includes modest Mission Revival allusions designed to obscure a standard utilitarian design. In contrast to the richly stylized auto related development in regional centers and cities including Sacramento and San Francisco, this modest facility does not convey any important design associations related to the architectural development of showrooms or service centers. Further, even the modest decorative embellishments of Building 1, including showroom windows and entry areas, have been altered in the modern period and replaced with aluminum frame members that lack integrity to the development period.

In rare instances buildings themselves can serve as sources of important information about historic construction materials or technologies, but this type of commercial construction is otherwise well documented and none of the buildings appear to be a principal source of information in this regard (Criterion D or 4).

Conclusion

This intensive survey and evaluation finds that 870 Broadway does not appear eligible for individual listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) because the property lacks significance and integrity. While the property does not appear to be a historical resource for the purposes of CEQA, it is important to note that the 870 Broadway site is located in the City of Sonoma Historic Overlay Zone (HOZ) and as such any demolition or development at the site is subject to the provisions of Chapter 19.42 of the Sonoma Municipal Code, which governs Historic Preservation and Infill in the Historic Overlay Zone.

SKETCH MAP

Photographs:

Photograph 2: Building 1, camera facing southeast. Photograph JRP 1/13/12

Photograph 3: Building 1, camera facing south. Photograph JRP 1/13/12

Photographs (cont'd):

Photograph 4: Building 1, camera facing northwest. Photograph JRP 1/13/12

Photograph 5: Building 2, camera facing northwest. Photograph JRP 1/13/12

Photographs (cont'd):

Photograph 6: Building 2 Foundation Detail, camera facing southeast. Photograph JRP 1/13/12

Photograph 7: Building 2, camera facing southeast. Photograph JRP 1/13/12

Photographs (cont'd):

Photograph 8: Building 2, camera facing southeast. Photograph JRP 1/13/12

Photograph 9: Building 3, camera facing southwest. Photograph JRP 1/13/12

Photographs (cont'd):

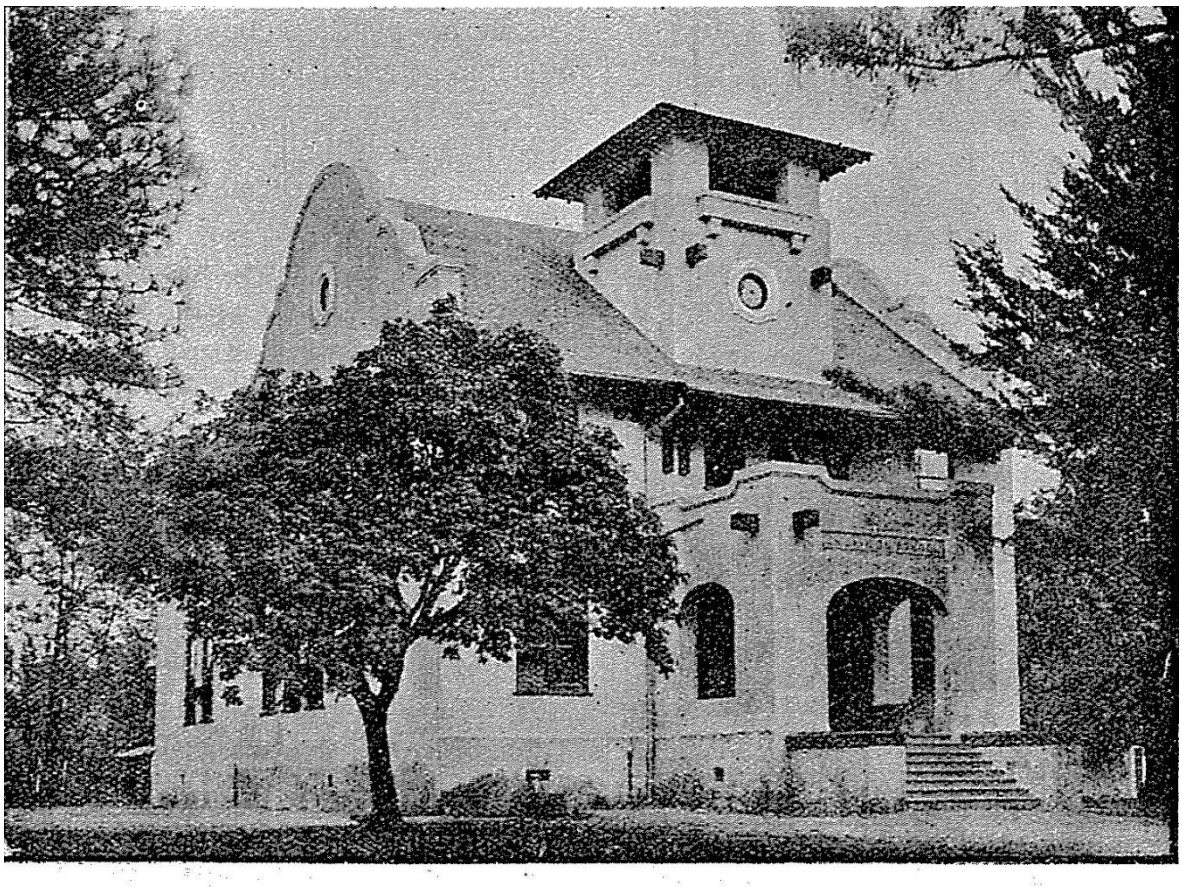
Photograph 10: Building 3, camera facing northeast. Photograph JRP 1/13/12

Photograph 11: Building 3, camera facing northwest. Photograph JRP 1/13/12

Historic Period Photographs:

Photograph 12: Circa 1864 Photograph of Cumberland College at 870 Broadway
Photograph on File at Sonoma Valley Historical Society

Historic Period Photographs:



Photograph 13: Circa 1908 Photograph of Sonoma Valley High School at 870 Broadway
Photograph reproduced from The Golden Bear, on file at Sonoma League for Historic Preservation

Prepared for

Mr. William M. Shea
Executor of Estate of Robert H. Bohna
285 Second Street
Sonoma, California 95476

REPORT OF INVESTIGATION

870 BROADWAY

SONOMA, CALIFORNIA

APRIL 2011

EBA Project No. 10-1639

Prepared by

David Noren, R.E.A., Manager
Environmental Services

Supervised by

Dale Solheim, P.E., R.E.A.
Principal Engineer / C.E. #30888

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4/6/11

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TABLE OF CONTENTS

1.0 INTRODUCTION

Mr. William Shea, Executor of the Estate of Robert Bohna (Client), contracted with EBA Engineering (EBA) to perform corrective action to remove in place contaminants from two locations at 870 Broadway in Sonoma, California, hereafter referred to as the project site (Figure 1, Appendix A). The purpose of this work was to remove environmental impacts that were documented to exist in two areas of the project site. The results of these investigations can be found in the *Report of Investigation* (EBA, 2010c) for the removal of an in-ground hydraulic hoist and the *Report of Investigation* (EBA, 2011b) that documents the results of soil and groundwater sampling at various areas of the project site property. The work presented herein was conducted in accordance with the *Addendum to Building Permit #19392, Work Plan for Overexcavation of Former Hydraulic Hoist and Surface Soil (EBA,* 2011a).

2.0 BACKGROUND INFORMATION

2.1 General

The project site is located at 870 Broadway in Sonoma, California (Figure 1, Appendix A). The project site contains a main commercial building with an automotive repair shop and showroom, an alignment building and a historic school building. The project site buildings are currently used for automotive sales, repair and maintenance. The surrounding properties include residential properties to the east and commercial properties to the north of the project site property. Broadway borders the western portion of the project site property and East MacArthur Street borders the southern portion of the project site. A site plan showing the general site features and environmental sampling locations is presented as Figure 2 (Appendix A).

2.2 Site History

The project site was originally developed in the late 1860's and used as a school until the early 1920's. The project site was then developed commercially some time between 1923 and 1941 and has been used for automotive purposes including sales, services and maintenance since that time. In September 2010 a Phase I Environmental Site Assessment completed at the site identified four areas of potential concern on the project site property that included the use of the southwestern portion of the project site as a gasoline services station in the early 1940's, the use of one project site building for autobody work including body work and painting, the use of former underground hydraulic hoists in the shop and the autobody/alignment buildings and observations of stained soil in the area between the shop and historic school building.

On November 1, 2010, EBA personnel supervised the drilling of six soil borings (SB-1 through SB-6) at various areas of the project site for the purpose of collecting soil and groundwater samples for chemical analysis. Four soil borings were installed around the alignment shop due to the fact that this building was historically used as a paint and auto repair shop. A soil boring was also installed within the footprint of a former gasoline service station at the southwest corner of the project site property parcel. Finally a boring was installed within the footprint of a former in-ground hydraulic hoist within the main building at the project site. No significant impacts to soil

or groundwater were detected in the soil and groundwater samples collected from these areas of the project site.

During the November 2010 site work four shallow soil borings were also installed using a hand auger on the east side of the main shop. The soil samples were collected from the east side of the main shop at depths up to two feet below the ground surface (bgs) in an area that had historically been used to store various auto parts and materials. Analytical results of these samples indicated the presence of significant concentrations of lead and petroleum hydrocarbons present in shallow soil within this area.

A geophysical survey of the southwest corner of the project site was also performed during the November 2010 investigation. The geophysical survey was completed in the area of a former gasoline service station that was located in the southeast corner of the project site. The survey indicated the presence of remnants of the historic service station structure; however no buried metallic objects, i.e. underground fuel storage tanks, sumps or hydraulic hoists were determined to be present. As previously mentioned, a soil boring installed in this area of the project site indicated no detection of petroleum hydrocarbons in soil or groundwater in this area of the project site.

On November 22, 2010 EBA Engineering personnel supervised the removal of the hoist from the project site. The hoist was removed from the north end of the main shop as it was no longer used. A soil sample collected from beneath the hoist indicated significant concentrations of petroleum hydrocarbons in the shallow soil.

At the request of the property owners, EBA completed the work included herein to remediate areas with known impacts.

2.3 Regional Hydrogeologic Setting

The project site is located within the Coast Range Geomorphic Province of northern California. The Coast Range Geomorphic Province is generally characterized as a series of northwest trending elongated ridges and valleys that are a result of folding and faulting. The province includes many separate ranges, coalescing mountain masses, and several major structural valleys. The regional structure of the Coast Range is considered to be a number of independent fault blocks with different stratigraphic and structural histories.

The project site is located in the Valley of the Moon along the southern extension of the Kenwood Syncline. The Kenwood Syncline is a northwest-trending structural downfold formed during the Pliocene Epoch. The Valley of the Moon is flanked to the northeast by the Mayacama Mountains and to the southwest by the Sonoma Mountains (California Department of Water Resources, 1975).

Surface deposits in this region consist of Quaternary alluvium comprised of unconsolidated clays, silts, sands and gravels. These surface deposits, in turn, are underlain by Glen Ellen Formation and/or Sonoma Volcanic materials. The Glen Ellen Formation is of Pliocene-Pleistocene age and consists of heterogeneous mixtures of consolidated clays, silts, sands and gravels. The Sonoma Volcanics are of middle to late Pliocene age and consist of

mixed volcanic materials, including flows, dikes, plugs, and beds of andesite, rhyolite, basalt, tuff breccia, and tuff (DWR, 1975).

3.0 FIELD INVESTIGATION

3.1 Soil Excavation – East of Shop

On March 17, 2011 EBA personnel supervised John's Excavating of Santa Rosa, California to excavate impacted soil from the east side of the main shop. The excavation was performed using a backhoe to excavate and directly load the materials into trucks for disposal. The excavation included an area measuring 14 feet wide by 27 feet long to a general depth of two feet bgs. Please refer to Figure 3, Appendix A for the limits of the excavation.

A total of 19.44 tons (38,880 pounds) of material was excavated from the east side of the shop and hauled for disposal to the US Ecology disposal facility located in Beatty, Nevada. Disposal manifests are included in Appendix B.

Two confirmation soil samples were collected from the bottom of the excavated area at a depth of two feet bgs. The soil samples were collected in two-inch diameter by six inch long steel tubes. Upon collection the soil samples were sealed and placed under refrigerated conditions pending transport to a State certified analytical laboratory for chemical analysis.

3.2 Soil Excavation – Hydraulic Hoist Area

On March 17, 2011 EBA personnel also supervised the excavation of impacted soil in the area of the former hydraulic hoist removed during November 2010 in the northern area of the main shop. The excavation area was enlarged to approximately 4 feet by 7 feet in size and extended to a depth of 10.5 feet bgs. Please refer to Figure 3, Appendix A for the limits of the excavation.

The excavated material was directly loaded and hauled to Keller Canyon Landfill in Pittsburg, California. Stockpiled soil from the removal of the hoist was also transported for disposal with the excavated materials. Disposal receipts indicate that a total of 11.45 tons (22,900 pounds) of material were transported for disposal. A copy of the disposal receipt is enclosed in Appendix B.

One confirmation soil sample was collected from the bottom of the excavation pit at a depth of 10.5 feet bgs. The soil sample was collected in a two-inch diameter by six inch long steel tube. Upon collection the soil sample was sealed and placed under refrigerated conditions pending transport to a State certified analytical laboratory for chemical analysis.

3.3 Laboratory Testing

Soil samples collected from the excavation to the east of the shop were analyzed for Gasoline Range Organics (GRO), Diesel Range Organics (DRO) and Heavy Range Organics (HRO) using EPA Method 8015. The samples were also analyzed for the volatile organic compounds

benzene, toluene, ethylbenzene and xylenes (BTEX) using EPA Method 8260B and the metals cadmium, chromium, lead, nickel and zinc using EPA Method 3050/6020.

The soil sample collected from hydraulic hoist excavation was analyzed for DRO and HRO using EPA Method 8015 and BTEX compounds using EPA Test Method 8260B.

3.4 Backfill & Compaction

The excavated areas were backfilled with imported fill materials. The materials were placed in approximate one foot lifts and compacted to a minimum of 90 percent relative compaction. Representatives of PJC and Associates Geotechnical performed compaction testing in accordance with the permitting requirements from the City of Sonoma. A copy of the compaction report is presented in Appendix C.

4.0 FINDINGS

4.1 Excavation – East of Shop

Analytical results of the two confirmation soil samples collected from the area east of the shop indicated no detection of petroleum hydrocarbons or BTEX compounds. Metals concentrations in the confirmation soil samples are in the range of expected background levels for the area of the project site.

Please refer to Tables 1 & 2 in Appendix D for the tabulated analytical results. A copy of the Certified Analytical Report is presented in Appendix E.

4.2 Excavation - Former Hydraulic Hoist

Analytical results of the confirmation soil sample collected from the bottom of the excavation pit of the former hydraulic hoist indicated no detection of petroleum hydrocarbons or BTEX compounds.

Please refer to Table 3 in Appendix D for the tabulated analytical results. A copy of the Certified Analytical Report is presented in Appendix E.

5.0 CONCLUSIONS

Based on results from the confirmation soil samples collected following the excavation activities in the two areas of concern, EBA presents the following conclusions:

- Based on the analytical results of confirmation soil samples, it appears that impacted soil in the area on the east side of the shop has been successfully removed. The results of these samples indicate no detection of petroleum hydrocarbons or related fuel constituent volatile organic compounds. In addition, the concentrations of metals are at expected

background levels and below the Environmental Screening Levels as established by the San Francisco Bay Regional Water Quality Control Board. Soil removed from this area was disposed of to a regulated facility.

- Based on the analytical results of a soil sample collected from the excavation of the former hydraulic hoist, it appears that all impacted soil has been successfully removed from this area. The results of these samples indicate no detection of petroleum hydrocarbons or related volatile organic compounds. Soil excavated from this area was disposed of to a regulated facility.

6.0 RECOMMENDATIONS

Based on confirmation soil data collected during this investigation, EBA recommends closure of the site investigation with no further work required.

7.0 LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice at the place and time this investigation was performed. This warranty is in lieu of all other warranties, either expressed or implied. This investigation was conducted solely for the purpose of evaluating environmental conditions of first-encountered groundwater with respect to environmental conditions previously identified at the site. No soil engineering or geotechnical references are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. Additional work, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of investigation. This report has been prepared solely for the Client and any reliance on this report by third parties shall be at such party's sole risk.

8.0 REFERENCES

California Department of Water Resources, *Evaluation of Groundwater Resources: Sonoma County*, December 1992.

EBA Engineering, 2010a. *Phase I Environmental Site Assessment, 870 Broadway, Sonoma, California*. July 2010.

EBA Engineering, 2010b; *Cost Estimate for Environmental Services, 870 Broadway, Sonoma, California*. September 11, 2010.

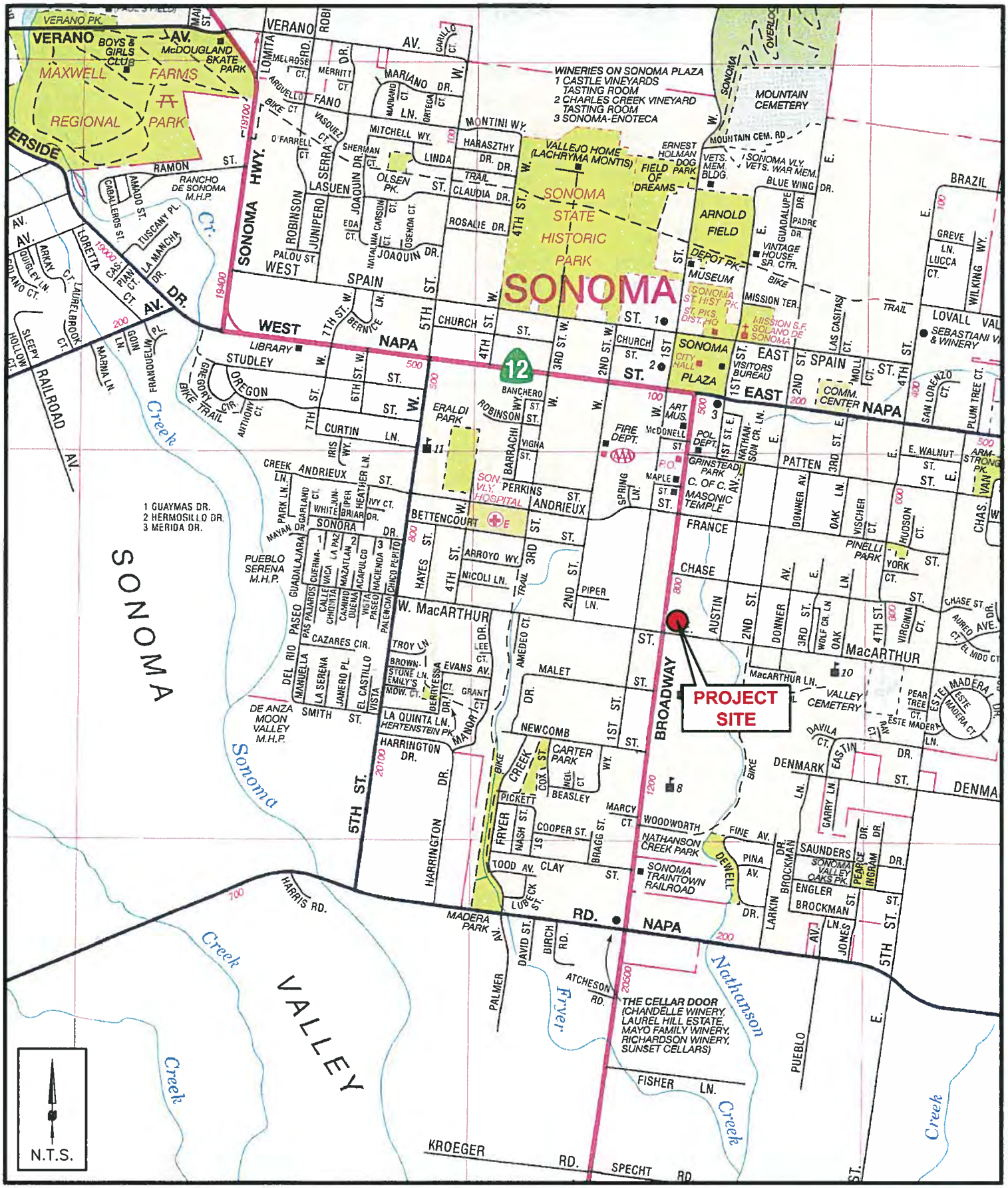
EBA Engineering, 2010c. *Report of Investigation, Removal of Hydraulic Hoist, 870 Broadway, Sonoma, California*. December 30, 2010.

EBA Engineering, 2011a, *Addendum to Building Permit #19392, Work Plan for Overexcavation of Former Hydraulic Hoist and Surface Soil*. February 8, 2011.

EBA Engineering, 2011b. *Report of Investigation, 870 Broadway, Sonoma, California*. January 2010.

APPENDIX A

FIGURES



LOCATION MAP

870 BROADWAY
SONOMA, CALIFORNIA

FIGURE
1

10-1639

EBA ENGINEERING

Q:\1639\Location Map.dwg, Location Map, 4/5/2011 12:45:16 PM

EBA ENGINEERING

SITE MAP

870 BROADWAY
SONOMA, CALIFORNIA

FIGURE
2
10-1639

Q:\1639\Addendum to Work Scope - February 2011\Site Map.dwg, Fig 2, 4/5/2011 1:36:04 PM

ENGINEERING

EXCAVATION LIMITS

870 BROADWAY
SONOMA, CALIFORNIA

FIGURE
3
10-1639

Q:\1639\Addendum to Work Scope - February 2011\Excavation Limits.dwg, Fig 3, 4/5/2011 2:03:08 PM

APPENDIX B

DISPOSAL DOCUMENTATION

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	CAP000218881
2. Page 1 of	1
3. Emergency Response Phone	925 319 0116
4. Manifest Tracking Number	001301511 GBF

GENERATOR

5. Generator's Name and Mailing Address

Executor of Estate of Robert H. Bohna c/o Mr. William M. Shea
205 Second Street
Sonoma, California 95476

Generator's Phone: 707 751 3617

Generator's Site Address (if different than mailing address)

Executor of Estate of Robert H. Bohna c/o Mr. William M. Shea
870 Broadway
Sonoma, California 95476

6. Transporter 1 Company Name: [illegible] - TFS ~~ENV Environmental International Inc~~ — U.S. EPA ID Number: CAR000165274 ~~[illegible]~~

7. Transporter 2 Company Name: — U.S. EPA ID Number:

8. Designated Facility Name and Site Address

US Ecology
Highway 95 - 12 miles South of
Beatty, Nevada 89003

Facility's Phone: 775 553 2203

U.S. EPA ID Number: NVT330010000

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. Non RCRA Hazardous Waste Solid (Soil contaminated with traces of lead)	001	DT	010	Y	611
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

Send Invoice to: ENV Environmental International Inc. Att: Chris Mauro // 9b.1. US Ecology WS# 07-0178796-0 Project Number: EBA 11015 870 Broadway Sonoma, // When handling wear positive pressure self-contained breathing apparatus (SCBA) - Structural firefighters' protective clothing will only limited protection

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: [illegible] — Signature: [illegible] — Month 3 Day 17 Year 11

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: ______
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: [illegible] — Signature: [illegible] — Month 3 Day 17 Year 11

Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: — Signature: — Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	CAP000218861	1	925 318 0116	**001301519 GBF**

5. Generator's Name and Mailing Address

Executor of Estate of Robert H. Bohna c/o Mr. William M. Shea
285 Second Street
Sonoma, California 95476

Generator's Phone: 707.751.3817

Generator's Site Address (if different than mailing address)

Executor of Estate of Robert H. Bohna c/o Mr. William M. Shea
870 Broadway
Sonoma, California 95476

6. Transporter 1 Company Name [illegible]

~~ENV Environmental International, Inc.~~

U.S. EPA ID Number [illegible]

~~CAR000179382~~

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

US Ecology
Highway 95 - 12 miles South of
Beatty, Nevada 89003

Facility's Phone: 775.553.2203

U.S. EPA ID Number: NVT330010000

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. Non RCRA Hazardous Waste Solid (Soil contaminated with traces of lead)	001	DT	017	Y	611
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

Send Invoice to: ENV Environmental International Inc. Att: Chris Mauro // 9b.1. US Ecology WS # 07-0176786-0 Project Number: EBA 1101// 870 Broadway Sonoma, // When handling wear positive pressure self-contained breathing apparatus (SCBA) - Structural firefighters' protective clothing will only limited protection

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: David Nor[illegible] EBA Engineering — Signature: [signature] — Month 03 Day 17 Year 11

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: [illegible] — Signature: [signature] — Month Day Year

Transporter 2 Printed/Typed Name — Signature — Month 03 Day 17 Year 11

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name — Signature — Month Day Year

GENERATOR — TRANSPORTER — INT'L — DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

☒ Keller Canyon Sanitary Landfill	☐ Coffin Butte Landfill	☐ Ox Mountain Sanitary Landfill	☐ Newby Island Sanitary Landfill	☐ Forward Landfill
901 Bailey Road Pittsburg, CA 94565 Phone (925) 458-9800 Fax (925) 458-9891	28972 Coffin Butte Road Corvallis, OR 97330 Phone (541) 745-2018 Fax (541) 745-3826	12310 San Mateo Road Half Moon Bay, CA 94019 Phone (650) 726-1819 Fax (650) 726-9183	1601 Dixon Landing Road Milpitas, CA 95035 Phone (408) 945-2800 Fax (408) 262-2871	9999 S. Austin Road Manteca, CA 95336 Phone (209) 982-4298 Fax (209) 982-1009

NON-HAZARDOUS WASTE MANIFEST

GENERATOR: ESTATE of Robert Bohna
c/o William Shea
MAILING ADDRESS: 285 2nd St
CITY, STATE, ZIP: Sonoma CA 95476
PHONE: 707-544-0784
CONTACT PERSON: William Shea
SIGNATURE OF AUTHORIZED AGENT / TITLE: * Carolyn Parker for William Shea
DATE: 3-18-11

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or title 22 of the California code of regulations, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, If the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

WASTE ACCEPTANCE NO.: 4212112226

REQUIRED PERSONAL PROTECTIVE EQUIPMENT
☐ GLOVES ☐ GOGGLES ☐ RESPIRATOR ☐ HARD HAT
☐ TY-VEK ☐ SAFETY VEST

SPECIAL HANDLING PROCEDURES:

WASTE TYPE:
☐ DISPOSAL ☐ SLUDGE
☐ CONSTRUCTION ☐ WOOD
☐ DEBRIS ☐ OTHER
☐ SPECIAL WASTE

GENERATING FACILITY: 870 Broadway - Sonoma

RECEIVING FACILITY

TRANSPORTER: John's Excavating
ADDRESS: 1128 Hayhard Dr
CITY, STATE, ZIP: Santa Rosa CA 95401
PHONE: 707-578-1184
SIGNATURE OF AUTHORIZED AGENT OR DRIVER: * [signature]
DATE: 3-18-11

NOTES:

VEHICLE LICENSE NUMBER	TRUCK NUMBER
9A58972	411

END DUMP	BOTTOM DUMP	TRANSFER
☒	☐	☐

ROLL-OFF(S)	FLAT-BED	VAN	DRUMS
☐	☐	☐	☐

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

REMARKS:
FACILITY TICKET NUMBER:
SIGNATURE OF AUTHORIZED AGENT: *
DATE: 3/18/11

CUBIC YARDS: 20

DISPOSAL METHOD: (TO BE COMPLETED BY LANDFILL)

	DISPOSE	OTHER
☒ SOIL	∞	
☐ CONSTRUCTION DEBRIS		
☐ NON-FRIABLE ASBESTOS		
☐ WOOD		
☐ ASH		
☐ SPECIAL OTHER		

SCHEDULING MUST BE MADE PRIOR TO 3:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE.

GENERATOR COPY

MANIFEST # 95606

8907993

KELLER CANYON LANDFILL
901 BAILEY ROAD
PITTSBURG, CA

674478
EBA Engineering
825 Sonoma Ave., Ste. C

Santa Rosa, CA 95404
Contract: #4212112226 SOIL

SITE	TICKET	GRID
01	612809	

WEIGHMASTER: FELIPE C

DATE IN	TIME IN
18 March 2011	7:48 am

DATE OUT	TIME OUT
18 March 2011	7:48 am

VEHICLE	ROLL OFF
JE411	

REFERENCE	ORIGIN
95606	SONOMA

Gross Weight 55,260.00 lb
Stored Tare Weight 32,360.00 lb
Net Weight 22,900.00 lb 11.45 TN

Inbound - SCALE TICKET

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
11.45	TN	SW-BENEFICIAL REUSE				
1.00	LD	ENVIRONMENTAL FEE				
1.00	LD	FUEL RECOVERY FEE				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE

RS-FC

APPENDIX C

COMPACTION REPORT

PJC & Associates, Inc., Consulting Engineers & Geologists

Daily Progess Report Earthwork Inspection & Control

Date 3/17/11 Day of week: M T W (T) F S S Project # 5502-01

Project Name HYDRAULIC LIFT & SUB-EX BACKFILL Plan Author

Address 870 BROADWAY Plan Date

City SONOMA Contractor EBA

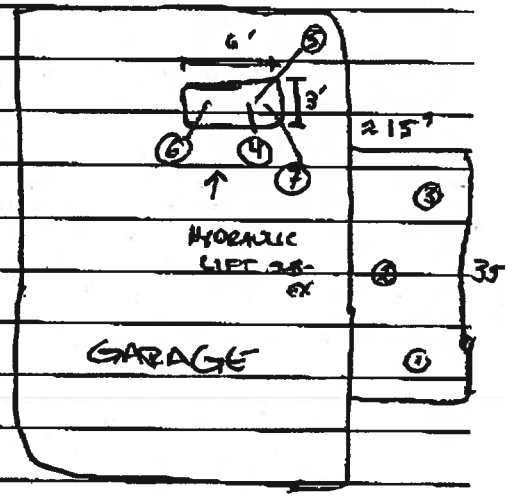
Weather SubContractor

Summarized Results of Field Density Tests

Test #	Location	Apprx. Elev. (ft) from Sub Ex to Test Elev.	Field		Control Test		Relative Compaction (%)	Remarks
			Moisture Content	Dry Density (pcf)	Number	Max Dry Density (pcf)		
1	OUTSIDE/EASTERN	FG	5.0	125.2	50%	139.0	90	± 1' OF CLASS
2	SUB-EX BACKFILL	〃	4.7	124.5	〃	〃	90	II BASEROCK (VIRGIN)
3	〃	〃	4.7	124.8	〃	〃	90	〃
4	HYDRAULIC LIFT	-5'	7.1	127.3	〃	〃	92	
5	〃	-2'	6.9	132.6	〃	〃	95	
6	〃	ABG	5.2	132.6	〃	〃	95	
7		ABG	6.4	135.8	〃	〃	98	

^ ON SITE FOR COMPACTION TESTING OF BACKFILL OVER TWO FOOT SUB-EX OF CONTAMINATED SOIL SITE → EAST OF EXISTING GARAGE. BACKFILL CONSISTED OF ONE FOOT OF DRAIN ROCK W/ MIRAFI 500X & TOPPED W/ ONE FOOT OF COMPACTED, CLASS II BASEROCK.

~ HYDRAULIC LIFT SUB-EX EXTENDED 10' IN DEPTH & WAS BACKFILLED W/ CLASS II IN SEVEN LIFTS. FOR TWO FEET ACHIEVED 95% R.C.



Equipment Used

Soils Description

Signature

Main Office: 706 Portal Street, Suite B, Cotati, CA 94931 707-792-9221 phone 707-792-1747 fax
Sonoma Branch: P.O. Box 489, Sonoma, CA 95476 707-935-3747 phone 707-935-3587 fax

APPENDIX D

TABLES

TABLE 1

CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS - AREA EAST
PETROLEUM HYDROCARBONS
870 BROADWAY
SONOMA, CALIFORNIA

Sample ID	Date	GRO (mg/kg)	DRO (mg/kg)	HRO (mg/kg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethylbenzene (ug/kg)	Xylenes (ug/kg)
EXC - S @ 2'	3/17/2011	<1.0	<10	<10	<1.5	<1.5	<1.5	<1.5
EXC - N @ 2'	3/17/2011	<1.0	<10	<10	<1.5	<1.5	<1.5	<1.5
ESL		*83*	*83*	*2,500*	*44*	*2900*	*3300*	*2300*

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

GRO= gasoline range organics analyzed by EPA Method 8015B

DRO= diesel range organics analyzed by EPA Method 8015

HRO= heavy range organics analyzed by EPA Method 8015

ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level for shallow soil in a commercial setting.

EBA ENGINEERING

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS - AREA EAST

METALS

870 BROADWAY

SONOMA, CALIFORNIA

Sample ID	Units	Cadmium	Chromium	Lead	Nickel	Zinc
EXC - S @ 2'	mg/kg	<2.5	**247**	**7.48**	**132**	**32.5**
EXC - N @ 2'	mg/kg	<2.50	**147**	**3.98**	**117**	**31.8**
ESL		***7.4***	***750***	***750***	***150***	***600***

mg/kg = milligrams per kilogram

EBA ENGINEERING

ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level for shallow soil in a commercial setting.

TABLE 3

CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS - HOIST
PETROLEUM HYDROCARBONS
870 BROADWAY
SONOMA, CALIFORNIA

Sample ID	Date	DRO (mg/kg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethylbenzene (ug/kg)	Xylenes (ug/kg)
Hoist Bottom @10.5'	3/17/2011	<10	<1.5	<1.5	<1.5	<1.5
ESL		*83*	*44*	*2900*	*3300*	*2300*

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

DRO= diesel range organics analyzed by EPA Method 8015

ESL - Environmental Screening levels as established by the San Francisco Bay Regional Water Quality Control Board for a commercial setting.

EBA ENGINEERING

APPENDIX E

CERTIFIED ANALYTICAL REPORTS

K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

3621 Westwind Blvd.
Santa Rosa CA 95403
Phone: 707 527 7574
FAX: 707 527 7879

TRANSMITTAL

DATE: 3/25/2011

TO: MR. DAVID NOREN
EBA ENGINEERING
825 SONOMA AVENUE
SANTA ROSA. CA 95404

Phone: 707-544-0784
Fax: 707-544-0866
Email: dataeba1@ebagroup.com
dnoren@ebagroup.com

ACCT: 9986
PROJ: 10-1639

FROM: Richard A. Kagel, Ph.D.
Laboratory Director RAK 3/25/2011

SUBJECT: LABORATORY RESULTS FOR YOUR PROJECT 10-1639

Enclosed please find K Prime's laboratory reports for the following samples:

SAMPLE ID	TYPE	DATE	TIME	KPI LAB #
HOIST BOTTOM @10.5'	SOIL	03/17/11	15:00	90613

The above listed sample group was received on 03/18/11 and tested as requested on the chain of custody document.

Please call me if you have any questions or need further information.
Thank you for this opportunity to be of service.

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

SAMPLE ID: HOIST BOTTOM @10.5'
LAB NO: 90613
SAMPLE TYPE: SOIL
DATE SAMPLED: 03/17/2011
TIME SAMPLED: 15:00

BATCH #: 031911S1
METHOD: VOLATILE ORGANIC COMPOUNDS **DATE ANALYZED:** 03/23/2011
REFERENCE: EPA 5035/8260 **UNITS:** µg/Kg

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	1.50	ND
TOLUENE	108-88-3	1.50	ND
ETHYLBENZENE	100-41-4	1.50	ND
XYLENE (M+P)	1330-20-7	1.50	ND
XYLENE (O)	1330-20-7	1.50	ND

SURROGATE RECOVERY	%
DIBROMOFLUOROMETHANE	103
TOLUENE-D8	105
4-BROMOFLUOROBENZENE	112

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA -NOT APPLICABLE OR AVAILABLE

APPROVED BY: CW
DATE: 03/25/2011

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

METHOD: DRO **SAMPLE TYPE:** SOIL
REFERENCE: EPA 8015B **UNITS:** mg/Kg

SAMPLE ID	LAB NO.	DATE SAMPLED	BATCH ID	EXTRACT DATE	DATE ANALYZED	MRL	SAMPLE CONC	DRO PATTERN
HOIST BOTTOM @10.5'	90613	03/17/11	031711S1	3/21/2011	03/21/11	10.0	ND	

NOTES:

DRO	Diesel Range Organics (C12-C23) with Silica Gel Cleanup
ND	Not Detected at or above the stated MRL
NA	Not Applicable or Available
MRL	Method Reporting Limit
AD	Typical Pattern for Diesel
AM	Hydrocarbon response is in the C12-C22 range
AC	Heavier hydrocarbons contributing to diesel range quantitation
AJ	Heavier hydrocarbon than diesel
AK	Lighter hydrocarbon than diesel
AE	Unknown hydrocarbon with a single peak
AN	Unknown hydrocarbon with several peaks

APPROVED BY: [signature]
DATE: 03/25/2011

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

METHOD: HRO
REFERENCE: EPA 8015B

SAMPLE TYPE: SOIL
UNITS: mg/Kg

SAMPLE ID	LAB NO.	DATE SAMPLED	BATCH ID	EXTRACT DATE	DATE ANALYZED	MRL	SAMPLE CONC	HRO PATTERN
HOIST BOTTOM @10.5'	90613	03/17/2011	031711S1	3/21/2011	03/21/2011	10.0	ND	

NOTES:

HRO	Heavy Range Organics (C24-C34) with Silica Gel Cleanup
ND	Not Detected at or above the stated MRL
NA	Not Applicable or Available
MRL	Method Reporting Limit
AE	Unknown hydrocarbon with a single peak
AN	Unknown hydrocarbon with several peaks

APPROVED BY: [signature]
DATE: 03/25/2011

K PRIME, INC.

LABORATORY METHOD BLANK REPORT **METHOD BLANK ID:** B031911S1

BATCH #: 031911S1
DATE ANALYZED: 03/19/2011

METHOD: VOLATILE ORGANIC COMPOUNDS **SAMPLE TYPE:** SOIL
REFERENCE: EPA 5035/8260 **UNITS:** µg/Kg

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	1.50	ND
TOLUENE	108-88-3	1.50	ND
ETHYLBENZENE	100-41-4	1.50	ND
XYLENE (M+P)	1330-20-7	1.50	ND
XYLENE (O)	1330-20-7	1.50	ND

SURROGATE RECOVERY	%
DIBROMOFLUOROMETHANE	100
TOLUENE-D8	102
4-BROMOFLUOROBENZENE	85

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA -NOT APPLICABLE OR AVAILABLE

K PRIME, INC.
LABORATORY QC REPORT

METHOD: VOLATILE ORGANIC COMPOUNDS
REFERENCE: EPA 5035/8260

SAMPLE ID: B031911S1
SPIKE ID: L031911S1
DUPLICATE ID: D031911S1
BATCH #: 031911S1
SAMPLE TYPE: SOIL
UNITS: µg/Kg

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
1,1 DICHLOROETHENE	30.0	ND	26.2	87	60-140
BENZENE	30.0	ND	29.6	99	60-140
TRICHLOROETHENE	30.0	ND	26.6	89	60-140
TOLUENE	30.0	ND	28.6	95	60-140
CHLOROBENZENE	30.0	ND	27.7	92	60-140

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING LIMIT	SPIKE RESULT	DUPLICATE RESULT	RPD (%)	LIMITS (%)
1,1 DICHLOROETHENE	1.50	26.2	25.6	2.3	±20
BENZENE	1.50	29.6	29.0	1.8	±20
TRICHLOROETHENE	1.50	26.6	25.6	3.8	±20
TOLUENE	1.50	28.6	28.3	1.0	±20
CHLOROBENZENE	1.50	27.7	26.6	4.1	±20

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA - NOT AVAILABLE OR APPLICABLE

K PRIME, INC.
LABORATORY QUALITY CONTROL REPORT

BATCH ID: 031711S1
DATE EXTRACTED: 3/17/2011
DATE ANALYZED: 3/21/2011

METHOD: DRO
REFERENCE: EPA 8015B

SAMPLE TYPE: SOIL
UNITS: mg/Kg

METHOD BLANK ID: B031711S1

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
DRO	10.0	ND

SAMPLE ID: L031711S1
DUPLICATE ID: D031711S1

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
DRO	500	ND	596	119	60-140

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING LIMIT	SPIKE RESULT	DUPLICATE RESULT	RPD (%)	LIMITS (%)
DRO	10.0	596	497	18.1	±20

NOTES:
DRO - DIESEL RANGE ORGANICS (C12-C34)
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE

K PRIME, INC.

CHAIN OF CUSTODY RECORD

CONSULTING ANALYTICAL CHEMISTS 3621 Westwind Blvd., Santa Rosa, CA 95403 PHONE: (707) 527-7574 FAX: (707) 527-7879

Client/Project ID: EBA Engineering

Address/Phone: 825 Sonoma Ave Santa Rosa, CA (707) 544-0784

KPI Project No.:

Project Location: Broadway

Client Project No.: 10-1639

☐ EDF Log Code: ______

Contact: David Noren

Sampler (Signature): David Noren

Global ID:

ANALYSES: TPH-d/mo, BTEX

Sample Identification No.	Date	Time	Lab Sample No.	Type of Sample	No. of Containers	TPH-d/mo	BTEX						Expected Turnaround Time	Remarks
Horst Bottom @ 10.5'	3/17/11	1500	90613	Soil	1	X	✓						Std.	

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
David Noren	[signature]	3-18-11	8:06

Disposal Method:

Disposed by: (Signature) Date Time

White Copy : Accompanies Samples
Yellow Copy : Sampler

K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

3621 Westwind Blvd.
Santa Rosa CA 95403
Phone: 707 527 7574
FAX: 707 527 7879

TRANSMITTAL

DATE: 3/25/2011

TO: MR. DAVID NOREN
EBA ENGINEERING
825 SONOMA AVENUE
SANTA ROSA, CA 95404

Phone: 707-544-0784
Fax: 707-544-0866
Email: dataebal@ebagroup.com
dnoren@ebagroup.com

ACCT: 9986
PROJ: 10-1639

FROM: Richard A. Kagel, Ph.D.
Laboratory Director RAK/my cv 3/25/2011

SUBJECT: LABORATORY RESULTS FOR YOUR PROJECT 10-1639

Enclosed please find K Prime's laboratory reports for the following samples:

SAMPLE ID	TYPE	DATE	TIME	KPI LAB #
EXC-S@2'	SOIL	03/17/11	10:55	90614
EXC-N@2'	SOIL	03/17/11	11:00	90615

The above listed sample group was received on 03/18/11 and tested as requested on the chain of custody document.

Please call me if you have any questions or need further information.
Thank you for this opportunity to be of service.

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

METHOD: GRO-GASOLINE RANGE ORGANICS **SAMPLE TYPE: SOIL**
REFERENCE: EPA 8015B **UNITS: mg/Kg**

SAMPLE ID	LAB NO.	DATE SAMPLED	TIME SAMPLED	BATCH ID	DATE ANALYZED	MRL	SAMPLE CONC	GRO PATTERN
EXC-S@2'	90614	03/17/2011	10:55	032211S1	03/22/2011	1.00	ND	
EXC-N@2'	90615	03/17/2011	11:00	032211S1	03/22/2011	1.00	ND	

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT
AE - UNKNOWN HYDROCARBON WITH A SINGLE PEAK
AN - UNKNOWN HYDROCARBON WITH SEVERAL PEAKS
AS - HEAVIER HYDROCARBON THAN GASOLINE CONTRIBUTING TO GRO VALUE
CO - HYDROCARBON RESPONSE IN GASOLINE RANGE BUT DOES NOT RESEMBLE GASOLINE

APPROVED BY: CL
DATE: 03/25/2011

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

SAMPLE ID: EXC-S@2'
LAB NO: 90614
SAMPLE TYPE: SOIL
DATE SAMPLED: 03/17/2011
TIME SAMPLED: 10:55

BATCH #: 031911S1
METHOD: VOLATILE ORGANIC COMPOUNDS **DATE ANALYZED:** 03/23/2011
REFERENCE: EPA 5035/8260 **UNITS:** µg/Kg

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	1.50	ND
TOLUENE	108-88-3	1.50	ND
ETHYLBENZENE	100-41-4	1.50	ND
XYLENE (M+P)	1330-20-7	1.50	ND
XYLENE (O)	1330-20-7	1.50	ND

SURROGATE RECOVERY	%
DIBROMOFLUOROMETHANE	103
TOLUENE-D8	105
4-BROMOFLUOROBENZENE	113

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA -NOT APPLICABLE OR AVAILABLE

APPROVED BY: CW
DATE: 03/25/2011

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

SAMPLE ID: EXC-N@2'
LAB NO: 90615
SAMPLE TYPE: SOIL
DATE SAMPLED: 03/17/2011
TIME SAMPLED: 11:00

BATCH #: 031911S1
METHOD: VOLATILE ORGANIC COMPOUNDS **DATE ANALYZED:** 03/23/2011
REFERENCE: EPA 5035/8260 **UNITS:** µg/Kg

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	1.50	ND
TOLUENE	108-88-3	1.50	ND
ETHYLBENZENE	100-41-4	1.50	ND
XYLENE (M+P)	1330-20-7	1.50	ND
XYLENE (O)	1330-20-7	1.50	ND

SURROGATE RECOVERY	%
DIBROMOFLUOROMETHANE	104
TOLUENE-D8	104
4-BROMOFLUOROBENZENE	86

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA -NOT APPLICABLE OR AVAILABLE

APPROVED BY: CW
DATE: 03/25/2011

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

METHOD: DRO
REFERENCE: EPA 8015B

SAMPLE TYPE: SOIL
UNITS: mg/Kg

SAMPLE ID	LAB NO.	DATE SAMPLED	BATCH ID	EXTRACT DATE	DATE ANALYZED	MRL	SAMPLE CONC	DRO PATTERN
EXC-S@2'	90614	03/17/2011	031711S1	3/21/2011	03/22/2011	10.0	ND	
EXC-N@2'	90615	03/17/2011	031711S1	3/21/2011	03/22/2011	10.0	ND	

NOTES:

DRO	Diesel Range Organics (C12-C23) with Silica Gel Cleanup
ND	Not Detected at or above the stated MRL
NA	Not Applicable or Available
MRL	Method Reporting Limit
AD	Typical Pattern for Diesel
AM	Hydrocarbon response is in the C12-C22 range
AC	Heavier hydrocarbons contributing to diesel range quantitation
AJ	Heavier hydrocarbon than diesel
AK	Lighter hydrocarbon than diesel
AE	Unknown hydrocarbon with a single peak
AN	Unknown hydrocarbon with several peaks

APPROVED BY: Ch
DATE: 03/25/2011

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

METHOD: HRO
REFERENCE: EPA 8015B

SAMPLE TYPE: SOIL
UNITS: mg/Kg

SAMPLE ID	LAB NO.	DATE SAMPLED	BATCH ID	EXTRACT DATE	DATE ANALYZED	MRL	SAMPLE CONC	HRO PATTERN
EXC-S@2'	90614	03/17/2011	031711S1	3/21/2011	03/22/2011	10.0	ND	
EXC-N@2'	90615	03/17/2011	031711S1	3/21/2011	03/22/2011	10.0	ND	

NOTES:

HRO	Heavy Range Organics (C24-C34) with Silica Gel Cleanup
ND	Not Detected at or above the stated MRL
NA	Not Applicable or Available
MRL	Method Reporting Limit
AE	Unknown hydrocarbon with a single peak
AN	Unknown hydrocarbon with several peaks

APPROVED BY: CW
DATE: 03/25/2011

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

METHOD: TOTAL METALS BY ICP/MS
REFERENCE: EPA 3050B/6020A

SAMPLE ID: EXC-S@2'
LAB NO: 90614
DATE SAMPLED: 03/17/2011
TIME SAMPLED: 10:55
BATCH ID: 110321S01

SAMPLE TYPE: SOIL
UNITS: mg/Kg

ELEMENT NAME		DATE ANALYZED	REPORTING LIMIT	SAMPLE CONC
CADMIUM	Cd	03/22/2011	2.50	ND
CHROMIUM	Cr	03/22/2011	2.50	247
LEAD	Pb	03/22/2011	2.50	7.48
NICKEL	Ni	03/22/2011	2.50	132
ZINC	Zn	03/22/2011	2.50	32.5

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA - NOT AVAILABLE OR APPLICABLE

APPROVED BY: CW
DATE: 03/25/2011

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9986
CLIENT PROJECT: 10-1639

METHOD: TOTAL METALS BY ICP/MS
REFERENCE: EPA 3050B/6020A

SAMPLE ID: EXC-N@2'
LAB NO: 90615
DATE SAMPLED: 03/17/2011
TIME SAMPLED: 11:00
BATCH ID: 110321S01

SAMPLE TYPE: SOIL
UNITS: mg/Kg

ELEMENT NAME		DATE ANALYZED	REPORTING LIMIT	SAMPLE CONC
CADMIUM	Cd	03/22/2011	2.50	ND
CHROMIUM	Cr	03/22/2011	2.50	147
LEAD	Pb	03/22/2011	2.50	3.98
NICKEL	Ni	03/22/2011	2.50	117
ZINC	Zn	03/22/2011	2.50	31.8

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA - NOT AVAILABLE OR APPLICABLE

APPROVED BY: [signature]
DATE: 03/25/2011

K PRIME, INC.
LABORATORY QC REPORT

METHOD: GRO-GASOLINE RANGE ORGANICS
REFERENCE: EPA 8015B

METHOD BLANK ID: B032211S1
SAMPLE TYPE: SOIL

BATCH #: 032211S1
DATE EXTRACTED: 03/22/2011
DATE ANALYZED: 03/22/2011

UNITS: mg/kg

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
TPH-G	1.00	ND

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA - NOT AVAILABLE OR APPLICABLE

SAMPLE ID: L032211S1
DUPLICATE ID: D032211S1
BATCH #: 032211S1
SAMPLE TYPE: SOIL
UNITS: mg/kg

DATE EXTRACTED: 03/22/2011
DATE ANALYZED: 03/22/2011

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
TPH-G	5.00	ND	3.95	79	60-140

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING LIMIT	SPIKE RESULT	DUPLICATE RESULT	RPD (%)	LIMITS (%)
TPH-G	1.00	3.95	3.79	4.1	±20

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA - NOT AVAILABLE OR APPLICABLE

K PRIME, INC.

LABORATORY METHOD BLANK REPORT **METHOD BLANK ID:** B031911S1

BATCH #: 031911S1
DATE ANALYZED: 03/19/2011

METHOD: VOLATILE ORGANIC COMPOUNDS **SAMPLE TYPE:** SOIL
REFERENCE: EPA 5035/8260 **UNITS:** µg/Kg

COMPOUND NAME	CAS NO.	REPORTING LIMIT	SAMPLE CONC
BENZENE	71-43-2	1.50	ND
TOLUENE	108-88-3	1.50	ND
ETHYLBENZENE	100-41-4	1.50	ND
XYLENE (M+P)	1330-20-7	1.50	ND
XYLENE (O)	1330-20-7	1.50	ND

SURROGATE RECOVERY	%
DIBROMOFLUOROMETHANE	100
TOLUENE-D8	102
4-BROMOFLUOROBENZENE	85

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA -NOT APPLICABLE OR AVAILABLE

K PRIME, INC.
LABORATORY QC REPORT

METHOD: VOLATILE ORGANIC COMPOUNDS
REFERENCE: EPA 5035/8260

SAMPLE ID: B031911S1
SPIKE ID: L031911S1
DUPLICATE ID: D031911S1
BATCH #: 031911S1
SAMPLE TYPE: SOIL
UNITS: µg/Kg

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
1,1 DICHLOROETHENE	30.0	ND	26.2	87	60-140
BENZENE	30.0	ND	29.6	99	60-140
TRICHLOROETHENE	30.0	ND	26.6	89	60-140
TOLUENE	30.0	ND	28.6	95	60-140
CHLOROBENZENE	30.0	ND	27.7	92	60-140

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING LIMIT	SPIKE RESULT	DUPLICATE RESULT	RPD (%)	LIMITS (%)
1,1 DICHLOROETHENE	1.50	26.2	25.6	2.3	±20
BENZENE	1.50	29.6	29.0	1.8	±20
TRICHLOROETHENE	1.50	26.6	25.6	3.8	±20
TOLUENE	1.50	28.6	28.3	1.0	±20
CHLOROBENZENE	1.50	27.7	26.6	4.1	±20

NOTES:
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA - NOT AVAILABLE OR APPLICABLE

K PRIME, INC.
LABORATORY QUALITY CONTROL REPORT

BATCH ID: 031711S1
DATE EXTRACTED: 3/17/2011
DATE ANALYZED: 3/21/2011

METHOD: DRO
REFERENCE: EPA 8015B

SAMPLE TYPE: SOIL
UNITS: mg/Kg

METHOD BLANK ID: B031711S1

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
DRO	10.0	ND

SAMPLE ID: L031711S1
DUPLICATE ID: D031711S1

ACCURACY (MATRIX SPIKE)

PARAMETER	SPIKE ADDED	SAMPLE RESULT	SPIKE RESULT	RECOVERY (%)	LIMITS (%)
DRO	500	ND	596	119	60-140

PRECISION (SPIKE DUPLICATE)

COMPOUND NAME	REPORTING LIMIT	SPIKE RESULT	DUPLICATE RESULT	RPD (%)	LIMITS (%)
DRO	10.0	596	497	18.1	±20

NOTES:
DRO - DIESEL RANGE ORGANICS (C12-C34)
ND - NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE

K PRIME, INC.
LABORATORY BATCH QC REPORT

SAMPLE ID: L032111-S
DUPLICATE ID: D032111-S
METHOD BLANK ID: B032111-S
BATCH #: 110321S01
DATE ANALYZED: 03/22/2011

METHOD: TOTAL METALS BY ICP/MS
REFERENCE: EPA 3050B/6020A

SAMPLE TYPE: SOLID
UNITS: mg/Kg

ELEMENT		MB mg/Kg	SA mg/Kg	SR mg/Kg	SP mg/Kg	SPD mg/Kg	SP %R	RPD %
CADMIUM	Cd	<2.50	100	0.0	87.0	86.7	87	0.3
CHROMIUM	Cr	<2.50	100	0.0	109	105	109	3.2
LEAD	Pb	<2.50	100	0.0	89.1	86.3	89	3.1
NICKEL	Ni	<2.50	100	0.0	91.5	90.6	92	1.0
ZINC	Zn	<2.50	100	0.0	97.6	97.6	98	0.1

NOTES:
ND: NOT DETECTED
MB: METHOD BLANK
SA: SPIKE ADDED
SR: SAMPLE RESULT
SP: SPIKE RESULT
SPD: SPIKE DUPLICATE RESULT
SP(%R): SPIKE % RECOVERY
RPD: RELATIVE PERCENT DIFFERENCE

K PRIME, INC.

CHAIN OF CUSTODY RECORD

CONSULTING ANALYTICAL CHEMISTS 3621 Westwind Blvd., Santa Rosa, CA 95403 PHONE: (707) 527-7574 FAX: (707) 527-7879

Client/Project ID	Address/Phone	ANALYSES	KPI Project No.
EBA Engineering	85 Bonaventura, Santa Rosa (707) 544-0784		
Project Location: Broadway	Client Project No: 10-1639		☐ EDF Log Code: _____
Contact: David Noren	Sampler (Signature): David Noren		Global ID

Sample Identification No.	Date	Time	Lab Sample No.	Type of Sample	No. of Containers	TPH-g	TPH-d/mo	BTEX	CAM 5 metals				Expected Turnaround Time	Remarks
Exc-Sc2'	3/17/11	1055	90614	Soil	1	X	X	X	X				STD	
Exc-NBA'	"	1100	90615	"	1	X	X	X	X				"	

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
David Noren	Tam Hamworth	3-18-11	8:06
Relinquished by: (Signature)	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Received by: (Signature)	Date	Time
Disposal Method	White Copy : Accompanies Samples Yellow Copy : Sampler		
Disposed by: (Signature) / Date / Time			

870 BROADWAY MIXED USE RESIDENTIAL/COMMERCIAL PROJECT ENVIRONMENTAL NOISE ASSESSMENT

Sonoma, California

January 12, 2018

Prepared for:

Ms. Wendy Atkins
City of Sonoma
No. 1 The Plaza
Sonoma, CA 95476

Prepared by:

Fred Svinth, INCE, Assoc. AIA
ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
1 Willowbrook Court, Suite 120
Petaluma, CA 94954
(707) 794-0400

Job No. 17-196

INTRODUCTION

This report evaluates potential noise impacts resulting from the proposed Mixed-Use Commercial/Residential development at 870 Broadway in the City of Sonoma. The Setting Section of this report presents the fundamentals of environmental noise and vibration, describes regulatory criteria that are applicable in the project's assessment, and summarizes the existing noise environment. The Impacts and Mitigation Measures Section describes the significance criteria used to evaluate project impacts, provides a discussion of each project impact, and presents mitigation measures where necessary to provide a compatible project in relation to surrounding land uses.

SETTING

FUNDAMENTALS OF ENVIRONMENTAL NOISE

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

TABLE 1 Definitions of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Community Noise Equivalent Level, CNEL, is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The Day/Night Average Sound Level, DNL or L_{dn}, is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

Effects of Noise

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noise of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA L_{dn}. Typically, the highest steady traffic noise level during the daytime is about equal to the L_{dn} and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all

residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA L_{dn} with open windows and 65-70 dBA L_{dn} if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, those facing major roadways and freeways typically need special glass windows.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA L_{dn}. At an L_{dn} of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population highly annoyed increases to about 25-30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between an L_{dn} of 60-70 dBA. Between an L_{dn} of 70-80 dBA, each decibel increase increases by about 3 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the L_{dn} is 60 dBA, approximately 30-35 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 3 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 4 percent increase in the percentage of the population highly annoyed.

FUNDAMENTALS OF GROUNDBORNE VIBRATION

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One method is the Peak Particle Velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. In this report, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table 3 displays the reactions of people and the effects on buildings that continuous vibration levels produce.

The annoyance levels shown in Table 3 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

TABLE 3 Reactions of People and Damage to Buildings from Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older structures such as those with plastered walls or ceilings
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to newer structures

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related groundborne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

REGULATORY CRITERIA

The proposed project would be subject to noise-related regulations, plans, and policies established within documents prepared by the State of California and the City of Sonoma. These planning documents are implemented during the environmental review process to limit noise exposure at existing and proposed noise sensitive land uses. Applicable planning documents include: (1) the California Environmental Quality Act (CEQA) Guidelines, Appendix G, (2) State Building Code Limits for multifamily residential uses, (3) the City of Los Altos General Plan, (4) the City of Los Altos Municipal Code, and (5) Construction Vibration Criteria. Regulations, plans, and policies presented within these documents form the basis of the significance criteria used to assess project impacts.

State CEQA Guidelines.

CEQA requires an evaluation of the significance of potential project noise impacts. Potential noise effects from a project are considered to cause a significant environmental impact if any of the following occur:

a) exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
b) exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;
c) a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
d) a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
e) for a project located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels;
f) for a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Checklist items (a), (b), (c), and (d) are relevant to the proposed project. The project is not located in the vicinity of a public or private airstrip; therefore, checklist items (e) and (f) are not carried forward in this analysis.

CEQA does not define what noise level increase would be considered substantial. Typically, project-generated noise level increases of 3 dBA L_{dn}/CNEL or greater would be considered significant where exterior noise levels would exceed the normally acceptable noise level standard. Where noise levels would remain at or below the normally acceptable noise level standard with the project, noise level increases of 5 dBA L_{dn}/CNEL or greater would be considered significant.

California Building Code, Title 24, Part 2.

Section 1207.4 of the current (2016) California Building Code (CBC) states that interior noise levels attributable to exterior sources shall not exceed 45 dB(A) L_{dn} or CNEL (consistent with the noise element of the local general plan) in any habitable room of a residential dwelling. Though this section does to not explicitly apply this interior limit to multifamily residential buildings, in keeping with the requirements of prior editions of the CBC this limit is applied to any habitable room for new dwellings other than detached single-family dwellings.

City of Sonoma General Plan.

The Noise Element of the City of Sonoma's General Plan identifies policies that are intended to guide the development of new projects with regard to exposure to or generation of noise. These guidelines are used to assess the compatibility of a land use relative to the noise environment where the land use is proposed. The City considers residential land uses "normally acceptable" in noise environments characterized by an L_{dn} of 60 dBA or less, "conditionally acceptable" in noise environments characterized by an L_{dn} 60 to 65 dBA, "normally unacceptable" in noise environments characterized by an L_{dn} 65 to 70 dBA, and "clearly unacceptable" in noise environments characterized by an L_{dn} 70 dBA or more. The maximum allowable interior noise level, attributable to exterior noise sources, is 45 dBA L_{dn} for all residential land uses. Where the exterior or interior noise levels would exceed the normally acceptable level the General Plan Noise Element requires mitigation measures to achieve the normally acceptable noise limits.

The Noise element further states that the allowable levels are to be raised to the ambient noise levels where ambient levels exceed the allowable levels and that where the ambient L_{eq} is at least 10 dB lower than the allowable level, the allowable levels are to be reduced by 5 dB. To evaluate the intrusiveness of a noise source, the Noise Element of the General Plan also establishes that 15 minute integrated average noise level (L_{eq}) measurements be made at a location where potential impact may be significant, with and without (ambient conditions) the intrusive noise present. The measured L_{eq} with the intrusive noise is then to be corrected to, "account for special noise source characteristics and the prevailing attitude of Sonoma residents toward noise." If, after adjustments are made, the potentially intrusive noise source would cause exterior noise levels in the immediate or surrounding neighborhood to exceed the ambient level by more than 5 dBA (based on the L_{eq} over a 15-minute period), the standard states that "mitigation measures shall be developed to reduce the projected noise increase to less than 5 dBA above ambient levels".

City of Sonoma Noise Ordinance.

The City's Noise Ordinance sets forth the general noise limits presented in Table 4, below, for residential properties within the City. With respect to these levels the Noise Ordinance states that;

1. No person shall produce, suffer or allow to be produced by any machine, animal or device, or by any other means, a noise level greater than the following levels (see Table 4), when measured on any residential property, and
2. For purposes of determining sound levels from any source of sound, a sound level measurement shall be made at any point on any receiving private or public property.

Table 4: Noise Ordinance Property Noise Limits

Type of Sound Level (descriptor)	**Daytime *(7 am to 10 pm)***		**Nighttime *(10 pm to 7 am)***	
	Residential	**Commercial**	**Residential**	**Commercial**
Constant Level (L_{eq}), dBA	**50**	**55**	**40**	**45**
Intermittent Level (L_{max}), dBA	**60**	**65**	**50**	**55**

The following standard exception to the Noise Ordinance provisions in Table 4 are allowed for Construction activities:

A. Construction, alteration, demolition, maintenance of construction equipment, deliveries of materials or equipment, or repair activities otherwise allowed under applicable law shall be allowed as follows: between 8:00 a.m. and 6:00 p.m. Monday through Friday, 2) between 9:00 a.m. and 6:00 p.m. on Saturday, and 3) between 10:00 a.m. and 6:00 p.m. on Sundays and holidays; however, the noise level at any point outside of the property plane of the project shall not exceed ninety (90) dBA.

Construction Vibration

There are no applicable Federal, state, or local quantitatively defined regulations relating to vibration resulting from construction activities. Thresholds for annoyance and structural damage reported by Caltrans (2013) are used in this analysis. Table 3 (page 5, above) summarizes vibration damage thresholds.

NOISE ENVIRONMENT ON THE PROJECT SITE AND VICINITY

The primary ambient source of noise on the project site is due to traffic on Broadway on the western edge of the site and E. MacArthur Street on the southern edge of the site. Morning and afternoon sounds associated area schools and businesses were also found to contribute to background noise levels in the area. The site is currently occupied by a vacant truck and auto service center and is bordered by residential used to the east and south and commercial/office uses to the north and west.

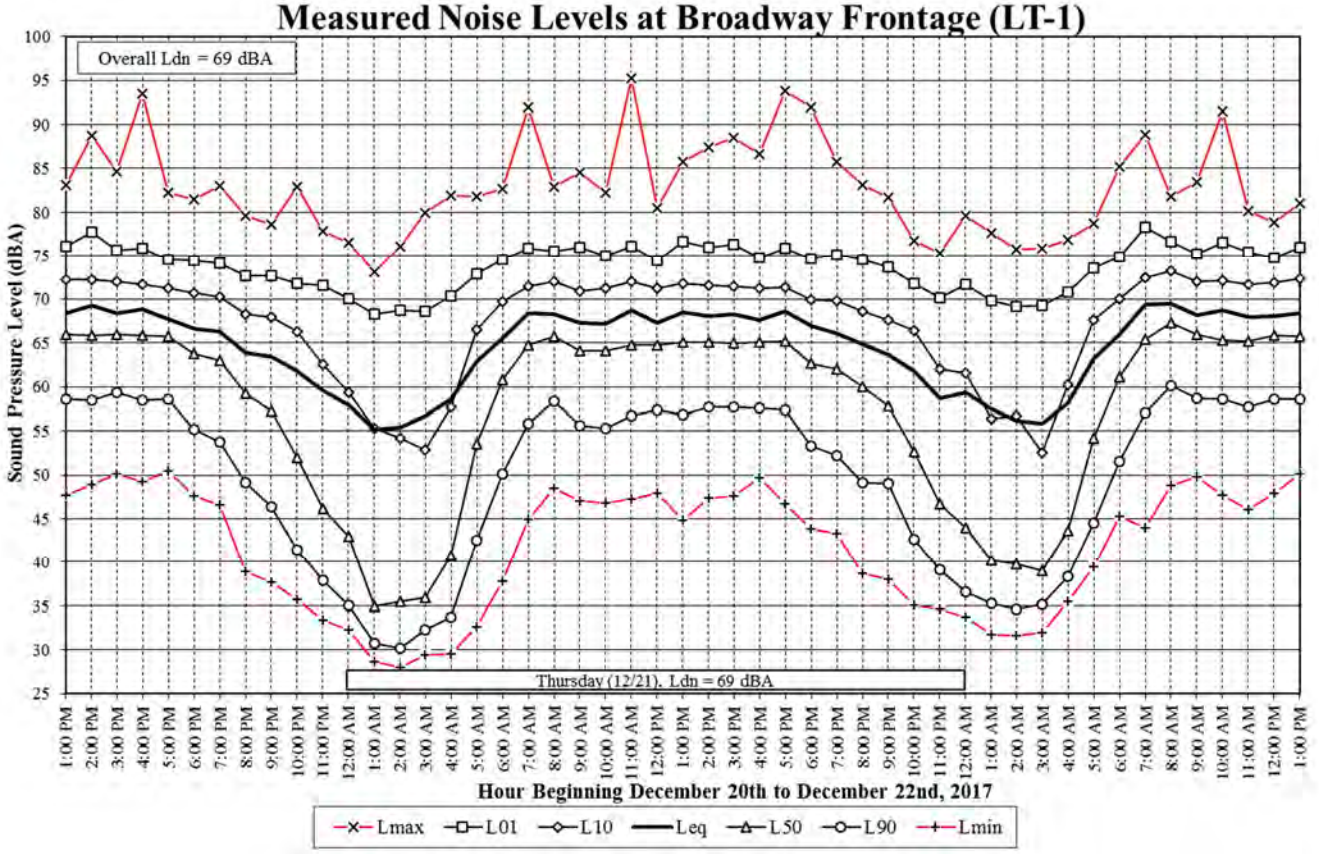
A noise monitoring survey was performed at the site between 1 p.m. on Wednesday December 20th and 2 pm on Friday December 22nd, 2017 to document ambient noise conditions on the project site. The noise monitoring survey included two unattended long-term noise measurements. Noise measurement locations are shown on Figure 1. All noise measurements where conducted with Larson Davis Laboratories (LDL) Type I Model 820 Sound Level Meter fitted with a ½-inch pre-polarized condenser microphone and windscreen. The meters were calibrated with a Larson Davis Model CA250 precision acoustic calibrator prior to and following the measurement survey.

Figure 1: Project Site and Surroundings

The first long-term noise measurement (LT-1) was made at the northwestern edge of the site at 55 feet from the centerline of Broadway in a tree at about 10 feet above the existing grade. This measurement position is setback about 20 feet closer to Broadway than the easternmost project façade. Therefore, based on the accepted traffic noise attenuation factor of 3 dBA per doubling of distance, noise levels at the project facades closest to Broadway would be about 1 dBA lower

than those measured at LT-1. The measured noise levels at site LT-1, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels exceeded 10, 50 and 90 percent of the time (indicated as L_{10}, L_{50} and L_{90}) are shown on Chart 1. The L_{eq} noise level is typically considered the average noise level, while the L_1 is considered the intrusive level, the L_{50} is considered the median noise level and the L_{90} is considered the background or ambient noise level.

Chart 1:
Measured Noise Levels at Broadway Frontage (LT-1)

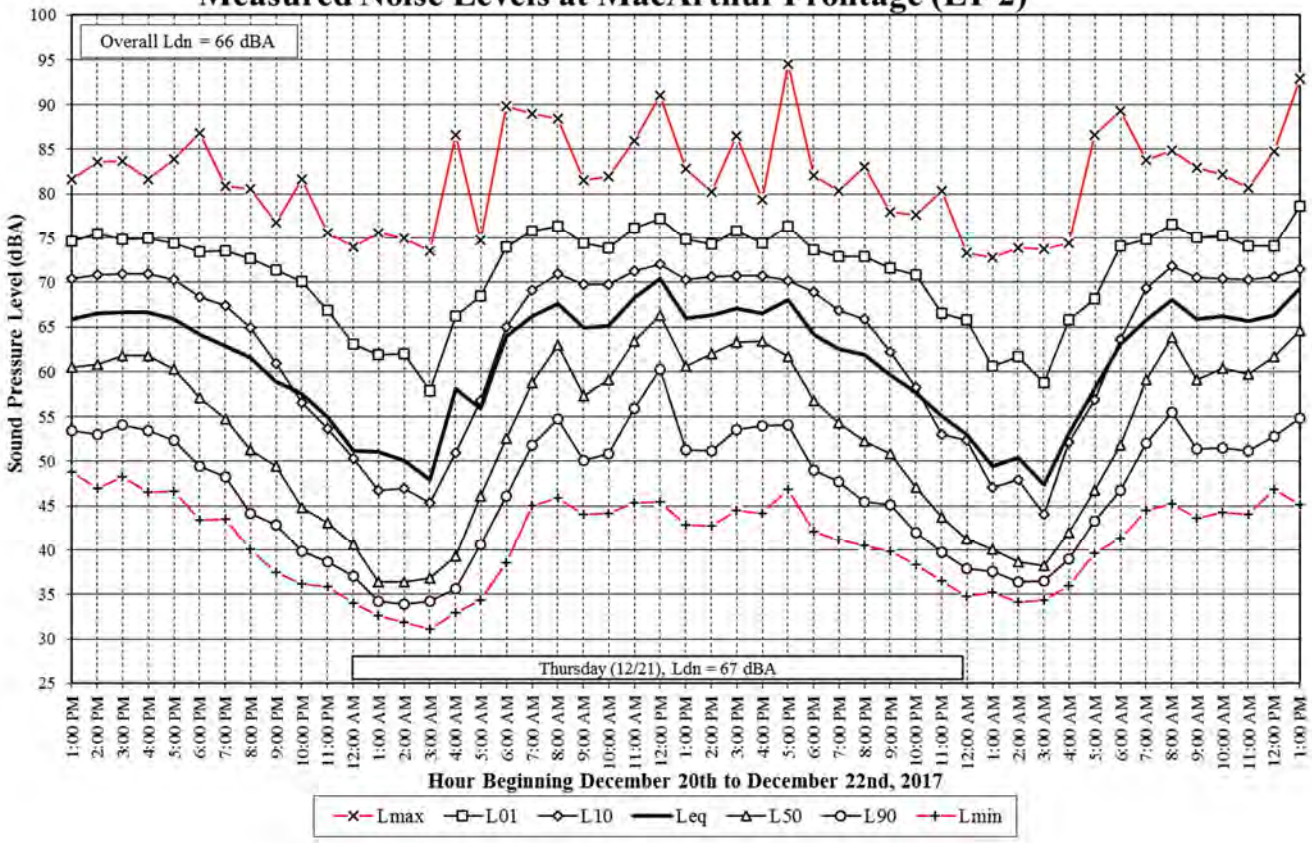


A review of Chart 1 shows that the noise levels at LT-1 follow a typical diurnal pattern characteristic of traffic noise, with the daytime and nighttime average (L_{eq}) noise levels ranged from 63 to 70 dBA and 55 to 66 dBA, respectively, with an average daytime L_{eq} of 68 dBA and an average nighttime L_{eq} of 56 dBA. The daytime and nighttime ambient (L_{90}) noise levels ranged from 46 to 60 dBA and 30 to 52 dBA, respectively, with an average daytime ambient level of 56 dBA and an average nighttime ambient level of 36 dBA. The day-night average noise level (L_{dn}) over the measurement period was calculated at 69 dBA. Based on this measurement result, existing noise levels at the project facades closest to Broadway are characterized by an L_{dn} of 68 dBA.

The second long-term noise measurement (LT-2) was made beyond the southeastern edge of the site at 20 feet from the centerline of E. MacArthur Street on a utility pole at about 10 feet above the existing grade. This measurement position is set about 30 feet closer to this roadway than the southernmost project façade. Therefore, based on the accepted traffic noise attenuation factor of 3 dBA per doubling of distance, noise levels at the project facades closest to Broadway would be about 3 dBA lower than those measured at LT-2. The measured noise levels at site LT-1, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels exceeded 10, 50 and 90 percent of the time (indicated as L_{10}, L_{50} and L_{90}) are shown

on Chart 1. The L_{eq} noise level is typically considered the average noise level, while the L_1 is considered the intrusive level, the L_{50} is considered the median noise level and the L_{90} is considered the background or ambient noise level.

Chart 2:
Measured Noise Levels at MacArthur Frontage (LT-2)



A review of Chart 2 shows that the noise levels at LT-2 also follow a typical diurnal pattern characteristic of traffic noise, with the daytime and nighttime average (L_{eq}) noise levels ranged from 59 to 70 dBA and 47 to 64 dBA, respectively, with an average daytime L_{eq} of 66 dBA and an average nighttime L_{eq} of 52 dBA. The daytime and nighttime ambient (L_{90}) noise levels ranged from 43 to 60 dBA and 34 to 47 dBA, respectively, with an average daytime ambient level of 52 dBA and an average nighttime ambient level of 37 dBA. The day-night average noise level (L_{dn}) over the measurement period was calculated at 66 dBA. Based on this measurement result, existing noise levels at the residential project facades closest to E. MacArthur Street are characterized by an L_{dn} of 63 dBA.

FUTURE NOISE ENVIRONMENT AT THE PROJECT SITE

Future traffic noise projects in the General Plan Noise Element indicate that traffic noise increases are not expected to exceed 2 dBA. With a 2 dBA increase noise levels exterior noise levels would be as high as 70 dBA L_{dn} at residential facades closest to Broadway and 65 dBA L_{dn} at the residential facades closest to Mc Artur Street under future conditions.

A review of project plans indicates that the project will provide a common outdoor use area at the northeast corner of the site available to project residents. This area is located away from both Broadway and E. MacArthur Street and positioned in such a way that the project building structures will provide sufficient acoustical shielding to reduce existing and future noise levels in this areas to at or below an L_{dn} of 60 dBA.

NOISE IMPACTS AND MITIGATION MEASURES

Significance Criteria

Paraphrasing from Appendix G of the CEQA Guidelines, a project would normally result in significant noise impacts if the project would expose future residents and users to noise levels exceeding applicable noise standards, if the project would generate excessive ground-borne vibration levels, or if ambient noise levels at sensitive receivers would be substantially increased over a permanent, temporary, or periodic basis. The following significance criteria were used to evaluate the significance of environmental noise resulting from the project:

- A significant noise impact would result if the project would expose persons to or generate noise levels that would exceed applicable noise standards presented in the General Plan or Municipal Code.
- A significant impact would be identified if the construction of the project would expose persons to excessive vibration levels. Groundborne vibration levels exceeding 0.5 in/sec PPV would have the potential to result in damage to normal buildings.
- A significant impact would be identified if traffic generated by the project would substantially increase noise levels at sensitive receivers in the vicinity. A substantial increase would occur if noise levels with the project would be 3 dBA L_{dn} or greater above existing conditions.
- A significant noise impact would be identified if construction related noise would temporarily increase ambient noise levels. Construction noise would be considered significant when noise from construction activities would exceed 60 dBA L_{eq} and the ambient noise environment by at least 5 dBA L_{eq} for a period of greater than one year or more at exterior areas of noise sensitive uses in the project area.

Impact 1: Noise and Land Use Compatibility. Exterior noise levels at portions of the project site would exceed the City's maximum acceptable outdoor noise exposure standard for residential land uses. **This is a potentially significant noise impact**

In view of the preceding discussion, the western residential facades of residential Buildings 1 and 3 facing Broadway would be exposed to an L_{dn} of 70 dBA under future conditions and the southern facades of residential buildings 7 and 8 would be exposed to an L_{dn} of 65 dBA under future conditions. Noise levels at other project facades would be lower due to distance attenuation and building shielding effects. Considering this, the expected future exterior noise levels at the northern, eastern, western and southern facades of the project residential buildings are shown in Table 5, following.

Table 5: Expected Future L_{dn} Noise Levels at Project Residential Facades

Residential Building Number	Future Average day/night noise level (L_{dn}) at Building facades, dBA			
	Northern	Eastern	Western	Southern
1	66 to 68	*60*	70	66 to 68
2	60 to 65	*>60*	63	60 to 65
3	66 to 68	*60*	70	66 to 68
4	61 to 65	*>60*	63	61 to 65
5	*60* to 65	*>60*	65	*>60* to 63
6	*>60*	*>60*	*>60*	*>60*
7	*>60*	61 to 63	61 to 63	65
8	*>60*	61 to 63	61 to 63	65

Based on the levels shown in Table 5, while some residential facades will be exposed to an L_{dn} of 60 dBA or less, and be considered normally acceptable for residential use, most residential facades at the project will be exposed to sound levels above 60 dBA L_{dn} and be considered either "conditionally acceptable" (L_{dn} levels between 60 and 65 dBA), or "normally unacceptable" (L_{dn} levels between 65 and 70 dBA). In the "conditionally acceptable" and "normally unacceptable" areas the City's General Plan standards require new construction or development to be undertaken only after a detailed noise analysis is made and noise reduction measures are identified and included in the project design. This is a potentially significant noise impact

The project also includes a common outdoor at the northeast corner of the site available to project residents. This area is located away from both Broadway and E. MacArthur Street and positioned in such a way that the project building structures will provide acoustical shielding to reduce traffic noise levels. Exterior noise levels in this area will be at or below an L_{dn} of 60 dBA, which would be considered "Normally Acceptable" for residential outdoor use areas. This is a less-than-significant noise impact.

Mitigation Measure 1a: (Exterior to Interior Noise Reduction)
The City of Sonoma and the State of California require that interior noise levels within new multifamily residential units be maintained at or below 45 dBA L_{dn}. as shown in Table 5, residential façades at the project will be exposed to future L_{dn} noise levels of between 70 dBA to less than 60 dBA.

The proposed exterior siding types are not called out in the current drawings, but based on the project elevations, it appears that the exterior walls may be finished with either stucco or fiber cement siding. Though the assemblies of the walls have not yet been determined, they are also expected to be wood stud framed walls and based on typical California construction techniques are also expected to include cavity insulation and a single layer of gypsum board at the interior face. Based on this and that Hardie brand siding, or equal, will be used for the fiber cement siding, the minimum sound isolation rating of the exterior wall assembly would be STC 40[1].

Considering this minimum exterior wall assembly and exterior door and window percentages of between 20% and 40% of the exterior wall area, with closed standard thermal insulating windows and weather sealed doors, the exterior noise levels will be reduced within the residential interiors by between 25 to 27 dBA. When windows or doors are open the noise attenuation from exterior to interior is typically reduced by 10 to 12 dBA, such that for this project we would expect exterior to interior noise reduction to be between 13 to 19 dBA with open windows and/or doors.

Based on this consideration closed standard thermal insulating windows and weather sealed doors will be sufficient to allow interior noise levels to be an L_{dn} of 45 dBA or less. Thus, standard thermal insulating windows and weather sealed doors would be acceptable throughout the project. However, considering the exterior to interior attenuation with open windows, the interior noise standard of 45 dBA L_{dn} of may not be met with open windows in areas where the exterior noise levels exceed an L_{dn} of 58 dBA. In view of our future noise projections, only residential Building 6 would be exposed to Ldn levels of 50 dBA or less on all facades.

Therefore, residences in Buildings 1 through, 7 and 8 be equipped with a mechanical ventilation system capable of providing adequate fresh air to the residence while allowing the windows to

[1] This value is for Hardie brand siding and is based on laboratory test TL365A per James Hardie Building Products Sound Isolation Technical Bulletin 07272007. Where stucco siding is used the sound isolation rating will be 46 STC, based on laboratory test number W-50-71 published by the U.S. National Bureau of Standards.

remain closed to control noise. In our experience, a standard central air conditioning system or a central heating system equipped with a 'summer switch' which allows the fan to circulate air without furnace operation will provide a habitable interior environment.

Mitigation Measure 1b: (Exterior Noise Reduction): None Needed

Impact 2: Exposure to Groundborne Vibration. Homes and businesses in the vicinity of the project site could be exposed to construction related vibration during the excavation of underground parking garage and during foundation construction. **This is a less-than-significant impact.**

Construction activities would include demolition of existing site structures, site preparation work, foundation work, and new building framing. Removal of the existing site materials and pavement along with foundation work may, at times, produce substantial vibration. Erection of the building structure itself is not anticipated to be a source of substantial vibration with the exception of sporadic events such as dropping of heavy objects, which should be avoided to the extent possible. Construction activities are not expected to extend for more than one construction season, and construction vibration would not be substantial for most of this time except during vibration generating activities.

Structures of the existing businesses located immediately north of the project site will be located within 30 feet of the project buildings and the existing residential building southeast of the site will be located within 35 feet of the project buildings. All adjacent buildings appear to be of normal (non-historic or weaken) type construction. Groundborne vibration levels exceeding 0.50 in/sec PPV (peak particle velocity) would thus, have the potential to result in damage to these adjacent buildings. Table 6, following, presents typical vibration levels that could be expected from construction equipment at distances of 30 and 35 feet.

TABLE 6 Vibration Source Levels for Construction Equipment

Equipment	PPV at 30 ft. (in/sec)	PPV at 35 ft. (in/sec)
9-ton Vibratory Roller	0.418	0.332
2-ton Vibratory Roller	0.107	0.085
Hoe Ram	0.068	0.054
Large bulldozer	0.068	0.054
Excavator with Grapple Shears	0.058	0.046
Loaded trucks	0.058	0.046
Jackhammer	0.027	0.021
Small bulldozer	0.0023	0.0018

A review of Table 8 shows that at distances of 30 and 35 feet, all construction activities would be below the 0.5 in/sec PPV threshold. However, in areas where vibration would not be expected to cause structural damage, vibration levels may still be perceptible. As with any type of construction this would be anticipated and it would not be considered significant given the intermittent and short duration of the phases that have the highest potential of producing vibration (typically demolition/excavation equipment and vibratory rollers). This is a less than significant noise impact.

Mitigation Measure 2: None Required.

Impact 3: On-Site Project Operational Noise. Noise levels generated by the operation and use of the project may exceed the standards established in the Sonoma General Plan and Noise Ordinance. **This is a potentially significant noise impact.**

The operation of the project would introduce new sources of noise that may permanently increase noise levels at adjacent residential and commercial land uses. Such noise sources are expected to include building heating, ventilation and cooling (HVAC) equipment for the proposed residential and commercial buildings, parking lot and occupant sounds. The closest buildings to the residential and commercial property lines will be setback 15 feet from the shared property line, with the setback area serving as landscaped yard and open space. Considering that the adjacent uses are similar in nature to the proposed use (residential and commercial), we expect that noise generated by normal residential activities within the units and in the landscaped yard space would be consistent with the type and level of sound generated at the adjacent residential and commercial land uses and would not result in noise impacts at the adjacent land uses. This is a less-than-significant noise impact.

A project driveway does border the residential property line to the east and project traffic in this area, especially in the evening or nighttime hours, could produce elevated noise levels result in noise impacts on the two adjoining single-family residences to the west. Automobile and other light vehicles traveling in parking areas at 15 to 20 mph typically produce sound levels of between 61 to 66 dBA at 15 feet, and depending on the time and frequency of traffic could produce noise levels in excess of the City's Noise Ordinance limits at residential properties. This is a potentially significant noise impact.

The proposed commercial building will likely have at least one large outdoor condensing unit located at either ground level or the rooftop with louvers, flues and intake vents on the side of the building and the residential buildings are expected to have a condensing unit for each residence along with wall mounted exhaust vents for units, garages and dryers. Based on noise measurements made at comparable facilities, the exhaust fans, large air handler and larger outdoor condensing units at the commercial building may produce constant noise levels of between 58 to 63 dBA L_{eq} at 50 feet, and the outdoor condensing units at the residential uses may produce constant sound levels of 47 to 50 dBA L_{eq} at 50 feet. Wall exhausts vents at the buildings are expected to produce noise levels of less than 40 dBA at 50 feet. This equipment may run continuously during both daytime and nighttime hours, producing noise levels in excess of the City's Noise Ordinance limits at residential and commercial properties. This is a potentially significant noise impact.

Mitigation Measure 3:

a. To attenuate parking lot and HVAC noise at the adjacent residence to the south east and HVAC noise at the commercial use to the north to levels which comply with City noise standards the proposed 6-foot-high wood good neighbor fence on these property lines in the shown in Figure 3 should be constructed as a noise barrier fence. To be effective as a noise barrier the fence should have a minimum surface weight of 3.0 lbs. per square feet and be built with a double layer of 1-inch nominal thickness fence boards, where the second layer of boards installed to cover the joints of the first layer would meet these surface weight and noise reduction requirements.

b. Locate the heating, ventilation, and air conditioning (HVAC) equipment serving the project away from sensitive receivers to the north and southeast. Shield rooftop mechanical equipment with rooftop screens or perimeter parapet walls, employ noise control baffles, sound attenuators, or enclosures where required. HVAC noise controls shall be analyzed and reviewed by a qualified acoustical consultant prior to issuance of a building permit.

Impact 4: Off-Site Existing or Cumulative Traffic Noise Increases. Project traffic would not substantially increase existing or cumulative traffic noise levels along area roadways. **This is a less-than-significant impact.**

Though no traffic study was reviewed for this analysis, considering the size of the project related to the relative traffic volumes on Broadway and E. MacArthur Streets, vehicular traffic generated by the project is not expected to increase noise levels substantially in the area as project traffic would make up only a small percentage of the total traffic along area roadways. Vehicular traffic noise levels are not expected to increase measurably above existing levels as a result of the project (increase would be less than 1 dBA L_{dn}). This is a less-than-significant impact.

Mitigation 4: None Required.

Impact 5: Construction Noise. During project construction, adjacent businesses and residences would be intermittently exposed to high noise levels. **This is a less-than-significant impact with the incorporation of mitigation.**

The construction of the project would generate noise and would temporarily increase noise levels at adjacent residential and commercial receivers. Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment operating on site, the timing and duration of noise generating activities, and the distance between construction noise sources and noise sensitive receptors. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise-sensitive land uses, or when construction lasts over extended periods of time.

Construction of the project is anticipated to be completed within one building season, involving site improvements, such as the removal of existing structures and pavement, establishment of utilities, excavation to construct foundations, building framing, paving, and landscaping. Construction noise levels would vary by stage and vary within stages based on the amount of equipment in operation and location where the equipment is operating. Typical construction noise levels at a distance of 50 feet are shown in Tables 7 and 8. Table 7 shows the average noise level ranges by construction phase and Table 8 shows the maximum noise level ranges for different construction equipment. Most demolition and construction noise is in the range of 80 to 90 dBA at 50 feet from the source.

TABLE 7:
Typical Ranges of Energy Equivalent (L_{eq}) Construction Noise Levels at 50 Feet, dBA

	Domestic Housing		Office Buildings, Schools, Public Works	
	I	**II**	**I**	**II**
Ground Clearing	83	83	84	84
Excavation	88	75	89	79
Foundations	81	81	78	78
Erection	81	65	87	75
Finishing	88	72	89	75
I - All pertinent equipment present at site, **II** - Minimum required equipment present at site.				

TABLE 8: Construction Equipment 50-foot Noise Emission Limits

Equipment Category	L_{max} Level (dBA)[1,2]	Impact/Continuous
Arc Welder	73	Continuous
Auger Drill Rig	85	Continuous
Backhoe	80	Continuous
Chain Saw	85	Continuous
Compressor[3]	70	Continuous
Concrete Mixer	85	Continuous
Concrete Pump	82	Continuous
Concrete Saw	90	Continuous
Concrete Vibrator	80	Continuous
Dozer	85	Continuous
Excavator	85	Continuous
Front End Loader	80	Continuous
Gradall	85	Continuous
Grader	85	Continuous
Grinder Saw	85	Continuous
Horizontal Boring Hydro Jack	80	Continuous
Hydra Break Ram	90	Impact
Insitu Soil Sampling Rig	84	Continuous
Jackhammer	85	Impact
Mounted Impact Hammer (hoe ram)	90	Impact
Paver	85	Continuous
Pneumatic Tools	85	Continuous
Pumps	77	Continuous
Rock Drill	85	Continuous
Scraper	85	Continuous
Slurry Trenching Machine	82	Continuous
Soil Mix Drill Rig	80	Continuous
Street Sweeper	80	Continuous
Tractor	84	Continuous
Truck (dump, delivery)	84	Continuous
Vacuum Excavator Truck (vac-truck)	85	Continuous
Vibratory Compactor	80	Continuous
All other equipment with engines larger than 5 HP	85	Continuous

Notes:

1 Measured at 50 feet from the construction equipment, with a "slow" (1 sec.) time constant.

2 Noise limits apply to total noise emitted from equipment and associated components operating at full power while engaged in its intended operation.

3 Portable Air Compressor rated at 75 cfm or greater and that operates at greater than 50 psi.

Construction noise is regulated by the City of Sonoma Noise Ordinance. As stated in the Ordinance, construction activities occurring on weekdays before 8:00 a.m. or after 6:00 p.m. on Saturdays before 9:00 a.m. or after 6:00 p.m., or on Sundays or City observed holidays before 10:00 a.m. or after 6:00 p.m. are prohibited. The Ordinance also states that during allowed construction hours the noise level due to project construction at any point outside of the property plane of the project shall not exceed 90 dBA.

Construction activities at the proposed building perimeters will be as close as 15 feet from the adjacent residential and commercial property lines, with work in the central portions of the site at 100 feet or more from these property lines. Based on these levels average noise levels due to construction at the building perimeters would range from 89 to 96 dBA at the project property lines, while average noise levels from construction over the majority of the site would range from 75 to 83 dBA at the project property lines. Considering this finding noise levels may exceed the noise ordinance

limit of 90 dBA at the project property lines when high noise generating activities occur at or near the site perimeter. This is a potentially significant noise impact.

Mitigation 5:
Develop a construction mitigation plan in close coordination with adjacent noise-sensitive land uses so that construction activities can be scheduled to minimize noise disturbance. The construction mitigation plan shall consider the following available controls to reduce construction noise levels to levels that do not exceed noise standards. The implementation of some combination of the following measures would reduce this impact to a less than significant level.

- Pursuant to the Noise Ordinance, restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 8:00 a.m. and 6:00 p.m., Monday through Friday, 9:00 a.m. to 6:00 p.m. on Saturday, and 10:00 a.m. to 6:00 p.m. on Sundays and city observed holidays.
- Install a temporary construction noise barrier with a height of 8 feet above grade on the project property lines shared with the residential property to the southeast and the commercial property to the northwest before loud construction activities begin and keep in place until construction within 100 feet of the barrier location is complete. The placement of the barriers should not allow clear line of sight, or openings for site access between the site activities and adjacent land uses. The barriers may be composed of mass loaded construction blankets on temporary fencing or solid plywood construction barriers and should have a minimum surface weight of 1.0 lb. /ft^2 and an equivalent STC rating of 25 or more.
- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;
- Prohibit all unnecessary idling of internal combustion engines;
- Route construction related traffic to and from the site via designated truck routes and avoid residential streets where possible;
- Utilize “quiet” models of air compressors and other stationary noise sources where technology exists;
- Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent residential and commercial land uses;
- Shield adjacent sensitive uses from stationary equipment with individual noise barriers or partial acoustical enclosures;
- Locate staging areas and construction material storage areas as far away as possible from adjacent land uses;
- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.
- Hold a pre-construction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are completed.

Traffic Impact Study for the Sonoma Gateway Project

Prepared for the City of Sonoma

Submitted by
W-Trans

February 20, 2018

TRAFFIC ENGINEERING
TRANSPORTATION PLANNING
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Table of Contents

Executive Summary

The proposed mixed-use project to be located on the northeast corner of the intersection of Broadway/MacArthur Street would provide 39 residential units and 4,100 square feet of commercial space. The project has an estimated trip generation averaging 386 trips daily, with 19 occurring during the morning peak hour and 35 during the evening peak hour.

Operation of the intersection of Broadway/MacArthur Street was addressed under existing and future volumes, as well as with the trips from the proposed project added. Under all scenarios evaluated, the intersection is or is expected to operate at LOS C or better, which is considered acceptable under the City of Sonoma's operational standards as well as those applied by Caltrans, the agency with jurisdiction over the intersection.

Under conditions with the planned "road diet" on Broadway, which would reduce the section north of MacArthur Street to one lane in each direction, the intersection is expected to continue operating acceptably under Future plus Project volumes.

Facilities providing access to the site via alternative modes, including pedestrians, bicyclists, and transit riders are adequate and will be improved as plans to expand the bike system are realized. Racks or other structures to provide secure parking for at least four bicycles should be provided as part of the project.

Access to the site is proposed to occur via MacArthur Street only, and would be expected to operate adequately without adding a left-turn pocket on MacArthur Street.

The parking supply proposed as part of the project includes a total of 77 spaces, 56 of which would be dedicated to the residential units. The remaining 21 spaces would be shared between the residential and commercial uses, resulting in a better use of parking and an associated reduction in the supply necessary. While the City's parking regulations indicate that 82 spaces are required, analysis of the anticipated parking demand indicates that a maximum demand for 72 spaces is expected on a weekend afternoon. As a result of the shared parking analysis, it appears that the proposed parking supply is more than adequate to meet the likely parking demand.

Introduction

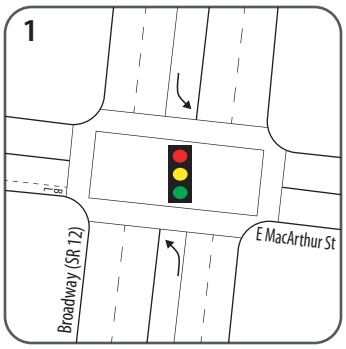
This report presents an analysis of the potential traffic impacts that would be associated with development of a proposed mixed-use project to be located on the northeast corner of Broadway and MacArthur Street in the City of Sonoma. The traffic study was completed in accordance with the criteria established by the City of Sonoma, and is consistent with standard traffic engineering techniques.

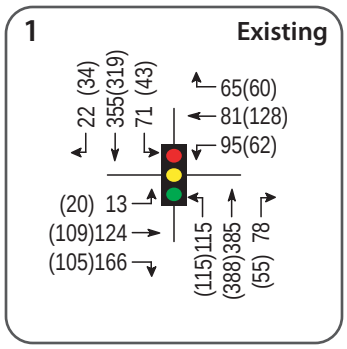
Prelude

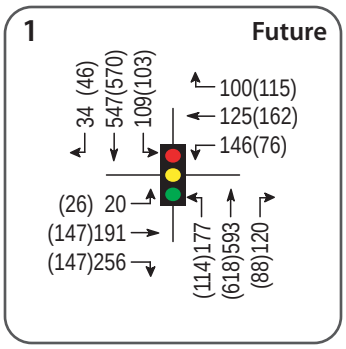
The purpose of a traffic impact study is to provide City staff and policy makers with data that they can use to make an informed decision regarding the potential traffic impacts of a proposed project, and any associated improvements that would be required in order to mitigate these impacts to a level of insignificance as defined by the City's General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections or roadway segments. Impacts relative to access for pedestrians, bicyclists, and to transit are also addressed.

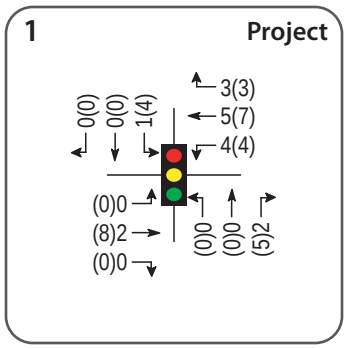
Project Profile

The proposed project would include 29 condominiums, 10 apartments, and 4,100 square feet of commercial space. The project site is located at Broadway and MacArthur Street in the City of Sonoma, as shown in Figure 1.









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Traffic Impact Study for the Sonoma Gateway Project

Figure 1 – Lane Configurations and Traffic Volumes

Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the project access point on East MacArthur Street as well as the intersection of Broadway/MacArthur Street.

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

Study Intersection

Broadway/MacArthur Street is a signalized four-legged intersection with protected left turns on the north and south Broadway approaches and permitted left turns on the east and west MacArthur Street approaches. The intersection includes crosswalks on all legs.

The location of the study intersection and the existing lane configuration are shown in Figure 1.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is January 1, 2012 through December 31, 2016.

As presented in Table 1, the calculated collision rate for the study intersection was compared to the average collision rate for similar facilities statewide, as indicated in *2013 Collision Data on California State Highways*, California Department of Transportation (Caltrans). The calculated collision rate for Broadway/MacArthur Street is lower that the statewide average for similar facilities, indicating that the intersection is operating within normal safety parameters. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates at the Study Intersection

Study Intersection	Number of Collisions (2012-2016)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. Broadway/MacArthur St	8	0.22	0.27

Note: c/mve = collisions per million vehicles entering

Alternative Modes

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, a network of sidewalks, crosswalks,

pedestrian signals, and curb ramps provide access for pedestrians in the vicinity of the proposed project site. The signalized intersection of Broadway/MacArthur Street located adjacent to the project frontage includes pedestrian phasing, marked crosswalks, and curb ramps.

- **Broadway** – Full sidewalk coverage is provided on both sides of Broadway between Napa Street and Clay Street. There are crosswalks and curb ramps along Broadway at minor and major street intersections and lighting is provided by overhead streetlights.

- **MacArthur Street** – Continuous sidewalks are provided on both sides of East MacArthur Street along the project frontage. Crosswalks are provided at several locations along MacArthur Street. West MacArthur Street has lighting along its southern sidewalk and East MacArthur Street has lighting along its northern sidewalk.

Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2012, classifies bikeways into three categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.

There are currently no designated bicycle facilities in the vicinity of the project site; however, Broadway has 12-foot shoulders that are used for residential parking and by bicyclists. If there is not sufficient shoulder width, bicyclists ride in the roadway and/or on sidewalks along the streets within the project study area. Table 2 summarizes the planned bicycle facilities in the project vicinity, as contained in the *2014 Sonoma County Bicycle and Pedestrian* Plan.

Table 2 – Bicycle Facility Summary

Status Facility	Class	Length (miles)	Begin Point	End Point
Planned				
Broadway	II	1.12	Napa Street	Napa Road
East MacArthur Street	II	0.33	Sonoma City Limits	8th Street East

Source: *SCTA Countywide Bicycle and Pedestrian Master Plan, Sonoma County Transportation Authority, 2014*

Transit Facilities

Sonoma County Transit (SCT) provides fixed route bus service in the County of Sonoma. SCT Route 32 provides loop service to destinations throughout the City and stops on the east side of Broadway, along the project frontage. Route 32 operates Monday through Friday with approximately 45-minute headways between 8:00 a.m. and 4:30 p.m. Saturday service operates with approximately one-hour headways between 9:00 a.m. and 3:00 p.m.

Routes 30 and 34 provide regional service to destinations throughout Santa Rosa and Sonoma Valley and have stops on both sides of Broadway, including along the project frontage. Route 30 operates seven days a week with approximately one-and-a-half-hour headways on weekdays between 6:00 a.m. and 9:00 p.m. and approximately 3-hour headways on weekends from 7:00 a.m. to 7:00 p.m.

Routes 38, 40, and 53 provide regional service to and from San Rafael and Petaluma. Each route stops on both sides of Broadway near the project area. Routes 38, 40, and 53 operate on weekdays with service limited to the morning and evening peak hours.

Two to three bicycles can be carried on most SCT buses. Bike rack space is on a first-come, first-served basis. Additional bicycles are allowed on SCT buses at the discretion of the driver.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. SCT Paratransit is designed to serve the needs of individuals with disabilities within Sonoma and the greater County of Sonoma area.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersection was analyzed using the signalized methodology published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2000. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle. The signalized methodology is based on factors including traffic volumes, green time for each movement, phasing, whether or not the signals are coordinated, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using actual signal timing from timing sheets provided by Caltrans.

The ranges of delay associated with the various levels of service are indicated in Table 3.

Table 3 – Signalized Intersection Level of Service Criteria	
LOS A	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
LOS B	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
LOS C	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
LOS D	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
LOS E	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
LOS F	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual*, Transportation Research Board, 2000

Traffic Operation Standards

City of Sonoma

In the *2016 Circulation Element* of the *City of Sonoma General Plan*, the following policy was adopted:

> ***Policy 1.5**: Establish a motor vehicle Level of Service (LOS) standard of LOS D at intersections. The following shall be taken into consideration in applying this standard:*
>
> - *Efforts to meet the vehicle LOS standard shall not result in diminished safety for other modes including walking, bicycling, or transit (see Policy 1.6).*
> - *The standard shall be applied to the overall intersection operation and not that of any individual approach or movement.*
> - *Consideration shall be given to the operation of the intersection over time, rather than relying exclusively on peak period conditions.*
> - *The five intersections surrounding the historic Sonoma Plaza shall be exempt from vehicle LOS standards in order to maintain the historic integrity of the Plaza and prioritize non-auto modes.*

Caltrans

The study intersection is located along Broadway, which serves as State Route (SR) 12 through the City of Sonoma. This intersection is therefore under the jurisdiction of Caltrans, and their policy indicates that they endeavor to maintain operation at the transition from LOS C to LOS D. Where Caltrans facilities serve as part of a local street system, the local agency's policies are therefore generally applied, so the City's LOS D standard was applied for purposes of this analysis.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Volume data was collected on November 1, 2017 while local schools were in session. It is noted that because these counts were collected after the firestorms that threatened the City of Sonoma in mid-October, the data was compared to other counts and the highest volumes used to provide the most reasonable analysis.

Intersection Levels of Service

Under existing conditions, the study intersection operates acceptably at LOS B or C. The existing traffic volumes are shown in Figure 1. A summary of the intersection level of service calculations is contained in Table 4, and copies of the Level of Service calculations are provided in Appendix B.

Table 4 – Existing Peak Hour Intersection Levels of Service

Study Intersection	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Broadway/MacArthur St	21.7	C	17.8	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Future Conditions

Evening peak hour volumes for the horizon year of 2040 were obtained from the Circulation Element of the City's General Plan. Because the City's General Plan does not include future volume projections for the morning peak, the overall growth rate at the Broadway/MacArthur Street intersection was calculated based on the evening peak hour and applied to the existing morning peak hour turning movement counts to arrive at future volumes.

It is worth noting that although some of the anticipated development included in this previous effort may already be complete and occupied, to provide a conservative estimate of future operation, the incremental increase in trips associated with build out of the City of Sonoma under its current *General Plan* was added to current volumes in order to determine Future operating conditions without the project. No development is assumed on the project parcel for this scenario.

Under the anticipated Future volumes, the study intersection is expected to continue operating acceptably at LOS C. Future volumes are shown in Figure 1 and operating conditions are summarized in Table 5.

Table 5 – Future Peak Hour Intersection Levels of Service

Study Intersection	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Broadway/MacArthur St	27.1	C	20.4	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Project Description

The project consists of 36 residential units and a 4,100 square foot commercial space. The approximately 27,400 square foot development would be located on a currently undeveloped parcel at 870 Broadway, with frontage on Broadway and East MacArthur Street. There would be 29 townhome units in eight buildings and 10 apartment units over the commercial space. The site would be accessed via the driveway on East MacArthur Street. The proposed project site plan is shown in Figure 2.

Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017 for Low-Rise Multifamily Housing (ITE LU #220), Mid-Rise Multifamily Housing (ITE LU#221), and Shopping Centers (ITE LU#820). Because the retail space is fairly small, no deductions were applied to account for potential internal capture, or residents either working or shopping in the proposed commercial space. The expected trip generation potential for the proposed project is indicated in Table 6. The proposed project is expected to generate an average of 386 trips per day, including 19 trips during the a.m. peak hour and 35 during the p.m. peak hour. These new trips represent the increase in traffic associated with the project compared to existing volumes.

Table 6 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Multifamily Housing (Low-Rise)	10 du	7.32	73	0.46	5	1	4	0.56	6	4	2
Multifamily Housing (Mid-Rise)	29 du	5.44	158	0.36	10	3	7	0.44	13	8	5
Shopping Center	4.1 ksf	37.75	155	0.94	4	2	2	3.81	16	7	9
Total			**386**		**19**	**6**	**13**		**35**	**19**	**16**

Note: du = dwelling unit; ksf = 1,000 square feet;

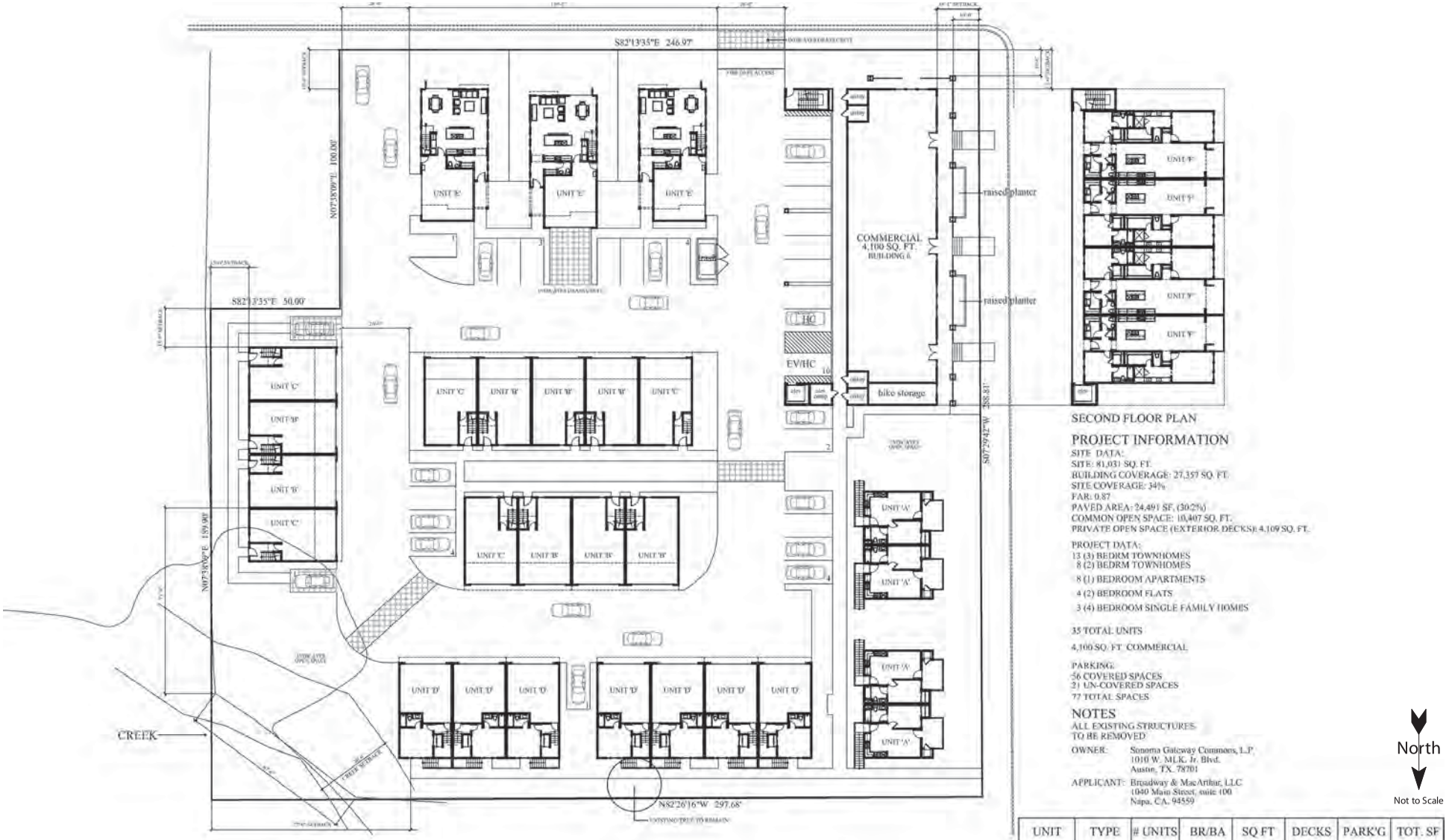
It is noted that the analysis was based on an earlier version of the site plan that included a total of 39 dwelling units and 4,100 square feet of retail space, which is more than the project as currently proposed. The analysis was therefore based on a higher trip generation, so is slightly conservative.

Trip Distribution

The pattern used to allocate new project trips to the street network was based on data from recent counts. The applied distribution assumptions and resulting trips are shown in Table 7.

Table 7 – Trip Distribution Assumptions

Route	Percent	Daily Trips	AM Trips	PM Trips
To/from the North via Broadway	22	85	4	8
To/from the South via Broadway	27	104	5	9
To/from the West via W MacArthur St	41	158	8	14
To/from the East via E MacArthur St	10	39	2	4
TOTAL		**386**	**19**	**35**



PROJECT INFORMATION

SITE DATA:
SITE: 81,031 SQ. FT.
BUILDING COVERAGE: 27,357 SQ. FT.
SITE COVERAGE: 34%
FAR: 0.87
PAVED AREA: 24,491 SF, (30.2%)
COMMON OPEN SPACE: 10,407 SQ. FT.
PRIVATE OPEN SPACE (EXTERIOR DECKS): 4,109 SQ. FT.

PROJECT DATA:
13 (3) BEDRM TOWNHOMES
8 (2) BEDRM TOWNHOMES
8 (1) BEDROOM APARTMENTS
4 (2) BEDROOM FLATS
3 (4) BEDROOM SINGLE FAMILY HOMES

35 TOTAL UNITS

4,100 SQ. FT. COMMERCIAL

PARKING:
56 COVERED SPACES
21 UN-COVERED SPACES
77 TOTAL SPACES

NOTES

ALL EXISTING STRUCTURES TO BE REMOVED

OWNER: Sonoma Gateway Commons, L.P.
1010 W. M.L.K. Jr. Blvd.
Austin, TX. 78701

APPLICANT: Broadway & MacArthur, LLC
1040 Main Street, suite 100
Napa, CA. 94559

North

Not to Scale

UNIT	TYPE	# UNITS	BR/BA	SQ FT	DECKS	PARK'G	TOT. SF
'A'	FLAT	8	1BR/1BA	486 SF	180 SF	1-CAR COV.	666 SF
'B'	3 STORY TOWNHOUSE	8	2BR/2.0BA	1261 SF	116 SF	2-CAR GAR. 606 SF	1867 SF
'C'	3 STORY TOWNHOUSE	6	3BR/3BA	1586 SF	316 SF	2-CAR GAR. 606 SF	1992 SF
'D'	3 STORY TOWNHOUSE	7	3BR/3.5 BA	1458 SF	301 SF	2-CAR GAR. 426 SF	1884 SF
'F'	2 STORY TOWNHOUSE	3	4BR/2.5 BA	1934 SF	-	2-CAR GAR. 468 SF	2402 SF
'F'	FLAT	4	2BR/2.5 BA	1275 SF	100 SF	2-CAR COV. 360 SF	1735 SF

Source: The McKinley Assoc., Inc. Architecture & Planning 9/17

son055.ai 12/17

Traffic Impact Study for the Sonoma Gateway Project

Figure 2 – Site Plan

W-Trans

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersection is expected to continue operating at acceptable service levels. These results are summarized in Table 8. Project traffic volumes are shown in Figure 1.

Table 8 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection	Existing Conditions				Existing plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Broadway/MacArthur St	21.7	C	17.8	B	22.0	C	18.3	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Finding – The study intersection is expected to continue operating at acceptable LOS B or C upon the addition of project-generated traffic.

Future plus Project Conditions

Upon adding project-generated traffic to the anticipated Future volumes, the study intersection is expected to continue operating at acceptable LOS C. The Future plus Project operating conditions are summarized in Table 9.

Table 9 – Future and Future plus Project Peak Hour Levels of Service

Study Intersection	Future Conditions				Future plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Broadway/MacArthur St	27.1	C	20.4	C	27.6	C	20.9	C
with Broadway Road Diet	27.1	C	20.4	C	33.2	C	24.8	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Finding – The study intersection is expected to continue operating acceptably with project traffic added to Future volumes, at the same Levels of Service as without it.

Road Diet on Broadway

The 2016 Circulation element calls for a "road diet" on Broadway from MacArthur Street to West Napa Street, which would reduce the existing five-lane cross-section to three lanes, including one lane in each direction and a center turn lane or medians. Additionally, the *Traffic Calming and Pedestrian Improvement Plan* prepared in 2003 calls for installation of bulb-outs to shorten crossing distances on Broadway and for left-turn lanes to be striped on MacArthur Street. Advance limit lines on Broadway are also recommended.

Under volumes projected for Future plus Project conditions, and assuming that Broadway would be changed to include a single through/right-turn lane and left-turn lane southbound together with separate left-turn, through and right-turn lanes northbound, LOS C operation would be expected, as shown in Table 9. The left-turn lanes on MacArthur Street called for in the *Traffic Calming and Pedestrian Improvement Plan* were not included in the base assumptions, and the analysis indicates that they are not needed to achieve acceptable operation.

Alternative Modes

Pedestrian Facilities

Given the proximity of residential land uses surrounding the site and Sonoma Valley High School just south of the site, it is reasonable to assume that some project residents, patrons, and employees will want to walk, bicycle, and/or use transit for trips to and from the project site. Pedestrians are served by continuous sidewalks that exist along the project frontages on Broadway and East MacArthur Street.

Finding – Pedestrian facilities serving the project site are generally adequate, but are not consistent with plans in the City's *Traffic Calming and Pedestrian Improvement Plan* for the intersection of Broadway/ MacArthur Street. The project should construct improvements as necessary to implement this plan. While other projects will need to address improvements at other corners of the intersection, and measures such as the enhanced crosswalks and limit lines cannot be implemented without the additional bulb-outs, the project should provide the improvements required on the northeast corner.

Recommendation – To achieve consistency with the City's *Traffic Calming and Pedestrian Improvement Plan*, the project should include construction of bulb-outs into Broadway on the northeast corner of the intersection of Broadway/MacArthur Street. The proposed development should also modify the sidewalk along both frontages as necessary to meet ADA requirements, if necessary.

Bicycle Facilities

Existing and planned future bicycle facilities, including the Class II bike lanes along Broadway and West MacArthur Street, together with shared use of minor streets, provide adequate access for bicyclists.

Finding – Bicycle facilities serving the project site are adequate.

Transit

Existing transit routes are adequate to accommodate project-generated transit trips. Existing stops are within acceptable walking distance of the site.

Finding – Transit facilities serving the project site are adequate.

Access and Circulation

Site Access

As proposed, the project would take access via two driveways on East MacArthur Street, with the westerly driveway limited to emergency vehicles only. Both driveways would be full-access, or have both right and left turns allowed in and out of the driveway. There are no other driveways on the south side of East MacArthur Street, so no potential conflicts with other movements at either driveway.

Sight Distance

At driveway approaches, a substantially clear line of sight should be maintained between the driver of a vehicle waiting on the driveway and the driver of an approaching vehicle. Adequate time must be provided for the waiting vehicle to either cross, turn left, or turn right, without requiring the through traffic to radically alter their speed. Sight distance is typically measured from a 3.5-foot height at the location of the driver on the minor road to a 4.25-foot object height in the center of the approaching lane of the major road. Set-back for a driver on the minor street approach is a minimum of 15 feet, measured from the edge of the traveled way, though a lesser set-back is generally more appropriate for a driveway approach.

Sight distances along East MacArthur Street from the potential project driveway locations were evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distances for driveway approaches are based on stopping sight distance, with the approach travel speeds used as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for a following driver to stop if there is a vehicle waiting to turn into a side street or driveway is evaluated based on stopping sight distance criterion and the approach speed on the major street.

Based on a design speed of 25 mph, the minimum stopping sight distance needed is 155 feet. East MacArthur Street is straight and flat, with parking prohibited along the entire length of the site's frontage. As a result, sight lines exceed the 155 feet needed to meet the criteria recommended. Similarly, drivers would have clear visibility of a vehicle waiting to turn left into either driveway on East MacArthur Street.

Left-Turn Lane Warrant

Consideration was given to the potential need for a left-turn pocket at the driveway on East MacArthur Street based on criteria contained in the Intersection *Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as a more recent update of the methodology developed by the Washington State Department of Transportation. Under Future plus Project volumes, a left-turn lane is not warranted on East MacArthur Street at the driveway during either of the peak periods evaluated.

The turn lane warrant analysis spreadsheets are provided in Appendix C.

Site Circulation

The AutoTURN application of AutoCAD was used to evaluate the adequacy of on-site fire and garbage truck access for the proposed site plan layout. The results are provided in Appendix C.

Finding – Based on the review performed, it is anticipated that site circulation would operate acceptably.

Parking

The project was analyzed to determine whether the proposed parking supply would be sufficient to meet the City's zoning requirements. The project plan shows a supply of 77 parking spaces, including 56 covered and 21 un-covered spaces. Based on the proposed site plan, the covered spaces are reserved for residents and the un-covered spaces are to be shared between the residential and commercial uses.

Parking supply requirements for the City of Sonoma are based on the City's Municipal Code, Chapter 19.48, Parking and Loading Standards. Based on City codes, the proposed project would be required to provide 82 spaces. With plans to provide 77 spaces, the project would experience a deficit of five spaces. However, according to section 19.48.050 of the City's Municipal Code, the number of required parking spaces for commercial and residential mixed-use projects may be reduced upon approval by the planning commission if a reduction is justified. Based on this potential reduction, a parking demand analysis was performed in the following section. A summary of the City's parking requirements are shown in Table 10.

Table 10 – Parking Analysis Summary

Land Use	Units	Supply (spaces)	City Requirements	
			Rate	Spaces Required
Multi-family projects	36 du	56 covered	One and one-half space for each du with one space for each unit covered, plus guest parking at the rate of 25% of total required spaces	36 covered, 18 un-covered, and 14 guest
General Retail	4.1 ksf	21 un-covered	1 space per 300 sq. ft. floor area	14
Total		**77**		**82**

Notes: du = dwelling unit; ksf = 1,000 square feet

Shared Parking

Parking demand for new development is typically projected using empirically-derived rates established by organizations such as the Institute of Transportation Engineers (ITE) and the Urban Land Institute (ULI). In many cases, a determination of parking adequacy is gauged solely on whether or not a project meets the supply required by the jurisdiction's zoning code, rather than by assessing the actual projected demand. The use of standardized, single-use parking demand rates does not consider the potential for "shared parking." The concept of shared parking is based on the fact that different land uses often experience peak parking demand at different times, be it by time of day or even month of the year. Without taking shared parking demand into consideration, an oversupply of parking can result, adversely affecting the goals of this project to avoid expanses of empty asphalt.

A parking demand methodology that considers "shared parking" principles can significantly improve the accuracy of determining actual parking demand. The ULI publication *Shared Parking*, 2nd Edition, 2006, includes state-of-the-practice methodologies for determining parking demand based on the various components of a specific project. The ULI shared parking methodology focuses on temporal data, determining when the overall peak demand for various land uses occurs, including what time of day, whether it is a weekday or weekend, and what month of the year. The recommended parking supply is then tied to that maximum demand period. The ULI model considers the proposed mix of land uses, including quantities of each type of use.

Based on application of shared parking concepts, the demand for each component of the development was estimated using time-of-day distributions. Because the 56 covered parking spaces for the housing units would be reserved, they were not included in the shared supply.

The ULI's *Share Parking Model* takes into account mode adjustment and non-captive ratios. Mode adjustment is the estimated number of residents or visitors who access the site using a mode of transportation other than a private automobile, such as biking, walking, and transit. The model can also apply a non-captive ratio, which is the number of people who would travel from outside of the site to the various land uses. Since this is a mixed-use project, it is reasonable to assume that some parking demand may be reduced as people park once and then visit multiple land uses. For example, a resident may visit a restaurant or shop at the retail stores, which would not require an additional parking spot for each use. The model starts by assuming that 100 percent of people accessing the site travel by a private automobile and are traveling from outside the site. Deductions are applied based on commuting behaviors, land uses, and regional knowledge of the area being studied.

For the residential land use, as well as employees of the commercial uses, mode adjustments were determined from the US Census 2012-2016 American Community Survey (ACS) 5-year estimates for commuting patterns for the City of Sonoma, which is where the proposed project is located. This data showed that approximately 22 percent of residents living in the City of Sonoma travel to and from work by non-private automobiles and 11 percent carpool. Since carpooling still requires parking for approximately half the number who participate, five percent was included in the mode adjustment. The mode adjustment was therefore reduced by 27 percent, which equates to a mode adjustment of 73 percent remaining after the deduction. Although employees could be drawn from the residents of the site or nearby area, it was conservatively assumed that 100 percent of employees of all the commercial land uses would be from outside of the site; this equates to a 100 percent non-captive ratio.

A mode adjustment deduction of 10 percent was applied to the retail land use based on the on the close proximity of surrounding neighborhoods and the presence of adequate pedestrian, bicycle, and transit facilities serving the site. This would result in a mode adjustment of 90 percent. Additionally, it was assumed that some visitors of the retail shops would be from within the site, so a 10 percent deduction to the non-captive ratio was applied resulting in the assumption that 90 percent of visitors would travel to the retail stores from outside of the project site. Table summarizes the mode adjustments and non-captive ratio deductions applied to the parking demand to achieve the total estimated parking demand.

Table 11 – Peak Shared Parking Demand

Land Use	Weekday		Weekend	
	Mode Adjustment	Non-Captive	Mode Adjustment	Non-Captive
Residential	73%	100%	73%	100%
Retail	90%	90%	90%	90%
Employees	73%	100%	73%	100%

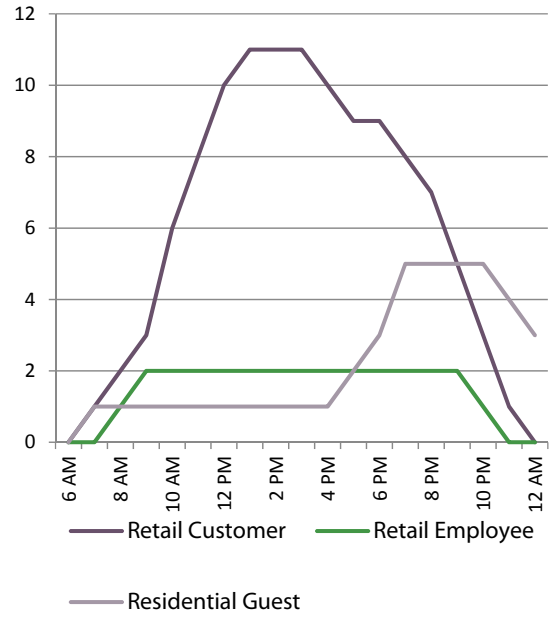
In addition to mode adjustment and internal capture rates, the shared parking model applies hourly and monthly factors to determine the time-of-day and month-of-year demand. The peak month for the proposed project, based on the Shared Parking Model's calculations, is anticipated to be December. With the mode adjustment, non-captive ratio, time-of-day, and peak month factors applied, the hourly parking demands generated by each component of the project for weekdays and weekends were derived.

Weekday Parking Demand

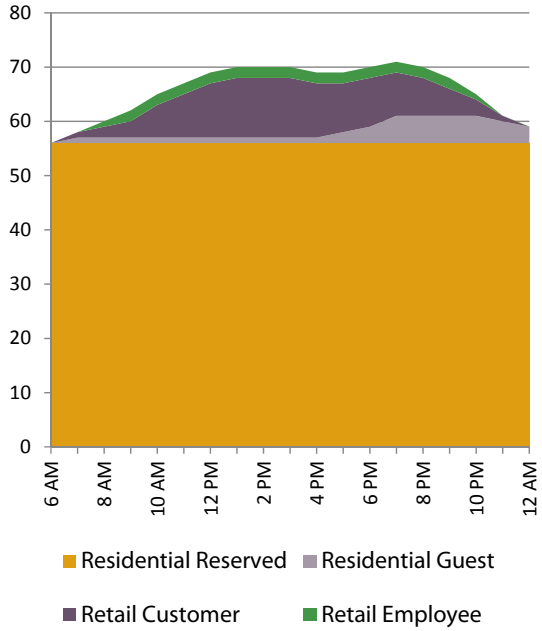
- **Time of Day:** The deductions described above were applied to derive the total estimated parking demand for each land use, as shown in Graph 1.

- **Cumulative:** Upon adding all of the parking demands together, the peak projected demand is expected to occur at 7:00 p.m. on a weekday with a demand of 71 spaces. The Weekday Cumulative parking demand is depicted in Graph 2.

Graph 1 – Weekday Parking Demand by Land Use



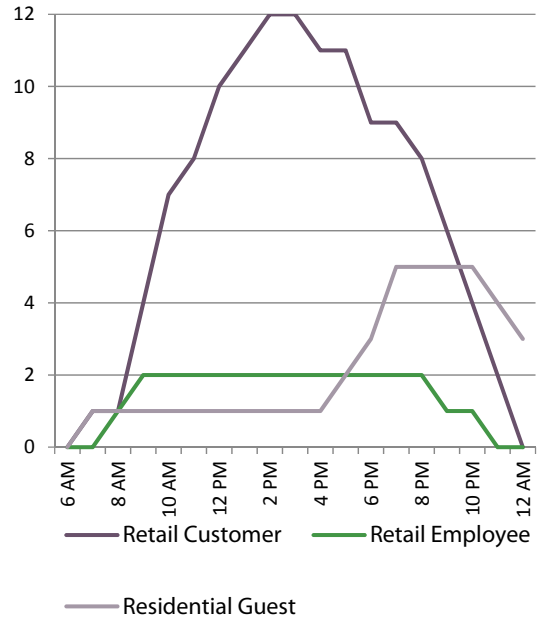
Graph 2 – Weekday Cumulative Parking Demand



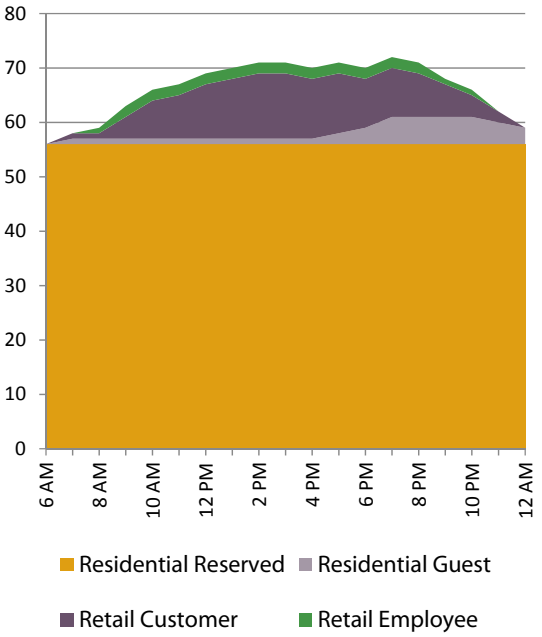
Weekend Parking Demand

- **Time of Day:** The demand by time-of-day was estimated for a weekend day, as shown in Graph 3.
- **Cumulative:** The projected peak parking demand for the site is expected to occur on weekend evenings at 7:00 p.m., when a total of 72 parking spaces are expected to be needed. The Weekend Cumulative parking demand is depicted in Graph 4.

Graph 3 – Weekend Parking Demand by Land Use



Graph 4 – Weekend Cumulative Parking Demand



The project, as proposed, would provide 77 parking spaces. Note that the peak demand of 72 spaces would only occur during a very small portion of the day and year; therefore, the proposed supply is expected to be adequate to meet, and in fact exceed, the anticipated demand by five spaces.

Finding – With a planned parking supply of 77 spaces, the proposed project does not meet the City's parking requirement of 82 spaces, with a deficit of five spaces. However, the planned supply is expected to be sufficient to accommodate the peak weekend demand of 72 spaces based on shared parking concepts.

Recommendation – The City should use the municipal code's allowance of a parking reduction for mixed-use projects and consider granting a reduction of at least 6 percent, equating to five spaces. However, with an anticipated peak parking demand of 72 spaces, a higher reduction could be reasonably justified.

Bicycle Parking

Because the City of Sonoma does not have requirements for bicycle parking, the Sonoma County Zoning Regulations were reviewed. Under these standards, bicycle parking for a new commercial development is to be provided at the rate of one space per five spaces of automobile parking. For the proposed project, bicycle parking would be required for four bicycles based on the 21 spaces in the shared parking supply. One bicycle storage area is proposed in the most recent site plan; however, the number of bicycles the proposed storage can accommodate is not stated.

Recommendation – The project applicant should ensure the storage can accommodate at least four bicycles.

Conclusions and Recommendations

Conclusions

- The proposed project is expected to generate an average of 386 daily trips, including 19 weekday a.m. peak hour trips and 35 weekday p.m. peak hour trips.
- Under existing conditions, the intersection of Broadway/MacArthur Street operates at acceptable LOS B or C and it would be expected to continue operating at the same service levels with the project as without it.
- Under anticipated future volumes, the study intersection is expected to operate acceptably at LOS C during both peak hours and would be expected to continue operating acceptably with the addition of project-generated volumes.
- Pedestrian facilities exist along the project frontage on Broadway and on MacArthur Street and are adequate for the proposed project.
- There are no bicycle facilities serving the project site. However, the shared use of minor streets and planned future Class II bike lanes will provide adequate access for bicyclists.
- Transit facilities connect the site to Santa Rosa, Sonoma Valley, Petaluma, and San Rafael; and, the site is served by bus stops along the project frontage.
- Sight distance along East MacArthur Street at the project driveway is adequate for the posted 25-mph speed limit.
- On-site circulation and emergency access are expected to operate acceptably.
- The proposed parking supply is expected to be adequate based on shared parking concepts.

Recommendations

- The proposed development should provide a bulb-out into Broadway on the northeast corner of Broadway/MacArthur Street.
- Sidewalks fronting the project site should be modified as necessary to meet ADA requirements.
- Parking for at least four bicycles should be provided in the bicycle storage area.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Assistant Engineer	Kevin Rangel, EIT
Graphics/Editing/Formatting	Angela McCoy
Report Review	Dalene J. Whitlock, PE, PTOE

References

2013 Collision Data on California State Highways, California Department of Transportation, 2016
American Community Survey – Five-Year Estimates, United States Census Bureau, 2012-2016
City of Sonoma Traffic Calming and Pedestrian Improvement Plan, 2003
Guide for the Preparation of Traffic Impact Studies, California Department of Transportation, 2002
Guidelines for Traffic Impact Studies, County of Sonoma, 2016
Highway Capacity Manual, Transportation Research Board, 2010
Highway Design Manual, 6th Edition, California Department of Transportation, 2012
Sonoma County Bicycle and Pedestrian Master Plan, County of Sonoma, 2014
Sonoma County General Plan 2020, County of Sonoma, 2013
Sonoma County Municipal Code, Municipal Code Corporation, 2017
Sonoma County Transit, http://sctransit.com/
Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol, 2012-2016

SON055

Appendix A

Collision Rate Calculations

Intersection Collision Rate Calculations

Sonoma Gateway

Intersection # 1: Broadway & MacArthur Street

Date of Count: Wednesday, November 1, 2017

Number of Collisions: 8
Number of Injuries: 2
Number of Fatalities: 0
ADT: 19600
Start Date: January 1, 2012
End Date: December 31, 2016
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{8 \times 1{,}000{,}000}{19{,}600 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.22 c/mve**	**0.0%**	**25.0%**
Statewide Average*	**0.27 c/mve**	**0.4%**	**41.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Appendix B

Intersection Level of Service Calculations

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

12/04/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	124	166	95	81	65	115	385	78	71	355	22
Future Volume (veh/h)	13	124	166	95	81	65	115	385	78	71	355	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	16	149	112	114	98	48	139	464	72	86	428	21
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	314	212	223	196	79	186	1302	201	204	1542	664
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.11	0.43	0.43	0.12	0.44	0.44
Sat Flow, veh/h	42	961	681	522	592	252	1774	3059	472	1774	3539	1523
Grp Volume(v), veh/h	277	0	0	260	0	0	139	267	269	86	428	21
Grp Sat Flow(s),veh/h/ln	1685	0	0	1366	0	0	1774	1770	1761	1774	1770	1523
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	0.0	6.2	8.4	8.5	3.7	6.4	0.6
Cycle Q Clear(g_c), s	10.8	0.0	0.0	13.4	0.0	0.0	6.2	8.4	8.5	3.7	6.4	0.6
Prop In Lane	0.06		0.40	0.44		0.18	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	584	0	0	501	0	0	186	753	749	204	1542	664
V/C Ratio(X)	0.47	0.00	0.00	0.52	0.00	0.00	0.75	0.35	0.36	0.42	0.28	0.03
Avail Cap(c_a), veh/h	722	0	0	614	0	0	346	755	751	259	1545	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	0.0	23.6	0.0	0.0	35.8	16.0	16.0	33.9	14.9	13.3
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.8	0.0	0.0	5.9	1.3	1.3	1.4	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	0.0	5.5	0.0	0.0	3.4	4.4	4.4	1.9	3.2	0.3
LnGrp Delay(d),s/veh	23.5	0.0	0.0	24.9	0.0	0.0	41.6	17.3	17.4	35.2	15.3	13.4
LnGrp LOS	C			C			D	B	B	D	B	B
Approach Vol, veh/h		277			260			675			535	
Approach Delay, s/veh		23.5			24.9			22.3			18.5	
Approach LOS		C			C			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.5	40.0		29.6	11.6	40.8		29.6				
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5				
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0				
Max Q Clear Time (g_c+I1), s	5.7	10.5		12.8	8.2	8.4		15.4				
Green Ext Time (p_c), s	0.1	12.0		3.7	0.2	12.6		3.5				
Intersection Summary												
HCM 2010 Ctrl Delay			21.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

12/04/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	109	105	62	128	60	115	388	55	43	319	34
Future Volume (veh/h)	20	109	105	62	128	60	115	388	55	43	319	34
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	1	0	0	1	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	22	122	70	70	144	49	129	436	51	48	358	31
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	253	131	142	244	73	205	1627	189	167	1726	772
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.12	0.51	0.51	0.09	0.49	0.49
Sat Flow, veh/h	90	1065	562	337	1027	312	1774	3193	372	1774	3539	1583
Grp Volume(v), veh/h	214	0	0	263	0	0	129	241	246	48	358	31
Grp Sat Flow(s),veh/h/ln	1717	0	0	1677	0	0	1774	1770	1795	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	5.0	5.5	5.6	1.8	4.1	0.7
Cycle Q Clear(g_c), s	7.6	0.0	0.0	9.6	0.0	0.0	5.0	5.5	5.6	1.8	4.1	0.7
Prop In Lane	0.10		0.33	0.27		0.19	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	462	0	0	460	0	0	205	901	914	167	1726	772
V/C Ratio(X)	0.46	0.00	0.00	0.57	0.00	0.00	0.63	0.27	0.27	0.29	0.21	0.04
Avail Cap(c_a), veh/h	832	0	0	810	0	0	396	902	915	297	1728	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	0.0	24.6	0.0	0.0	30.3	10.0	10.0	30.3	10.5	9.6
Incr Delay (d2), s/veh	0.7	0.0	0.0	1.1	0.0	0.0	3.1	0.7	0.7	0.9	0.3	0.1
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	4.9	0.0	0.0	2.6	2.9	3.0	0.9	2.1	0.3
LnGrp Delay(d),s/veh	24.7	0.0	0.0	25.8	0.0	0.0	33.4	10.8	10.8	31.2	10.8	9.7
LnGrp LOS	C			C			C	B	B	C	B	A
Approach Vol, veh/h		214			263			616			437	
Approach Delay, s/veh		24.7			25.8			15.5			12.9	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	41.5		20.4	11.3	40.0		20.4				
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5				
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0				
Max Q Clear Time (g_c+I1), s	3.8	7.6		9.6	7.0	6.1		11.6				
Green Ext Time (p_c), s	0.0	11.2		3.3	0.2	11.5		3.2				
Intersection Summary												
HCM 2010 Ctrl Delay			17.8									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

12/14/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	191	256	146	125	100	177	593	120	109	547	34
Future Volume (veh/h)	20	191	256	146	125	100	177	593	120	109	547	34
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	20	191	183	146	125	75	177	593	102	109	547	29
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	324	274	197	180	85	214	1197	205	204	1390	597
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.12	0.40	0.40	0.12	0.39	0.39
Sat Flow, veh/h	43	873	794	418	473	247	1774	3005	515	1774	3539	1520
Grp Volume(v), veh/h	394	0	0	346	0	0	177	348	347	109	547	29
Grp Sat Flow(s),veh/h/ln	1710	0	0	1139	0	0	1774	1770	1751	1774	1770	1520
Q Serve(g_s), s	0.0	0.0	0.0	8.9	0.0	0.0	8.7	13.1	13.2	5.2	9.9	1.1
Cycle Q Clear(g_c), s	17.4	0.0	0.0	26.2	0.0	0.0	8.7	13.1	13.2	5.2	9.9	1.1
Prop In Lane	0.05		0.46	0.42		0.22	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	654	0	0	468	0	0	214	705	697	204	1390	597
V/C Ratio(X)	0.60	0.00	0.00	0.74	0.00	0.00	0.83	0.49	0.50	0.53	0.39	0.05
Avail Cap(c_a), veh/h	675	0	0	482	0	0	319	705	698	239	1391	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	0.0	27.2	0.0	0.0	38.3	20.1	20.1	37.2	19.4	16.8
Incr Delay (d2), s/veh	1.4	0.0	0.0	5.8	0.0	0.0	10.7	2.5	2.5	2.2	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	0.0	0.0	9.2	0.0	0.0	4.9	6.9	6.8	2.6	5.0	0.5
LnGrp Delay(d),s/veh	25.6	0.0	0.0	34.2	0.0	0.0	48.9	22.6	22.6	39.3	20.3	16.9
LnGrp LOS	C			C			D	C	C	D	C	B
Approach Vol, veh/h		394			346			872			685	
Approach Delay, s/veh		25.6			34.2			27.9			23.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	40.5		35.3	13.8	40.0		35.3
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0
Max Q Clear Time (g_c+I1), s	7.2	15.2		19.4	10.7	11.9		28.2
Green Ext Time (p_c), s	0.1	13.3		4.6	0.2	14.8		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	27.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

12/14/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	147	147	76	162	115	114	618	88	103	570	46
Future Volume (veh/h)	26	147	147	76	162	115	114	618	88	103	570	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	1	0	0	1	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	26	147	104	76	162	99	114	618	78	103	570	40
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	279	180	133	244	132	187	1414	177	223	1653	740
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.11	0.45	0.45	0.13	0.47	0.47
Sat Flow, veh/h	87	987	646	278	862	474	1774	3161	398	1774	3539	1583
Grp Volume(v), veh/h	277	0	0	337	0	0	114	346	350	103	570	40
Grp Sat Flow(s),veh/h/ln	1719	0	0	1615	0	0	1774	1770	1789	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	3.7	0.0	0.0	4.8	10.5	10.5	4.2	8.0	1.1
Cycle Q Clear(g_c), s	10.7	0.0	0.0	14.4	0.0	0.0	4.8	10.5	10.5	4.2	8.0	1.1
Prop In Lane	0.09		0.38	0.23		0.29	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	533	0	0	510	0	0	187	791	800	223	1653	740
V/C Ratio(X)	0.52	0.00	0.00	0.66	0.00	0.00	0.61	0.44	0.44	0.46	0.34	0.05
Avail Cap(c_a), veh/h	764	0	0	727	0	0	363	792	800	272	1655	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	0.0	25.3	0.0	0.0	33.5	14.9	14.9	31.8	13.3	11.4
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.5	0.0	0.0	3.2	1.8	1.7	1.5	0.6	0.1
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	0.0	6.9	0.0	0.0	2.5	5.5	5.6	2.2	4.0	0.5
LnGrp Delay(d),s/veh	25.0	0.0	0.0	26.9	0.0	0.0	36.7	16.7	16.7	33.3	13.8	11.6
LnGrp LOS	C			C			D	B	B	C	B	B
Approach Vol, veh/h		277			337			810			713	
Approach Delay, s/veh		25.0			26.9			19.5			16.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.8	40.0		25.4	11.2	41.6		25.4
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0
Max Q Clear Time (g_c+I1), s	6.2	12.5		12.7	6.8	10.0		16.4
Green Ext Time (p_c), s	0.1	14.8		4.2	0.2	16.0		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	20.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

12/12/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	126	166	99	86	68	115	385	80	72	355	22
Future Volume (veh/h)	13	126	166	99	86	68	115	385	80	72	355	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	16	152	112	119	104	52	139	464	74	87	428	21
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	321	213	222	199	82	185	1287	204	204	1534	660
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.10	0.42	0.42	0.12	0.43	0.43
Sat Flow, veh/h	42	970	675	515	593	259	1774	3046	483	1774	3539	1523
Grp Volume(v), veh/h	280	0	0	275	0	0	139	268	270	87	428	21
Grp Sat Flow(s),veh/h/ln	1686	0	0	1367	0	0	1774	1770	1759	1774	1770	1523
Q Serve(g_s), s	0.0	0.0	0.0	3.3	0.0	0.0	6.3	8.5	8.6	3.8	6.4	0.7
Cycle Q Clear(g_c), s	11.0	0.0	0.0	14.3	0.0	0.0	6.3	8.5	8.6	3.8	6.4	0.7
Prop In Lane	0.06		0.40	0.43		0.19	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	591	0	0	505	0	0	185	748	743	204	1534	660
V/C Ratio(X)	0.47	0.00	0.00	0.54	0.00	0.00	0.75	0.36	0.36	0.43	0.28	0.03
Avail Cap(c_a), veh/h	717	0	0	610	0	0	343	749	745	258	1536	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	0.0	23.8	0.0	0.0	36.1	16.3	16.3	34.1	15.1	13.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.9	0.0	0.0	6.0	1.3	1.4	1.4	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	0.0	5.9	0.0	0.0	3.4	4.5	4.5	1.9	3.3	0.3
LnGrp Delay(d),s/veh	23.4	0.0	0.0	25.3	0.0	0.0	42.1	17.6	17.7	35.5	15.6	13.6
LnGrp LOS	C			C			D	B	B	D	B	B
Approach Vol, veh/h		280			275			677			536	
Approach Delay, s/veh		23.4			25.3			22.7			18.7	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.5	40.0		30.1	11.6	40.9		30.1
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0
Max Q Clear Time (g_c+I1), s	5.8	10.6		13.0	8.3	8.4		16.3
Green Ext Time (p_c), s	0.1	12.0		3.8	0.2	12.6		3.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.0
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

12/12/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	117	105	66	135	63	115	388	60	47	319	34
Future Volume (veh/h)	20	117	105	66	135	63	115	388	60	47	319	34
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	1	0	0	1	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	22	131	70	74	152	53	129	436	56	53	358	31
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	271	132	145	250	77	203	1568	200	176	1704	762
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.11	0.50	0.50	0.10	0.48	0.48
Sat Flow, veh/h	86	1097	542	338	1011	316	1774	3155	403	1774	3539	1583
Grp Volume(v), veh/h	223	0	0	279	0	0	129	243	249	53	358	31
Grp Sat Flow(s),veh/h/ln	1725	0	0	1665	0	0	1774	1770	1789	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	0.0	5.0	5.8	5.9	2.0	4.2	0.8
Cycle Q Clear(g_c), s	8.0	0.0	0.0	10.5	0.0	0.0	5.0	5.8	5.9	2.0	4.2	0.8
Prop In Lane	0.10		0.31	0.27		0.19	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	479	0	0	473	0	0	203	879	889	176	1704	762
V/C Ratio(X)	0.47	0.00	0.00	0.59	0.00	0.00	0.63	0.28	0.28	0.30	0.21	0.04
Avail Cap(c_a), veh/h	825	0	0	797	0	0	391	880	889	293	1706	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.8	0.0	0.0	24.6	0.0	0.0	30.7	10.7	10.7	30.4	10.9	10.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	1.2	0.0	0.0	3.3	0.8	0.8	0.9	0.3	0.1
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	0.0	5.3	0.0	0.0	2.7	3.1	3.2	1.0	2.1	0.3
LnGrp Delay(d),s/veh	24.5	0.0	0.0	25.8	0.0	0.0	34.0	11.5	11.5	31.3	11.2	10.1
LnGrp LOS	C			C			C	B	B	C	B	B
Approach Vol, veh/h		223			279			621			442	
Approach Delay, s/veh		24.5			25.8			16.2			13.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.2	41.1		21.3	11.3	40.0		21.3
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0
Max Q Clear Time (g_c+I1), s	4.0	7.9		10.0	7.0	6.2		12.5
Green Ext Time (p_c), s	0.0	11.2		3.4	0.2	11.5		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	18.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

12/14/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	193	256	150	130	103	177	593	122	110	547	34
Future Volume (veh/h)	20	193	256	150	130	103	177	593	122	110	547	34
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	20	193	183	150	130	78	177	593	104	110	547	29
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	329	274	196	180	85	214	1188	208	204	1383	594
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.12	0.40	0.40	0.11	0.39	0.39
Sat Flow, veh/h	43	878	791	417	469	247	1774	2995	524	1774	3539	1520
Grp Volume(v), veh/h	396	0	0	358	0	0	177	350	347	110	547	29
Grp Sat Flow(s),veh/h/ln	1712	0	0	1133	0	0	1774	1770	1749	1774	1770	1520
Q Serve(g_s), s	0.0	0.0	0.0	10.1	0.0	0.0	8.7	13.3	13.4	5.2	10.0	1.1
Cycle Q Clear(g_c), s	17.5	0.0	0.0	27.6	0.0	0.0	8.7	13.3	13.4	5.2	10.0	1.1
Prop In Lane	0.05		0.46	0.42		0.22	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	659	0	0	468	0	0	214	702	694	204	1383	594
V/C Ratio(X)	0.60	0.00	0.00	0.76	0.00	0.00	0.83	0.50	0.50	0.54	0.40	0.05
Avail Cap(c_a), veh/h	673	0	0	476	0	0	317	702	694	238	1384	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.0	0.0	0.0	27.7	0.0	0.0	38.5	20.3	20.3	37.4	19.7	16.9
Incr Delay (d2), s/veh	1.4	0.0	0.0	7.2	0.0	0.0	10.8	2.5	2.6	2.2	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	0.0	0.0	9.8	0.0	0.0	4.9	7.0	7.0	2.7	5.0	0.5
LnGrp Delay(d),s/veh	25.5	0.0	0.0	36.1	0.0	0.0	49.3	22.8	22.9	39.6	20.5	17.1
LnGrp LOS	C			D			D	C	C	D	C	B
Approach Vol, veh/h		396			358			874			686	
Approach Delay, s/veh		25.5			36.1			28.2			23.4	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	40.5		35.7	13.8	40.0		35.7
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0
Max Q Clear Time (g_c+I1), s	7.2	15.4		19.5	10.7	12.0		29.6
Green Ext Time (p_c), s	0.1	13.2		4.6	0.2	14.8		1.7

Intersection Summary		
HCM 2010 Ctrl Delay		27.6
HCM 2010 LOS		C

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

12/14/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	155	147	80	169	119	114	618	93	107	570	46
Future Volume (veh/h)	26	155	147	80	169	119	114	618	93	107	570	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	1	0	0	1	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	26	155	104	80	169	103	114	618	83	107	570	40
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	294	180	136	248	134	185	1382	184	222	1634	731
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.10	0.44	0.44	0.13	0.46	0.46
Sat Flow, veh/h	84	1009	628	282	851	469	1774	3135	420	1774	3539	1583
Grp Volume(v), veh/h	285	0	0	352	0	0	114	348	353	107	570	40
Grp Sat Flow(s),veh/h/ln	1721	0	0	1601	0	0	1774	1770	1785	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	4.5	0.0	0.0	4.9	10.9	10.9	4.5	8.2	1.1
Cycle Q Clear(g_c), s	11.1	0.0	0.0	15.5	0.0	0.0	4.9	10.9	10.9	4.5	8.2	1.1
Prop In Lane	0.09		0.36	0.23		0.29	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	548	0	0	520	0	0	185	780	787	222	1634	731
V/C Ratio(X)	0.52	0.00	0.00	0.68	0.00	0.00	0.62	0.45	0.45	0.48	0.35	0.05
Avail Cap(c_a), veh/h	754	0	0	713	0	0	357	780	787	268	1635	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	0.0	25.4	0.0	0.0	34.1	15.5	15.5	32.4	13.7	11.8
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.6	0.0	0.0	3.3	1.9	1.8	1.6	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0	7.3	0.0	0.0	2.6	5.8	5.9	2.3	4.1	0.5
LnGrp Delay(d),s/veh	24.9	0.0	0.0	27.1	0.0	0.0	37.4	17.4	17.4	34.0	14.3	12.0
LnGrp LOS	C			C			D	B	B	C	B	B
Approach Vol, veh/h		285			352			815			717	
Approach Delay, s/veh		24.9			27.1			20.2			17.1	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.0	40.0		26.4	11.3	41.7		26.4
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0
Max Q Clear Time (g_c+I1), s	6.5	12.9		13.1	6.9	10.2		17.5
Green Ext Time (p_c), s	0.1	14.7		4.4	0.2	15.9		4.0

Intersection Summary		
HCM 2010 Ctrl Delay		20.9
HCM 2010 LOS		C

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

02/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	193	256	150	130	103	177	593	122	110	547	34
Future Volume (veh/h)	20	193	256	150	130	103	177	593	122	110	547	34
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.96	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	20	193	183	150	130	78	177	593	104	110	547	29
Adj No. of Lanes	0	1	0	0	1	0	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	326	271	193	178	84	214	740	608	204	685	36
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.12	0.40	0.40	0.12	0.39	0.39
Sat Flow, veh/h	43	871	785	409	463	243	1774	1863	1531	1774	1749	93
Grp Volume(v), veh/h	396	0	0	358	0	0	177	593	104	110	0	576
Grp Sat Flow(s),veh/h/ln	1698	0	0	1115	0	0	1774	1863	1531	1774	0	1842
Q Serve(g_s), s	0.0	0.0	0.0	10.3	0.0	0.0	8.7	25.1	3.9	5.2	0.0	24.7
Cycle Q Clear(g_c), s	17.8	0.0	0.0	28.1	0.0	0.0	8.7	25.1	3.9	5.2	0.0	24.7
Prop In Lane	0.05		0.46	0.42		0.22	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	652	0	0	461	0	0	214	740	608	204	0	722
V/C Ratio(X)	0.61	0.00	0.00	0.78	0.00	0.00	0.83	0.80	0.17	0.54	0.00	0.80
Avail Cap(c_a), veh/h	669	0	0	472	0	0	318	741	609	238	0	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	0.0	28.0	0.0	0.0	38.4	23.8	17.4	37.3	0.0	24.0
Incr Delay (d2), s/veh	1.5	0.0	0.0	7.9	0.0	0.0	10.7	8.9	0.6	2.2	0.0	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	0.0	0.0	10.0	0.0	0.0	4.9	14.7	1.8	2.7	0.0	14.3
LnGrp Delay(d),s/veh	25.7	0.0	0.0	37.2	0.0	0.0	49.1	32.7	18.0	39.5	0.0	33.0
LnGrp LOS	C			D			D	C	B	D		C
Approach Vol, veh/h		396			358			874			686	
Approach Delay, s/veh		25.7			37.2			34.3			34.0	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	40.5		35.5	13.8	40.0		35.5
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0
Max Q Clear Time (g_c+I1), s	7.2	27.1		19.8	10.7	26.7		30.1
Green Ext Time (p_c), s	0.1	4.2		2.3	0.2	3.7		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	33.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
1: Broadway & West MacArthur Street/East MacArthur Street

02/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	155	147	80	169	119	114	618	93	107	570	46
Future Volume (veh/h)	26	155	147	80	169	119	114	618	93	107	570	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	1	0	0	1	0	0	1	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	26	155	104	80	169	103	114	618	83	107	570	40
Adj No. of Lanes	0	1	0	0	1	0	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	285	170	133	239	126	187	832	704	225	808	57
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.11	0.45	0.45	0.13	0.47	0.47
Sat Flow, veh/h	85	1005	626	280	844	465	1774	1863	1573	1774	1721	121
Grp Volume(v), veh/h	285	0	0	352	0	0	114	618	83	107	0	610
Grp Sat Flow(s),veh/h/ln	1715	0	0	1589	0	0	1774	1863	1573	1774	0	1841
Q Serve(g_s), s	0.0	0.0	0.0	4.7	0.0	0.0	4.8	21.3	2.4	4.4	0.0	20.4
Cycle Q Clear(g_c), s	11.1	0.0	0.0	15.8	0.0	0.0	4.8	21.3	2.4	4.4	0.0	20.4
Prop In Lane	0.09		0.36	0.23		0.29	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	526	0	0	497	0	0	187	832	704	225	0	864
V/C Ratio(X)	0.54	0.00	0.00	0.71	0.00	0.00	0.61	0.74	0.12	0.48	0.00	0.71
Avail Cap(c_a), veh/h	764	0	0	721	0	0	364	836	706	273	0	867
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.5	0.0	0.0	26.0	0.0	0.0	33.4	18.1	12.6	31.7	0.0	16.5
Incr Delay (d2), s/veh	0.9	0.0	0.0	1.9	0.0	0.0	3.2	5.9	0.3	1.6	0.0	4.8
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	0.0	7.4	0.0	0.0	2.5	12.5	1.1	2.2	0.0	11.6
LnGrp Delay(d),s/veh	25.4	0.0	0.0	27.9	0.0	0.0	36.6	24.0	12.9	33.3	0.0	21.3
LnGrp LOS	C			C			D	C	B	C		C
Approach Vol, veh/h		285			352			815			717	
Approach Delay, s/veh		25.4			27.9			24.7			23.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.9	40.0		25.0	11.2	41.7		25.0
Change Period (Y+Rc), s	3.0	5.0		3.5	3.0	5.0		3.5
Max Green Setting (Gmax), s	12.0	35.0		33.0	16.0	35.0		33.0
Max Q Clear Time (g_c+I1), s	6.4	23.3		13.1	6.8	22.4		17.8
Green Ext Time (p_c), s	0.1	5.8		1.8	0.2	5.4		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	24.8
HCM 2010 LOS	C

Appendix C

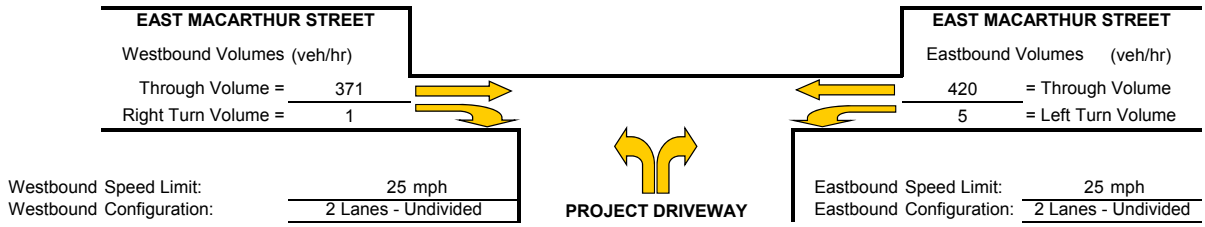
Turn Lane Warrants and AutoTURN Exhibits

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: EAST MACARTHUR STREET AND PROJECT DRIVEWAY
Study Scenario: AM FUTURE + PROJECT

Direction of Analysis Street: East/West

Cross Street Intersects: From the North



Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	1042.6
Advancing Volume	Va =	372
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

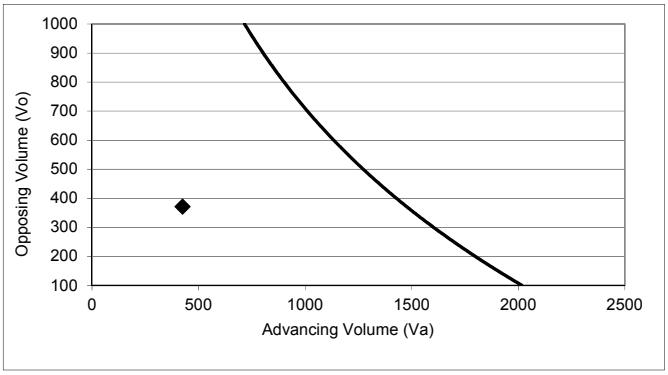
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	372
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	1.2 %
Advancing Volume Threshold	AV	1476 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

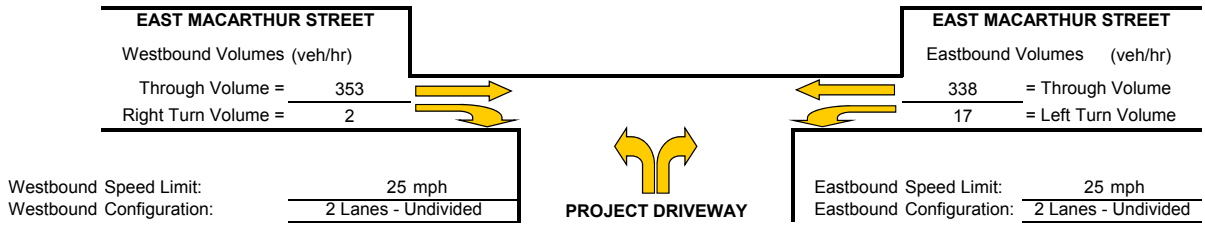
Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: EAST MACARTHUR STREET AND PROJECT DRIVEWAY
Study Scenario: PM FUTURE + PROJECT

Direction of Analysis Street: East/West

Cross Street Intersects: From the North



Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	1035.1
Advancing Volume	Va =	355
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

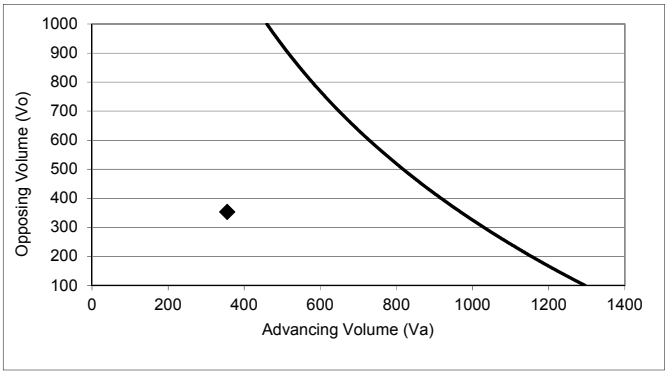
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	355
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	4.8 %
Advancing Volume Threshold	AV	968 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
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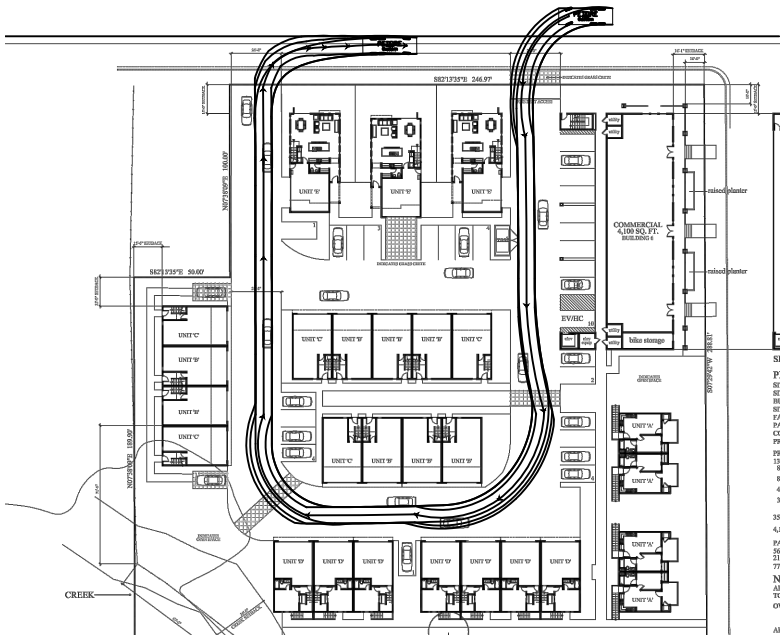
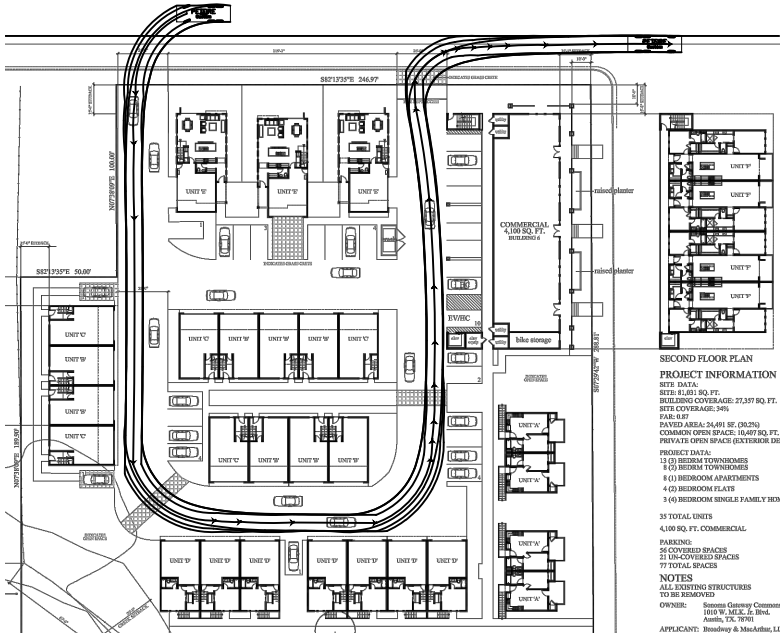
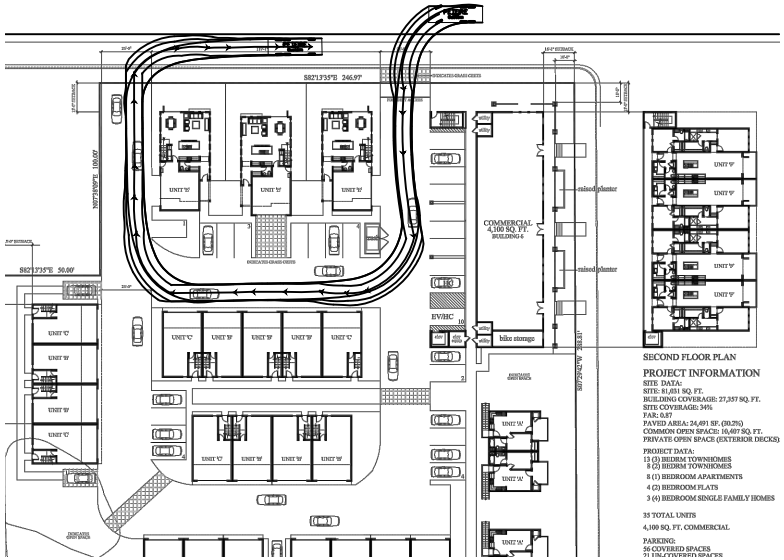


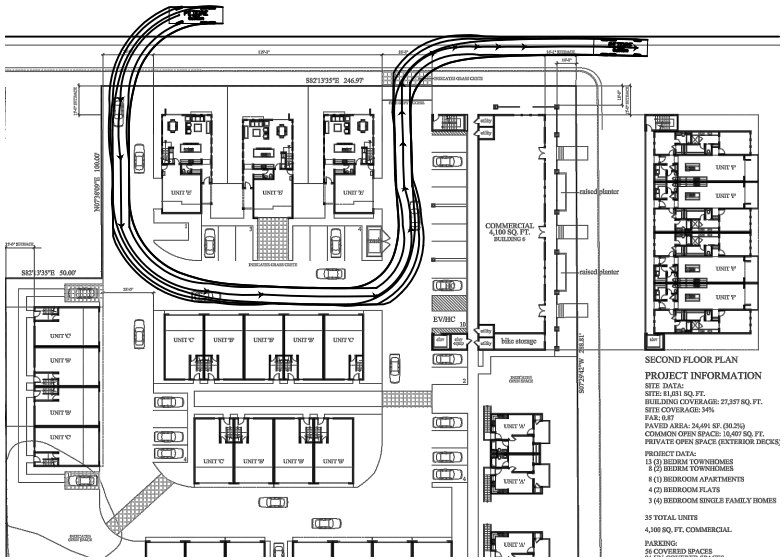
Inbound from Emergency Access Driveway



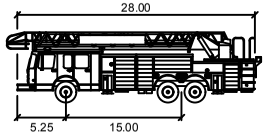
Inbound from East MacArthur Street



Inbound from Emergency Access Driveway



Inbound from East MacArthur Street



PETFIRE

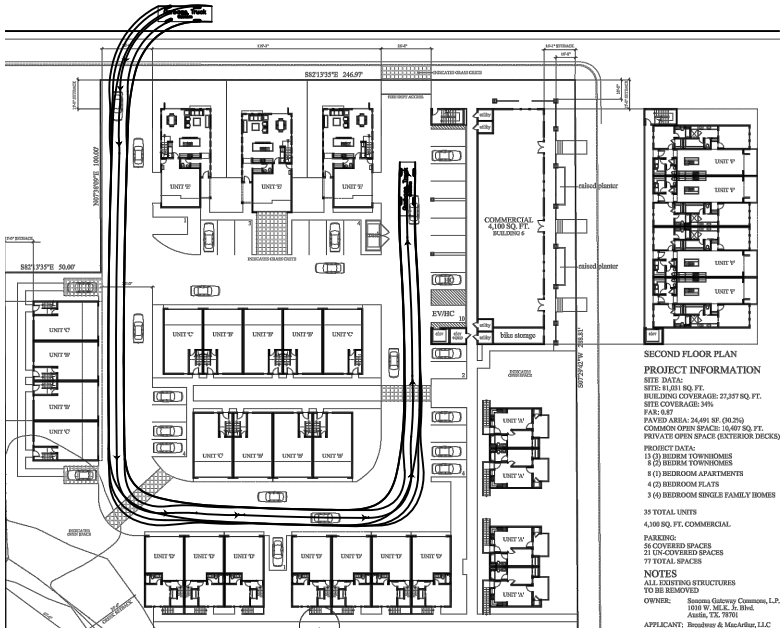
	feet
Width	8.50
Track	8.50
Lock to Lock Time	6.0
Steering Angle	33.0

Sonoma Gateway TIS

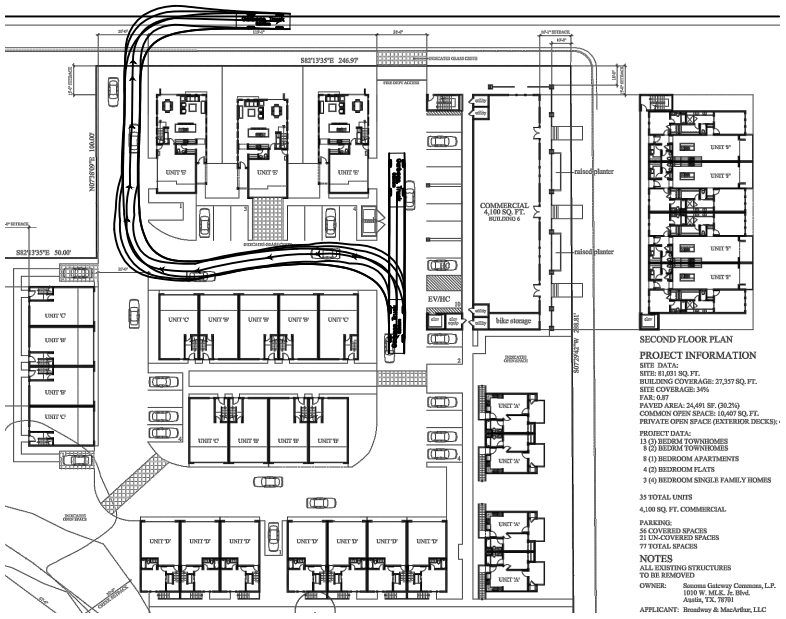
AutoTURN Exhibit - Fire Truck

SON055

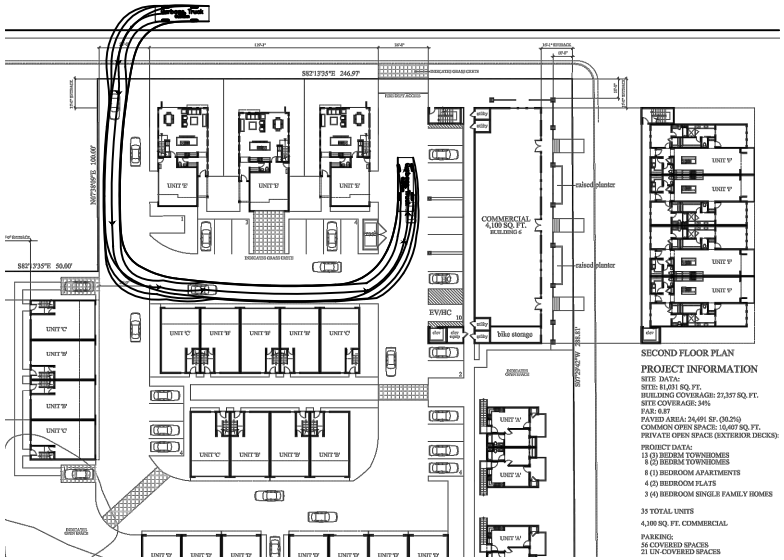
12/18/17



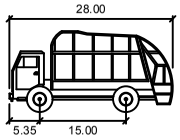
Inbound from East MacArthur Street (Path 1)



Outbound



Inbound from East MacArthur Street (Path 2)



Garbage Truck

	feet
Width	: 8.01
Track	: 8.01
Lock to Lock Time	: 6.0
Steering Angle	: 34.5