ENVIRONMENTAL CHECKLIST FORM

CITY OF LEMOORE

1. **Project Title:** Montrio Capital Partners Environmental Review #2012-03
2. **Lead Agency Name and Address:** City of Lemoore, 711 Cinnamon Drive, Lemoore California 93245
3. **Contact Person and Phone Number:** Holly Smyth, Planning Director (559) 924-6740
4. **Project Location:** North of Railroad Tracks, south of vacant land, east of Highway 41 and west of 19 ½ Avenue, and described as Assessor Parcels #023-460-010 and #023-460-011 in Lemoore, California 93245
5. **Project Sponsor's Name and Address:** Montrio Capital Partners
6. **General Plan Designation:** Professional Office
7. **Zone District:** Highway Commercial
8. **Description of Project:** Change the Zone District from CH (Highway Commercial) to PO (Professional Office) to conform to the General Plan Designation of Professional Office; Conditional Use Permit and Site Plan Review applications to build a 184 unit gated multi-family apartment community in two phases and a proposed Special Zone Exception application would allow for the zoning to change to RM-2.5 (Multi-family up to one (1) unit per 2,500 square feet of area) once the project is built as approved.
9. **Surrounding Land Uses and Setting:** The property to the north and south is vacant land, property to the east is Highway 41 and Leprino Foods and west is Light Industrial mini storage facility
10. **Other public agencies whose approval is required:** None

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

(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	X	Agricultural Resources	X	Air Quality
	Biological Resources	X	Cultural Resources		Geology/Soils
X	Greenhouse Gas Emissions		Hazards & Hazardous Materials	X	Hydrology/Water Quality
	Land Use/Planning		Mineral Resources	X	Noise
	Population/Housing		Public Services		Recreation
X	Transportation/Traffic	X	Utilities/Service Systems	X	Mandatory Findings of Significance

DETERMINATION - On the basis of this initial evaluation:

(To be completed by the Lead Agency)

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

XX 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 the mitigation measures described on an attached sheet have been added to the project. 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, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." 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, there WILL NOT be a significant effect in this case because all potentially significant effects (a) have been analyzed adequately in an earlier EIR 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.

Holly P. Smyth
Signature

Holly Smyth, Planning Director
Printed Name

4/2/2012
Date

City of Lemoore
For

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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 project 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, 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 incorporation of mitigation measures has 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 effect 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 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.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS - Would the project:				
a) Have a substantial adverse effect on a scenic vista?				XX
b) Substantially damage scenic resources, including, but not limited to, trees, rock, outcroppings, and historic buildings within a state scenic highway?				XX
c) Substantially degrade the existing visual character or quality of the site and its surroundings?				XX
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				XX
II. AGRICULTURAL RESOURCES - Would the project: (Note: 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 Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland.)				
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?				XX
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				XX
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?		XX		

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY - Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?				XX
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		XX		
c) Result in 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 which exceed quantitative thresholds for ozone precursors)?				XX
d) Expose sensitive receptors to substantial pollutant concentrations?				XX
e) Create objectionable odors affecting a substantial number of people?				XX
IV. BIOLOGICAL RESOURCES - Would the project:				
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 Dept. of Fish & Game or US Fish & Wildlife Service?				XX
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Dept. of Fish & Game or US Fish & Wildlife Service?				XX
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?				XX
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?				XX
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				XX
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?				XX
V. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?		XX		
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			XX	
VI. CULTURAL RESOURCES - Would the project:				
a)Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?				XX
b) Cause a substantial adverse change in the significance of an Archaeological resource pursuant to Section 15064.5?		XX		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				XX
d) Disturb any human remains, including those interred outside of formal cemeteries?				XX

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS - Would the project:				
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 & Geology Special Publication 42.*)				XX
ii) Strong seismic ground shaking?				XX
iii) Seismic-related ground failure, including liquefaction?				XX
iv) Landslides?				XX
b) Result in substantial soil erosion or the loss of topsoil?				XX
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?				XX
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?				XX
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?				XX
VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
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?				XX
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				XX
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?				XX
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?				XX
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?				XX
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				XX
h) Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wild lands area adjacent to urbanized areas or where residences are intermixed with wild lands?				XX

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporation	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY - Would the project:				
a) Violate any water quality standards or waste discharge requirements?				XX
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.)?				XX
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?				XX
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?				XX
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?		XX		
f) Otherwise substantially degrade water quality?				XX
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?				XX
h) Place housing within a 100-year flood hazard area structures which would impede or redirect flood flows?				XX
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?				XX
j) Inundation by seiche, tsunami, or mudflow?				XX
X. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?				XX
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?				XX
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				XX
XI. MINERAL RESOURCES - Would the project:				
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?				XX
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?				XX

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. NOISE - Would the project result in:				
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?		XX		
b) Exposure of persons to or generations of excessive ground-borne vibration or ground-borne noise levels?				XX
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				XX
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?				XX
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?				N/A
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?				N/A
XIII. POPULATION AND HOUSING - Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by processing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure?			XX	
b) Displace substantial numbers of existing housing necessitating the construction of replacement housing elsewhere?				XX
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				XX
XIV. PUBLIC SERVICES				
a) Would the project 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?				XX
ii) Police protection?				XX
iii) Schools?				XX
iv) Parks?				XX
v) Other public facilities?				XX
XV. RECREATION				
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?				XX
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have been an adverse physical effect on the environment?				XX

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporation	Less Than Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC - Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections.)?			XX	
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?			XX	
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?				XX
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		XX		
e) Result in inadequate emergency access?				XX
f) Result in inadequate parking capacity?				XX
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?		XX		
XVII. UTILITIES AND SERVICE SYSTEMS - Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				XX
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?				XX
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?		XX		
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				XX
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to the serve the project's projected demand in addition to the provider's existing commitments?				XX
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				XX
g) Comply with federal, state, and local statutes and regulations related to solid waste?				XX
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE:				
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 pre-history?				XX
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.)?				XX
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		XX		

EXPLANATION OF OTHER THAN "NO IMPACT" RESPONSES

IIc. The project is located adjacent to a property that is zoned AL 10 in Kings County and has the potential to still be used for agriculture. To mitigate, a Notice and Disclosure Statement must be recorded on the property, in a form acceptable to the City Attorney, which states that the residents should be prepared for the inherent and potential inconveniences and discomforts often associated with normal and usual agricultural activities and operations, and the County will not take any nuisance abatement actions against any normal and usual farming operations.

IIIb. The project will cause significant fugitive air during its construction phase through soil disruption becoming a contributing factor to an already existing current air quality problem within the region.This effect will be mitigated by requiring developer to comply with the San Joaquin Valley Air Pollution Control District Standards as well as with the City of Lemoore's dust control requirements.

Va. Green House gas impacts were analyzed and mitigation policies summarized in Table 7.10 of the overall General Plan to self-mitigate the potential impacts so long as the policies listed therein are carried out. More specifically, General Plan policies CD-I-58 to CD-I-60 shall be incorporated into the conditions of approval which require new development to incorporate passive heating and natural lighting strategies, reduce storm water run-off, promote energy efficiency, incorporate some solar if the complex will use more than 40,000 kilowatt hours per year of electricity, incorporate Green Building Code, facilitate environmentally sensitive construction practices, and keep light pollution to a minimum.

VIb. If construction begins and happens to unearth archeological remains if historical, archaeological, or paleontological resources are accidentally discover during construction, grading activity in the immediate area shall cease and materials and their surroundings shall not be altered or collected. Then a qualified archaeologist or paleontologist must make an immediate evaluation and avoidance measures or appropriate mitigation must be completed" per General Plan policy COS-I-33.

IXe. The onsite drainage will need to be designed with adequate capacity to serve the site or install adequate infrastructure to tie-in to the City's storm water system. It appears that the on-site ponding is not large enough to accommodate a retention basin, but could be used as a detention basin in coordination with the City Engineer. Unfortunately the depth of ponding is limited in Lemoore due to its shallow ground water table.

XIIa Based on the attached Acoustical Analysis for the Quiring Apartment complex dated February 12, 2012 the apartment complex project complies with the noise level requirements of the City of Lemoore provided the measure that "Mechanical ventilation or air conditioning must be provided so that occupants may keep windows and doors closed for acoustical isolation purposes." This measure will need to be incorporated into the final project design. Additionally, the developer will need to sign and have recorded the Noise and Odor easement as this development is less than 2 miles from the nearest industrial zone district.

XVId. The property does not have a safe route to school which would increase pedestrian hazards. In order to eliminate this hazard, the school has asked that a) an 8' asphalt path be constructed from the southside of the project to Bush Street (which is approximately 600' in length) along the westerly side of 19½ Avenue to access the elementary school site, b) sidewalk be installed north of the site to Castle Way (which is approximately 60'), c) an in-ground flashing cross-walk be provided across 19½ Avenue as Castle Way to provide safe access for Liberty school junior high children, and d) that a bus turn out be provided in front of the complex. These installations will be part of the conditions of approval. See attached one-page discussion of traffic impacts that are not significant.

XVIg. The property is fronts a Collector street and is shown as a having a future bikeway along the southside of the railroad and along 19½ Avenue. Therefore, the project will need to incorporate a 6' bikelane striped in the street in front of the project and should tie into other surrounding bike lanes and will need to incorporate bike racks within the site.

XVIIc See XIe above

XVIIIc. The project will incorporate conditions of approval listed above and pay required impact fees to mitigate the effects of the project below significance.

According to the City's traffic impact study, Professional Office uses were anticipated to generate 10.89 units per acre and 5.38 Average Daily Trips (ADT) per unit. For this 11.05 acre project site, the assumed traffic would have been 647 ADT. Based on the new submittal of multi-family apartments, the traffic impact study estimates 6.52 (ADT) per unit multiplied by 184 units which equates to 1,200 ADT anticipated (for a total of 553 more ADT than originally anticipated). Estimated peak hour traffic is generally 10% of the ADT, therefore it is anticipated that the project would generate 55 additional trips in both the am and pm peak hours over what was anticipated by the General Plan. Staff modified the traffic analysis of Table 4.3 of the Kings County Association of Governments (KCAG) traffic model at the following streets and lane segments adjacent to the project for the worse case impact if 55 trips affected each street direction and peak hour (rather than anticipating the directional split of traffic):

Road Name	Segment		Direction	Future Through Lanes		LOS am/pm	
				GP	Alt.	GP	Alt.
19½ Avenue	Bush Street	Cinnamon Dr	NB	2	1	C/C	C/C
19½ Avenue	Bush Street	Cinnamon Dr	SB	2	1	C/C	C/C
19½ Avenue	Silverado Drive	Bush Street	NB	2	1	C/C	D/D
19½ Avenue	Silverado Drive	Bush Street	SB	2	1	C/C	D/D
Bush Street	SH 41 NB ramps	19½ Avenue	WB	3	3	C/C	C/C
Bush Street	SH 41 NB ramps	19½ Avenue	EB	3	3	C/D	C/D
Bush Street	19½ Avenue	19 Avenue	WB	2	2	C/C	C/C
Bush Street	19½ Avenue	19 Avenue	EB	2	2	C/D	C/D
Cinnamon Drive	19½ Avenue	19 Avenue	WB	2	1	C/B	C/C
Cinnamon Drive	19½ Avenue	19 Avenue	EB	2	1	C/C	C/C

Utilizing the existing General Plan scenario with the model, all adjacent traffic segments are anticipated to continue operating at Level of Service (LOS) D or better on City roadways, which is the City's standard. To test the sensitivity of adjacent streets to be able to properly function with less travel lanes, an alternate analysis was done reducing the lanes and reducing the classification category to match the lane reductions on 19½ Avenue segments as well as on Cinnamon Drive. As summarized above, these lane reductions could be accommodated and still meet the LOS D or above should a General Plan amendment be separately approved by the City to accommodate in the future.

As of September 3, 2009, the ADT for 19½ Avenue was 2261 trips with 208 average peak hour trips occurring from 2-3 pm. Actual traffic speeds during this count ranged from 1 to 95 miles per hour with 85% at 34 miles per hour. With the approved projects after this traffic count (98 single family units at DeVante Liberty subdivision attributing approximately 938 ADT divided by 2 for trip split) along with the proposed apartment project (1200 ADT), the ADT is anticipated to be 3,930 with 377 peak hour trips on 19th Avenue. This equates to a 31% increase in ADT and a 32% increase in peak traffic.

As of March 16, 2007, the ADT for Cinnamon Drive between 19½ and 19 Avenues was 2425 trips with 292 peak hour trips occurring from 5-6 pm. Actual traffic speeds during this count ranged from 1 to 95 miles per hour with most eastbound drivers traveling between 25-40 mph but most westbound drivers are traveling at speeds between 55 to 90 mph. With the approved projects after this traffic count (98 single family units at DeVante Liberty subdivision attributing approximately 938 ADT divided by 2 for trip split) along with the proposed apartment project (1200 ADT divided by 2 for trip split), the ADT is anticipated to be 3,494 with 399 peak hour trips on Cinnamon Drive. This equates to a 17% increase in ADT and a 15% increase in peak traffic. Therefore,

As of September 2009, the ADT for Bush Street between 19½ and Highway 41 ramps was 8,803 trips with 786 peak hour trips occurring from 7-8 am. Actual traffic speeds during this count ranged from 1 to 45 miles per hour with most eastbound drivers traveling between 45 mph and most westbound drivers traveling at 43 mph. With the approved projects after this traffic count (98 single family units at DeVante Liberty subdivision attributing approximately 938 ADT divided by 2 for trip split) along with the proposed apartment project (1200 ADT), the ADT is anticipated to be 10,472 with 953 peak hour trips on Bush Drive on this segment. This equates to an 11.5% increase in ADT and a 12.6% increase in peak traffic.

ACOUSTICAL ANALYSIS
QUIRING APARTMENTS
NORTH 19th ½ AVENUE
LEMOORE, CALIFORNIA

BBA Report No. 12-006

PREPARED FOR

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PREPARED BY

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FEBRUARY 24, 2012

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BBA
BROWN · BUNTIN ASSOCIATES, INC

INTRODUCTION

The project is a proposed 184-unit apartment complex to be located between State Route 41 (SR 41) and 19th ½ Avenue just north of the San Joaquin Valley Railroad (SJVR) within the City of Lemoore. The City of Lemoore has requested an acoustical analysis to determine if traffic on SR 41 or railroad operations on the SJVR will cause noise levels within the project site to exceed the City's noise standards and to determine the extent of noise mitigation measures that may be required. This report, prepared by Brown-Buntin Associates, Inc. (BBA), is based upon the project site plan provided by Weber Iness Associates, Inc. dated January 25, 2012. Revisions to the site plan or other information used to prepare this analysis may require a reevaluation of the findings of this report.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise.

CRITERIA FOR ACCEPTABLE NOISE EXPOSURE

The Noise Element of the Lemoore General Plan (Noise Element) establishes noise level criteria in terms of the Day-Night Average Level (DNL) and Community Noise Equivalent Level (CNEL) metrics. The DNL is the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The CNEL is used for the evaluation of aircraft noise exposure, and differs from the DNL only in that it includes an additional penalty of 5 dB for noise levels occurring during the evening hours (7:00 p.m.-10:00 p.m.). The DNL and CNEL represent cumulative exposure to noise over an extended period of time and are therefore calculated based upon *annual average* conditions. The DNL is used to describe noise exposure due to traffic and rail operations in this report.

The Noise Element establishes an interior noise level criterion of 45 dB DNL/CNEL for habitable rooms in multi-family dwellings. This is consistent with the interior noise level standard applied by the U.S. Department of Housing and Urban Development (HUD) and most local jurisdictions in California. The Noise Element states that normal permanent construction can be expected to provide an outdoor-to-indoor Noise Level Reduction (NLR) of 20 dB with windows and doors closed. Table 8.6 of the Noise Element suggests that noise exposure exterior to new multi-family residential uses is considered "normally acceptable" if it does not exceed 65 dB DNL/CNEL. The intent of Table 8.6 is to identify ranges of exterior noise exposure within which normal construction may be expected to achieve an acceptable interior noise environment. The Noise Element does not explicitly provide an outdoor noise level criterion.

PROJECT SITE NOISE EXPOSURE

The project site is exposed to noise from traffic on SR 41, rail operations on SJVRR and aircraft operations at Naval Air Station Lemoore (NASL). Following is a discussion of each of these noise sources and how they affect the project site.

Traffic Noise Exposure:

The dominant source of noise affecting the project site is traffic on the SR 41. The freeway is elevated approximately 20-40 feet above the project site. The center of the freeway is located approximately 260 feet to the west of the closest proposed noise-sensitive buildings within the site. The elevated freeway provides some acoustic shielding of the project site from freeway traffic noise, especially in the area where the closest buildings would be located.

Noise levels from traffic on SR 41 were calculated for existing and projected future (2035) conditions based upon noise measurements conducted by BBA at the project site, the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108), traffic data obtained from the California Department of Transportation (Caltrans) and the County of Kings 2010 General Plan.

The FHWA Model is a standard analytical method used for roadway traffic noise calculations. The model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within ±1.5 dB. To predict DNL values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Noise level monitoring and a concurrent traffic count were conducted by BBA within the project site on February 22, 2012. The purpose of the noise monitoring was to evaluate the accuracy of the FHWA Model in describing traffic noise exposure within the project site. The traffic noise monitoring site was located approximately 260 feet from the centerline of SR 41, the approximate distance from the centerline to the closest proposed residential building. The project site plan and noise monitoring site are shown in Figure 1.

Noise monitoring equipment consisted of a Larson-Davis Laboratories Model LDL-820 sound level analyzer equipped with a B&K Type 4176 1/2" microphone. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meter was calibrated in the field prior to use with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements. The microphone was located at 13 feet above the ground to approximate the height of a second floor receiver within the closest building to the freeway.

Noise measurements were conducted in terms of the equivalent energy sound level (L_{eq}). Measured L_{eq} values were compared to L_{eq} values calculated (predicted) by the FHWA Model using as inputs the traffic volumes, truck mix and vehicle speed observed during the noise measurements. The results of that comparison are shown in Table 1.

Figure 1: Project Site Plan and Noise Monitoring Site

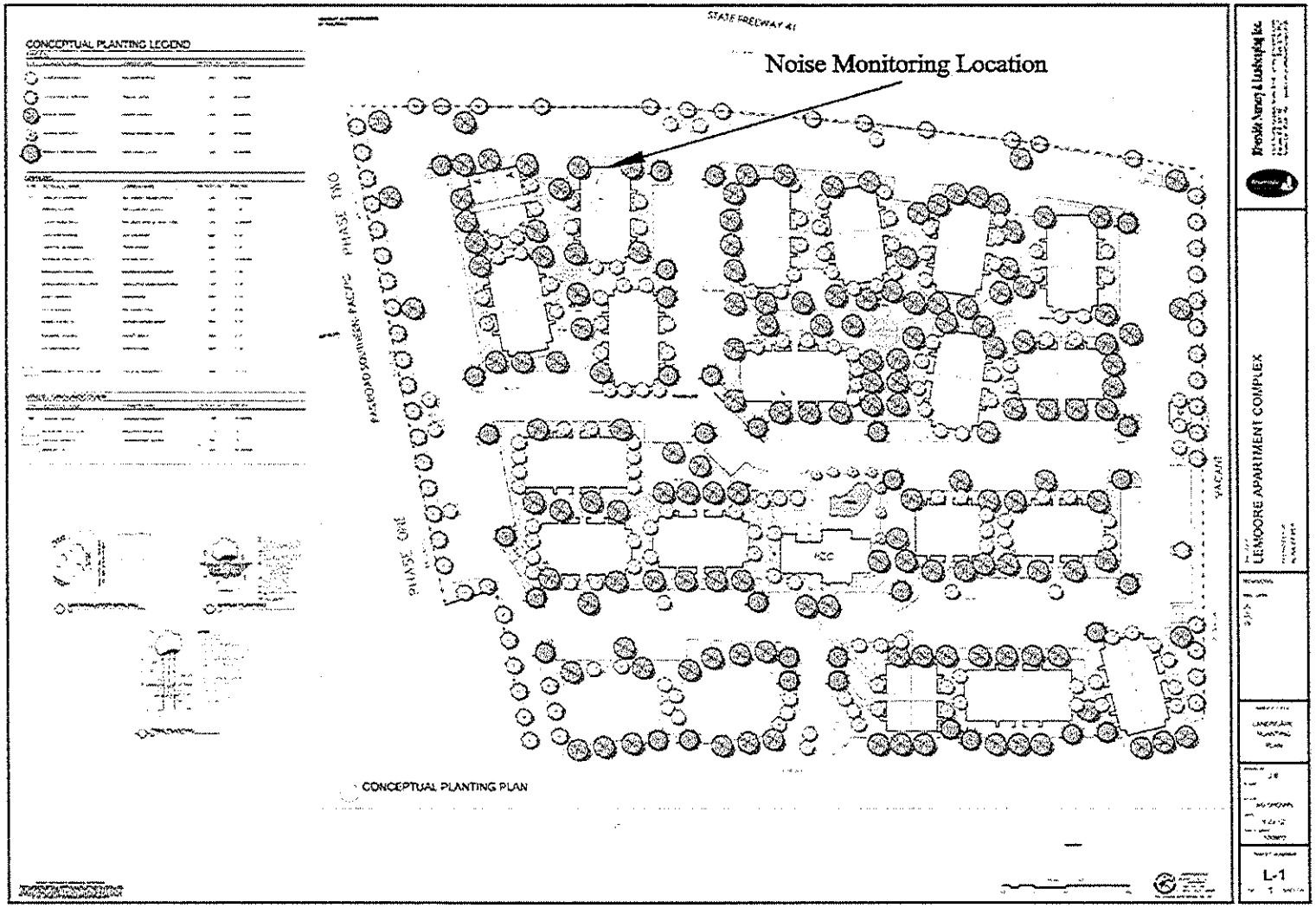

TABLE I

COMPARISON OF MEASURED AND PREDICTED (FHWA MODEL) TRAFFIC NOISE LEVELS QUIRING APARTMENTS LEMOORE, CALIFORNIA FEBRUARY 22, 2012

Microphone Height, Ft. (above the ground)	13
Observed # Autos/Hr.	676
Observed # Medium Trucks/Hr.	40
Observed # Heavy Trucks/Hr.	108
Posted Speed (MPH)	65
Distance, ft. (from center of SR 41)	260
L_{eq}, dBA (Measured)	58.8
L_{eq}, dBA (Predicted)	62.7
Difference between Measured and Predicted L_{eq}, dB	3.9
*FHWA "soft" site assumed for calculations. Source: Brown-Buntin Associates, Inc.	

From Table I it may be determined that the traffic noise level predicted by the FHWA Model was 3.9 dB higher than the measured noise level for the traffic conditions observed at the time of the noise measurements. This over-prediction by the model is expected, and is due to the above-referenced acoustic shielding of the site by the elevated freeway. The annual average traffic noise levels calculated by the FHWA Model for existing and future conditions were therefore adjusted by -3.0 dB to account for site-specific conditions.

The existing annual average daily traffic (AADT) volumes and the percentages of medium and heavy trucks on SR 41 in the vicinity of the project site were acquired from the Caltrans website. The future (2035) AADT on SR 41 was acquired from the County of Kings 2010 General Plan. The day/night distribution of traffic on SR 41 was estimated by BBA based upon studies conducted along similar roadways since project-specific data were not available from government sources. The percentages of medium and heavy trucks and the day/night distribution of traffic were assumed to be the same for both existing and future traffic conditions. Table II summarizes the traffic data assumptions used to model noise exposure from traffic on SR 41 within the project site. The data summarized in Table II represent the best information known to BBA at the time this analysis was prepared.

TABLE II

TRAFFIC NOISE MODELING ASSUMPTIONS
QUIRING APARTMENTS, LEMOORE

	SR41	
	2010	**2035**
Annual Avenue Daily Traffic (AADT)	17,700	29,910
Day/Night Split (%)	85/15	85/15
Posted Vehicle Speed (mph)	65	65
% Medium Trucks (% AADT)	6	6
% Heavy Trucks (% AADT)	7	7

Sources: Brown-Buntin Associates, Inc.
Caltrans
Kings County 2010 General Plan

Using data from Table II and the FHWA Model, existing and future (2035) annual average traffic noise exposures were calculated for the project site. Calculated traffic noise exposures are summarized in Table III. Calculated noise levels include the site-specific adjustment for acoustic shielding as described above. The existing calculated traffic noise exposure at closest apartment unit to SR 41 was 61.9 dB DNL. The projected future (2035) calculated traffic noise exposure at the closest apartment unit was 64.2 dB DNL. Such levels are within the normally acceptable range of exterior noise exposure (65 dB DNL or less) as defined by Table 8.6 of the Noise Element. Assuming that conventional construction (a minimum of 20 dB of NLR performance) will be utilized for the project, the project will comply with the city's 45 dB DNL interior noise level standard for both existing and projected future traffic conditions.

TABLE III

CALCULATED TRAFFIC NOISE EXPOSURE[1]
QUIRING APARTMENTS, LEMOORE

	SR 41
	DNL, dB
Existing Conditions (2010)	61.9
Future Conditions (2035)	64.2

[1]At the closest noise-sensitive buildings to the freeway.
Source: Brown-Buntin Associates, Inc.

Railroad Noise Exposure:

The SJVRR tracks are located along the southern boundary of the project site. The approximate distance from the center of the main track to the closest proposed residential unit is 150 feet. There is a grade crossing at 19th ½ Avenue where locomotive engineers are required to blow the warning horn. The railroad consists of jointed rail with the top of the rails being approximately 2-3 feet higher than the existing grade of the project site. The estimated speed of trains passing the site is 10-30 mph. Figure 1 shows the project site in relation to the railroad.

In order to calculate railroad noise exposure for the project site, BBA used noise level measurements conducted for other similar projects along the SJVRR in the Fresno and Visalia areas. A total of 17 measurements were conducted for various studies in 2004 and 2005. BBA has found that there is substantial variability in the noise levels produced by individual train pass-bys due to train length, speed, horn usage and other factors. The average sound exposure level (SEL) measured for train pass-bys within 500 feet of a grade crossing (where the horn is used) was determined to be 97.8 dBA at a distance of 150 feet from the center of the track.

According to the U.S. Department of Transportation (U.S. DOT), approximately 2 train pass-bys occur daily along the SJVRR near the project site. Operations may occur at any time of the day or night. BBA was unable to obtain estimates of future rail activity on the line from the SJVRR.

Railroad noise exposure may be quantified in terms of the DNL using the following formula:

$$DNL = \overline{SEL} + 10 \log N_{eq} - 49.4$$

where,

$\overline{SEL}$ *is the average SEL for a train passby,*
N_{eq} *is the equivalent number of passbys in a typical 24-hour period determined by adding 10 times the number of nighttime events (10 p.m. - 7 a.m.) to the actual number of daytime events (7 a.m. – 10 p.m.), and 49.4 is a time constant equal to 10 log the number of seconds in the day.*

Using the above-described formula, railroad operations data and noise measurement data, the railroad noise exposure at the closest proposed apartment units was calculated to be 57.8 dB DNL at a setback of 150 feet from the center of the track. This is within the normally acceptable range of exterior noise exposure (65 dB DNL or less) as defined by Table 8.6 of the Noise Element. Since the calculations assume that, on an annual average basis, railroad operations are equally distributed during the daytime and nighttime hours, they likely provide a worst-case assessment of railroad noise exposure within the project site. Assuming that conventional construction (a minimum of 20 dB of NLR performance) will be utilized for the project, the project will comply with the city's 45 dB DNL interior noise level standard with regard to railroad noise exposure.

Aircraft Noise Exposure:

The project site is located approximately seven miles east of Naval Air Station Lemoore. The site is subject to periodic aircraft noise produced during take-offs, landings and nearby over-flights. Noise levels from NASL aircraft were measured by BBA during the site inspection and traffic noise monitoring on February 22, 2012. Measured maximum levels were observed to be in the range of 60-65 dBA. According to the Noise Element (Figure 8-4), the project site is located outside the 60-70 dB CNEL contours for NASL.

NOISE MITIGATION

Since noise exposure within the project site due to traffic, rail and aircraft sources falls within the "normally acceptable" range defined by the Noise Element, the project will comply with the 45 dB DNL interior noise level standard without additional noise mitigation. This assumes that conventional construction will be utilized for the project and mechanical ventilation or air conditioning will be provided so that occupants may keep windows and doors closed for acoustical isolation purposes.

CONCLUSIONS AND RECOMMENDATIONS

The Quiring Apartments project will comply with the noise level requirements of the City of Lemoore provided the following measure is incorporated into the final project design:

- Mechanical ventilation or air conditioning must be provided so that occupants may keep windows and doors closed for acoustical isolation purposes.

The conclusions and recommendations of this acoustical analysis are based upon the best information known to Brown-Buntin Associates, Inc. (BBA) at the time the analysis was prepared concerning the proposed site plan, traffic volumes, vehicle speeds, truck mix, railroad operations and aircraft operations. Any significant changes to these factors will require a reevaluation of the findings of this report. Additionally, any significant future changes in motor vehicle, railroad or aircraft technology, noise regulations, or other factors beyond BBA's control may result in long-term noise results different from those described by this analysis.

Respectfully submitted,

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Consultant

WJV:wv

APPENDIX A

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

DECIBEL, dB: A unit for 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, which is 20 micropascals (20 micronewtons per square meter).

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq}: Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

NOTE: The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.

L_{max}: The maximum noise level recorded during a noise event.

L_n: The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). For example, L_{10} equals the level exceeded 10 percent of the time.

A-2

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL REDUCTION (NLR): The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of Anoise level reduction@ combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

SOUND LEVEL: 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 response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION CLASS (STC): The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.