CANYON VISTA

VARIANCE APPLICATION

Prepared by:

RUBICON DESIGN GROUP

LUMOS & ASSOCIATES

APRIL 21, 2015

Job # 191-07

Canyon Vista

Variance Application

Prepared for:

Divinni NV, LLC

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Gardnerville, Nevada 89410

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April 21, 2015

Table of Contents

Introduction 1
Project Location 1
Existing Conditions 2
Request Summary 5
Variance Findings 7

List of Figures:

Figure 1 – Vicinity Map 1
Figure 2 – Zoning Map 2
Figure 3 – Existing Conditions 3
Figure 4 – Existing Conditions 4
Figure 5 – Preliminary Site Plan 5
Figure 6 – Preliminary Elevations 7

Appendices:

Preliminary Typical Elevations and Floor Plans
Property Tax Documentation

Attachments:

Carson City Application Form and Affidavit
Canyon Vista Tentative Subdivision Map Application

Introduction

This application includes the following request:

- A **Variance** to allow for lot size reductions within the SF1A zone.

Project Location

Canyon Vista is located at the southeast corner of Clearview Drive and Hillview Drive in south Carson City. The project includes two existing vacant parcels (APN 01019407 and 01019408) totaling 19.54± acres. Primary access to the project is from Hillview Drive. Surrounding land use includes single family residential to the north and west. A future school site and the Edmonds Sports Complex lie to the south with vacant parcels and one single family home to the east. Figure 1 (below) depicts the project location and surrounding conditions.

Figure 1 – Vicinity Map

Existing Conditions

The Canyon Vista site is currently zoned SF1A and is bordered by SF1A zoning to the north, west, and east. Property to the south is zoned PR, reflective of a reserved school site and the Edmonds Sports Complex. Figure 2 (below) depicts the existing zoning for the project site and surrounding area.

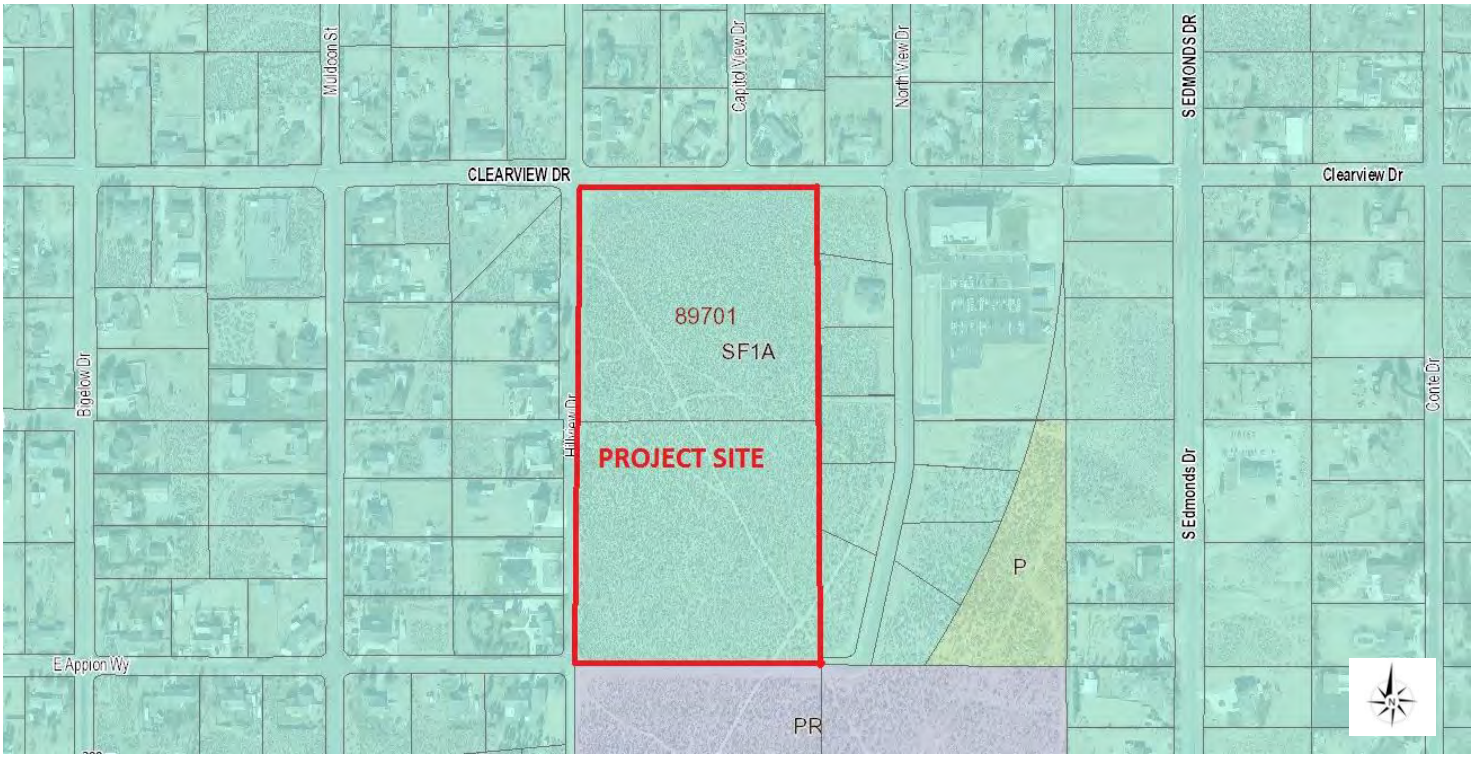
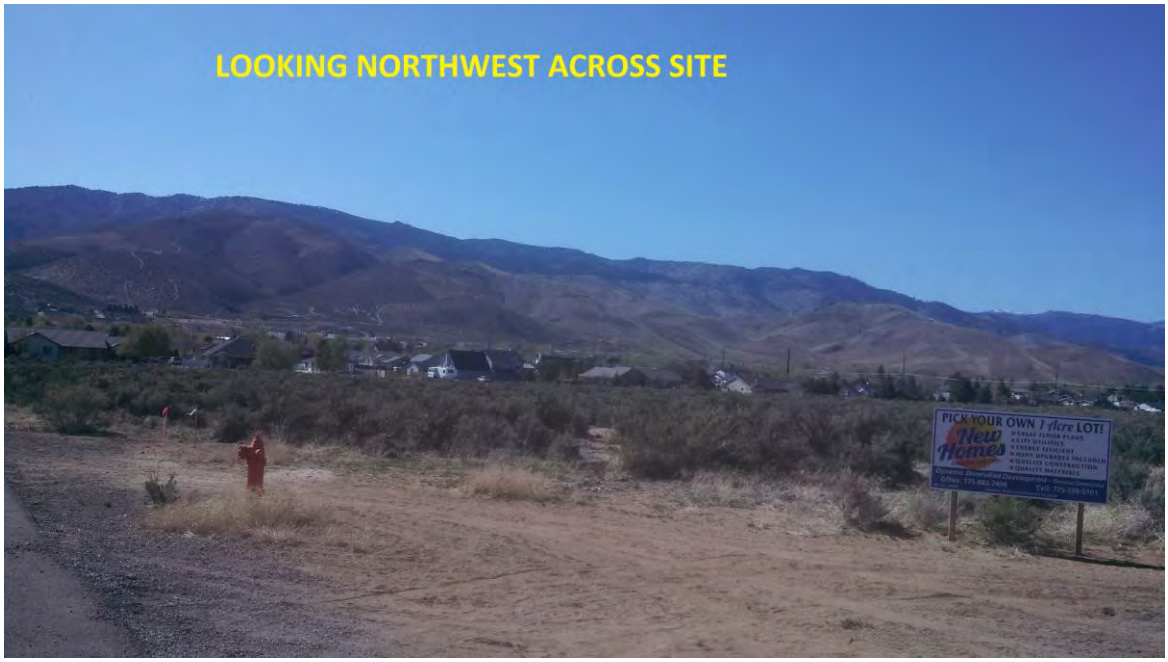


Figure 2 – Zoning

As noted previously, the Canyon Vista site is currently vacant. Site topography is generally flat and slopes slightly to the northwest. The surrounding area includes existing single family homes that are complementary to those proposed within Canyon Vista (as described in the following sections). Figures 3 (below) and 4 (following page) depict the existing site conditions.



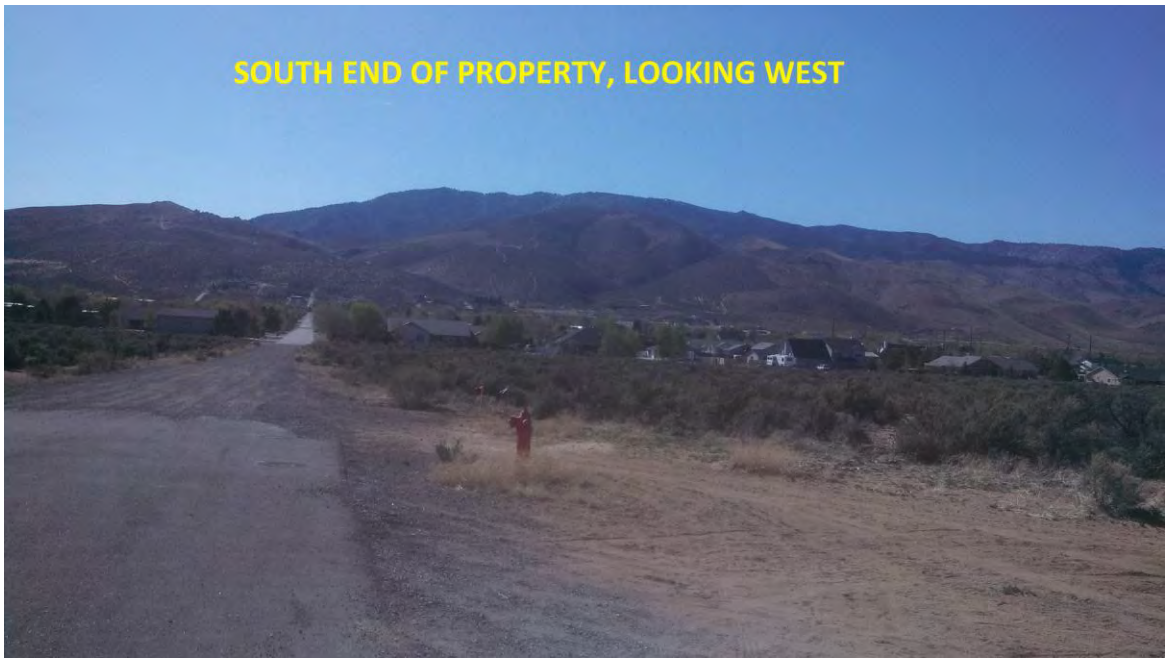


Figure 3 – Existing Conditions

Figure 4 – Existing Conditions

Request Summary

This Variance application is intended to accompany the tentative subdivision map request submitted for Canyon Vista that would allow for the creation of 18 single family lots within two existing parcels totaling 19.54± acres.

The SF1A zoning district requires a minimum lot area of one acre (43,560 square feet). As Figure 5 (below) illustrates, Canyon Vista proposes 10 lots that are less than the required 43,560 square foot minimum. As such, a request for a Variance to reduce lot size and required lot widths is being requested. Typically, a Minor Variance (completed administratively) would allow for the proposed deviations which are within 10% of code requirements. However, since a tentative subdivision map is being processed for the project concurrently, it was decided to "bundle" the variance with the overall entitlement, allowing for public review of the project as a whole.

Figure 5 (below) depicts the Canyon Vista preliminary site plan. Lots that are less than 43,560 square feet are numbered in red, while cul-de-sac lots with reduced widths (less than 54 feet) are shown with blue frontages.

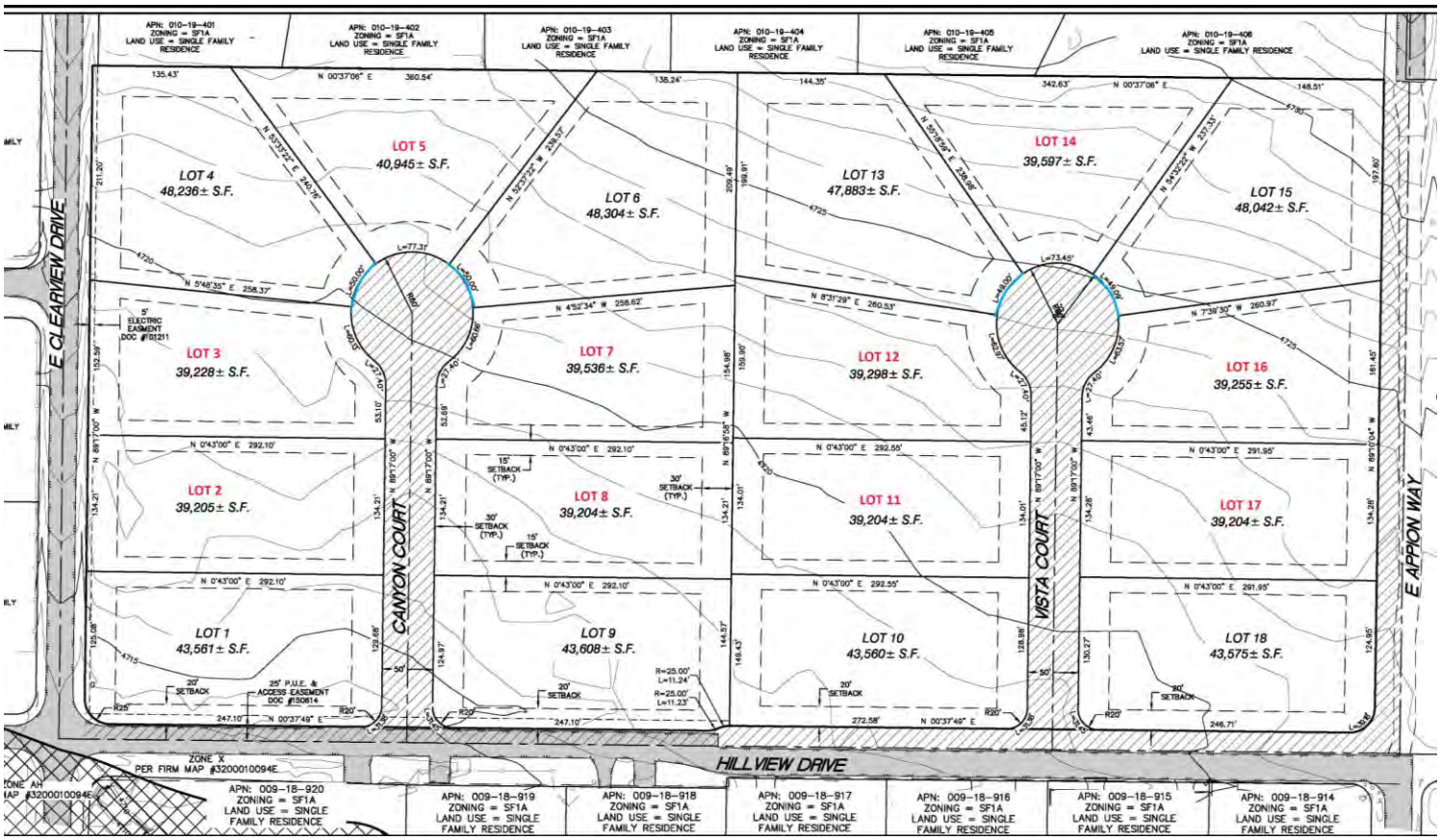


Figure 5 – Preliminary Site Plan

Minor deviations to lot size and widths are not uncommon. In fact, the adjoining subdivision to the east is also located within the SF1A zoning district and was granted a Minor Variance from Carson City to reduce the lot sizes below one acre. A key consideration in reviewing variances is that "special privileges" are not granted. Given the fact that the adjoining subdivision was granted a variance nearly identical to Canyon Vista, it could be argued that this variance application is not requesting any special privileges that have not been granted to other properties within the area.

It is also important to note that Canyon Vista is in full compliance with the SF1A density requirements at 0.92 dwelling units per acre. Furthermore, the project developer has agreed to limit the number of allowed animal units per lot to 2, compared to the 6 that would typically be permitted by code. This will be enforced through the adopted CC&R's of which a draft is included as an attachment to this report.

Granting of the variance will not result in a material change to the neighborhood. The overall density complements the adjoining developments. Additionally, with proposed floor plans ranging from 1,830± square feet to 2,125± square feet, lots within Canyon Vista will retain large yards and open areas, consistent with the rural character of the area. Figure 6 (following page) depicts the preliminary elevations envisioned for Canyon Vista. The homes are single story and will directly complement existing homes within the area.

As Figure 5 illustrates, the lots less than one acre are located internal to the project. Therefore, from Hillview Drive, no signs of the variance will be visible. In fact, with a 10% or less deviation, it is very likely that the reductions proposed with Canyon Vista will be noticeable at all, even from a trained observer.

Figure 6 – Preliminary Elevations

Variance Findings

The Carson City Municipal Code defines the findings that must be made in order for the Planning Commission to approve a Variance request. These findings are listed below and are addressed in **bold face** type.

1. Special circumstances or conditions applying to the property under consideration which exist making compliance with the provisions of this title difficult and cause a hardship to, and abridgment of a property right of the owner of the property, and describe how such circumstances or conditions do not apply generally to other properties in the same land use district and explain how they are not self-imposed.

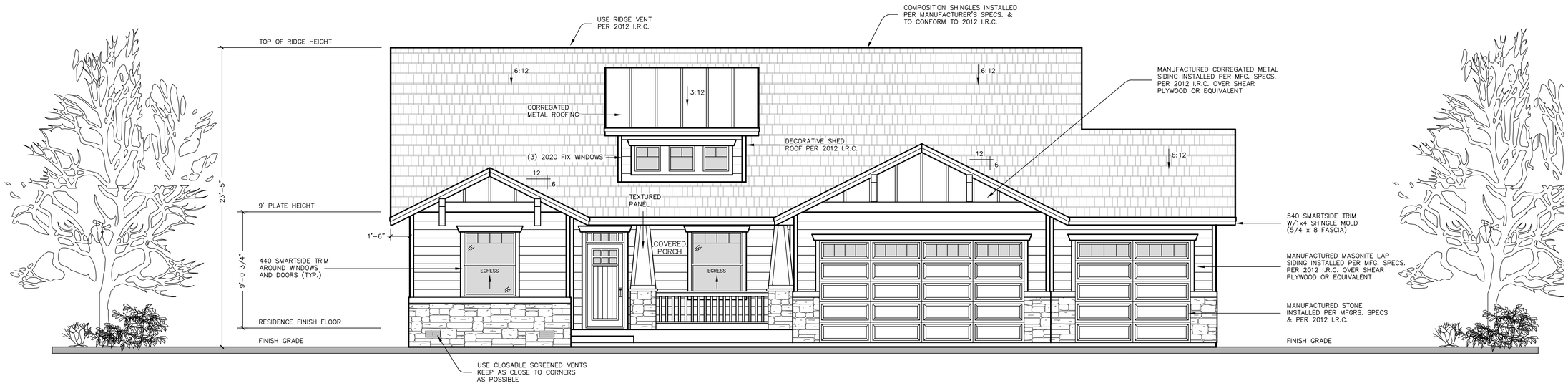
Canyon Vista directly complies with the intent of the SF1A zone in that it provides an overall density of 0.92 dwelling units per acre. The requested deviations are all less than 10%. As such, there is no fundamental impact and the proposed reductions will not be noticeable. It is also very important to consider that a similar variance was granted to the adjoining property owner. As such, Canyon Vista is providing consistency with adjoining properties and is not requesting any special privileges that have not already been extended to adjoining property owners.

2. Granting of the variance is necessary to do justice to the applicant or owner of the property without extending any special privilege to them.

As noted previously, this request does not constitute a special privilege as it has been granted to the adjoining subdivision as well. Even with the variance, Canyon Vista provides consistency with the intent of the SF1A district in terms of density and retaining the rural character of the area. The resulting project will not generate any additional impacts as a result of the granting of the variance. In fact, it is likely that the reduced lot sizes and cul-de-sac frontages will not even be noticeable, even by a trained observer.

3. Granting of the variance request may or may not result in any actual damage to nearby properties or prejudice by your neighbors in a precedent-setting situation. State why the variance will not be harmful to public health, safety and general welfare.

Granting of the variance will not alter the rural character of the area and will still provide for lot sizes and densities consist with adjoining subdivisions. The variance will not create a precedent-setting situation. In fact, a precedent has already been set by granting a similar variance request to the adjoining subdivision to the east. The requested variance will not create additional project impacts or even be noticeable within the surrounding area.



FRONT ELEVATION

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

ALL CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE 2012 EDITION INTERNATIONAL RESIDENTIAL CODE AND ALL STATE AND LOCAL CODES AND ORDINANCES. ALL WORKMANSHIP AND MATERIALS SHALL MEET F.H.A. STANDARDS. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD PRACTICES OF THEIR PERSPECTIVE TRADE. ALL INFORMATION CONTAINED IN THESE PLANS TO BE CONFIRMED BY THE OWNER OR CONTRACTOR BEFORE ANY WORK IS TO BEGIN.

ATTIC VENTILATION:

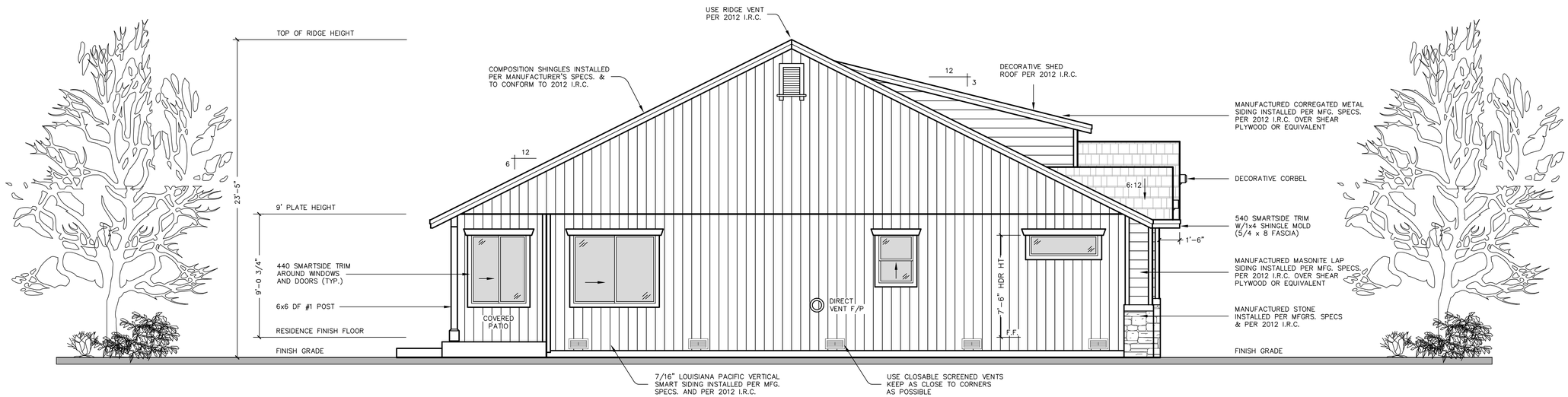
ATTIC VENTILATION PER 2012 I.R.C.
USE GABLE END VENTS, ROOF JACKS,
EAVE VENTS AND RIDGE VENT

UNDERFLOOR VENTILATION:

UNDERFLOOR VENTILATION PER 2012 I.R.C.
USE CLOSABLE VENTS / CROSS VENTILATE

DRAINAGE:

PROVIDE DRAINAGE AWAY FROM BUILDING
AT A MINIMUM OF 5% SLOPE FOR 10'



RIGHT ELEVATION

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

REVISIONS

BENNETT CONSTRUCTION
Custom Homes • Commercial • Remodels
995 FARRIER COURT
GARDNERVILLE, NV 89410
PHONE: (775) 265-7488
NV LICENSE NUMBER 0046922

ELEVATIONS

PROJECT FOR:
PLAN 1832
1282 SORENSEN LANE
GARDNERVILLE, NV 89460
A.P.N. 1220-16-101-021

CONTRACTOR "PROJECT DESIGNER"
THESE PLANS ARE PREPARED BY A CONTRACTOR AS AN EXEMPTION TO NRS 623.330 FOR WORK UNDER THE CONTRACTOR'S LICENSE CATAGORY AUTHORIZED UNDER NRS 624
I AM RESPONSIBLE FOR THE DESIGN, DEPICTION, AND INFORMATION CONTAINED ON THESE PLANS.

QUALIFIED INDIVIDUAL'S SIGNATURE — DATE

SHEET: 2 OF 9 SHEETS

DATE:	9/8/14
JOB NO.	
DWG:	ELEV1.DWG
SCALE:	1/4" = 1'-0"

REAR ELEVATION

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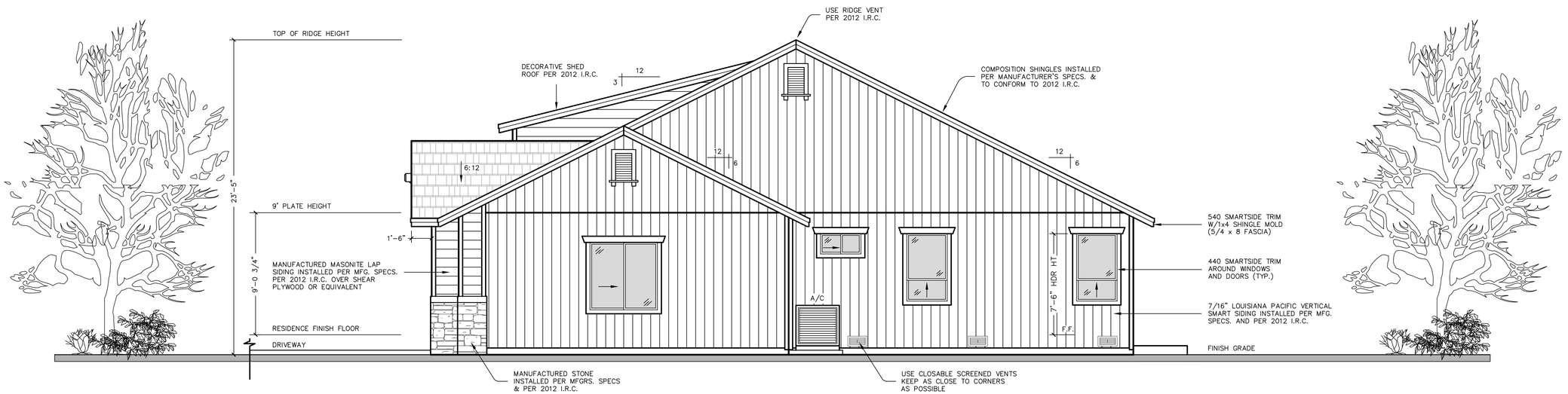

RIGHT ELEVATION

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REVISIONS

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QUALIFIED INDIVIDUAL'S SIGNATURE — DATE

SHEET: 3 OF 9 SHEETS

DATE: 9/8/14
JOB NO.
DWG: ELEV2.DWG
SCALE: 1/4" = 1'-0"

REAR ELEVATION

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

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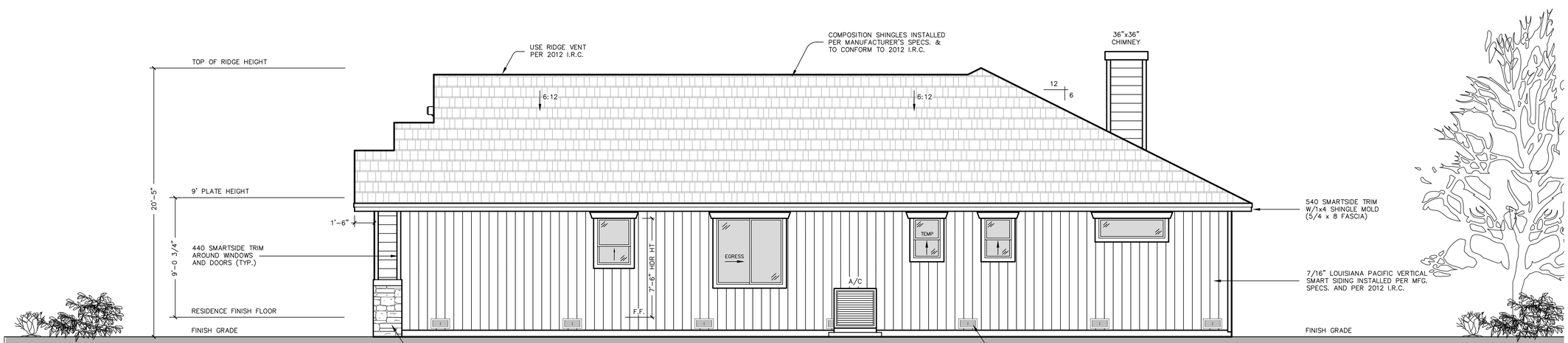

RIGHT ELEVATION

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GARDNERVILLE, NV 89410
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NV LICENSE NUMBER 0046922

ELEVATIONS

PROJECT FOR:
PLAN 2125
1270 SORENSEN LANE
GARDNERVILLE, NV 89460
A.P.N. 1220-16-101-025

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THESE PLANS ARE PREPARED FOR THE CONTRACTOR AS AN EXEMPTION TO NRS 623.330 FOR WORK UNDER THE CONTRACTOR'S LICENSE CATAGORY AUTHORIZED UNDER NRS 624 I AM RESPONSIBLE FOR THE DESIGN, INSTALLATION, AND INFORMATION CONTAINED ON THESE PLANS.

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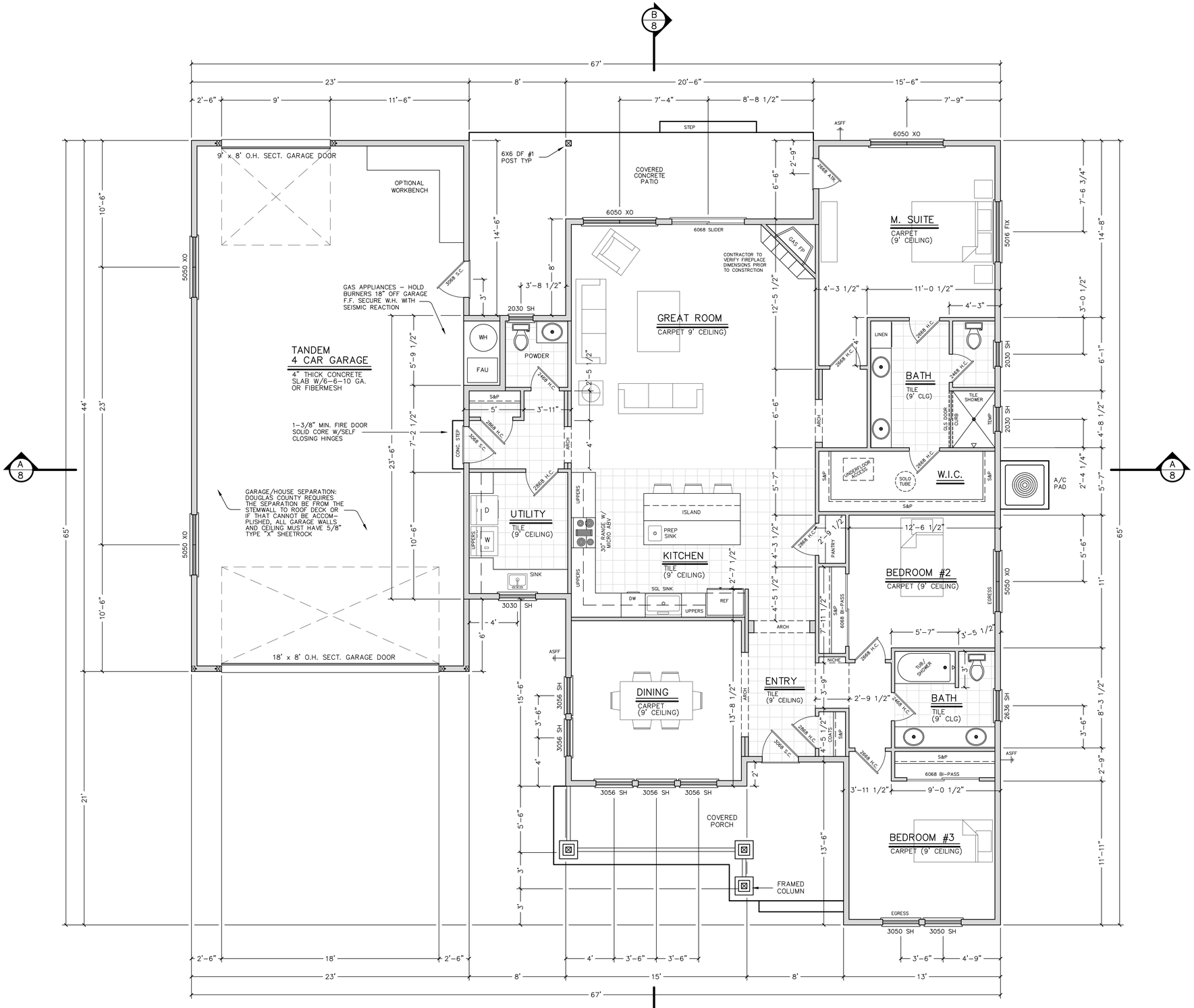

GENERAL NOTES:

SAFTEY GLAZING MUST BE USED IN ALL HAZARDOUS AREAS PER 2012 I.R.C.

ALL WORK & MATERIALS SHALL CONFORM TO ALL PERTINENT REQUIREMENTS OF THE 2012 I.R.C., AND ALL LOCAL GOVERNING CODES, REGULATIONS AND ORDINANCES

ALL LUMBER SHALL BE STD. NO. 2 GRADE OR BETTER UNLESS OTHER WISE NOTED

PROVIDE AT LEAST 1 EMERGENCY EGRESS WINDOW IN ROOMS USED FOR SLEEPING WHICH MEET THE FOLLOWING DIMENSIONS:
MIN. 5.7 SQ. FT. OF TOTAL AREA
MIN. CLEAR OPENING HEIGHT OF 24"
MIN. CLEAR OPENING WIDTH OF 20"
MAXIMUM 44" FROM FINISH FLOOR TO CLEAR OPENING

LANDINGS AT DOORS PER R311.4.3 AND LANDING AT STAIRWAYS PER R311.5.4 LANDING AT THE REQUIRED EXIT DOOR LANDING SHALL NOT BE MORE THAN 1-1/2 INCHES LOWER THAN THE TOP OF THE THRESHOLD. MINIMUM LENGTH FOR ALL LANDING IS 36" IN THE DIRECTION OF TRAVEL

PROVIDE MECHANICAL VENTILATION CAPABLE OF PROVIDING (2) AIR CHANGES PER HOUR IN HABITABLE ROOMS (15 CFM MIN.) AND (5) AIR CHANGES PER HOUR IN BATHROOMS, WATER CLOSET COMPARTMENTS, LAUNDRY ROOMS, ETC, IF REQUIRED OPENABLE AREA IS NOT NOT PROVIDED.

MEASURMENTS ARE TO STUD FACE UNLESS OTHERWISE NOTED

PROVIDE COMBUSTION AIR FOR FUEL BURNING APPLIANCES PER LISTING AND MFG. INSTRUCTIONS AND PER 2012 I.R.C. PROVIDE PROPER VENTING PER 2012 I.R.C.

MEDICINE CABINETS:;
14-1/2"x24" - PLACE 48" AND 72" FROM F.F. - 3" FROM WALL

JOINTS & PENETRATIONS SHALL BE CAULKED & SEALED - PROVIDE WEATHER STRIPPING AROUND DOORS AND WINDOWS

STAIRS AND HANDRAILS PER R311.5
MAXIMUM STAIR RISE IS 7 3/4 INCHES
MINIMUM RUN IS 10 INCHES

ALL SOLDERS & FLUXES SHALL BE MANUFACURED TO APPROVED STANDARDS. SOLDERS & FLUXES WITH A LEAD CONTENT WHICH EXCEEDS TWO-TENTHS (0.20) OF ONE PERCENT (1%) ARE PROHIBITED IN PIPING SYSTEMS USED TO CONVEY POTABLE WATER

INSTALLATION OF CHIMNEYS AND FIREPLACES SHALL COMPLY WITH 2012 I.R.C. AND THE MANUFACTURERS SPECIFICATIONS.

LAWN SPRINKLERS AND IRRIGATION SYSTEMS SHALL INCLUDE AN APPROVED VACUUM PREVENTER PER 2012 I.R.C.

GAS PIPE SIZING PER 2012 I.R.C. CHAPTER 12 AND CONFORMANCE WITH LOCAL FUEL GAS SUPPLIER.

SHOWERS AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH INDIVIDUAL CONTROL VALVES OF THE PRESSURE BALANCE OR THERMOSTATIC MIXING VALVE TYPE PER 2012 I.R.C.

LOW FLOW PLUMBING FIXTURES PER DOUGLAS COUNTY TITLE 20.

MAXIMUM STATIC PRESSURE SHALL BE 80 PSI. WHEN MAIN PRESSURE EXCEEDS 65 PSI AN APPROVED PRESSURE REDUCING VALVE CONFORMING TO ASSE 1003 PRECEDED BY AN ADEQUATE STRAINER SHALL BE INSTALLED AND THE STATIC PRESSURE REDUCED TO 61 PSI OR LESS. WHERE PRESSURE REGULATORS ARE REQUIRED, THE PRESSURE REGULATOR SHALL BE INSTALLED BETWEEN THE SOURCE OF WATER AND AFTER THE METER AND BACK-FLOW PREVENTION DEVICE (IF INSTALLED AT THE METER) AND BEFORE ALL EXTERIOR AND INTERIOR FIXTURES AND OUTLETS.

PROVIDE LIGHT AND VENTILATION PER 2012 I.R.C.

ALL PIPING SERVING PART OF A HOT WATER SYSTEM INSTALLED IN UNCONDITIONED AREAS SHALL BE PROTECTED WITH MINIMUM R-2 INSULATION. INSULATION SHALL BE INSTALLED CONTINUOUSLY FROM WITHIN 2 FEET OF THE WATER HEATER TO WITHIN 2 FEET OF THE FIXTURE OR OUTLET. OMISSION OF INSULATION PASSING THROUGH A RESTRICTED OPENING IN FRAMING MEMBERS IS ALLOWED PER DOUGLAS COUNTY TITLE 20

BUILDING WATER PRESSURE REGULATORS, PTR VALVES AND EXPANSION TANKS SHALL CONFORM TO 2012 I.R.C.

MAIN FLOOR PLAN

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

RESIDENCE SQ. FT.	-	2,125
GARAGE SQ. FT.	-	1,001
COVERED PORCH	-	200
COVERED PATIO	-	268
TOTAL SQ. FT.	-	3,594

REVISIONS

BENNETT CONSTRUCTION
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995 FARRIER COURT
GARDNERVILLE, NV 89410
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MAIN FLOOR PLAN

PROJECT FOR:
PLAN 2125
1270 SORENSEN LANE
GARDNERVILLE, NV 89460
A.P.N. 1220-16-101-025

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I AM RESPONSIBLE FOR CONSTRUCTION METHODS, SAFETY PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK AND FOR ALL INFORMATION CONTAINED ON THESE PLANS.

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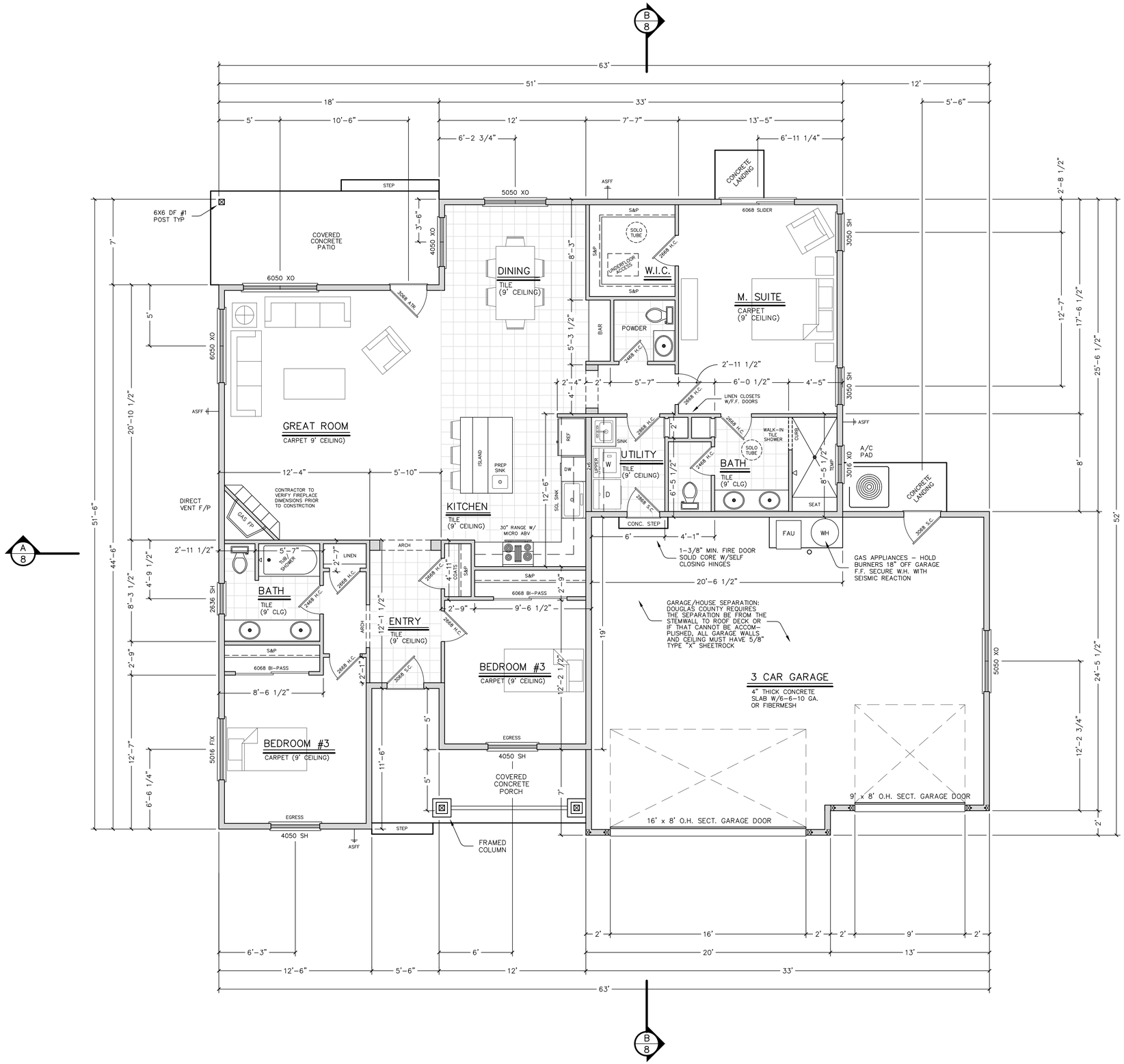

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MAIN FLOOR PLAN

SCALE: 1/4" = 1'–0"

RESIDENCE SQ. FT.	–	1,832
GARAGE SQ. FT.	–	829
COVERED PORCH	–	133
COVERED PATIO	–	143
TOTAL SQ. FT.	–	2,937

REVISIONS

BENNETT CONSTRUCTION
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Carson City Planning Division
108 E. Proctor Street· Carson City NV 89701
Phone: (775) 887-2180 • E-mail: planning@carson.org

FOR OFFICE USE ONLY:

FILE # TSM – 15 -

TENTATIVE MAP FOR A SUBDIVISION

APPLICANT Divinni NV, LLC
PHONE # 775-691-1777

MAILING ADDRESS, CITY, STATE, ZIP 1320 Hwy 395 N. Gardnerville, NV 89410

ENGINEER Lumos & Assoc. (Tim Russell
PHONE # 883-7077

MAILING ADDRESS, CITY, STATE, ZIP 800 E. College Parkway, Carson City, NV 89706

EMAIL ADDRESS trussell@lumosengineering.com

PROPERTY ADDRESS, CITY, STATE, ZIP Hillview/Clearview Drive, Carson City, NV 89701

PRESENT ZONING SRF1A
APN(S) 01019407 & 01019408

STATE FEES: See checklist. Submit the two state checks at the time of initial application submittal.

FEE: $3,500.00+ noticing fee + CD containing all application data (to be submitted when application is deemed complete by staff)

SUBMITTAL PACKET
See checklist (fill out checklist and return to staff with the application packet)

Application Reviewed and Received By:

REQUEST: In accordance with the provisions of Title 17 of the Carson City Municipal Code, application is hereby made for a Planned Unit Development on property situated at:

The required modifications to Carson City's Land Use Regulations are as follows:

ACKNOWLEDGMENT OF APPLICANT: (a) I certify that the foregoing statement are true and correct to the best of my knowledge and belief; (b) I agree to fulfill all conditions established by the Board of Supervisors.

Applicant's Signature

3-30-15
Date

PROPERTY OWNER'S AFFIDAVIT

I, MJ Meek Limited Partnership, being duly deposed, do hereby affirm that I am the record owner of the subject property, and that I have knowledge of, and I agree to, the filing of this application.

Signature

747 Mayac Path Water Mill, NY 11976
Address

4/2/15
Date

Use additional page(s) if necessary for other names.

STATE OF NEVADA ~~NEVADA~~ Newport)
COUNTY Newport)

On April 2nd, 2015, personally appeared before me, a notary public, Chris Reuben personally known (or proved) to me to be the person whose name is subscribed to the foregoing document and who acknowledged to me that he/she executed the foregoing document.

Notary Public

CHRIS L. REUBEN
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01RE6270068
Qualified in Nassau County
Commission Expires [illegible]

NOTE: In order to avoid unnecessary time delays in processing your development project, it is important that it be as complete as possible when submitted. A checklist is available to assist you and your engineer. If you have further questions regarding your application, please call the Planning Division at 775-887-2180.

Emailed 4/1/15

Carson City Planning Division
108 E. Proctor Street· Carson City NV 89701
Phone: (775) 887-2180 • E-mail: planning@carson.org

FILE # TSM – 15 -

APPLICANT	PHONE #
Divinni NV, LLC	775-691-1777

MAILING ADDRESS, CITY, STATE, ZIP
1320 Hwy 395 N. Gardnerville, NV 89410

ENGINEER	PHONE #
Lumos & Assoc. (Tim Russell	883-7077

MAILING ADDRESS, CITY, STATE, ZIP
800 E. College Parkway, Carson City, NV 89706

EMAIL ADDRESS
trussell@lumosengineering.com

PROPERTY ADDRESS, CITY, STATE, ZIP
Hillview/Clearview Drive, Carson City, NV 89701

PRESENT ZONING	APN(S)
SRF1A	01019407 & 01019408

FOR OFFICE USE ONLY:

TENTATIVE MAP FOR A SUBDIVISION

STATE FEES: See checklist. Submit the two state checks at the time of initial application submittal.

FEE: $3,500.00+ noticing fee + CD containing all application data (to be submitted when application is deemed complete by staff)

SUBMITTAL PACKET
See checklist (fill out checklist and return to staff with the application packet)

Application Reviewed and Received By:

_____

REQUEST: In accordance with the provisions of Title 17 of the Carson City Municipal Code, application is hereby made for a Planned Unit Development on property situated at:

The required modifications to Carson City's Land Use Regulations are as follows:

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_____ 3-30-15
Applicant's Signature Date

PROPERTY OWNER'S AFFIDAVIT

I, _____, being duly deposed, do hereby affirm that I am the record owner of the subject property, and that I have knowledge of, and I agree to, the filing of this application.

_____, President, Enterprise Realty P.O. Box 255749, Sacramento, CA 4/1/15
Signature Address Date

Use additional page(s) if necessary for other names.

STATE OF NEVADA)
COUNTY)

See attached for proper notarial wording

On _____, 2____, personally appeared before me, a notary public, _____, personally known (or proved) to me to be the person whose name is subscribed to the foregoing document and who acknowledged to me that he/she executed the foregoing document.

_____
Notary Public

NOTE: In order to avoid unnecessary time delays in processing your develop project, it is important that it be as complete as possible when submitted. A checklist is available to assist you and your engineer. If you have further questions regarding your application, please call the Planning Division at 775-887-2180.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Sacramento)

On April 1, 2015 (*Date*) before me, Jill C. Reynolds, Notary Public (*Here Insert Name and Title of the Officer*),

personally appeared William C. Meek (*Name(s) of Signer(s)*),

who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Jill C. Reynolds (*Signature of Notary Public*)

JILL C. REYNOLDS
COMM. # 2011041
NOTARY PUBLIC • CALIFORNIA
SACRAMENTO COUNTY
Comm. Exp. MARCH 10, 2017

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: Property Owner's Affidavit Document Date: 3/30/15
Number of Pages: 1 Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: William C. Meek	Signer's Name: _____
☒ Corporate Officer — Title(s): President	☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator	☐ Trustee ☐ Guardian or Conservator
☐ Other: _____	☐ Other: _____
Signer Is Representing: Enterprise Realty	Signer Is Representing: _____

CANYON VISTA

TENTATIVE SUBDIVISION MAP

Prepared by:

RUBICON DESIGN GROUP

LUMOS & ASSOCIATES

APRIL 16, 2015

Job # 191-07

Canyon Vista

Tentative Subdivision Map Application

Prepared for:

Divinni NV, LLC

1320 Highway 395 North

Gardnerville, Nevada 89410

Prepared by:

Rubicon Design Group, LLC

100 California Avenue, Suite 202

Reno, Nevada 89509

(775) 425-4800

With:

Lumos & Associates, Inc.

800 E. College Parkway

Carson City, Nevada 89706

(775) 883-7077

April 16, 2015

Table of Contents

Introduction 1
Project Location 1
Existing Conditions 2
Request Summary 5
Project Impacts 8
Master Plan Policy Checklist 8
Tentative Map Findings 14
Nevada Revised Statutes 16

List of Figures:

Figure 1 – Vicinity Map 1
Figure 2 – Zoning Map 2
Figure 3 – Existing Conditions 3
Figure 4 – Existing Conditions 4
Figure 5 – Preliminary Site Plan 5
Figure 6 – Preliminary Elevations 7

Attachments:

Carson City Application Forms and Affidavit
Preliminary Engineering Plans
Preliminary Engineering Reports
Preliminary Geotechnical Investigation
Traffic Impact Analysis
Proposed Conditions, Covenants, and Restrictions (CC&R's)
Tax Certificate

CANYON VISTA TENTATIVE SUBDIVISION MAP

Introduction

This application includes the following request:

- A **Tentative Subdivision Map** to allow for the creation of 18 single family lots within the SF1A zone.

Project Location

Canyon Vista is located at the southeast corner of Clearview Drive and Hillview Drive in south Carson City. The project includes two existing vacant parcels (APN 01019407 and 01019408) totaling 19.54± acres. Primary access to the project is from Hillview Drive. Surrounding land use includes single family residential to the north and west. The Edmonds Sports Complex lies to the south with vacant parcels and one single family home to the east. Figure 1 (below) depicts the project location and surrounding conditions.

Figure 1 – Vicinity Map

Existing Conditions

The Canyon Vista site is currently zoned SF1A and is bordered by SF1A zoning to the north, west, and east. Property to the south is zoned PR, reflective of a reserved school site and the Edmonds Sports Complex. Figure 2 (below) depicts the existing zoning for the project site and surrounding area.

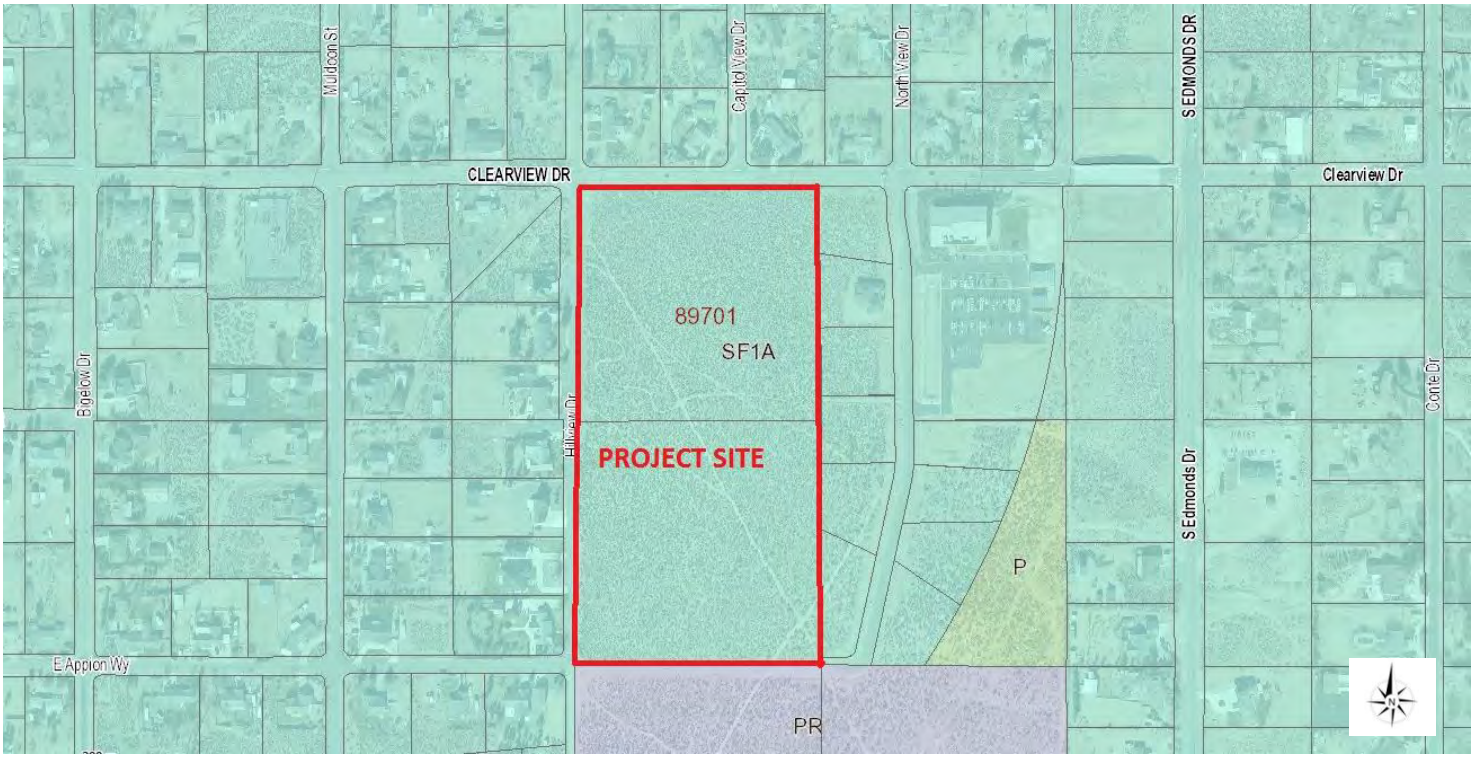
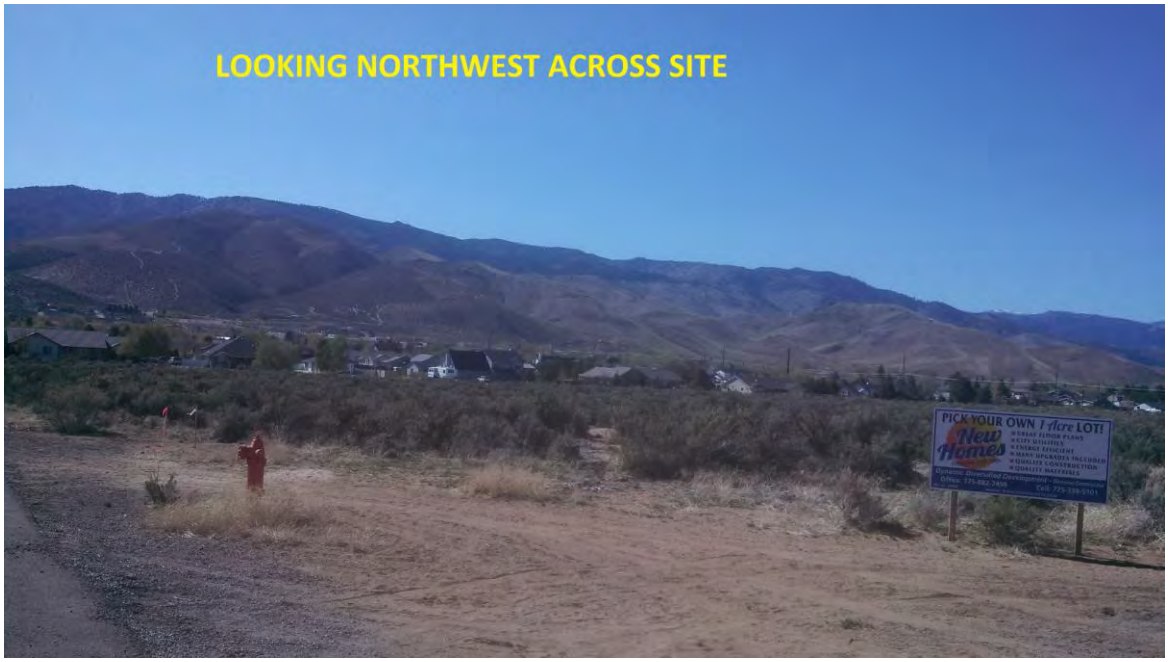


Figure 2 – Zoning

As noted previously, the Canyon Vista site is currently vacant. Site topography is generally flat and slopes slightly to the northwest. The surrounding area includes existing single family homes that are complementary to those proposed within Canyon Vista (as described in the following sections). Figures 3 (below) and 4 (following page) depict the existing site conditions.



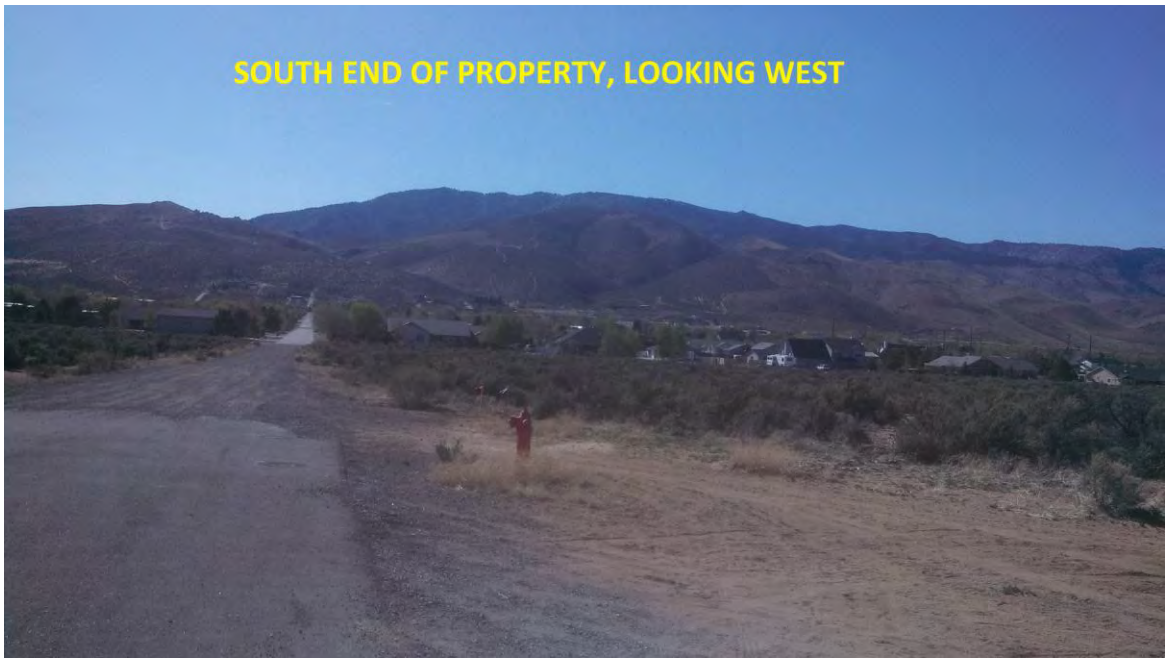


Figure 3 – Existing Conditions

Figure 4 – Existing Conditions

Request Summary

This application includes a tentative subdivision map request to allow for the creation of 18 single family lots within two existing parcels totaling 19.54± acres. Thus, the overall project density proposed with this request is 0.92 dwelling units per acre, consistent with the existing SF1A zoning that is reflective of one-acre minimum lot sizes.

Primary access to the new lots will occur from Hillview Drive via two new cul-de-sacs. Each cul-de-sac will serve 9 parcels. The proposed access will not create circulation impacts to existing streets and will result in efficient and safe vehicular access to the new homes within Canyon Vista.

Figure 5 (below) depicts the Canyon Vista preliminary site plan.

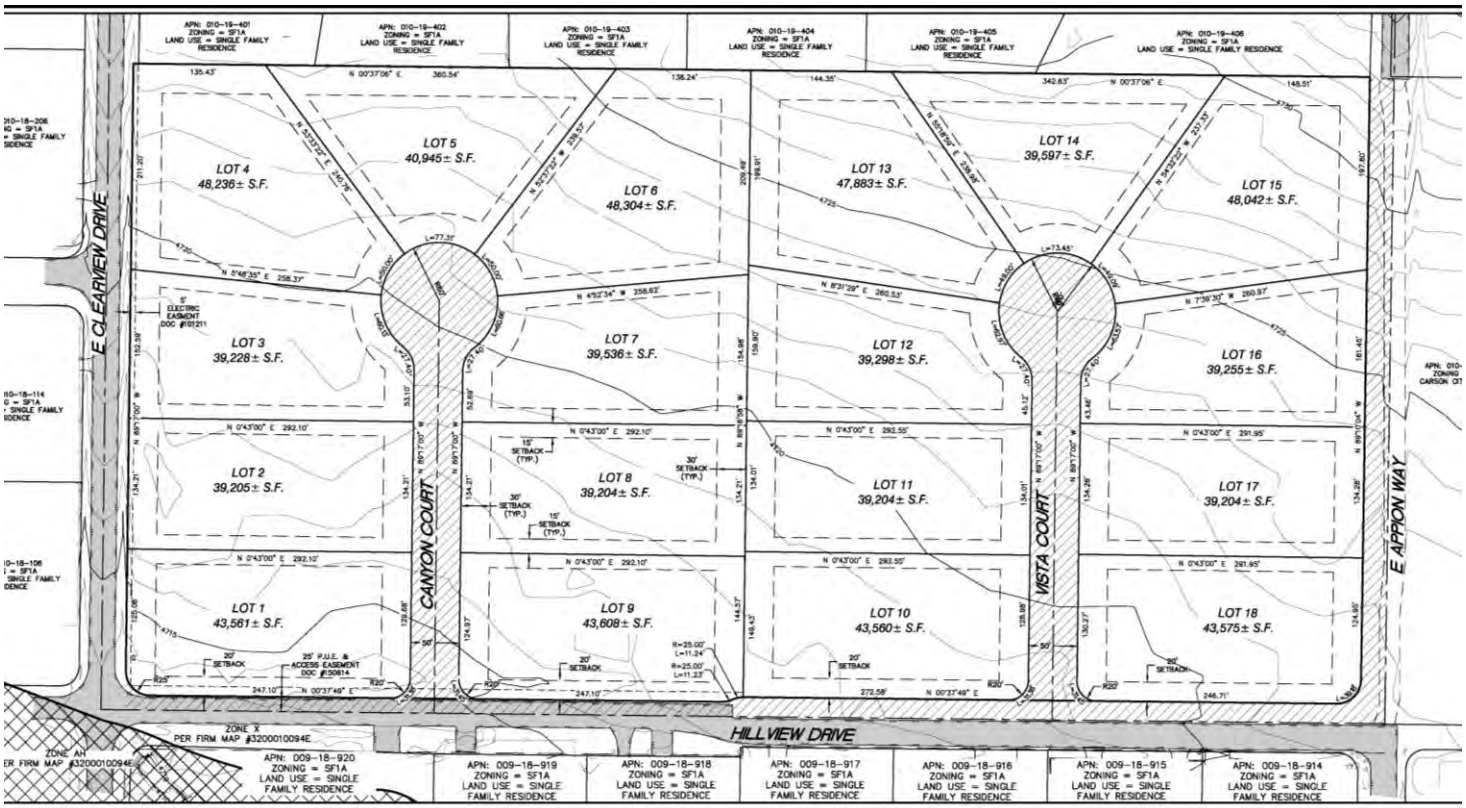


Figure 5 – Preliminary Site Plan

Consistent with the SF1A zoning, Low Density Residential (LDR) Master Plan designation, and the surrounding built environment, no sidewalks or curb & gutter is proposed within the project. Roadside ditches will be utilized to convey storm water to existing built facilities. This is consistent with the character statement included in the LDR definitions as well as the overall rural character of the neighborhood. Details on the street sections, drainage, etc. are included in the attached engineering plans and reports.

Table 1 (below) provides an overall summary of Canyon Vista.

Table 1 – Development Summary

Development Standard	Proposed with Village 37 C
Total Project Area	**19.54± acres**
Total Lot Area	**17.48± acres**
Right-of-Way Area	**2.06± acres**
Project Density	**0.92 dwelling units per acre**
Minimum Lot Size	**39,204± square feet**
Maximum Lot Size	**48,304± square feet**
Average Lot Size	**42,303± square feet**

The SF1A zoning district requires a minimum lot area of one acre (43,560 square feet). As Figure 5 and Table 1 illustrate, Canyon Vista proposes 10 lots that are less than the required 43,560 square foot minimum. As such, a request for a Minor Variance to reduce lot size and required lot widths has been submitted under a separate cover for Canyon Vista. The Minor Variance allows for deviations within 10% of code requirements. Such variances are not uncommon. In fact, the adjoining subdivision to the east is located within the SF1A zoning district as well and was granted a Minor Variance from Carson City to reduce the lot sizes below one acre.

It is also important to note that Canyon Vista is in full compliance with the SF1A density requirements at 0.92 dwelling units per acre. Furthermore, the project developer has agreed to limit the number of allowed animal units per lot to 2, compared to the 6 that would typically be permitted by code. This will be enforced through the adopted CC&R's of which a draft is included as an attachment to this report.

Granting of the Minor Variance will not result in a material change to the neighborhood. The overall density complements the adjoining developments. Additionally, with proposed floor plans ranging from 1,830± square feet to 2,125± square feet, lots within Canyon Vista will retain large yards and open areas, consistent with the rural character of the area.

Home plans developed for Canyon Vista include single-story floor plans ranging in size from 1,830± square feet to 2,125± square feet. Architecture is traditional in character and incorporates the use of varying materials within each façade in order to create visual interest and add a rich flavor to the elevations. The single level floor plans will complement existing homes to the west that are also single-story. Figure 6 (following page) depicts the preliminary elevations developed for Canyon Vista.

Figure 6 – Preliminary Elevations

Project Impacts

With only 18 lots, impacts created by Canyon Vista will be minimal. The project is directly compatible with surrounding residential uses in terms of lot sizes, architectural styles, density, and character. Additionally, Canyon Vista is located in an area that includes established infrastructure to serve the units proposed. All necessary utilities for the project can easily be extended (at the developer's expense) to ensure that all necessary services are provided.

Although the surrounding area is rural in character, Canyon Vista will serve as an infill project. The project site is essentially an "island" of undeveloped land within the neighborhood as it is bordered to the north, east, and west by existing subdivisions. Property to the south is part of a reserved school site and the Edmonds Sports Complex (a dedicated public park facility). As an infill development, municipal services are already in place to serve the project including parks, schools, police patrols, and fire service. With only 18 homes, impacts will be minimal. Canyon Vista represents proper planning and will not result in urban sprawl as discouraged by Carson City.

As part of this tentative subdivision map process, a detailed traffic impact analysis was completed by Traffic Works. It is estimated that the project will generate 172 daily trips with 14 am peak hour trips (4 inbound and 10 outbound) and 18 pm peak hour trips (11 inbound and 7 outbound). The Traffic Works report indicates that Canyon Vista will not alter existing levels of service of adjoining/regional roadways and that *"the project's impact on traffic operations at the study intersection is considered negligible as the project generated traffic adds less than 1 second/vehicle delay compared to existing conditions."* A copy of the Traffic Works report is included as an attachment to this report.

Overall, Canyon Vista will blend with the built environment and serve to complete development of the neighborhood. The requested Minor Variance is consistent with adjoining parcels. In fact, the small reduction in lot size will not be noticeable in the built environment. The project will be consistent with surrounding properties in character, lighting, home sizes, etc. As such, overall impacts to the area will be positive.

Master Plan Policy Checklist

Consistent with Carson City tentative Subdivision Map application requirements, this section is taken directly from Carson City documents and forms part of the ***Tentative Map*** application process. Responses to the checklist questions are included in this section and are printed in **bold** type.

PURPOSE

The purpose of a development checklist is to provide a list of questions that address whether a development proposal is in conformance with the goals and objectives of the 2006 Carson City Master Plan that are related to Master Plan Map Amendments and Zoning Map Amendments. This checklist is designed for developers, staff, and decision-makers and is intended to be used as a guide only.

Development Name: Canyon Vista Tentative Map
Reviewed By:
Date of Review:

DEVELOPMENT CHECKLIST

The following five themes are those themes that appear in the Carson City Master Plan and which reflect the community's vision at a broad policy level. Each theme looks at how a proposed Master Plan or Zoning Map Amendment can help achieve the goals of the Carson City Master Plan. A check mark indicates that the proposed amendment meets the applicable Master Plan policy. The Policy Number is indicated at the end of each policy statement summary. Refer to the Comprehensive Master Plan for complete policy language.

CHAPTER 3: A BALANCED LAND USE PATTERN

The Carson City Master Plan seeks to establish a balance of land uses within the community by providing employment opportunities, a diverse choice of housing, recreational opportunities, and retail services.

Is or does the proposed amendment:

✔ Consistent with the Master Plan Land Use Map in location and density?

Canyon Vista is consistent with the Master Plan Land Use map in that it utilizes the existing master plan designation and zoning. No changes to the map are required with this project.

✔ Meet the provisions of the Growth Management Ordinance (1.1d, Municipal Code 18.12)?

This project meets the provisions of the Growth Management Ordinance by locating housing in a residentially zoned area that is adjacent to existing roadways and services, including nearby Interstate 580 and the Edmonds Sports Complex.

The project will obtain the necessary building permits at the appropriate time, per the process described in Municipal Code Section 18.12. Due to slow development over recent years, there remains a backlog of residential allocations available for this project. The modest size of the project ensures the existing supply of allocations will not be depleted.

✔ Encourage the use of sustainable building materials and construction techniques to promote water and energy conservation (1.1e and f)?

The project will utilize current building materials and practices, including windows, insulation, and electrical devices that meet energy efficiency requirements. Landscaping will include current practices to reduce water usage and waste.

Located in a priority infill development area (1.2a)?

The site is not in a priority area. However, this is an infill project that is adding residential development on a site that is currently vacant but zoned for residential use and is adjacent to existing houses and a park.

✔ Provide pathway connections and easements consistent with the adopted Unified Pathways Master Plan and maintain access to adjacent public lands (1.4a)?

The project would benefit from walkable connections to the Sports Complex to the south. These connections are currently provided by the existing street network and the project will seek to maintain or enhance these connections. Pathway design may be impacted by work relating to the extension of Interstate 580 and so final pathway design will be dependent on actions by NDOT.

Encourage cluster development techniques, particularly at the urban interface with surrounding public lands, as appropriate, and protect distinctive site features (1.4b and c, 3.2a)?

This project makes use of the existing zoning and follows the general design and character of existing development in the area.

At adjacent county boundaries, coordinated with adjacent existing or planned development with regards to compatibility, access, and amenities (1.5a)?

The site is not located along a county boundary.

✔ Located to be adequately served by City services including fire and sheriff services, and coordinated with the School District to ensure the adequate provision of schools (1.5d)?

The site is surrounded by existing development and is within existing service boundaries. City and area services are already occurring within the overall area and can be provided to this site as well. The project is modestly sized and will not have a noticeable impact on area services.

In identified Mixed-Use areas, promote mixed-use development patterns as appropriate for the surrounding context consistent with the land use descriptions of the applicable Mixed-Use designation, and meet the intent of the Mixed-Use Evaluation Criteria (2.1b, 2.2b, 2.3b, Land Use Districts, Appendix C)?

The site is not within an identified mixed-use area.

✔ Provide a variety of housing models and densities within the urbanized area appropriate to the development size, location and surrounding neighborhood context (2.2a, 9.1a)?

The project will provide additional housing choices for the area and serves to complete the neighborhood. The proposed houses will be compatible with the surrounding development and are consistent with the character of the existing area.

✔ Protect environmentally sensitive areas through proper setbacks, dedication, or other mechanisms (3.1b)?

The area is not environmentally sensitive, as shown by the existing road network and development in the area. However, the project will adhere to required setbacks and building design standards.

If at the urban interface, provide multiple access points, maintain defensible space (for fires) and are constructed of fire resistant materials 3.3b)?

The site is not within an urban/wildlife interface area.

✔ Site outside the primary floodplain and away from geologic hazard areas or follow the required setbacks or other mitigation measures (3.3d, e)?

The site is outside the floodplain and there are no known geologic hazards. A geotechnical investigation report is included as an attachment to this report.

✔ Provide for levels of services (i.e. water, sewer, road improvements, sidewalks, etc) consistent with the Land Use designation and adequate for the proposed development (Land Use table descriptions)?

The proposed use is consistent with the LDR land use designation and services commensurate with the surrounding area will be provided at the site. According to the Land Use Table, an urban-type street design is not encouraged in this area and the project will adhere to this standard.

If located within an identified Specific Plan Area (SPA), meet the applicable policies of that SPA (Land Use Map, Chapter 8)?

The site is not within a Specific Plan Area.

CHAPTER 4: EQUITABLE DISTRIBUTION OF RECREATIONAL OPPORTUNITIES

The Carson City Master Plan seeks to continue providing a diverse range of park and recreational opportunities to include facilities and programming for all ages and varying interests to serve both existing and future neighborhoods.

Is or does the proposed amendment:

☐ Provide park facilities commensurate with the demand created and consistent with the City's adopted standards (4.1b)?

The project site is very small relative to the area as a whole and only 18 units are being proposed. Therefore, impacts to recreational facilities will be insignificant. The site is adjacent to an existing park and as such is well served for recreational needs.

✔ ☐ Consistent with the Open Space Master Plan and Carson River Master Plan (4.3a)?

This project advances the goals of the Open Space Master Plan through its use of an infill site. It therefore avoids extending development onto open space or wildland areas.

CHAPTER 5: ECONOMIC VITALITY

The Carson City Master Plan seeks to maintain its strong diversified economic base by promoting principles which focus on retaining and enhancing the strong employment base, include a broader range of retail services in targeted areas, and include the roles of technology, tourism, recreational amenities, and other economic strengths vital to a successful community.

Is or does the proposed amendment:

☐ Incorporating public facilities and amenities that will improve residents' quality of life (5.5e)?

The project is too small to include new public amenities. However, by utilizing an infill site that is already surrounded by development, it avoids any requirements for extending city infrastructure to new areas and therefore controls public expenditures.

☐ Promote revitalization of the Downtown core (5.6a)?

Not applicable.

☐ Incorporate additional housing in and around the Downtown, including lofts, condominiums, duplexes, live-work units (5.6c)?

The project will not have a direct impact on downtown housing.

CHAPTER 6: LIVABLE NEIGHBORHOODS AND ACTIVITY CENTERS

The Carson City Master Plan seeks to promote safe, attractive and diverse neighborhoods, compact mixed-use activity centers, and a vibrant, pedestrian-friendly Downtown.

Is or does the proposed amendment:

✔ Provide variety and visual interest through the incorporation of varied lot sizes, building styles and colors, garage orientation and other features (6.1b)?

The project does include varied building elevations and setbacks in an effort to create an appealing neighborhood and streetscape. As shown in the elevation images, the proposed buildings provide architectural variety as well as a mix of colors and materials.

Provide variety and visual interest through the incorporation of well-articulated building facades, clearly identified entrances and pedestrian connections, landscaping and other features consistent with the Development Standards (6.1c)?

The elevation views included with this application show articulated building designs, variety, and visual interest. Pedestrian pathways and entrances will be obvious and well marked. Landscaping will be consistent with other 1-acre residential developments in the area.

✔ Provide appropriate height, density and setback transitions and connectivity to surrounding development to ensure compatibility with surrounding development for infill projects or adjacent to existing rural neighborhoods (6.2a, 9.3b 9.4a)?

The project will be complementary to surrounding development in terms of height, setbacks, and use and will therefore be directly compatible. Please refer to the site photos and elevation exhibits for additional detail.

If located in an identified Mixed-Use Activity Center area, contain the appropriate mix, size and density of land uses consistent with the Mixed-Use district policies (7.1a, b)?

The project is not in a mixed-use activity center.

If located Downtown:

o Integrate an appropriate mix and density of uses (8.1a, e)?

o Include buildings at the appropriate scale for the applicable Downtown Character Area (8.1b)?

o Incorporate appropriate public spaces, plazas and other amenities (8.1d)?

The project is not located downtown.

CHAPTER 7: A CONNECTED CITY

The Carson City Master Plan seeks promote a sense of community by linking its many neighborhoods, employment areas, activity centers, parks, recreational amenities and schools with an extensive system of interconnected roadways, multi-use pathways, bicycle facilities, and sidewalks.

Is or does the proposed amendment:

✔ Promote transit-supportive development patterns (e.g. mixed-use, pedestrian-oriented, higher density) along major travel corridors to facilitate future transit (11.2b)?

The project site is not along a defined major travel corridor. However, infill projects encourage transit development and use by intensifying development within existing travel areas.

✔ Maintain and enhance roadway connections and networks consistent with the Transportation Master Plan (11.2c)?

The project encourages and requires the use of the existing roadway network by locating within an already developed area.

✔ Provide appropriate pathways through the development and to surrounding lands, including parks and public lands, consistent with the Unified Pathways Master Plan and the proposed use and density (12.1a, c)?

The project is adjacent to an existing park and it is in the development's interest to have a logical connection to this park. The existing street network provides walkable connections to the park and this project will seek to maintain or enhance this amenity.

Tentative Map Findings

Section 17.07.005 of the Carson City Municipal Code establishes findings that the Planning Commission and/or Board of Supervisors must make in approving a tentative subdivision map. These findings are listed below and are addressed in **bold face** type.

In considering parcel maps, planned unit developments and tentative subdivision maps the director shall consider the following:

1. Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal.

Canyon Vista serves as an infill project within the established neighborhood. Therefore all necessary infrastructure and municipal services necessary to serve the project are in place or can easily be extended (at the expense of the developer). The project will be served by municipal water and sewer, solid waste disposal, NV Energy, Southwest Gas, cable television, etc. in accordance with Carson City and State of Nevada standards.

2. The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision.

Canyon Vista will be served by the existing municipal water system and it will be demonstrated by the project applicant that sufficient water rights have been dedicated/acquired to serve the project.

3. The availability and accessibility of utilities.

As an infill development, all necessary utilities are in place or can be easily extended to serve the project.

4. The availability and accessibility of public services such as schools, police protection, transportation, recreation and parks.

Canyon Vista adjoins a school site and the Edmonds Sports Complex, and is located within an established neighborhood that includes schools, police patrols, appropriate fire response times, etc. With only 18 units, impacts to existing services will be negligible.

5. Access to public lands. Any proposed subdivision that is adjacent to public lands shall incorporate public access to those lands or provide an acceptable alternative.

Canyon Vista is just north of a public park (Edmonds Sports Complex). However, development of the site will not limit public access to the park or interfere with any legally established trails, paths, etc.

6. Conformity with the zoning ordinance and land use element of the city's master plan.

The project is in direct compliance with the existing LDR Master Plan designation. Canyon Vista complies with the SF1A zoning in terms of overall density and character. A Minor Variance application (included under a separate cover) is also being requested to allow for deviations to required lot size and frontage (for some lots) in order to ensure full compliance with SF1A standards. The requested variance represents less than a 10% deviation and is consistent with variances granted for adjoining parcels.

7. General conformity with the city's master plan for streets and highways.

With only 18 lots, the project will be adequately served by the existing roadway network and will result in "negligible" impacts as outlined in the attached traffic impact analysis prepared by Traffic Works.

8. The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision.

The project will generate a maximum of 18 peak hour trips. This will not result in any change to existing levels of service and is estimated to only add less than 1 second vehicle delay at existing intersections over what currently exists. Therefore, this project will have no effect on the need for new streets and highways.

9. The physical characteristics of the land such as flood plains, earthquake faults, slope and soil.

The project is well suited for the type of single family development proposed. The project site is located outside of the mapped flood plain and contains no faults or unusual soils. Attached to this report are detailed engineering plans, reports, and geotechnical analyses that provide further details.

10. The recommendations and comments of those entities reviewing the subdivision request pursuant to NRS 278.330 thru 278.348, inclusive.

This application package will be sent to reviewing agencies per the requirements of the Carson City Municipal Code and Nevada Revised Statutes. Once comments are received, they can be incorporated into the final design of the project or included as conditions of approval of this tentative subdivision map request.

11. The availability and accessibility of fire protection including, but not limited to, the availability and accessibility of water and services for the prevention and containment of fires including fires in wild lands.

Fire suppression will be provided for Canyon Vista. This is accomplished by providing a fire hydrant plan to the approval of the Carson City Fire and Engineering Departments.

12. Recreation and trail easements.

Not applicable. As a small infill project, no common areas are being proposed. Development of Canyon Vista will not impact any existing legally established trails or recreation easements.

Nevada Revised Statutes

Per item 34 of the tentative subdivision map application, the provisions NRS 278.349(3) are addressed in this section. Like the tentative map findings, NRS considerations are addressed in **bold face** type. Some NRS considerations are repetitive to Carson City adopted findings but are included to ensure complete compliance.

The governing body, or planning commission if it is authorized to take final action on a tentative map, shall consider:

(a) Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal;

The Canyon Vista project will be connected to City services. Waste disposal will therefore be managed in the same manner as other residential developments in the City. By utilizing the existing zoning and overall density, impacts from the project will be consistent with the City's goals and expectations.

(b) The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision;

The area is served by municipal utilities, including water. There is also a fire hydrant near the project on Northview Drive. Hydrants will be added to serve the project as needed. Water rights will be secured to serve the project, to the satisfaction of Carson City Engineering Department.

(c) The availability and accessibility of utilities;

The site is bordered by municipal utilities. They are therefore both available and accessible.

(d) The availability and accessibility of public services such as schools, police protection, transportation, recreation and parks;

The site is served by existing roads and is adjacent to a park. Public services already extend to residential development to the east of the site. In effect, the site is fully served by City services.

(e) Conformity with the zoning ordinances and master plan, except that if any existing zoning ordinance is inconsistent with the master plan, the zoning ordinance takes precedence;

The current SF1A zoning is consistent with the Master Plan designation of LDR. This zoning is to remain in place with this project. The overall density of the site and the proposed structures are consistent with the zoning regulations.

(f) General conformity with the governing body's master plan of streets and highways;

The project conforms to the Master Plan for streets in that it locates development along an existing street. No changes to streets or highways are required, other than two short cul-de-sacs that connect to Hillview Drive.

(g) The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision;

As noted above, no new streets or highways are required other than the two short cul-de-sacs. A traffic impact report is included with this application. In short, traffic generation is insignificant.

(h) Physical characteristics of the land such as floodplain, slope and soil;

The site is not in the floodplain and no soil deficiencies are known to exist. The surrounding area is of similar topography and is already developed. The site slopes gently to the west in a uniform manner that will allow for consistent drainage without erosion problems.

(i) The recommendations and comments of those entities and persons reviewing the tentative map pursuant to NRS 278.330 to 278.3485, inclusive;

Comments received on this application will be reviewed and discussed as needed. Any required amendments to the project will be incorporated or resolved to the satisfaction of Carson City staff.

(j) The availability and accessibility of fire protection, including, but not limited to, the availability and accessibility of water and services for the prevention and containment of fires, including fires in wild lands; and

The site is already served by a fire hydrant on Northview Drive. If additional fire suppression upgrades are required, this will be resolved through discussion with the fire department and the installation of additional hydrants.

(k) The submission by the subdivider of an affidavit stating that the subdivider will make provision for payment of the tax imposed by chapter 375 of NRS and for compliance with the disclosure and recording requirements of subsection 5 of NRS 598.0923, if applicable, by the subdivider or any successor in interest.

A tax certificate for both parcels included within this application is included as an attachment to this report.

Traffic Engineering & Transportation Planning

April 10, 2015

Tim Russell, PE
Lumos & Associates
800 East College Parkway
Carson City, NV 89706

Traffic Impact Study – Hillview Tentative Map

INTRODUCTION

This letter report presents the findings of a traffic impact study completed to assess the potential impacts associated with the construction of the proposed Hillview Tentative Map residential project. The study of potential traffic impacts was undertaken for planning purposes and to assist in determining what traffic controls or mitigations may be needed to reduce potential impacts, if any. The project location and study intersections are shown in **Figure 1**. The proposed project consists of 18 single-family detached housing units. The site map is shown in **Figure 2**.

The following study intersection was analyzed:

- E Clearview Drive/Hillview Drive

Analysis Methodology

Level of service (LOS) is a term commonly used by transportation practitioners to measure and describe the operational characteristics of intersections, roadway segments, and other facilities. This term equates seconds of delay per vehicle at intersections to letter grades "A" through "F" with "A" representing optimum conditions and "F" representing breakdown or over capacity flows.

Signalized and Un-signalized Intersections

The complete methodology is established in the Highway Capacity Manual (HCM), 2010, published by the Transportation Research Board. **Table 1** presents the delay thresholds for each level of service grade at un-signalized and signalized intersections.

Level of service calculations were performed for the study intersection using the Synchro 8 software package with analysis and results reported in accordance with the HCM 2010 methodology.

Table 1: Level of Service Definition for Intersections

Level of Service	Brief Description	Un-signalized Intersections (average delay/vehicle in seconds)	Signalized Intersections (average delay/vehicle in seconds)
A	Free flow conditions.	< 10	< 10
B	Stable conditions with some affect from other vehicles.	10 to 15	10 to 20
C	Stable conditions with significant affect from other vehicles.	15 to 25	20 to 35
D	High density traffic conditions still with stable flow.	25 to 35	35 to 55
E	At or near capacity flows.	35 to 50	55 to 80
F	Over capacity conditions.	> 50	> 80

Source: Highway Capacity Manual (2010), Chapters 16 and 17

Level of Service Policy

The Carson Area Metropolitan Planning organization's 2035 Regional Transportation Plan establishes LOS "D" as a level of service standard.

EXISTING CONDITIONS

Existing Intersection Traffic Volumes

Existing traffic volumes were determined by collecting turning movement counts during the AM and PM peak periods at the study intersection. The counts were conducted on an average mid-week day. The existing peak hour intersection traffic volumes and lane configurations are shown on **Figure 3** attached.

Existing Intersection Level of Service

Level of service calculations were performed using the existing traffic volumes, lane configurations, and traffic controls. The results are presented in **Table 2** and the calculation sheets are provided in **Appendix A**, attached.

Table 2: Existing Conditions Intersection Level of Service Summary

Intersection	Control	Approach	AM Peak		PM Peak	
			LOS	Delay	LOS	Delay
E Clearview Dr/Hillview Dr	TWSC	Northbound	A	9.6	B	10.7
		Southbound	A	9.3	A	9.1

TWSC – Two-Way STOP Control

As shown in **Table 2**, the study intersection operates at acceptable level of service conditions.

PROJECT GENERATED TRAFFIC

Project Description

The project site is located on the southeast corner of the E Clearview Drive/Hillview Drive intersection (see **Figure 1**). The project consists of 18 single-family detached housing units.

Trip Generation

Trip generation rates for the proposed project were obtained from the Trip Generation Manual, 8th Edition, published by the Institute of Transportation Engineers. **Table 3** provides the Daily, AM Peak Hour, and PM Peak Hour trip generation calculation details for the proposed project.

Table 3: Trip Generation Estimates

ITE Land Use (#)	Size (units)	Daily	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Single-Family Housing (210)	18.00	172	14	4	10	18	11	7

As shown in **Table 3**, the proposed project is estimated to generate 172 daily trips, 14 AM peak hour trips (4 inbound and 10 outbound) and 18 PM peak hour trips (11 inbound and 7 outbound)

Trip Distribution and Assignment

The following trip distribution percentages were used for distributing the project traffic:

- 65% travelling to/from the west on E Clearview Drive
- 35% travelling to/from the east on E Clearview Drive

The project trip assignment is shown on **Figure 4**, attached.

EXISTING PLUS PROJECT CONDITIONS

Traffic Volumes

Plus project traffic volumes were developed by adding the project generated trips (**Figure 4**) to the existing traffic volumes (**Figure 3**) and are shown on **Figure 5**, attached. The "Plus Project" condition Peak Hour Factors (PHF) and travel patterns were assumed to remain the same as existing conditions.

Intersection Level of Service Analysis

Table 4 presents the level of service analysis summary for the "Plus Project" scenario assuming the existing intersection configurations. Detailed calculation sheets are provided in **Appendix B**, attached.

Table 4: Existing Plus Project Intersection Level of Service Summary

Intersection	Approach	Existing AM		Existing PM		Plus Prj AM		Plus Prj PM	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
E Clearview Dr/Hillview Dr	Northbound	A	9.6	B	10.7	B	10.0	B	10.8
	Southbound	A	9.3	A	9.1	A	9.3	A	9.1

With the addition of project traffic, the study intersection is anticipated to operate at acceptable level of service conditions. The increase in average delay for the northbound and southbound approaches (STOP controlled approaches) at the E Clearview Drive/Hillview Drive intersections is anticipated to be less than 1 second/vehicle. The project's impact on traffic operations at the study intersections is considered negligible.

CONCLUSIONS

The following is a list of our key findings:

Project Trips: The proposed project consists of 18 single-family detached housing units. The proposed project is estimated to generate 172 daily trips, 14 AM peak hour trips (4 inbound and 10 outbound) and 18 PM peak hour trips (11 inbound and 7 outbound).

Intersection Level of Service: With the addition of project traffic, the study intersection is anticipated to operate at acceptable level of service conditions. The project's impact on traffic operations at the study intersection is considered negligible as the project generated traffic adds less than 1 second/vehicle delay compared to existing conditions.

Please do not hesitate to contact us at (775) 322-4300 with any questions.

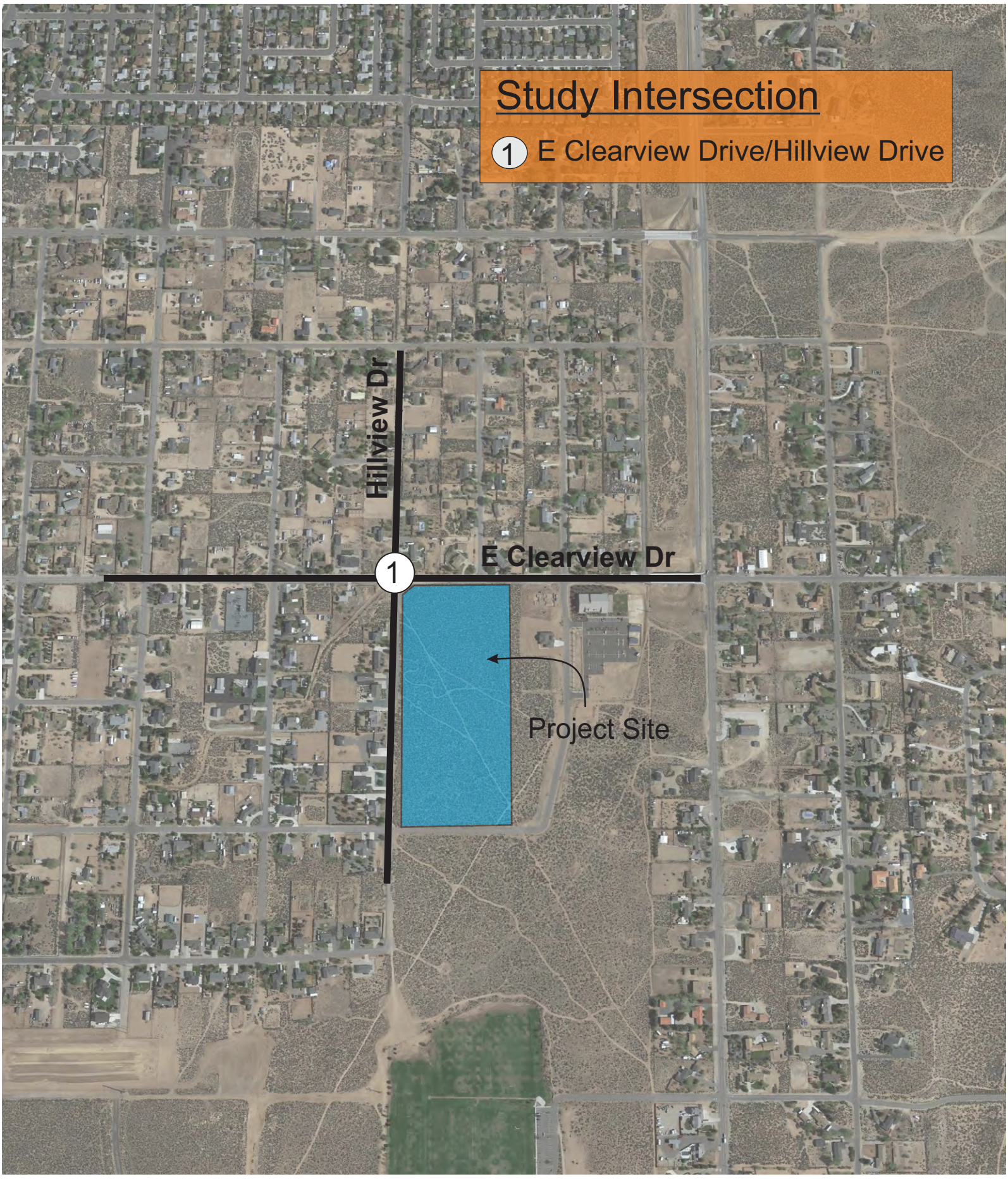
Sincerely,
TRAFFIC WORKS, LLC

Loren E. Chilson, PE
Principal

Attachments:

Figures
Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Existing Volumes
Figure 4: Trip Assignment
Figure 5: Plus Project Volumes

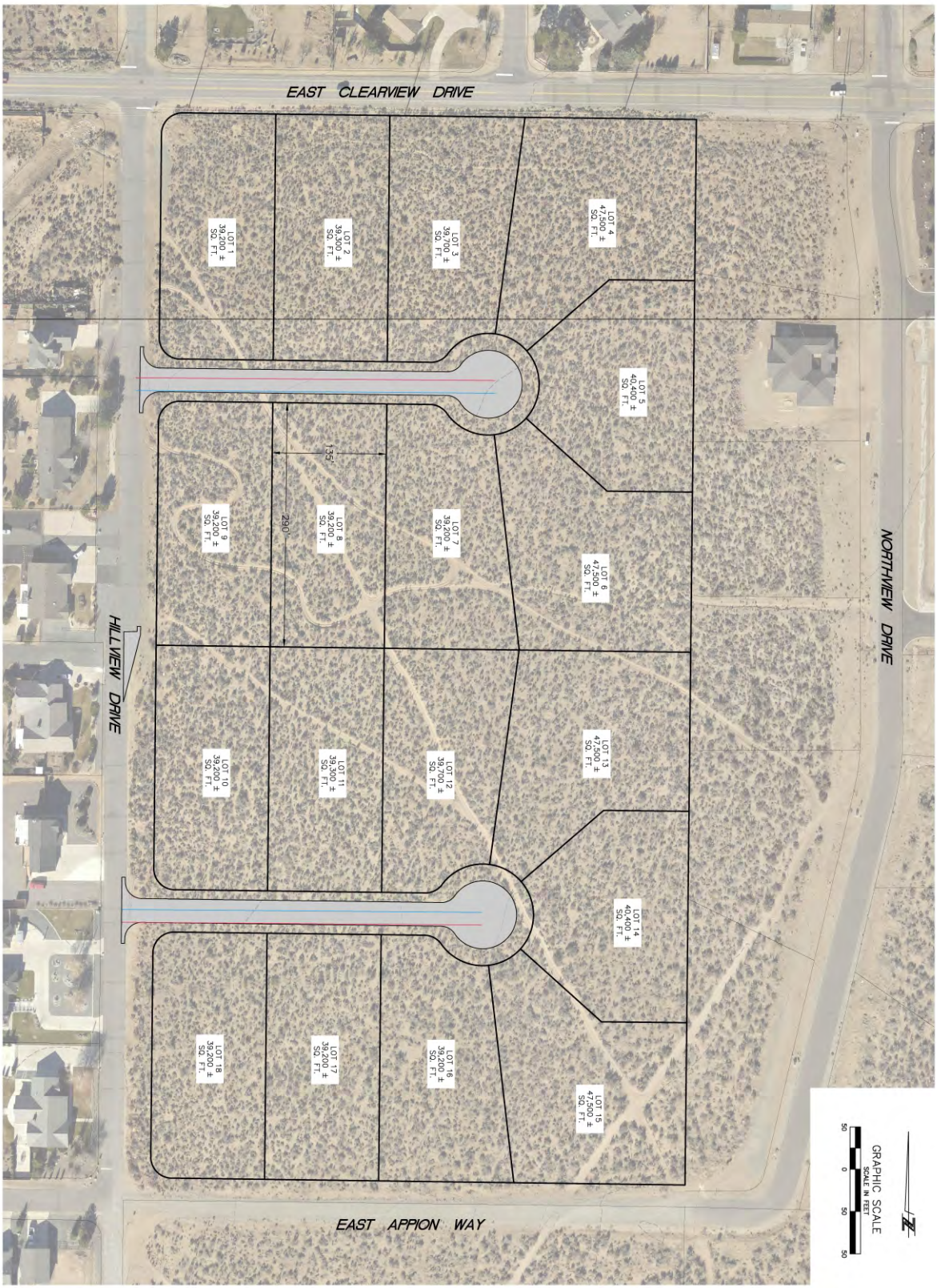
Appendices
A. Existing Conditions LOS Calculations
B. Plus Project LOS Calculations



TRAFFIC WORKS LLC

Figure 1

Hillview Tentative Map
Traffic Impact Study
Vicinity Map



DATE: OCT 2014
DRAWN BY: JMM
DESIGNED BY:
CHECKED BY: GSP
JOB NO.: 3662.020

C1

REV	DATE	DESCRIPTION	BY

SIERRA NEVADA REALTY GROUP

CONCEPTUAL MAP
HILLVIEW
A.P.N.'S 010-194-07 & 08

CARSON CITY NEVADA

LUMOS & ASSOCIATES

CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING
PLANNING
LANDSCAPE ARCHITECTURE
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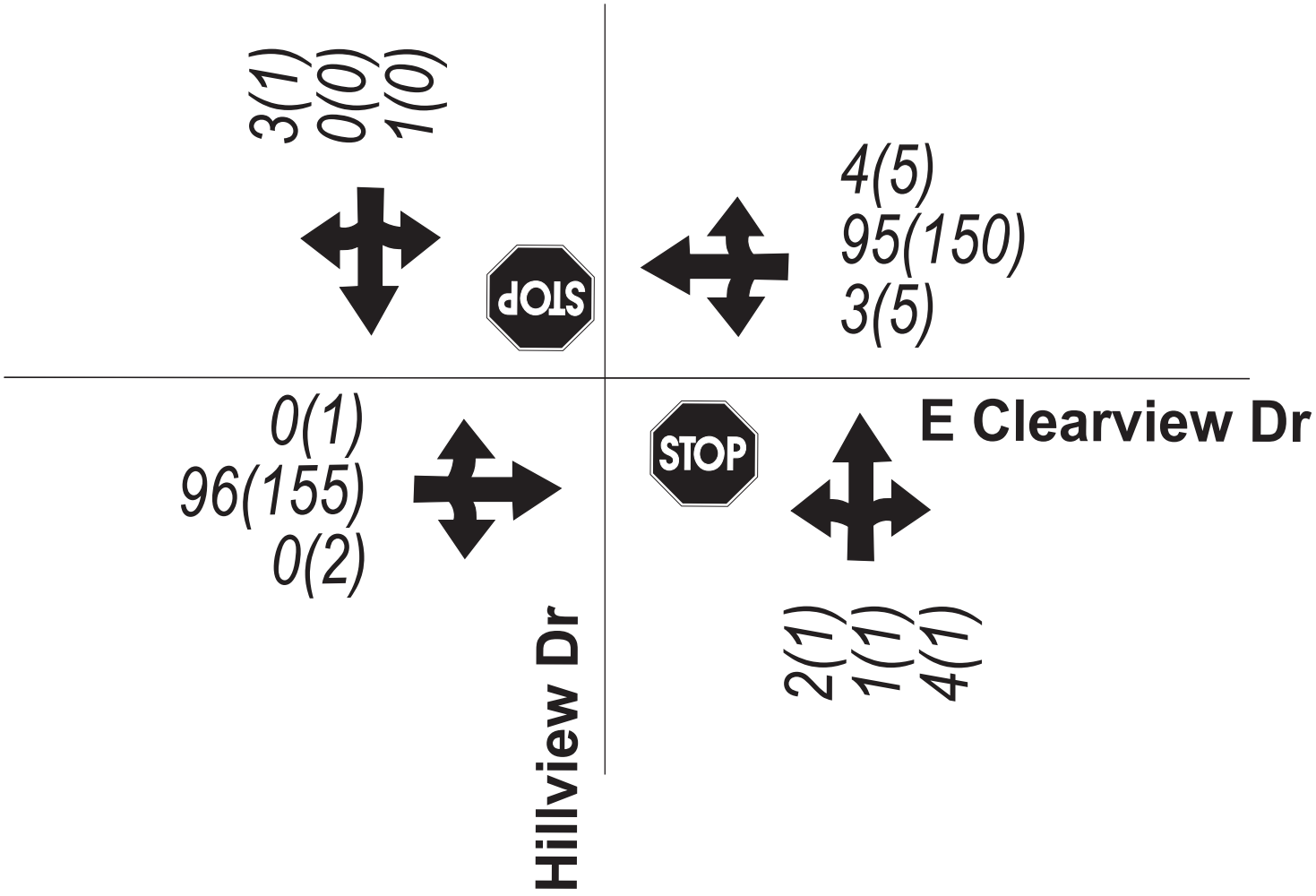
TRAFFIC WORKS LLC

Figure 2

Hillview Tentative Map
Traffic Impact Study
Site Map

1 E Clearview Drive/Hillview Drive



LEGEND

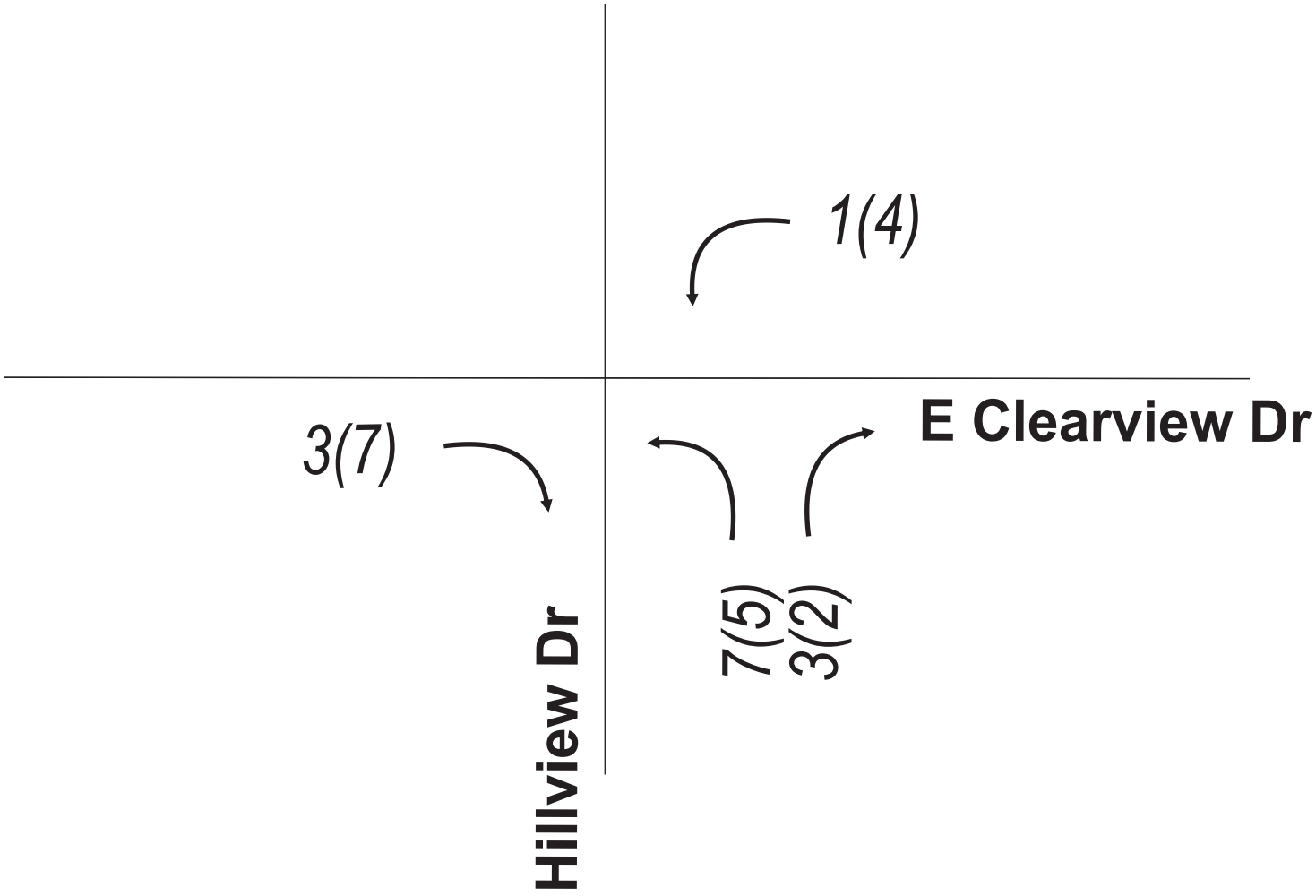
AM(PM) - Peak Hour Traffic Volumes

- Lane Configuration

Figure 3

Hillview Tentative Map
Traffic Impact Study
Existing Volumes

1 E Clearview Drive/Hillview Drive



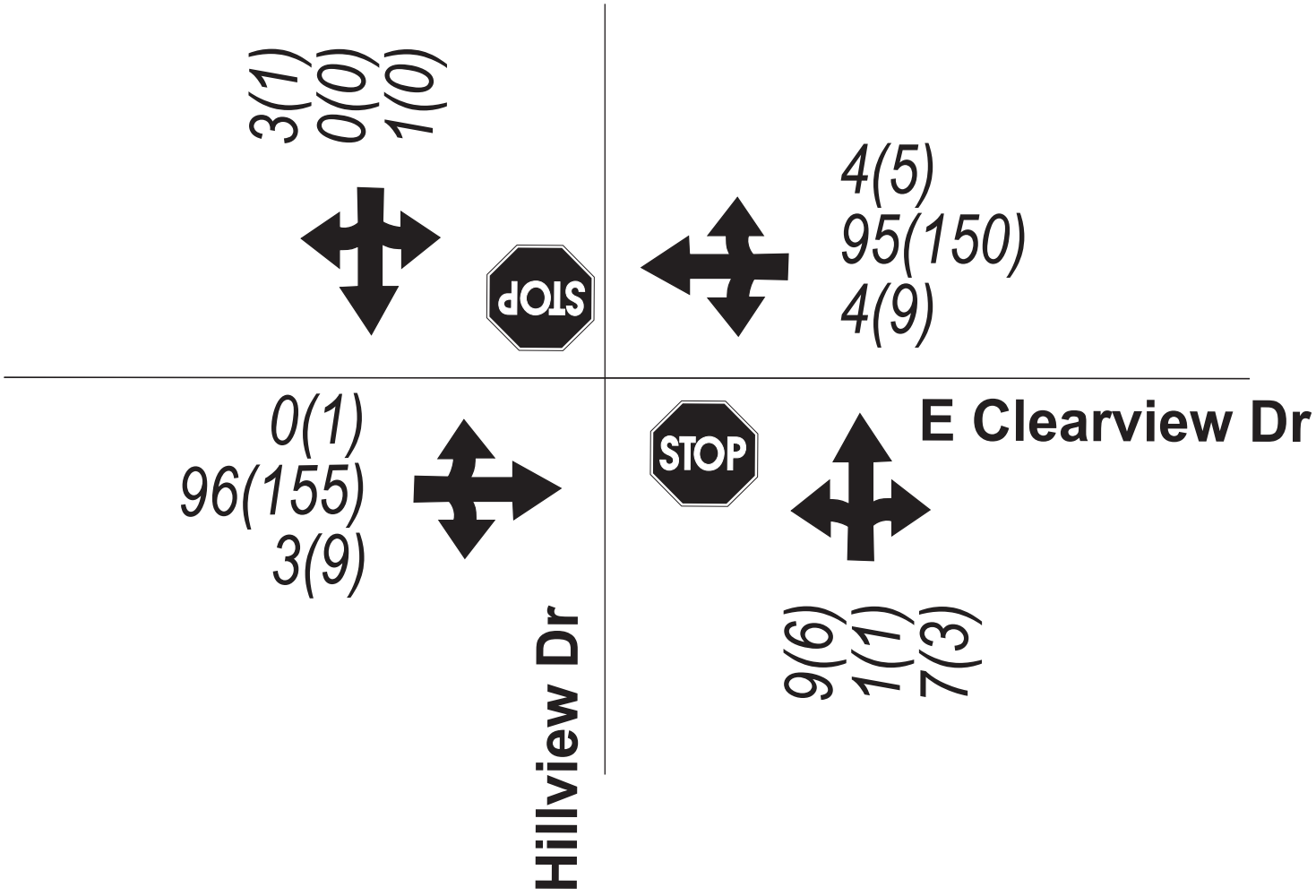
LEGEND

AM(PM) - Project Trip Assignment

Figure 4

Hillview Tentative Map
Traffic Impact Study
Trip Assignment

1 E Clearview Drive/Hillview Drive



LEGEND

AM(PM) - Plus Project Peak Hour Traffic Volumes

- Lane Configuration

Figure 5

Hillview Tentative Map
Traffic Impact Study
Plus Project Volumes

Appendix A
Existing Conditions LOS Calculations

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	96	0	3	95	4	2	1	4	1	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	133	0	4	132	6	3	1	6	1	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	138	0	0	133	0	0	278	279	133	280	276	135
Stage 1	-	-	-	-	-	-	133	133	-	143	143	-
Stage 2	-	-	-	-	-	-	145	146	-	137	133	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1458	-	-	1464	-	-	678	632	922	676	635	919
Stage 1	-	-	-	-	-	-	875	790	-	865	782	-
Stage 2	-	-	-	-	-	-	863	780	-	871	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1458	-	-	1464	-	-	673	630	922	669	633	919
Mov Cap-2 Maneuver	-	-	-	-	-	-	673	630	-	669	633	-
Stage 1	-	-	-	-	-	-	875	790	-	865	780	-
Stage 2	-	-	-	-	-	-	857	778	-	864	790	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	9.6	9.3
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	787	1458	-	-	1464	-	-	840
HCM Lane V/C Ratio	0.012	-	-	-	0.003	-	-	0.007
HCM Control Delay (s)	9.6	0	-	-	7.5	0	-	9.3
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	155	2	5	150	5	1	1	1	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	182	2	6	176	6	1	1	1	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	182	0	0	185	0	0	378	380	184	378	378	179
Stage 1	-	-	-	-	-	-	186	186	-	191	191	-
Stage 2	-	-	-	-	-	-	192	194	-	187	187	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1405	-	-	1402	-	-	583	556	864	583	557	869
Stage 1	-	-	-	-	-	-	820	750	-	815	746	-
Stage 2	-	-	-	-	-	-	814	744	-	819	749	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1405	-	-	1402	-	-	580	553	864	579	554	869
Mov Cap-2 Maneuver	-	-	-	-	-	-	580	553	-	579	554	-
Stage 1	-	-	-	-	-	-	819	749	-	814	742	-
Stage 2	-	-	-	-	-	-	809	740	-	816	748	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	10.7	9.1
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	640	1405	-	-	1402	-	-	869
HCM Lane V/C Ratio	0.006	0.001	-	-	0.004	-	-	0.001
HCM Control Delay (s)	10.7	7.6	0	-	7.6	0	-	9.1
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Appendix B

Existing Plus Project LOS Calculations

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	96	3	4	95	4	9	1	7	1	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	133	4	6	132	6	12	1	10	1	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	138	0	0	138	0	0	283	284	135	287	284	135
Stage 1	-	-	-	-	-	-	135	135	-	146	146	-
Stage 2	-	-	-	-	-	-	148	149	-	141	138	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1458	-	-	1458	-	-	673	628	919	669	628	919
Stage 1	-	-	-	-	-	-	873	789	-	861	780	-
Stage 2	-	-	-	-	-	-	859	778	-	867	786	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1458	-	-	1458	-	-	668	625	919	659	625	919
Mov Cap-2 Maneuver	-	-	-	-	-	-	668	625	-	659	625	-
Stage 1	-	-	-	-	-	-	873	789	-	861	777	-
Stage 2	-	-	-	-	-	-	852	775	-	856	786	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	10	9.3
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	749	1458	-	-	1458	-	-	836
HCM Lane V/C Ratio	0.032	-	-	-	0.004	-	-	0.007
HCM Control Delay (s)	10	0	-	-	7.5	0	-	9.3
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	155	9	9	150	5	6	1	3	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	182	11	11	176	6	7	1	4	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	182	0	0	193	0	0	391	394	188	393	396	179
Stage 1	-	-	-	-	-	-	190	190	-	201	201	-
Stage 2	-	-	-	-	-	-	201	204	-	192	195	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1405	-	-	1392	-	-	572	546	859	570	544	869
Stage 1	-	-	-	-	-	-	816	747	-	805	739	-
Stage 2	-	-	-	-	-	-	805	737	-	814	743	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1405	-	-	1392	-	-	567	541	859	562	539	869
Mov Cap-2 Maneuver	-	-	-	-	-	-	567	541	-	562	539	-
Stage 1	-	-	-	-	-	-	815	746	-	804	732	-
Stage 2	-	-	-	-	-	-	797	730	-	809	742	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	10.8	9.1
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	628	1405	-	-	1392	-	-	869
HCM Lane V/C Ratio	0.019	0.001	-	-	0.008	-	-	0.001
HCM Control Delay (s)	10.8	7.6	0	-	7.6	0	-	9.1
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

LUMOS
& ASSOCIATES

April 13th, 2015

Mr. Lee Plemel, Director
Carson City Community Development
108 E. Proctor Street
Carson City, NV 89703

RE: Tentative Map Utility Investigation
Canyon Vista Subdivision (formerly Hillview Development)

Dear Lee:

Pursuant to the March 27, 2015 comments from Conceptual Map Review meeting with Carson City Community Development staff and subsequent correspondence regarding their review of the Canyon Vista Subdivision, Lumos and Associates has prepared the following water and sewer impact reports to support the referenced Tentative Map Application. The Canyon Vista Subdivision is a proposed subdivision map with 18 single family residential lots. The zoning for the project is 1 single family residence per acre. Each lot will be owned in fee simple and there will not be any common area associated with the project.

WATER

The development will be served by public water. Existing water mains are located on Hillview Drive, Clearview Drive and Northview Drive. There is currently no waterline within E. Appion Way between Hillview Drive and Northview Drive. The proposed project will extend a new water main on E. Appion Way between Hillview Dr and Northview Drive per the Conceptual Map review comments from the City. Additionally, water mains will be extended east from Hillview Drive to service the two new cul-de-sacs proposed for the project. The proposed project is located within the 4880 water zone, which is fed primarily from the Prison Hill water storage tank. The water zone pressure is consistent other than typical fluctuations due to tank level or usage. Based on field fire hydrant testing conducted 3-23-15 by Carson City staff (attached) the status pressure on Hillview Drive is 75 psi. Based on this pressure and the contours across the site the pressures within the project will meet the City's minimum pressure criteria of 60 psi.

Domestic water service will be provided to each residential unit. The service will extend from the new water mains to be located in the public right-of-way of the new cul-de-sacs (Canyon Court & Vista Court) to the exterior property line where a water meter will be installed. From that point private service laterals will be extended into each lot. The maintenance of the private service laterals will be that of the individual home owners. There are no separate irrigation services planned for the development.

Water usage calculations have been performed based on the Carson City code definition of Water Equivalent Residential Customer (WERC) from section 12.01.010 of Title 12 of the Carson City Municipal Code. A single WERC is equivalent to 550 gallons per day. Per Carson City municipal code each single family residential unit is equivalent to 1 WERC. In the case of one acre single family residential lots the application of a single WERC at 550 gallons per day is

a conservative water use estimate which equates to 16,500 gallons per month (which is very close to the monthly usage of 15,000 gallons per month utilized by USDA and State Revolving Fund (SRF) for their rate setting requirements). Based upon the usage of 550 gallons per day per lot the total estimated water usage for the development of 18 lots equates to 9,900 gallons per day (6.875 gpm averaged over 24 hours).

Due to the size of the 4880 zone and the complexity of the interactions between the multiple pressure zones in the City, Lumos did not model the proposed improvements to verify the impact on the Carson City water system. With that being said, the inclusion of an additional 6.875 gpm of infill demand upon the system is not anticipated to cause a noticeable impact compared to the overall demands on the system, even in peak periods. Additionally, the location of the project within the 4880 zone and its proximity to the Prison Hill tank and feed from Douglas County the additional demands for the infill project are not anticipated to have any noticeable impact.

In summary, we feel that the Canyon Vista Subdivision project has no appreciable impact on the performance of the water system.

FIRE FLOW ANALYSIS

Per the Conceptual Map requirement of the Carson City Fire Department, the required fire flow demand for the development is 1,000 gpm. Per the field fire hydrant testing conducted 3-23-15 by Carson City staff the available fire flow on Hillview Drive is 2,500 gpm. Based on the field measurement the future hydrants to be located on the cul-de-sacs will not have any issue providing the required 1,000 gpm at a residual pressure of 20 psi.

The additional homes added to the water system do not add to the overall system fire protection requirements; therefore, with the existing system being able to supply the necessary fire flow there is not anticipated to be an impact to the water system in terms of fire flow requirements.

SANITARY SEWER CAPACITY

The proposed development will connect to the City's sewer system for collection and treatment. The development is proposing a gravity system that will include public gravity mains located within the new cul-de-sacs. The sewer mains will be facilitated within public right of way within the new cul-de-sacs. Waste water flows will be directed towards Hillview Drive were the new sewer mains will connect with the existing 8-inch or 12-inch sewer main within Hillview Drive.

The existing sewer main in Hillview Drive is an 8-inch pvc main. Sewer flows south to north on Hillview Drive with the 8-inch collection main connecting to an existing 18-inch sewer main at the intersection of Hillview Drive and Clearview Drive.

Based on data obtained from the Carson City Sewer Master Plan, loading for a single-family residential unit is 216 gallons per day (gpd). The loading of 216 gpd is within the reasonable

factor recommended by the 10 States Standards (which recommends 100 gpd per person). An average of 2.16 residents per household is reasonable. The daily sewer loading for the 18 proposed Hillview lots is 3,888 gallons per day. Factored over 24 hours this averages out to 2.7 gpm. Utilizing a peaking factor of 4.2 per 10 State Standards the estimated peak outflow from the development is calculated to be 11.34 gpm.

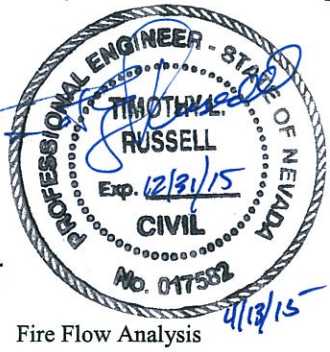
Field investigations were done to estimate the existing flows within the sewer mains which will ultimately service the Canyon Vista Subdivision.

- The existing 8-inch main on Hillview Drive that will service the proposed development has an existing slope varying from 0.42% to 2.38% with a corresponding maximum flow capacity ranging from 491 gpm to 1170 gpm.
- The northern most portion of the 8" line on Hillview Drive from the future Canyon Ct. to Clearview has an existing slope of 0.69% with a maximum capacity of 632 gpm. This section will carry the full flow of the development. Based on field observation this section of the main appeared to have a typical flow in the morning (generally the highest flow period) of 1-inch. This corresponds to an existing flow of 19.6 gpm. When the full peak flow of the proposed development is added to this main for a total flow of approximately 31 gpm the depth of flow increases to 1.25-inches.
- Even with the increased flow of the proposed development added to the main there is still nearly 600 gpm of capacity remaining in the existing pipe.
- The 8-inch main on Hillview ties into an existing 18-inch main at the intersection of Hillview Dr. and Clearview Dr. The 18-inch main running north on Hillview Drive from Clearview has an existing slope of 0.35% and based on field observations was running with approximately 8 inches of flow. This main has a maximum capacity of 3900 gpm with an existing estimated flow of 1477 gpm. The addition of 11.34 gpm to the 18-inch main results in an increase in flow depth of less than 0.10 inches. The remaining capacity is estimated to be 2411 gpm.

In summary, we feel that the Canyon Vista Subdivision project has a nominal impact on the existing flow capacity for the sewer mains within the direct area of the proposed development.

If you have any questions, do not hesitate to give me a call at 883-7077.

Sincerely,



Tim Russell, P.E.
Engineering Manager

Attac. Fire Flow Analysis

Appendix A

Fire Flow Analysis

CARSON CITY NEVADA
Consolidated Municipality and State Capital
PUBLIC WORKS

PUBLIC WORKS FIRE FLOW DATA SHEET*

Testing Personnel: ROB SHINE

Date of Test: 3-23-15 Time of Test: 8:00 AM

Requested By: Tim Russell at Lumos Phone: 775.883-7077

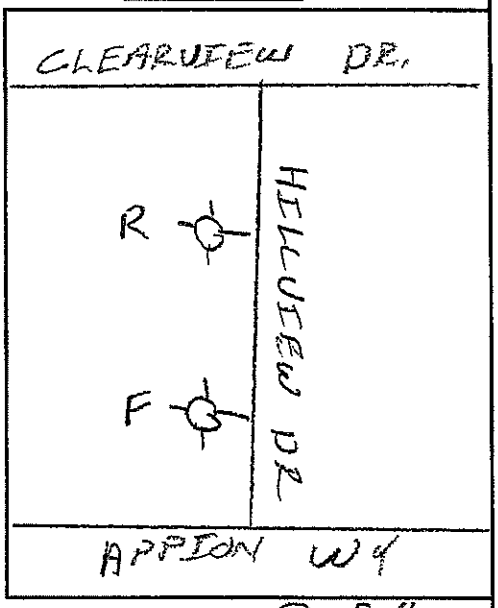
Email address: trussell@lumosengineering.com

Test Locations: Appion Way and Hillview Dr.
(Street and Cross Street)

Pressure Zone 4880

Comments: _____

Mainline Size: 6"



Pressure: Static (S) 75 PSI

Residual (R) 65 PSI

Pitot (P) 40 PSI

Pitot Flow Value 1000 GPM

Exit Coefficient (C) 0.845 Exit Diameter (inches) (D) 2.5"

Q_F = Flow Quantity From Hydrant

$Q_F = (29.84) \times (C) \times (D^2) \times (\sqrt{P})$

$Q_F = (29.84) \times (0.845) \times (2.5^2) \times (\sqrt{40})$

Q_F= 997 Gallons Per Minute

Available Water Calculation:

H_f =S-R

H_f = 75 - 65 = 10

H_r =S-20

H_r = 75 - 20 PSI = 55

$Q_R = Q_F \times (H_r^{0.54}/H_f^{0.54})$

$Q_R = 997 \times (55^{.54}/10^{.54})$

Q_R = 2,502

Q_R = 2,500 G.P.M. = Total Available Water at 20 PSI Residual.

*Based on NFPA 291 – 2013 Edition Updated 8/5/2013

Pursuant to NFPA 291 (2013 Edition) fire flow test data over 5 years old should not be used.

3505 Butti Way, Carson City, NV 89701 (775) 887-2355 FAX (775) 887-2112
Operations: Water, Sewer, Streets, Wastewater, Landfill, Environmental
Engineering, Transportation, Capital Projects