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**When Recorded Mail to:**

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Address: P.O. Box 100734  
City/State/Zip: RENO, NV 89506-0014

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Silver Star Ranch  
Planned Unit Development Handbook  
**( Title of Document )**

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Printed Name

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# SILVER STAR RANCH

## Planned Unit Development Handbook

Reno, Nevada



Approved: June 23, 2010

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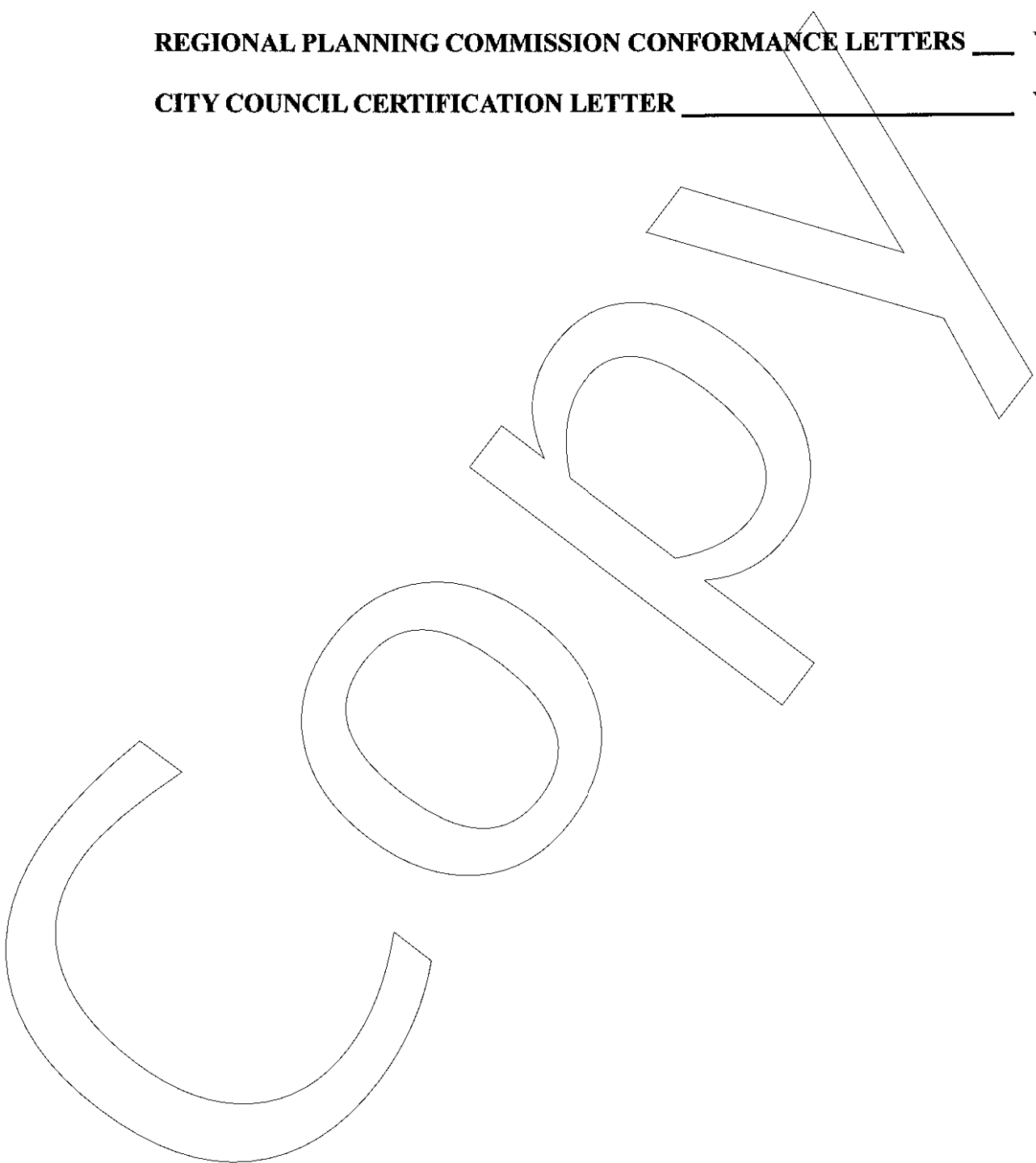
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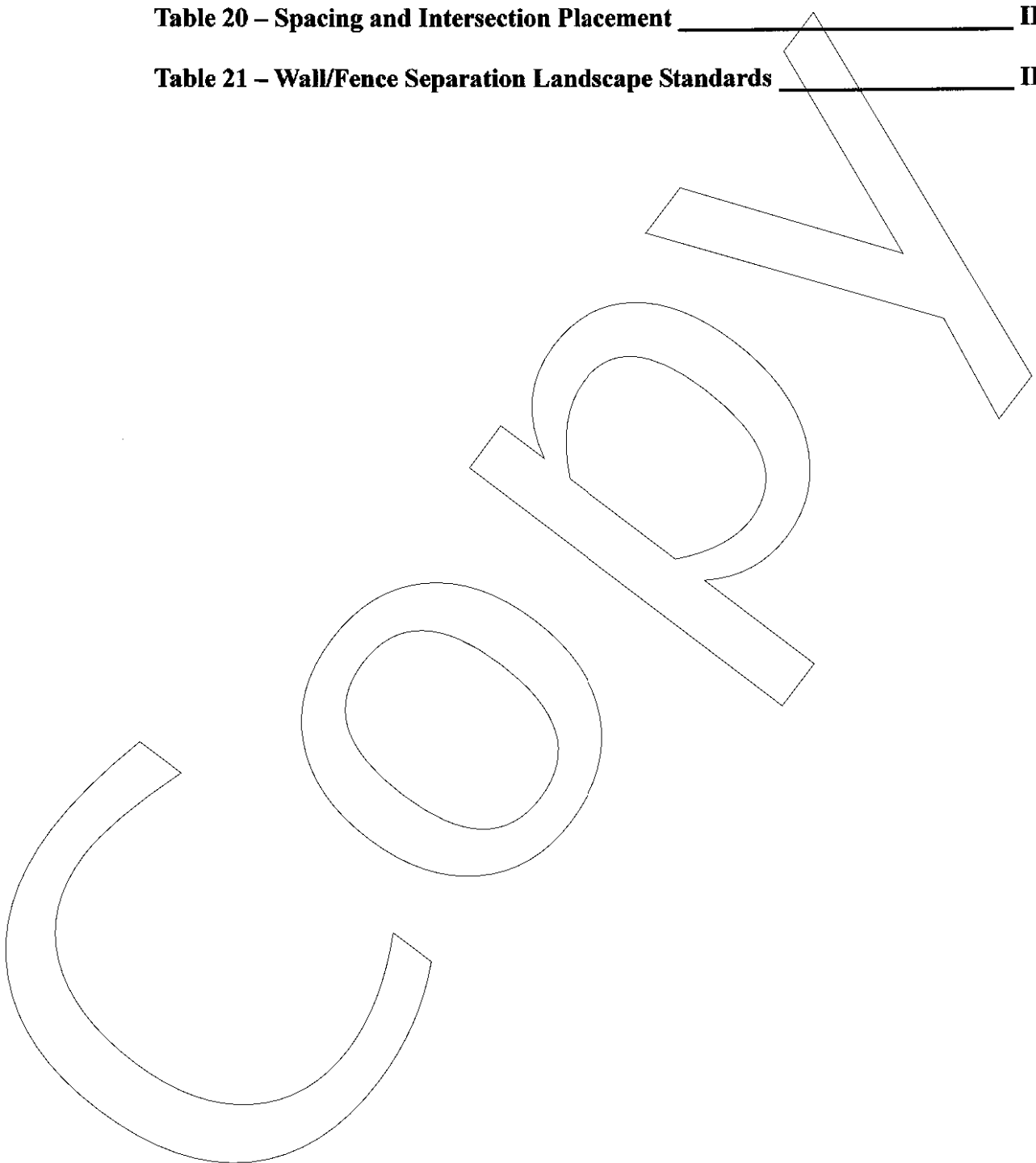
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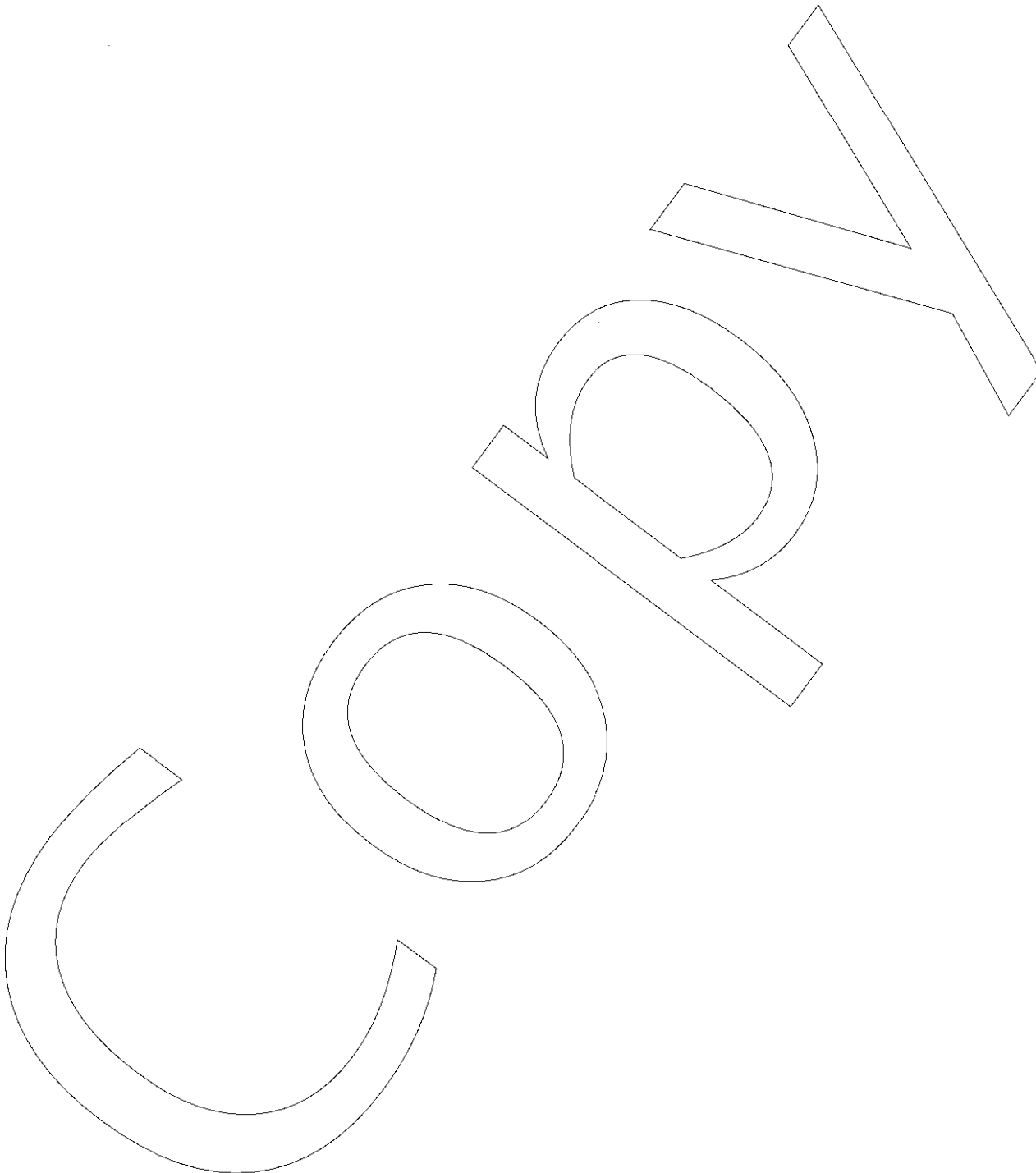
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**TRAFFIC ANALYSIS, PREPARED BY SOLAEGUI ENGINEERS**

Original Study Date – November 25, 2008

**APPENDIX B –**

**WATER FACILITIES STUDY, PREPARED BY MANHARD  
CONSULTING, LTD.**

Original Study Date – December 5, 2008

**APPENDIX C –**

**SEWER FACILITIES STUDY, PREPARED BY ECO:LOGIC**

Original Study Date – February 2, 2009

**APPENDIX D –**

**DRAINAGE LETTER, PREPARED BY MANHARD CONSULTING, LTD.**

Original Study Date – February 5, 2009

**APPENDIX E –**

**GEOTECHNICAL FEASIBILITY STUDY, PREPARED BY JAMES  
EDWARDS ENGINEERING**

Original Study Date – November 24, 2008

# SILVER STAR RANCH

## Planned Unit Development Handbook

Reno, Nevada



COOR

### Section I - Introduction

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Planned Unit Development Handbook for Silver Star Ranch  
Section I – Introduction

## INTRODUCTION

### Project Location

Silver Star Ranch consists of 633.2 acres located north of Silver Knolls and east of the Cold Springs areas (Figure 1 – Silver Star Ranch Vicinity Map). The property is located in Section 11 of Township 21N, Range 18E.

### Statement of Objectives

Silver Star Ranch will be a master planned community consisting of single and multi-family neighborhoods and includes an area which could be converted to commercial and/or public facilities uses, if desired. The site has been designed to compliment the Evans Ranch project to the North, which contains a Town Center that includes commercial uses, schools, parks and public facilities expected to serve Evans Ranch and the surrounding area. Higher density residential housing within Silver Star Ranch will be located in close proximity to the Evans Ranch Town Center to enhance sustainability of the community by locating higher density uses near a service center. Density will decrease as development moves away from Evans Ranch, creating a smooth transition to the more rural communities that exist to the South.

Objectives that will define Silver Star Ranch are as follows:

- Create a sustainable community. Silver Star Ranch will incorporate objectives for sustainability to promote the long-term success and viability of the project. Specific sustainability elements provided as a part of this PUD are as follows and are outlined in detail in Section III, Land Use/Development Standards and in Section IV, Implementation:
  - Locate higher density residential housing near the Evans Ranch community core to encourage walkability while reducing both internal and external trip distances to essential services.
  - Promote a livable, walkable community sensitive to its surroundings. Provide 210.6 acres of open space within the development to preserve the character of the existing environment and topography, while also creating a pedestrian-oriented community. The open space and roadway network includes pedestrian and bicycle friendly trail/sidewalk system linking Silver Star Ranch internally as well as to adjacent properties.
  - Minimize grading throughout the development by avoiding significant slope areas and preserving them as open space. In

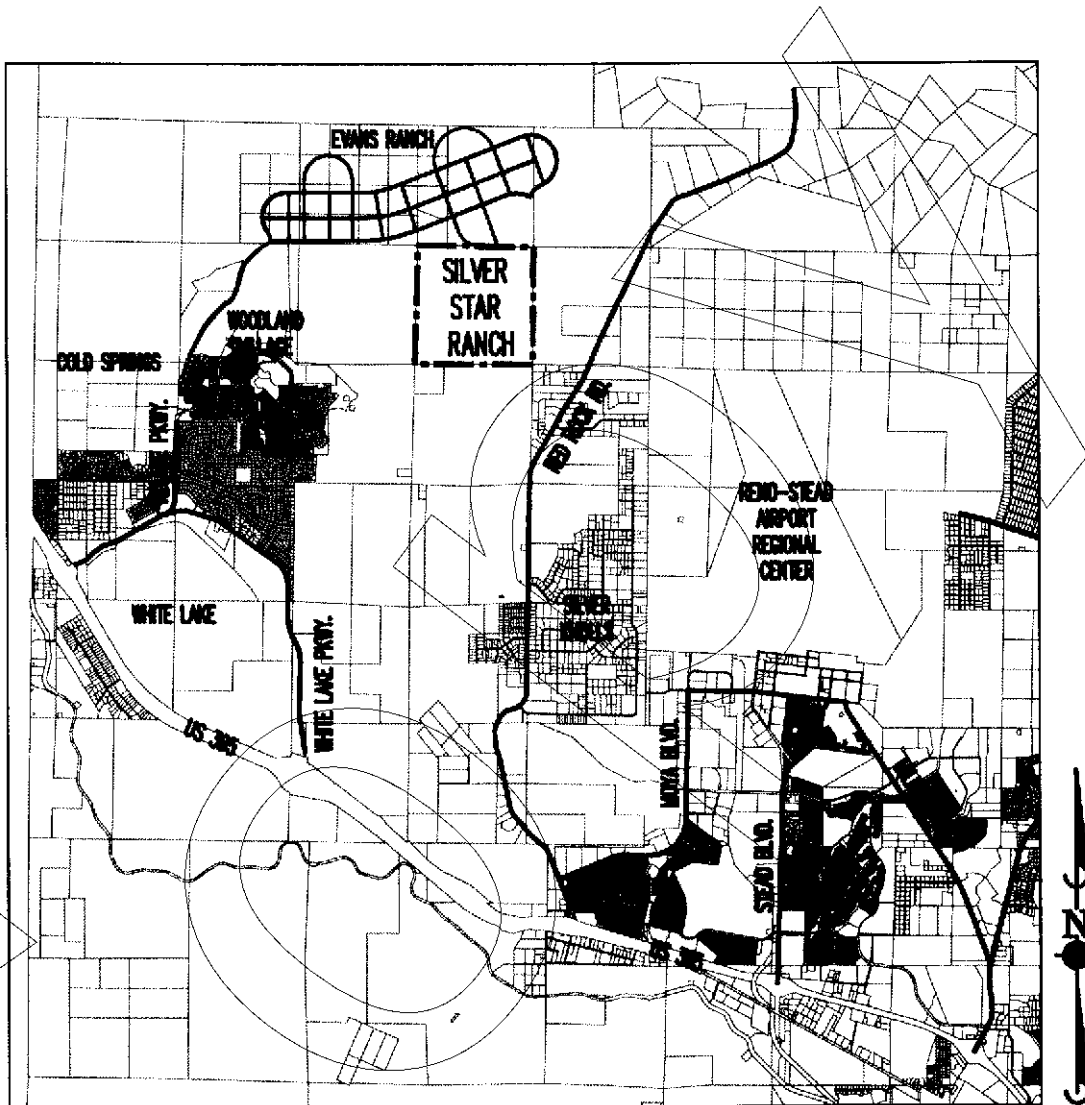
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Planned Unit Development Handbook for Silver Star Ranch  
Section I – Introduction

slope areas where grading is permitted per the land plan, provide specific development standards to ensure that sensitive grading techniques are used. These standards shall include the utilization of hillside development and adaptive architecture methods to ensure Silver Star Ranch blends into areas of more difficult topography.

- Encourage architectural variation to increase visual interest and provide a complimentary addition to the adjacent communities. To avoid one specific theme for the entire development, design standards requiring architectural variation are defined in Section III of this handbook under Site and Building Design Standards. A mix of architectural types will provide a community with visual interest due to changing styles and trends.
- Encourage tree preservation in development areas where possible.
- Encourage Green and Low Impact Development (LID) practices throughout the development including the use of treated effluent for irrigation purposes and the utilization of green development standards adopted by the City of Reno.
- Integrate existing wildlife in the Silver Star Ranch area by developing a Wildlife Interface Plan.

Planned Unit Development Handbook for Silver Star Ranch  
Section I - Introduction



**FIGURE 1  
VICINITY MAP**

Planned Unit Development Handbook for Silver Star Ranch  
Section I – Introduction

## Project Description

### Project Description

The Silver Star Ranch development incorporates a mix of residential land uses and provides provisions for commercial and public facilities uses, should the market require them. Portions of the site containing the most severe topography have been preserved as open space, detention and trail systems. The result is a development that will meet the needs of future residents, while placing an emphasis on open space and the preservation of natural topography. Table 1 summarizes the mix of uses that comprise Silver Star Ranch.

**Table 1**  
**Land Use Summary**

Land Use	Acres	Dwelling Units
Residential Very Low	45.8	55
Residential Low	39.9	87
Residential Medium	296.5	1,138
Residential Townhomes	28.6	320
Open Space/Parks/Detention	210.6	---
Roadways	11.8	---
<b>Total</b>	<b>633.2</b>	<b>1,600</b>

### Phasing Plan

The development and build out of Silver Star Ranch will ultimately depend on the demands of the Reno housing market. This demand is driven in great part by external forces such as the local and national economy, financing costs and job creation. It is estimated that project build out will occur over a 20-year horizon. The first phase of development will consist of the construction of adequate backbone infrastructure to provide utilities and access to the initial residential development. Depending upon market absorption rates, it is estimated that approximately 100 to 200 homes will be built per year.

Planned Unit Development Handbook for Silver Star Ranch  
Section I – Introduction

**Project Legal Description**

**LEGAL DESCRIPTION**

A parcel of land situate in Section 11, Township 21 North, Range 18 East, MDM, Washoe County, Nevada and being more particularly described as follows:

All of Section 11, Township 21 North, Range 18 East, MDM, as shown on Record of Survey Map 2714, recorded May 17, 1994, Official Records of Washoe County as Document Number 1797919.

Containing: 633.19 Acres, more or less.

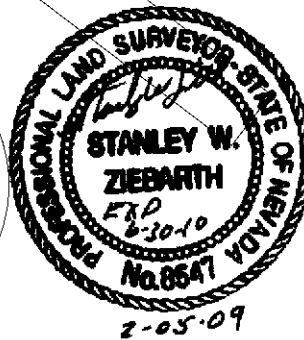
**BASIS OF BEARINGS:** Record of Survey Map 2714, recorded May 17, 1994, Official Records of Washoe County as Document Number 1797919.

**SURVEYOR'S CERTIFICATE**

I hereby certify that the attached description was prepared by me or under my direct supervision and is accurate to the best of my knowledge and belief.

Stanley W. Ziebarth  
Nevada PLS 8547  
For and on behalf of

 **Manhard**  
CONSULTING  
9850 DOUBLE R BLVD, SUITE 101  
RENO, NEVADA 89521  
(775) 746-3500



# **SILVER STAR RANCH**

## **Planned Unit Development Handbook**

**Reno, Nevada**



SILVER STAR RANCH

**Section II – Services and Facilities**

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Planned Unit Development Handbook for Silver Star Ranch  
Section II – Services and Facilities

## **SERVICES AND FACILITIES**

### **Traffic and Roadways**

Appendix A of this handbook provides a preliminary traffic analysis for Silver Star Ranch, which utilizes the Regional Transportation Commission's traffic forecasting model to assess the impacts of the development. This analysis concluded that widening the existing, surrounding roadways to four (4) lanes (Red Rock Road, Village Parkway and White Lake Parkway) will maintain the level of service required by the City of Reno. The widening of these roads is proposed in the current draft of the Regional Transportation Commission's 2040 Plan.

The City of Reno has adopted a Regional Roadway Impact Fee program. The intent of this program is to provide funding to address traffic impacts of new development. Silver Star Ranch will pay these roadway impact fees as required, and at a stage of development specified by the City of Reno. Impact fees collected for all of Silver Star Ranch are expected to exceed \$5,000,000.00 based on the present (January 2009) fee schedule. Since there will be Regional Roads within Silver Star Ranch, the developer will apply for credit toward the Regional Road Impact Fees. Any credit agreement will be completed prior to the recordation of the first final map in Silver Star Ranch.

Each tentative map will include a traffic analysis to evaluate project-specific traffic impacts. An updated traffic study for all of Silver Star Ranch will be completed with the initial roadway design and will include a request for impact fee credits, via a Capital Contribution Front Ending Agreement (CCFEA). Traffic impacts shall also be reevaluated at the 50% and 90% build-out thresholds.

Silver Parkway will be the main access roadway to the site. It will connect to Red Rock Road to the east, run through Silver Star Ranch providing access to the neighborhood areas, and ultimately connect to Evans Ranch to the north. Two alternative preliminary alignments have been identified for Silver Parkway to connect to Red Rock Road through the adjacent BLM property to the east, as is shown in Figure 2. Access to Red Rock Road will be determined with the review of the first tentative map for Silver Star Ranch and is also subject to the review and approval of BLM. There is one collector roadway connection which branches off of Silver Parkway and then splits to connect to Evans Ranch in two locations. These collector roadways will serve to more evenly distribute traffic entering and leaving Silver Star Ranch. Silver Parkway will function as a four-lane minor arterial. Final roadway designations and widths will be determined with traffic studies prepared for each tentative map as the development of the PUD progresses. Silver Parkway will be constructed by the master developer(s) of Silver Star Ranch. This road will be built in total, or in part, with the first phase of development, depending upon the scale of initial development. The eastern

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Planned Unit Development Handbook for Silver Star Ranch  
Section II – Services and Facilities

portion of Silver Parkway is proposed to either cross only BLM property to connect with Red Rock Road, or partially cross BLM property and privately held property to make a similar connection to Red Rock Road. If this portion of the road is not constructed with the first phase of development, it will be constructed prior to the issuance of the 550th residential building permit. An alternate threshold for completion of the connection to Red Rock Road may be established with the initial CCFEA traffic study, to the satisfaction of City staff.

A map showing possible roadway connections, circulation and proposed traffic levels has been provided in Figure 2. These roadways are conceptual in nature, and meant to depict how circulation through the development may occur. Final roadway location and design shall be reviewed and approved with each tentative map.

Collector and arterial streets shown on Figure 2 shall be constructed including landscaping adjacent to said streets, in conjunction with the associated final map improvements. Each tentative map shall be required to show residential collector and local street front yard landscaping with four (4) different typical landscaping scenarios. Plans for front yard landscaping shall be approved with each final map and installed by the developer.

### **Roadways Sections**

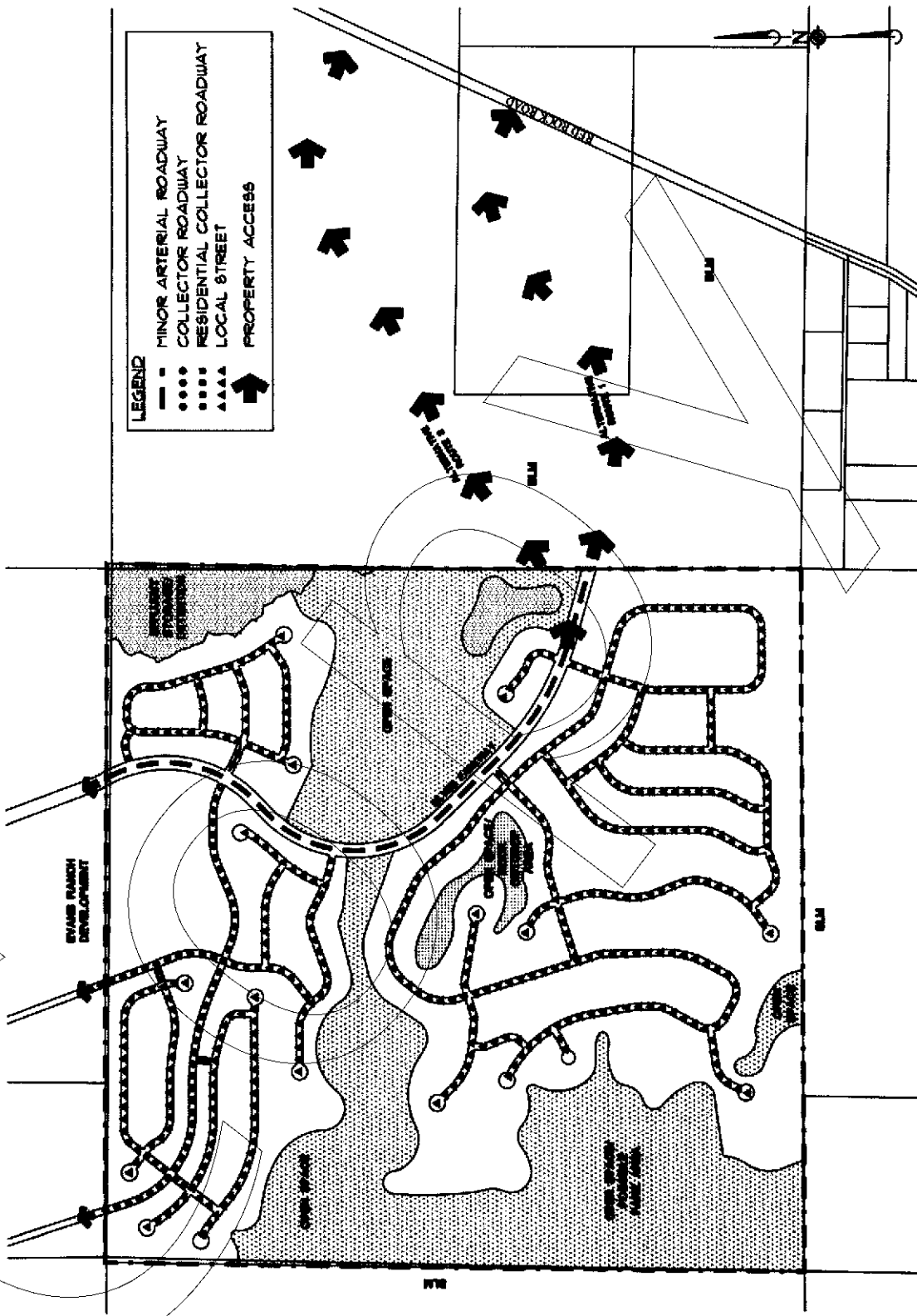
Roadway sections are further defined and shown in Figures 2A - 2E. To encourage pedestrian activity and slow vehicle traffic, the Reno Zoning Administrator shall be permitted to grant reductions in travel lane width and level of service within Silver Star Ranch as authorized in the City of Reno Master Plan Public Services, Facilities, and Infrastructure Element. Any proposed reductions to travel lane width and/or level of service shall be reviewed and approved with the associated tentative map based on a revised traffic report.

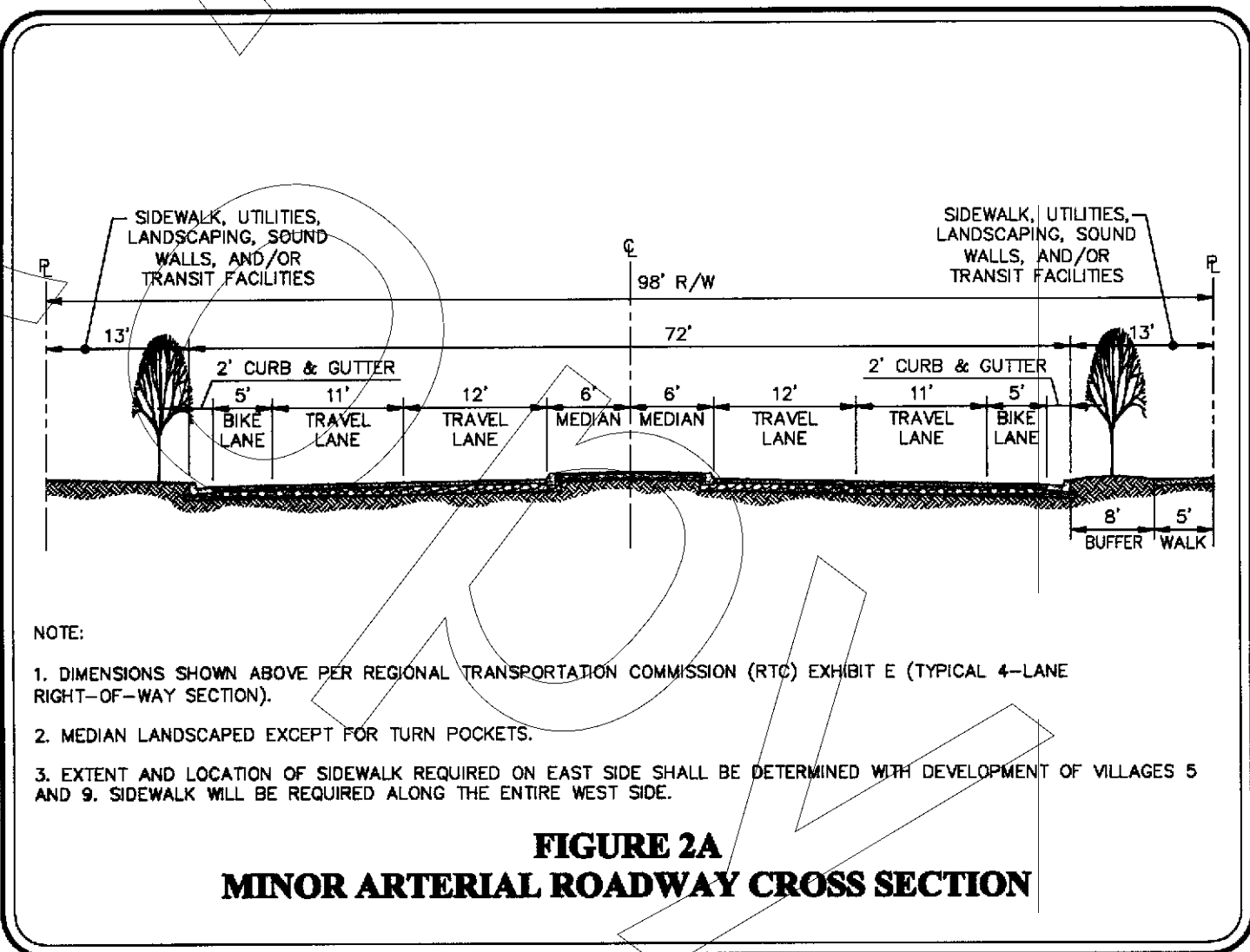
Two (2) alternative local street sections (Figures 2D and 2E) provide individual villages with more than one option for neighborhood streets. In villages where the local street section depicted in Figure 2E is utilized, the developer shall carry the landscape parkway shown through to the residential collector(s).

To better distribute traffic and accommodate topographic constraints of the site, this PUD allows for modifications to certain City standards for intersection spacing as outlined on Page III-43, 18.12.703 – Street/Intersection Spacing. Any proposed reduction to intersection spacing will be reviewed and approved with the associated tentative map. Development within the Residential Low and Residential Very Low districts will comply with the spacing requirements of the City of Reno Public Works Design Manual.

Planned Unit Development Handbook for Silver Star Ranch  
Section II – Services and Facilities

**FIGURE 2  
ROADWAY MAP**

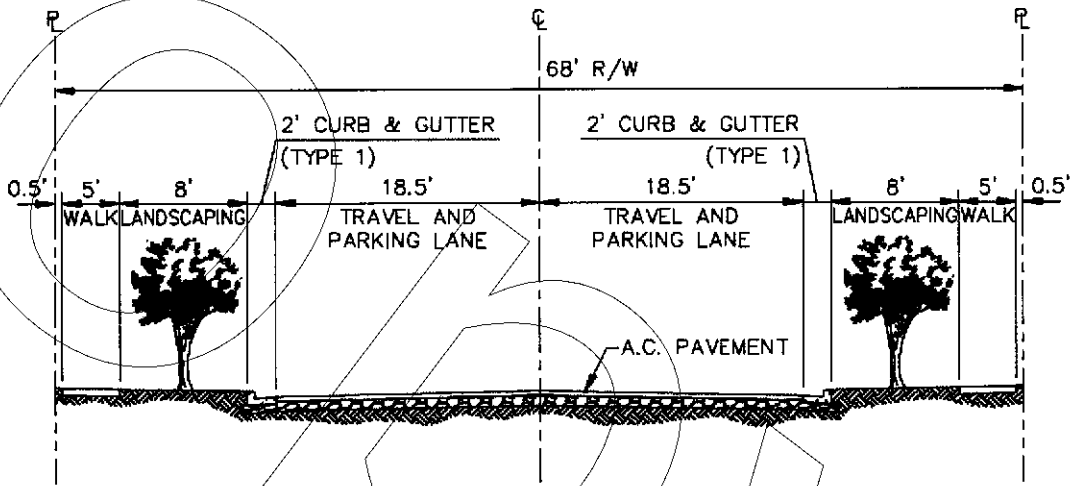




NOTE:

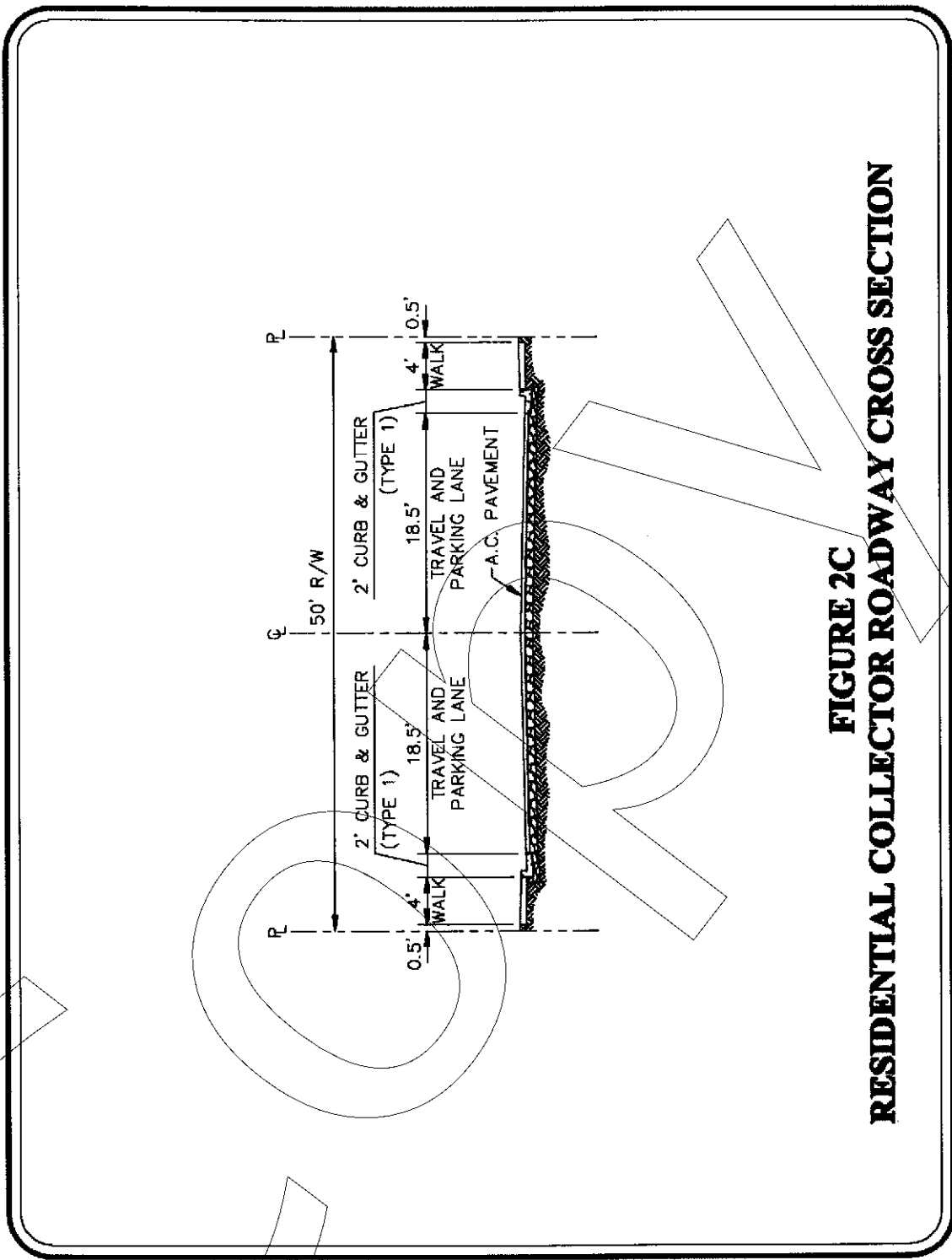
1. DIMENSIONS SHOWN ABOVE PER REGIONAL TRANSPORTATION COMMISSION (RTC) EXHIBIT E (TYPICAL 4-LANE RIGHT-OF-WAY SECTION).
2. MEDIAN LANDSCAPED EXCEPT FOR TURN POCKETS.
3. EXTENT AND LOCATION OF SIDEWALK REQUIRED ON EAST SIDE SHALL BE DETERMINED WITH DEVELOPMENT OF VILLAGES 5 AND 9. SIDEWALK WILL BE REQUIRED ALONG THE ENTIRE WEST SIDE.

**FIGURE 2A**  
**MINOR ARTERIAL ROADWAY CROSS SECTION**



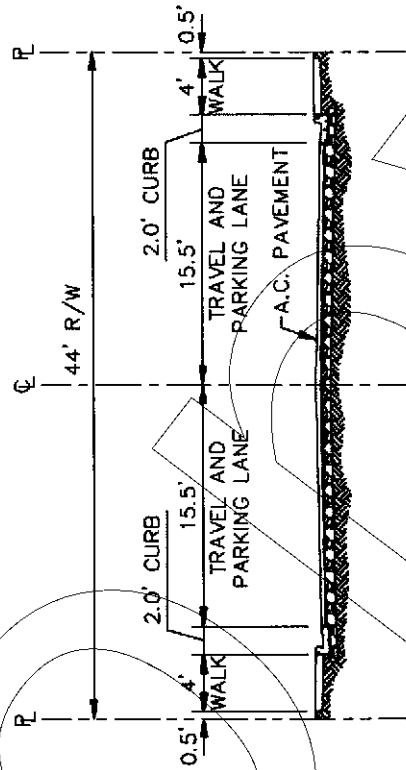
**FIGURE 2B**  
**COLLECTOR ROADWAY WITH PARKWAY CROSS SECTION**

Planned Unit Development Handbook for Silver Star Ranch  
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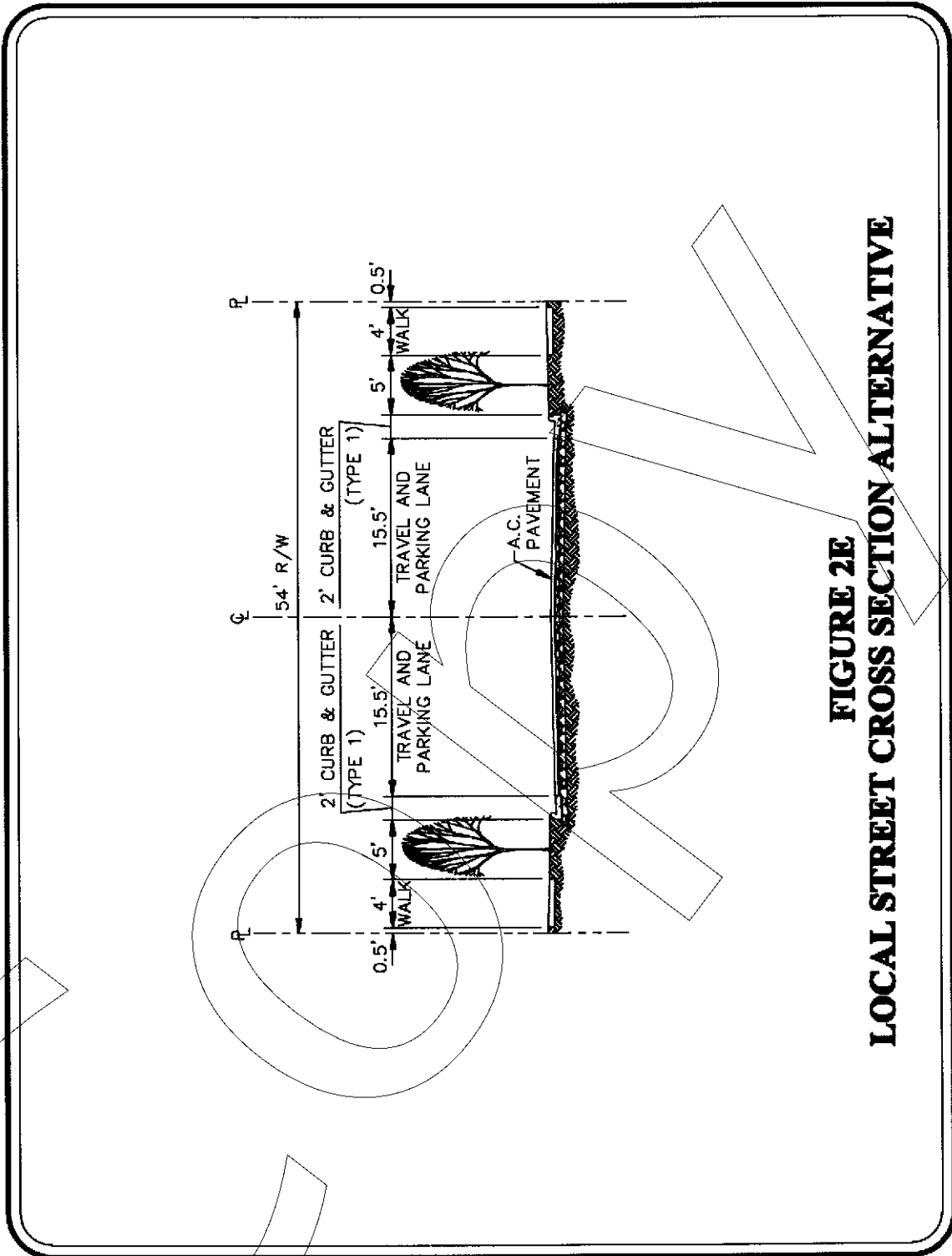
**FIGURE 2C**  
**RESIDENTIAL COLLECTOR ROADWAY CROSS SECTION**

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**FIGURE 2D**  
**LOCAL STREET CROSS SECTION**

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**FIGURE 2E**  
**LOCAL STREET CROSS SECTION ALTERNATIVE**

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Per the roadway sections, with the exception of Silver Parkway, sidewalk is required on both sides of every street. Sidewalk is required on the entire west side of Silver Parkway plus select sections on the east side, which will be determined with the adjacent tentative maps. Sidewalk placement on the east side of Silver Parkway will be determined with review of an adjacent tentative map and will be based on the location of residential development, connectivity to the open space trail system, as well as the ability to maintain walkability throughout the development.

Lighted crosswalks shall be installed in at least three (3) locations along Silver Parkway to maintain walkability within Silver Star Ranch. Conceptual locations for crosswalks are shown on Figure 7.

### **Roadway Landscape Design Standards**

Landscaping will be provided along the major roadways and within individual neighborhoods. All common areas and open space, including landscaping along arterials and collectors, will be owned and maintained by a master homeowners' association unless it is determined by the property owners and the City that ownership by a public entity would better serve the public interest. The PUD provides for the maintenance of all common areas and open space through a comprehensive set of CC&Rs.

Landscape standards within rights-of-way have been provided as a part of this section and are outlined in Figures 3A through 3C as well as Tables 2A through 4. These landscape standards are specific to the Minor Arterial Roadway, Collector Roadway and Local Street Alternative Roadway.

A 10' wide landscaped median may be provided, at the discretion of the developer, within the residential collector roadway section. Should a landscaped median be incorporated into the residential collector, then the total right-of-way width shown in Figure 2C would increase to 60 feet. Table 5 outlines landscape standards for the residential collector median.

Fencing, sound walls and additional landscaping beyond the identified right-of-way for all roadways will be determined with the review of each tentative map based upon the standards set forth in both the Sound Barrier and Fencing sections outlined in Section III – Land Use/Development Standards. Slope areas located between the road right-of-way and fencing or walls will be subject to formal slope treatment standards outlined under Hillside Development in Section III – Land Use/Development Standards. All fencing and walls adjacent to roadways, as well as landscaping between fencing/walls and sidewalks shall be maintained by the homeowners' association.

Planned Unit Development Handbook for Silver Star Ranch  
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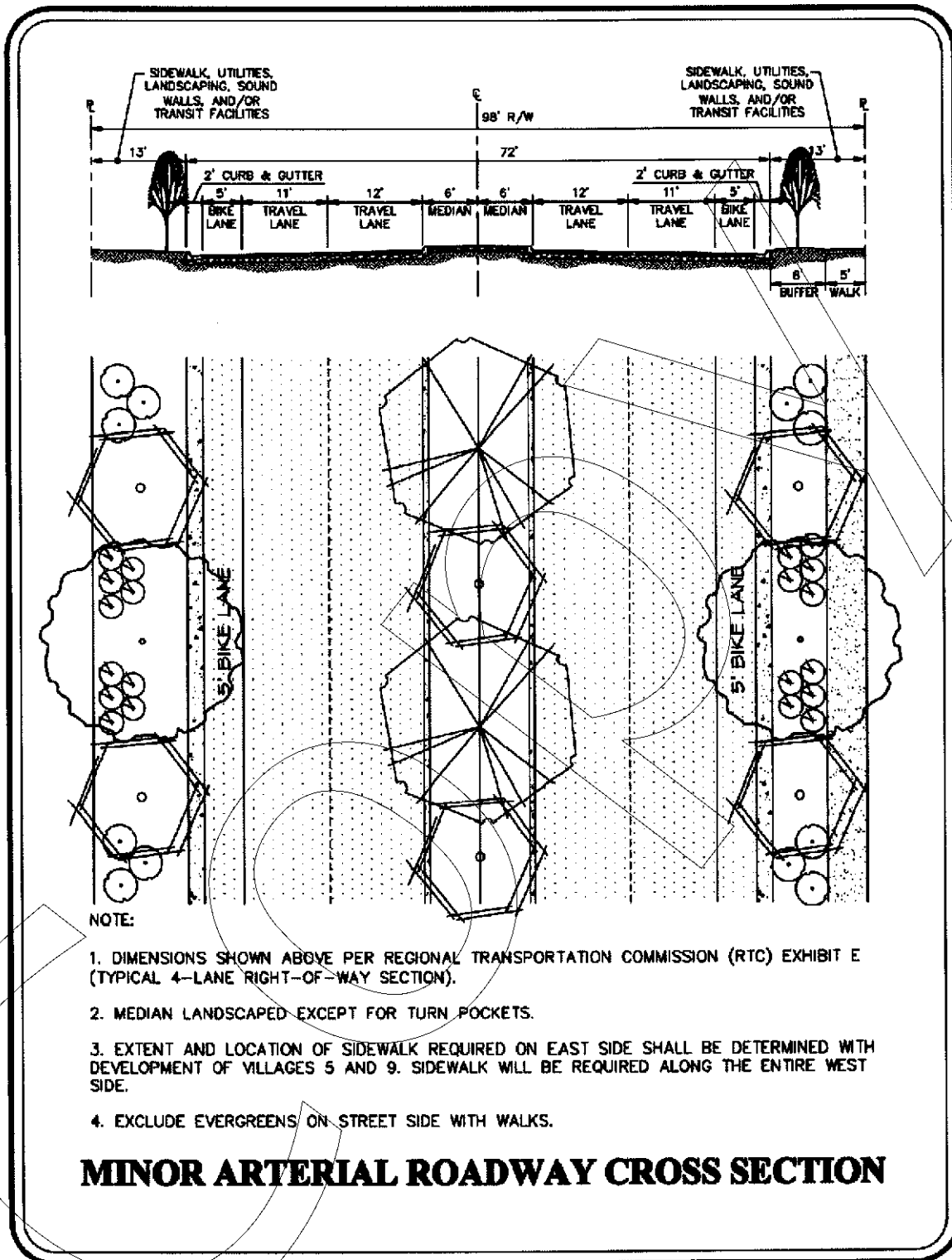


Figure 3A

Planned Unit Development Handbook for Silver Star Ranch  
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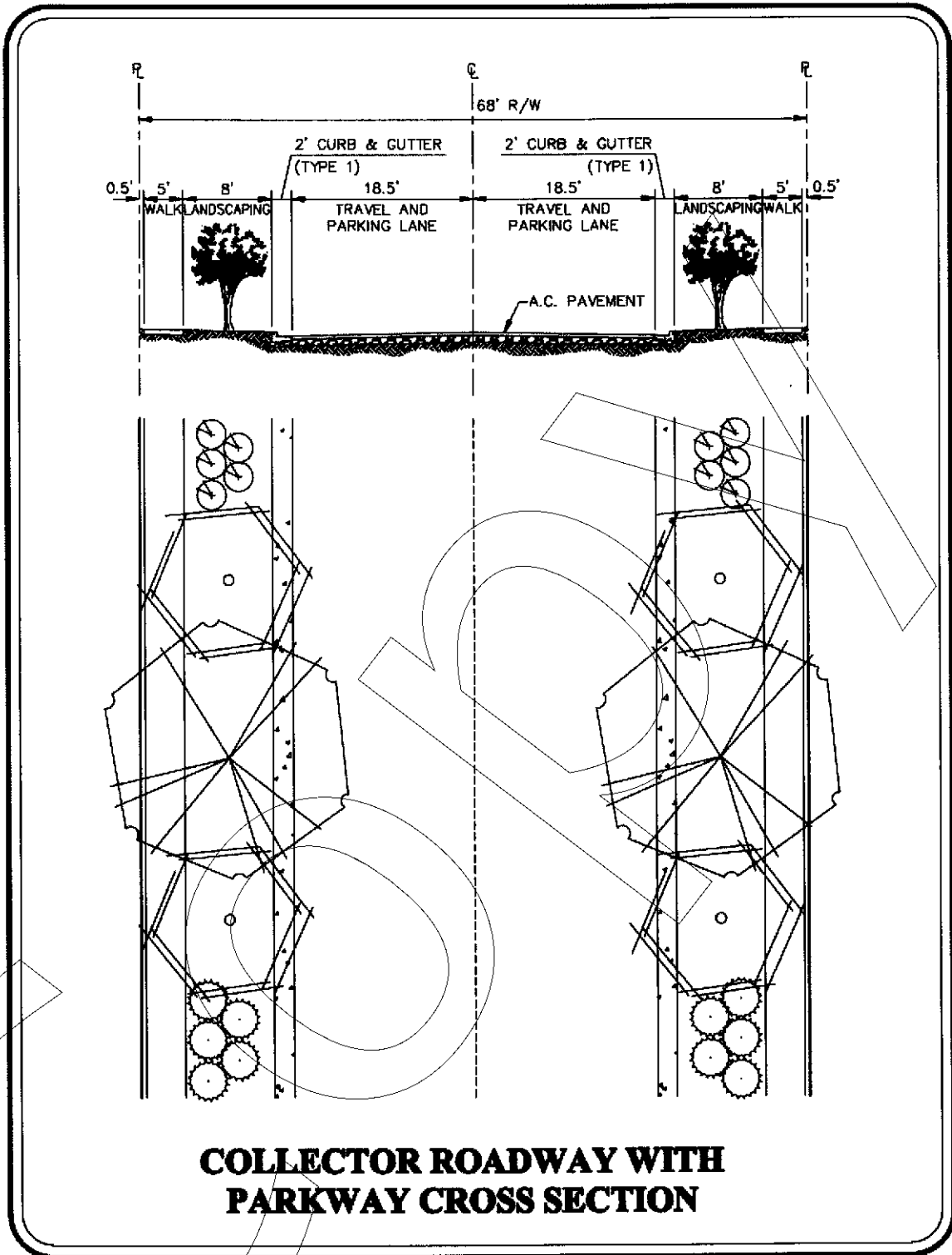


Figure 3B

Planned Unit Development Handbook for Silver Star Ranch  
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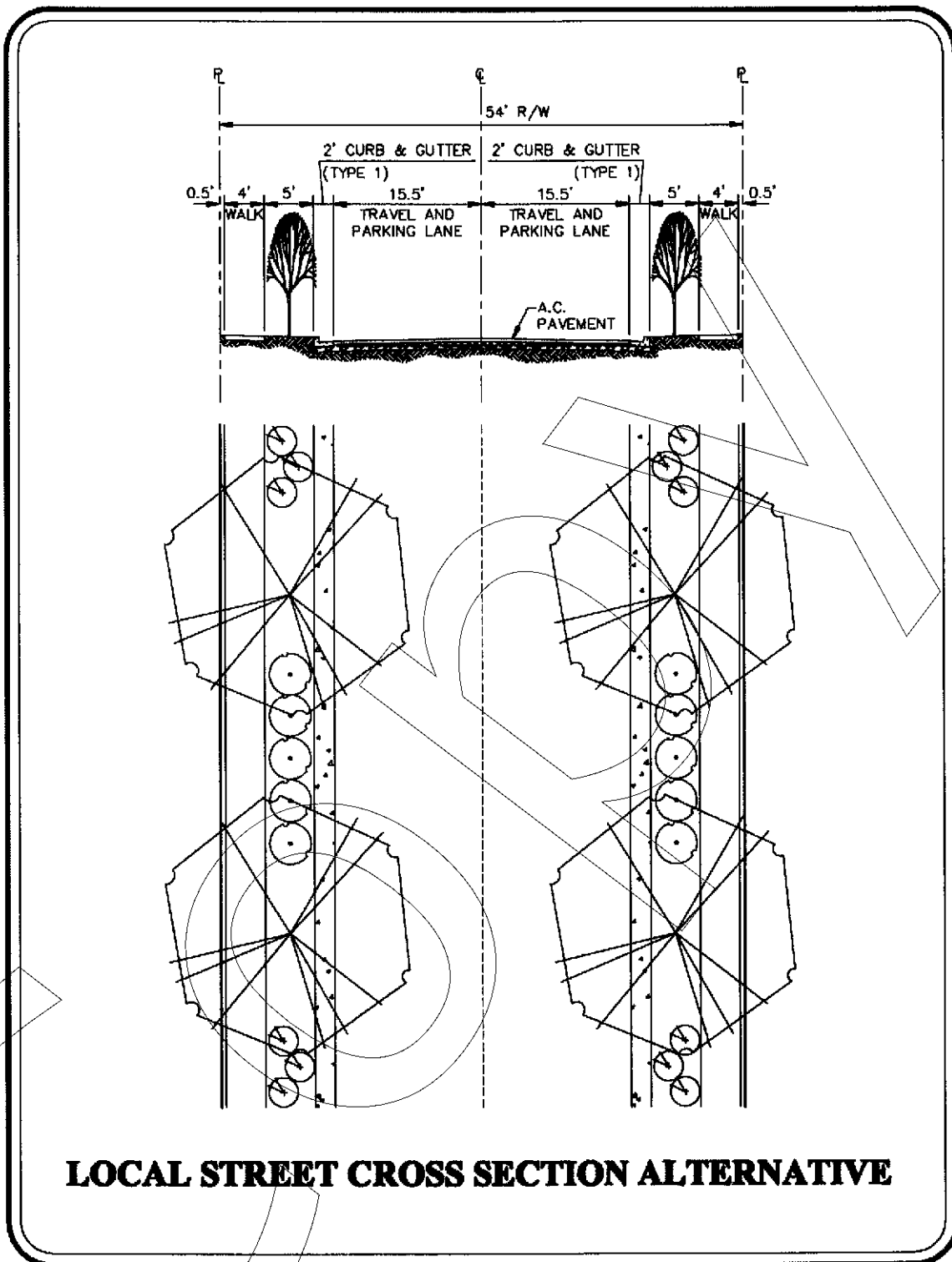


Figure 3C

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**Table 2A – Minor Arterial Roadway Landscape Standards – Sidewalk on One Side Only**

+/- 9,600 s.f. per 300 l.f. (32' of Landscaped Width = 13' landscape area on side with no sidewalk, 11' landscape area in median, 8' landscape area on side with sidewalk)

Trees (32 Trees Total or 1 Tree/300 s.f.)	21 Deciduous Trees – 100% at 2.5" Caliper or larger 11 Evergreen Trees – 100% at 10' tall or larger
Shrubs	72 Shrubs (5 Gallon) = (3,360 s.f.)/35%
Living Groundcover	120 (1 Gallon) = (3,360 s.f.)/35%
Turf	Not to Exceed 30% (2,880 s.f.)

**Notes:**

1. Tree and plant quantities and spacing apply to each side of the street as well as the median.
2. Exclude evergreens on street side with sidewalks.
3. All planting areas are to receive rock or bark mulch 4" in depth.

**Table 2B – Minor Arterial Roadway Landscape Standards – Sidewalk on Both Sides of Street**

+/- 8,100 s.f. per 300 l.f. (27' of Landscaped Width = 8' landscape area on each side with sidewalk, 11' landscape area in median)

Trees (27 Trees Total or 1 Tree/300 s.f.)	18 Deciduous Trees – 100% at 2.5' Caliper or larger 9 Evergreen Trees – 100% at 10' tall or larger
Shrubs	61 Shrubs (5 Gallon) = (2,835 s.f.)/35%
Living Ground Cover	101 (1 Gallon) = (2,835 s.f.)/35%
Turf	Not to Exceed 30% (2,430 s.f.)

**Notes:**

1. Tree and plant quantities and spacing apply to each side of the street as well as the median.
2. Exclude evergreens on both street sides with sidewalks. Evergreens are allowed in medians.
3. All planting areas are to receive rock or bark mulch 4" in depth.

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**Table 3 – Collector Roadway Landscape Standards**

+/- 4,800 s.f. per 300 l.f. (16' of Landscaped Width = 8' landscape area on each side)

Trees (16 Trees Total or 1 Tree/300 s.f.)	16 Deciduous Trees – 100% at 2.5" Caliper or Larger
Shrubs	36 Shrubs (5 Gallon) = (1,680 s.f.)/35%
Living Groundcover	4060 (1 Gallon) = (1,680 s.f.)/35%
Turf	Not to Exceed 30%/(1,440 s.f.)

**Notes:**

1. Tree and plant quantities and spacing apply to each side of the street.
2. Exclude evergreens on street sides with sidewalks.
3. All planting areas are to receive rock or bark mulch 4" in depth.

**Table 4 – Local Street Alternative Landscape Standards**

+/- 3,000 s.f. per 300 l.f. (10' of Landscaped Width = 5' landscape area on each side)

Trees (10 Trees Total or 1 Tree/300 s.f.)	10 Deciduous Trees
Shrubs	22 Shrubs (5 Gallon) = (1,050 s.f.)/35%
Living Groundcover	38 (1 Gallon) = (1,050 s.f.)/35%
Turf	Not to Exceed 30% (900 s.f.)

**Notes:**

1. Tree and plant quantities and spacing apply to each side of the street.
2. All planting areas are to receive rock or bark mulch 4" in depth.

**Table 5 – Residential Collector Optional 10' Median Landscape Standards**

+/- 3,000 s.f. per 300 l.f. (10' Landscaped Width = 10' landscape area in median)

Trees (10 Trees Total or 1 Tree/300 s.f.)	7 Deciduous Trees 3 Evergreen Trees
Shrubs	23 Shrubs (5 Gallon) = (1,050 s.f.)/35%
Living Groundcover	37 (1 Gallon) = (1,050 s.f.)/35%
Turf	Not to Exceed 30% (900 s.f.)

**Notes:**

1. All planting areas are to receive rock or bark mulch 4" in depth.

Landscaping shall be provided between the back of sidewalks to any fences and/or walls within the development. Landscape standards for these areas can be found in Section III, Land Use/Development Standards under Fencing.

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## Water

The Silver Star Ranch property is currently not served by a community water system. The project will require the importation of water from an external source. The maximum projected water demand at build out is estimated to be 449 acre-feet annually (AFA). Potable water demand could be reduced by 175 – 200 AFA if treated effluent reuse is maximized. This would result in a total potable demand of between 249 and 274 AFA for Silver Star Ranch.

The required water resources for the Silver Star Ranch could be provided by two projects identified in the “City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan – Volume 1”. The Fish Springs Water Supply project is capable of providing 8,000 AFA of new water to serve the Cold Springs TMSA. These improvements have been constructed and those resources are currently available. In addition, the Intermountain Water Supply facilities could potentially provide 2,000 AFA of new water. Appendix B of this handbook includes a detailed water facility plan for the Silver Star Ranch prepared by Manhard Consulting, Ltd.

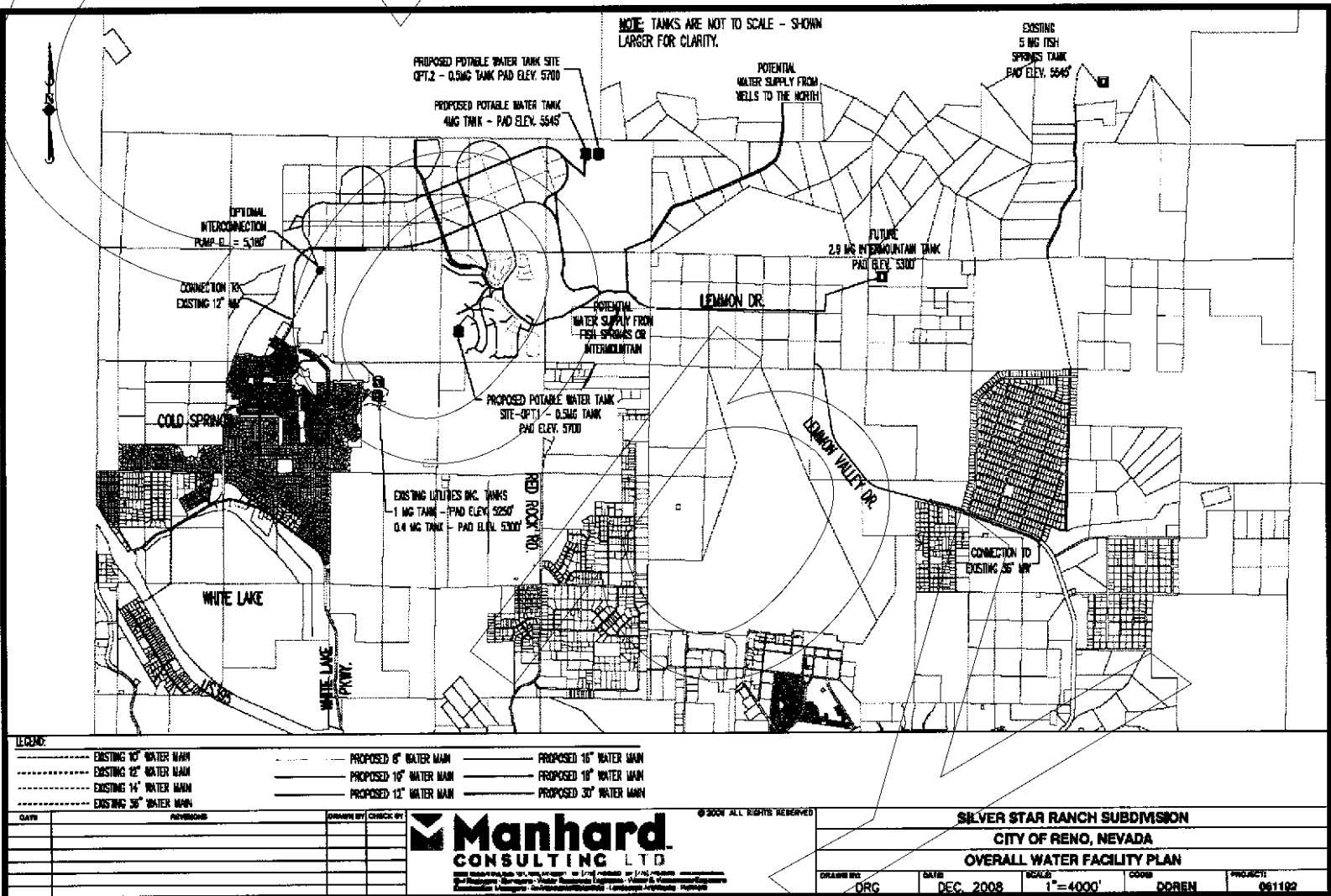
Silver Star Ranch is within the Washoe County Water sphere of influence. In addition to Washoe County, alternative service providers include Utilities Inc. and Truckee Meadows Water Authority (TMWA). The water service provider for the Silver Star Ranch shall be determined prior to the approval of the first final map.

All necessary water infrastructure to bring water to the development is anticipated to be constructed by the master developer(s) of Silver Star Ranch. Water tanks shall be subject to the approval of a site plan review per standards contained on page IV-6 of this handbook prior to construction. With the submittal of the first tentative map, a more refined plan and schedule shall be provided depicting the proposed water infrastructure. Each subsequent tentative map shall identify the necessary water infrastructure required for the development of said map. These improvements shall be required to be constructed by either the Silver Star Ranch master developer or the developer of that specific tentative map.

The Water Facility Plan for Silver Star Ranch (December 2008) is incorporated as a part of this handbook and will be refined as development progresses. Specific design level details shall be required to be provided at the tentative and final map stages of development. Figure 4 (also identified as Exhibit 6 in the Water Facility Plan) details the preliminary design for water system infrastructure necessary to serve Silver Star Ranch.

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Figure 4 - Water Facility Plan



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## Sewer

The Cold Springs Water Reclamation Facility (CSWRF) is located approximately 2 miles west of the proposed Silver Star Ranch Development. This treatment plant is operated by the Washoe County Water Resources Department. The Wastewater Facility Report for Silver Star Ranch prepared by ECO:LOGIC Consulting Engineers in January 2009 defines a plant expansion that would allow treatment of 1.2 million gallons per day (MGD). The complete report is found in Appendix C of this handbook. This additional capacity is available on a first come first serve basis. The current capacity is 0.7 MGD with an expansion capacity of 0.5 MGD. The available capacity following expansion is greater than the 0.4 MGD that would be created by the Silver Star Development. Additional options have been identified in the Wastewater Facility Report including the construction of a stand-alone treatment plant to serve the Silver Star Development.

The CSWRF uses rapid infiltration basins (RIBs) to dispose of the treated effluent that passes through the facility. As described in the Wastewater Facility Report, the build-out capacity of the RIBs is 1.3 MGD. While this will accommodate the addition of Silver Star Ranch, it will eventually be the limiting factor for treatment plant capacity unless other disposal options are considered. The Wastewater Facility Report explores the option of effluent reuse and the additional level of treatment required for that option. During the non-irrigation season, effluent could be disposed of in the RIBs, discharged to White Lake, or stored in the proposed effluent reservoir for later use. Figure 5 (also identified as Exhibit 1 in the Sewer Facility Plan) identifies the infrastructure necessary to provide sewer service for Silver Star Ranch. The Silver Star Ranch master developer(s) will construct and/or fund plant improvements and infrastructure necessary for the project. Specific methods and timing for construction and funding of the sewer system improvements shall be resolved prior to the approval of the first tentative map. An updated Wastewater Facility Report will also be provided to staff prior to the approval of the first tentative map.

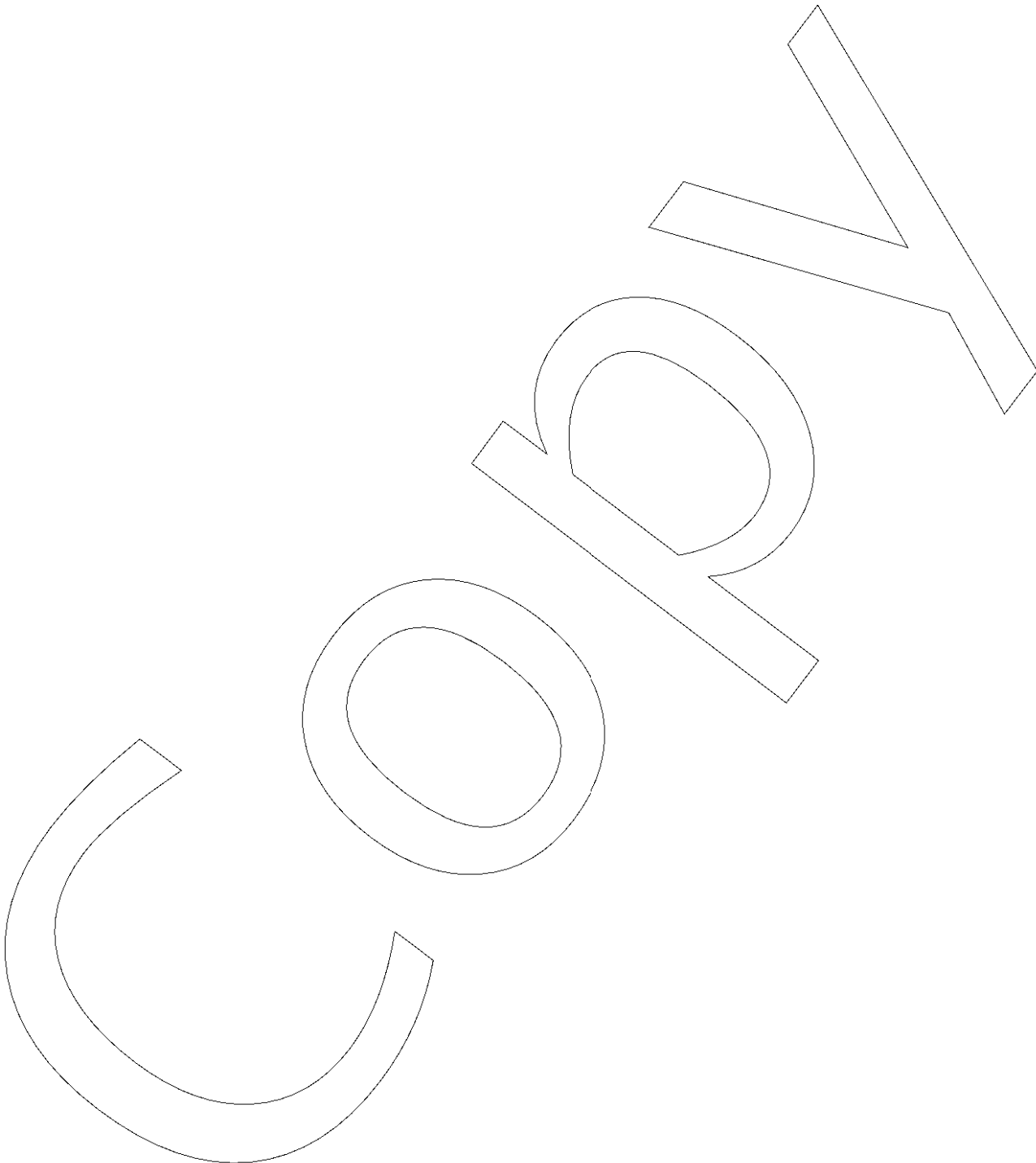
As is indicated in Appendix C, the potential exists for a coordinated wastewater treatment and disposal strategy with the approved Evans Ranch development, located north of Silver Star Ranch. Because the developments are independent of one another, and the timing of one project may not be appropriate for the other, independent wastewater facility plans were prepared for each area. As the timing for the development of each project becomes more precise, determination about whether or not a coordinated strategy is possible will be explored in more detail.

As stated above, the development of Silver Star Ranch (1,600 units) has a capacity requirement of .4 MGD. Evans Ranch (5,556 units) has a capacity requirement of 1.6 MGD. As the Cold Springs facility has current plans to expand from .7 MPD to 1.2 MGD, it is reasonable to conclude that, should Silver

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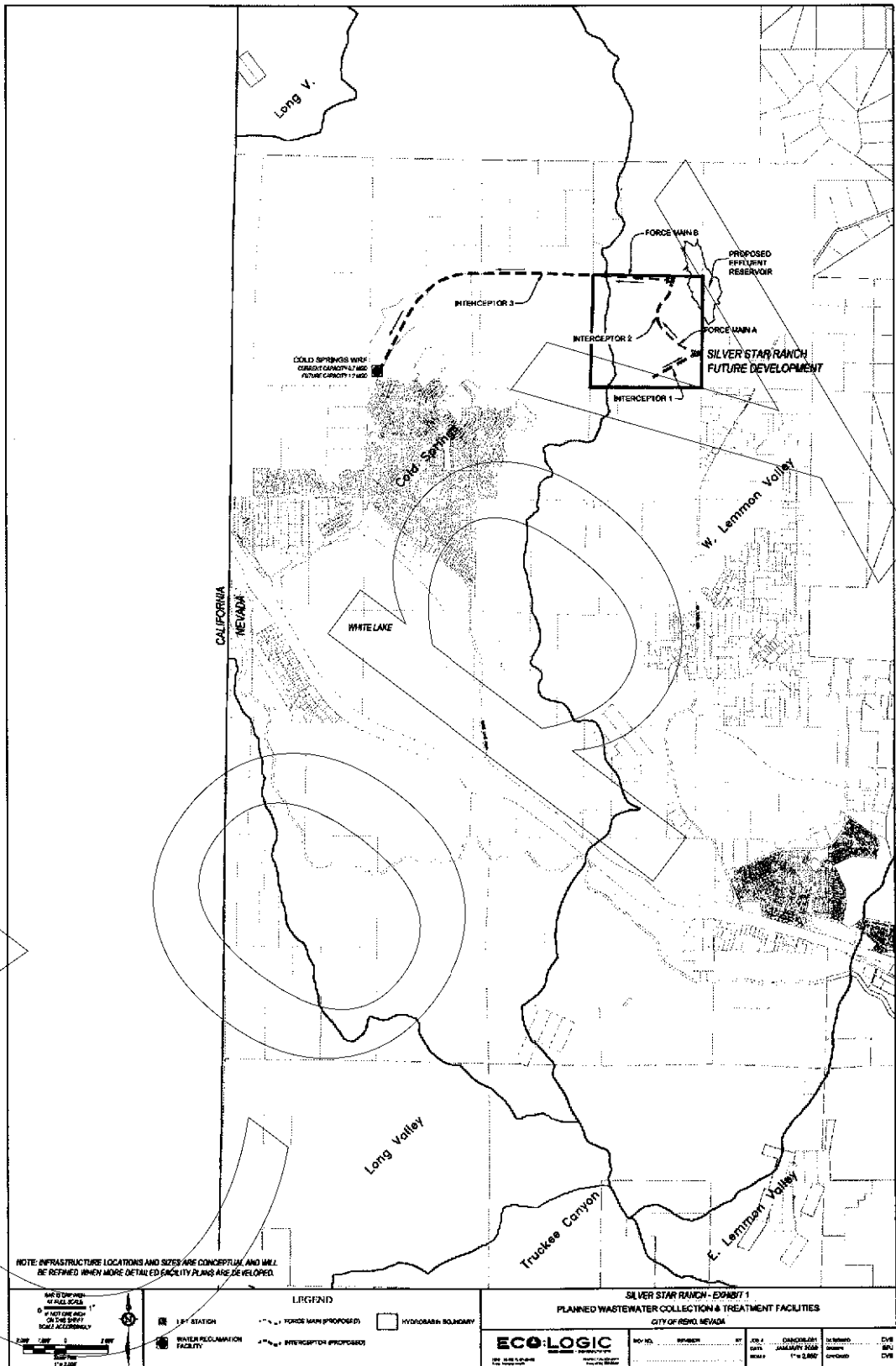
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Star Ranch be developed before Evans Ranch, Silver Star Ranch could be served by the planned Cold Springs facility expansion. Alternately, should Evans Ranch be developed before Silver Star Ranch, additional expansion of the Cold Springs facility or the construction of a new facility will need to be explored.



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Figure 5 – Sewer Facility Plan



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## Drainage

A drainage letter was prepared in January 2009 by Manhard Consulting, Ltd. addressing drainage for the Silver Star Ranch site. This drainage letter is contained in Appendix D of this handbook. Silver Star Ranch is divided by existing ridges into 11 on-site drainage sub-basins as shown on Figure 6. The majority of the site drains north and east, eventually reaching an existing off-site drainageway which crosses Red Rock Road.

The combined area of sub-basins 5 and 6 totals more than 100 acres and therefore, per City of Reno Code, these sub-basins form a major drainageway. No subdivision/land development activities are planned in this area. However, this major drainageway is located within Washoe County's proposed effluent storage/detention area. The size and location of possible improvements associated with the effluent storage/detention facility are currently unknown. Regardless of its nature, if development is proposed in this major drainageway, then the City of Reno drainageway protection standards for a natural drainageway will be followed.

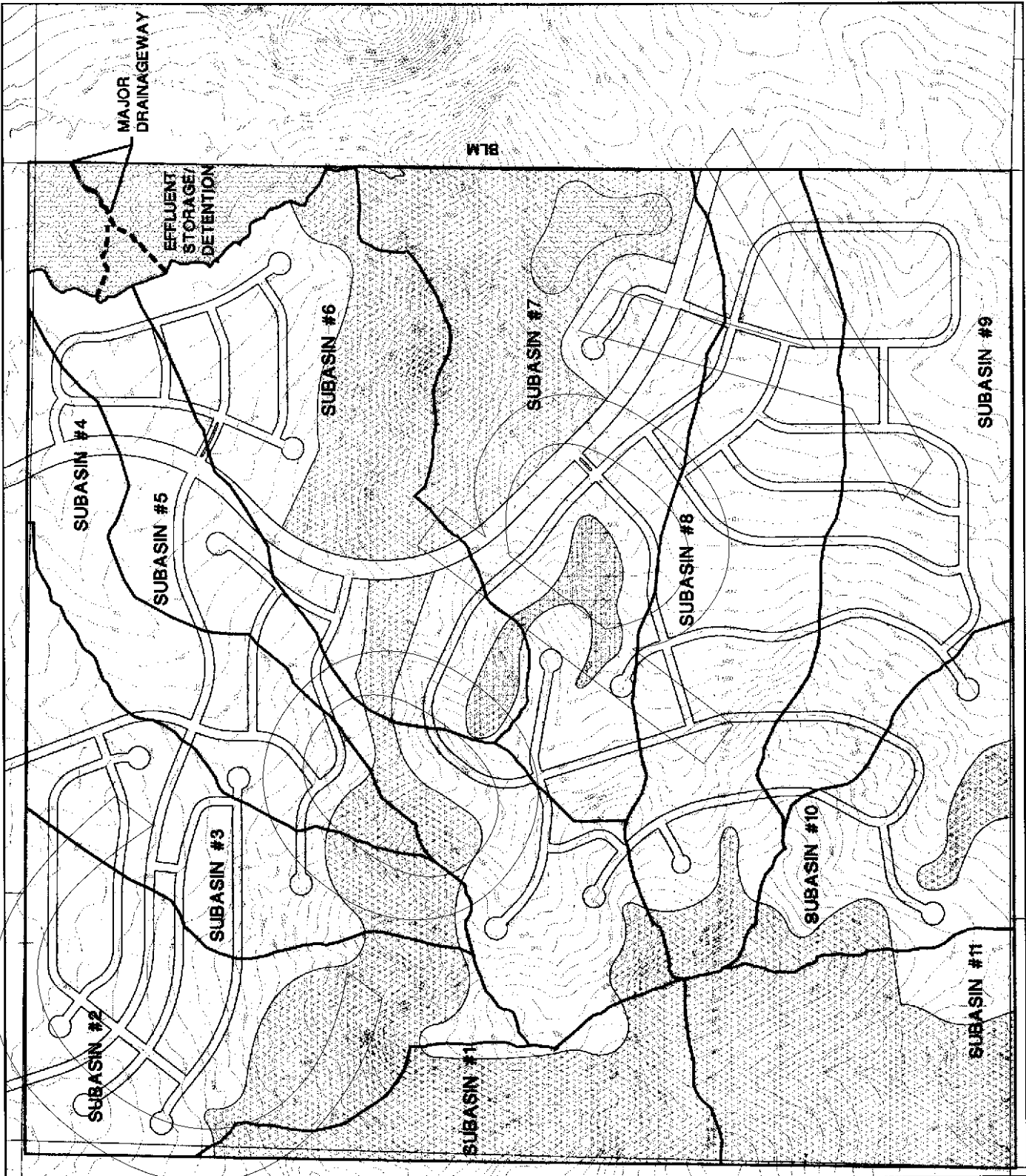
Detention facilities will be provided for drainage areas at their downstream ends. Infiltration structures, which allow storm water to enter the ground slowly, will be utilized to further minimize detention facility size. These infiltration systems are also very effective in filtering storm water and removing pollutants. Infiltration of storm water can also help with ground water recharge.

Any drainageways that are created to accommodate the Silver Star Ranch development will be enhanced with formal landscaping which may include turf and/or non-native plant species. Native, drought-tolerant shrubs and grasses and riparian vegetation will also be utilized. Landscaping will be designed to address aesthetics. These drainageways will include water quality, stormwater, management and recreation functions where appropriate. LID (Low Impact Development) techniques such as bioretention systems and landscaped drainageways with low flow channels and check dams, will be used throughout the site to minimize the required detention volume. Specific drainageway design standards can be found in Section III of this handbook.

All roadway crossings of drainageways will incorporate bridge railings, culvert arches, or other methods to provide an appearance that mimics a bridge. Pedestrian/trail system crossings of drainageways will be via low flow crossings.

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Figure 6 – Pre-Development Drainage Sub-Basins



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### Soils

A feasibility level soils study was conducted for the Silver Star Ranch Development to determine the general nature of the soils onsite. This study, prepared by James Edwards Engineering, is provided in Appendix E of this handbook.

The study included the review of published geologic maps and fault hazard reports to assess the anticipated soil/bedrock types and the likelihood for special construction or development considerations, as well as identify the presence, if any, of documented geologic hazards.

The site geology review has indicated that, for the most part, soils existing on the site are suitable for development. Some areas, depending upon the specific soil contents, will likely require selective grading, special foundation considerations or thickened structural sections. Geologic hazards, such as identified Quaternary Faults, were not found to cross the parcel.

### Fire Services

The fire station located in the Town Center or next to the neighborhood commercial site on the east side of the Evans Ranch PUD will be dedicated to the City of Reno. Final location and timing of construction of this fire station will be determined by the City of Reno. This fire station will serve the needs of Silver Star Ranch. Depending upon the development timing of Silver Star Ranch versus the development timing of Evans Ranch, one of the two following options shall be selected:

OPTION (1): Enter into a written agreement with the City of Reno, which must be approved by City Council, to pay its proportionate share of the proposed Evans Ranch Fire Station #22 in order to provide required fire protection to the proposed Silver Star Ranch development area and comply with all terms and conditions of such agreement. This option requires that the Evans Ranch Fire Station #22 must be constructed as required in LDC08-00150, prior to the issuance of a Certificate of Occupancy for any building within the Silver Star Ranch development. The issuance of Certificates of Occupancy for Silver Star Ranch shall not be prevented if the fire station is not immediately staffed following dedication to the City of Reno. If Evans Ranch does not proceed as indicated above, the Silver Star Ranch project would be delayed until compliance is obtained from the developers of Evans Ranch, or,

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**OPTION (2):** Enter into a written fire station development agreement with the City of Reno to construct and dedicate a new two (2) bay fire station on a 2.5-acre site for the Reno Fire Department and comply with all terms and conditions of such agreement. This fire station shall serve both the Silver Star Ranch development as well as the Evans Ranch development and shall have an approximate square footage of plus or minus 7,200 square feet, and shall be positioned on the acreage to allow for a future addition of a third fire truck bay. This new Fire Station #22 generally shall be modeled after the Somerset Fire Station and the Cold Springs Fire Station and shall meet fire department specifications, in the City's sole discretion. Specific requirements for a turn-key fire station will be included in the fire station development agreement. Silver Star Ranch will propose possible fire station locations at the time of application of the first tentative map. This new fire station shall be constructed, completed, dedicated and accepted by the City of Reno on or before the issuance of the first Certificate of Occupancy for any unit, even if the unit is commercial, within the Silver Star Ranch development.

Silver Star Ranch will provide and dedicate land, water, utilities and construct a turn-key, (meaning fully equipped ADA assessable and functional fire station building excluding fire-fighting apparatus and vehicles. The materials utilized and details of which shall be a term and condition of the fire station development agreement, which may include but is not limited to specified rooms, furnishings and fixtures, exercise equipment, generator, traffic control devices, and landscaping) new full-time two (2) bay fire station to be located within the Silver Star Ranch development in the area of Village 9. This area has been demonstrated to City of Reno as being within adequate distance to serve all necessary areas within Evans Ranch as contemplated as of January 13, 2010. The location of the new fire station shall be to the approval of the Reno Fire Department.

The fire station may be one or two stories in height at Silver Star Ranch's discretion. Silver Star Ranch shall dedicate the fully constructed fire station and land to the City of Reno, free and clear of all hazardous waste and contaminants, liens, special assessments, homeowner

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association requirements, other encumbrances and title exceptions on the timeline set forth below. Any title exceptions which Silver Star Ranch Development requests remain on the fire station site will require the approval of the Reno City Council.

The developer shall establish a per residential unit fee sufficient to fund the obligations of the developer to construct a turn-key fire station as referenced in the February 1, 2010 letter from the City of Reno Fire Department and collect it at the time each building permit is obtained for each residential unit, to cover either the proportionate share or the full cost of the applicable turn-key fire station and such fees shall be held in a City of Reno established restricted fund. If any residual portion of the property is sold after the construction and dedication of the fire station to the City of Reno, such fees shall be immediately reimbursed to the developer.

Any modifications to the Evans Ranch PUD and related maps, which are necessitated by developer's selection of Option 2, shall be the responsibility of developer to coordinate with the developer of Evans Ranch to assure proper modification of the Evans Ranch PUD.

Additionally, as part of the PUD requirements, applicant shall comply with nationally recognized standards such as the latest edition of the "*International Wildland-Urban Interface Code*" and "*Living With Fire: A Guide for the Homeowner*" written by Ed Smith, University of Nevada Cooperative Extension. The program will be developed and maintained as part of the Silver Star Ranch Planned Unit Development Handbook.

If, in the future, an impact fee structure to provide for fire protection is adopted by the City, development of Silver Star Ranch will be subject to these fees in lieu of providing a fire station building and site.

Additional information regarding fire service is found in Section IV – Implementation under Fire Services Agreement on page IV-2 of this PUD handbook.

### **Police Services**

Silver Star Ranch will be served by the City of Reno Police Department. Planning for future police service demands in the North Valleys area is addressed in the City of Reno Public Services, Facilities, and Infrastructure Plan. Silver Star Ranch will provide a per residential unit police facility fee as outlined on Page IV-4 of the Implementation Section of this handbook.

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In addition to the per home police facility fee, Silver Star Ranch will provide for public police facilities within the fire station outlined in the fire services section above, either as a part of the agreement to pay its proportionate share of the Evans Ranch fire station (Option 1), or to construct and dedicate a fire station within Silver Star Ranch (Option 2). These public police facilities will include an additional 600 square feet of office space with separate access in the fire station building, four (4) additional parking spaces designated for police vehicles or for the use of those conducting police business, three (3) computers, three (3) desks and three (3) chairs, or the equivalent thereof provided to the sole satisfaction of the City of Reno.

### **Schools**

The neighboring Evans Ranch Planned Unit Development includes two elementary school sites that can provide a portion of the elementary school capacity for Silver Star Ranch. Timing of the construction of these schools will be determined by the Washoe County School District, and is dependent upon the rate of development in the area. Middle and high school students generated by this project are anticipated to attend existing middle and high schools in the area.

To serve this project and the Red Rock corridor, Washoe County School District has expressed interest in an additional elementary school site somewhere in the vicinity.

Washoe County School District and Silver Star Ranch, are aware that the BLM property to the east of Silver Star Ranch has been designated for public uses such as schools, parks or recreation. Silver Star Ranch proposes that an elementary school would be better located on this adjacent BLM property and will actively participate in negotiations between the Washoe County School District, City of Reno and BLM to secure an 8.5-10 acre elementary school site. This site shall be identified and acquired for the Washoe County School District prior to approval of the first tentative map. Should an acceptable site be identified and acquired by the Washoe County School District, Silver Star Ranch shall enter into an agreement with the Washoe County School District to address the developer's proportionate share of costs for construction of the elementary school, to the satisfaction of City staff.

If an agreement with the Washoe County School District, the City of Reno and BLM cannot be reached regarding an offsite elementary school site, then the master developer will work with the Washoe County School District to identify an acceptable elementary school site of 8.5-10 acres within Silver Star Ranch. Prior to the approval of the first tentative map, Silver Star Ranch shall enter into an agreement with the Washoe County School District to dedicate 8.5-10 acres for the elementary school, rough grade the site and stub utilities beyond the edge of pavement of the adjacent road, to the satisfaction of City staff. A tentative

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location for the elementary school has been identified on the north side of Silver Star Ranch as shown on Figure 12A in Section III of this PUD handbook. Any school site identified and acquired by the Washoe County School District as a result of this project shall not be located adjacent to an arterial street.

A Safe Route to Schools plan shall be provided with each tentative map to the satisfaction of City staff. Any units displaced by the school site may be relocated elsewhere in the site, subject to meeting the standards outlined in this PUD. The maximum number of residential units shall not exceed 1,600.

### **Open Space, Trails and Parks**

Topographical constraints have provided an opportunity for Silver Star Ranch to preserve a significant amount of land as open space. A minimum of 210.6 acres (approximately 33%) will be maintained as common open space. The open space includes natural areas such as: rock outcroppings, drainageways, stormwater detention basins, parks and, potentially, an effluent detention pond. Trails and sidewalks located within the open space and along roadways will serve as linkages between all uses. Improvements in these areas will be limited to those which will facilitate recreational activities, and will be defined with the overall schematic master trails plan for the project. The overall schematic master trails plan will provide standards for development and implementation of improvements within the open space areas, as well as specify areas where natural open space will be preserved. Landscaping irrigated by domestic or treated effluent water may be installed in the active areas of this open space and will be further defined within the master trails plan.

A possible future effluent storage facility has been identified as a part of the open space in the northeast corner of Silver Star Ranch. This storage facility is not definite, nor is it required to support the development of Silver Star Ranch. Should the effluent storage facility be developed, ownership and maintenance of the facility shall be determined at that time. If the facility is not developed, that area will continue to be maintained as a part of the Silver Star Ranch common open space.

Neighborhood parks are included as a part of the 210.6 acres allocated for open space in Silver Star Ranch. The total park acreage calculation is based on 3.5 acres per 1,000 residents at final build-out and is estimated between 12-13 acres. Two neighborhood parks have been tentatively identified on Figure 7, Trails/Open Space, but can be relocated within the development to the satisfaction of City staff and in accordance with the Parks Development and Maintenance Agreement. Silver Star Ranch shall work with the City of Reno Parks and Recreation Department to refine details of park development such as final park sizes, locations, amenities, open space and trail design, etc. through a

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Park Development and Maintenance Agreement (PDMA). The PDMA shall be finalized prior to approval of the first final map.

Figure 7 is a conceptual plan of the trail system located within the open space system for Silver Star Ranch. The trail system will consist of sidewalks (4'-5' in width) located along roads (Figures 2A-2E) and decomposed granite or native soil trails within the open space (8' minimum width) (Figure 8, Open Space Trail Section). Trails that cross drainageways shall be consistent with Figures 31 and 32 in Section III, Land Use/Development Standards. Flexibility for wider paths will depend on location and the desire of the developer. The sidewalks along project streets will provide internal connections from villages to open space trails and to Evans Ranch. With application for the first tentative map, an overall schematic master trails plan for Silver Star Ranch consistent with Figure 7 will be provided for planning commission approval and will be included with the Parks Development and Maintenance Agreement. Provisions for implementation of the Parks Development and Maintenance Agreement can be found under "Parks Agreement" in the Implementation section of this handbook. The first tentative map in each village will include a specific trail plan for that entire village. All pedestrian/bicycle trails and trailheads associated with each tentative map must be installed by the developer with the final map improvements. All elements and specifications related to the trail surfaces and widths, signs, amenities (benches, picnic tables, etc.), landscaping, trailhead parking lots, etc. for the trails/open space plan will be made a part of the Parks Agreement discussed on Page IV-4 in the Implementation section of this PUD Handbook.

Access portals from the interior of the development to open space areas will be provided in the general locations identified on Figure 7. Specific locations shall be shown as a part of the tentative map for each village. Silver Star Ranch may provide additional access points to open space which are consistent with the standards listed below, to the satisfaction of City staff.

Open space access portals shall be a minimum of 30' wide as shown on Figure 9 and will contain a 5' wide concrete sidewalk, and formal landscaping consistent with the standards outlined in Table 6. Portals shall be fenced on any side adjacent to residential, commercial or public facilities development. Fencing adjacent to residential development shall consist of solid 6' tall wood privacy fencing and shall transition to lower heights (if applicable) to meet rear yard open fencing height per Figures 36 and 37 in Section III – Land Use/Development Standards. Fencing adjacent to commercial or public facilities development shall be open fencing. All fencing shall be consistent with the standards contained in Section III - Land Use/Development Standards.

Selected open space portals may also incorporate drainageways and/or access for fire service vehicles in the event of a wildfire. Silver Star Ranch will work with City staff to identify open space portals for fire vehicle access with the tentative

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map for each village. The open space portals may be widened beyond the minimum 30' to provide adequate vehicle access. Sidewalks may either be widened to an appropriate width to accommodate fire service vehicles (12' minimum width for fire vehicles), or Silver Star Ranch may provide a compacted, all-weather surface, such as decomposed granite, on either side of the sidewalk to an appropriate width to the satisfaction of the Fire Department for fire service vehicle use. Landscaping shall begin at the edge of either the widened sidewalk or compacted surfaces as applicable.

When incorporating landscaped drainageways into open space portals, the width of the portal will vary depending upon the width of the 100-year storm flows. In no case shall this width be less than 30'.

**Table 6 – Open Space Access Portal, Natural Drainageway and Formal Slope Treatment Landscape Standards**

Trees = 1 Tree/500 s.f.	75% Deciduous Trees – 100% of 2.5" Caliper or Larger 25% Evergreen Trees – 100% of 10' tall or Larger
Shrubs	1 Shrub/94 s.f. (5 Gallon) = 35% of planting area
Living Groundcover	1 Groundcover/56 s.f. (1 Gallon) = 35% of planting area
Turf	Not to Exceed 30%

**Notes:**

1. Tree and plant quantities apply to each side of the sidewalk.
2. All planting areas are to receive rock or bark mulch 4" in depth.
3. For turf on formal slope treatments, see note in Figure 21 regarding maximum turf coverage. For areas where turf coverage is not allowed, the remaining percentage shall be distributed evenly between the shrubs and groundcover.

Silver Star Ranch will provide a minimum of two (2) trailheads which will be accessible by the public to use the Silver Star Ranch open space, and to access the public lands that are adjacent to the project. These trailheads have been conceptually located on Figure 7, but may be relocated within the project to the satisfaction of City staff. Each trailhead shall include public parking on an all-weather surface for at least ten (10) vehicles and shall provide trail signage and lighting at the trailhead entrance. Signage and lighting standards for trailheads shall be established with the Parks Development and Maintenance Agreement. Trailhead lighting shall utilize dark sky practices as outlined in Section III – Land Use/Development Standards. Trailheads may be incorporated into the neighborhood parks to co-utilize parking. If trailheads are incorporated into park

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areas, an additional five (5) parking spaces shall be added to the total parking space count for the park.

Existing dirt roadways on the Silver Star Ranch property shall be utilized and redeveloped for trails where the trail system identified in Figure 7 can feasibly align with said roads. Existing dirt roadways not feasible for use in the open space trail system will be scarified and revegetated with a native seed mixture approved with the master trails plan.

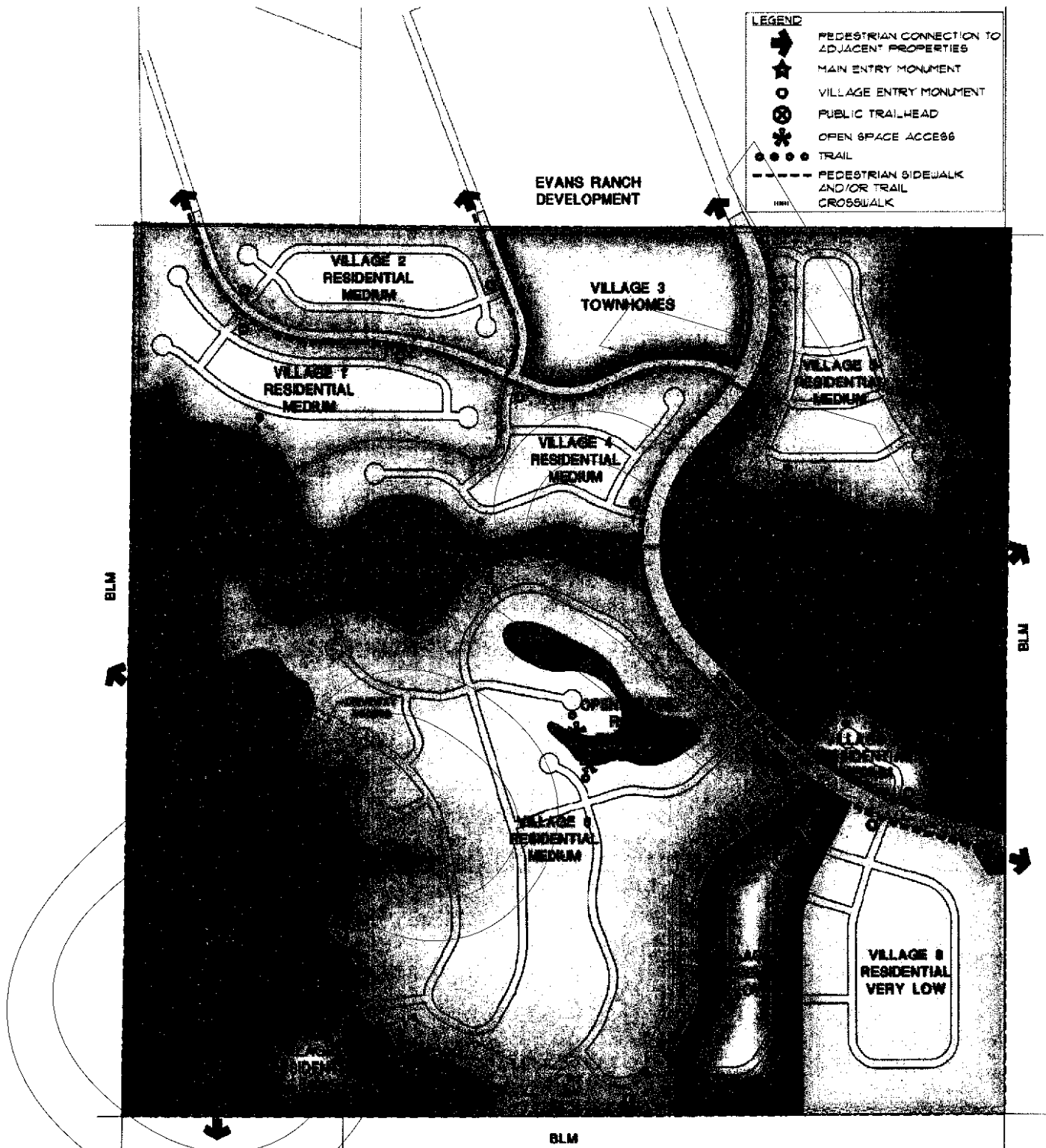
Equestrian trails may be provided in the two (2) main open space areas in Silver Star Ranch (to the west and north of Village 6 and to the south of Village 5). Whether or not equestrian trails are to be provided will be at the discretion of the developer and determined with the creation of the Master Trails Plan prior to the approval of the first final map. All equestrian trail standards shall be detailed in the Master Trails Plan to the satisfaction of City staff. At a minimum, the following standards shall apply for any equestrian trails:

- Equestrian trails shall be located in the open space areas to the north and west of Village 6 or the south of Village 5 only.
- Equestrian trails may only be accessed within Silver Star Ranch via the two (2) designated public trailheads.
- Equestrian trails shall not connect to any residential area within Silver Star Ranch.
- Equestrian trails shall be separate from pedestrian trails with standards specified in the Master Trails Plan.

Construction of open space access portals, trails, trailheads, public access points and revegetation of non-utilized dirt roads shall occur with the development of landscaping of the adjacent village, as directed by the master developer and to the satisfaction of City staff. All of said improvements shall be consistent with the approved master trails plan and shall be maintained by the Silver Star Ranch homeowners' association.

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Figure 7– Trails/Open Space Exhibit



\* Village 9 Alternative – Neighborhood Commercial or Public Facilities

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Figure 8 – Open Space Trail Section

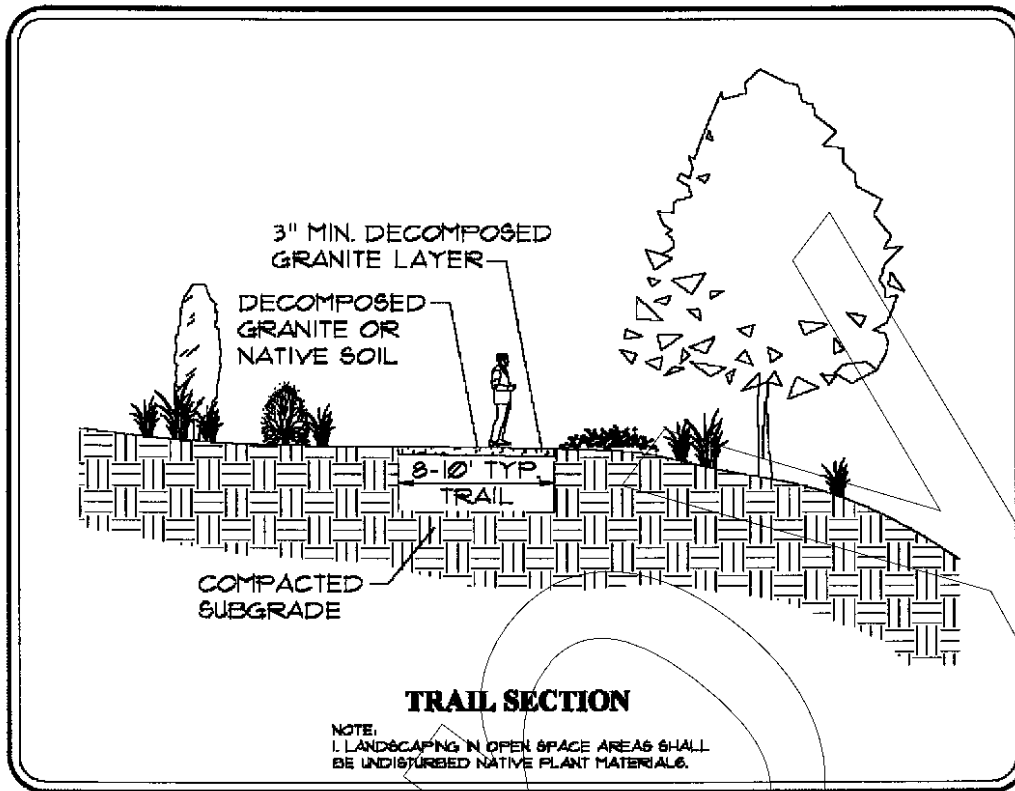
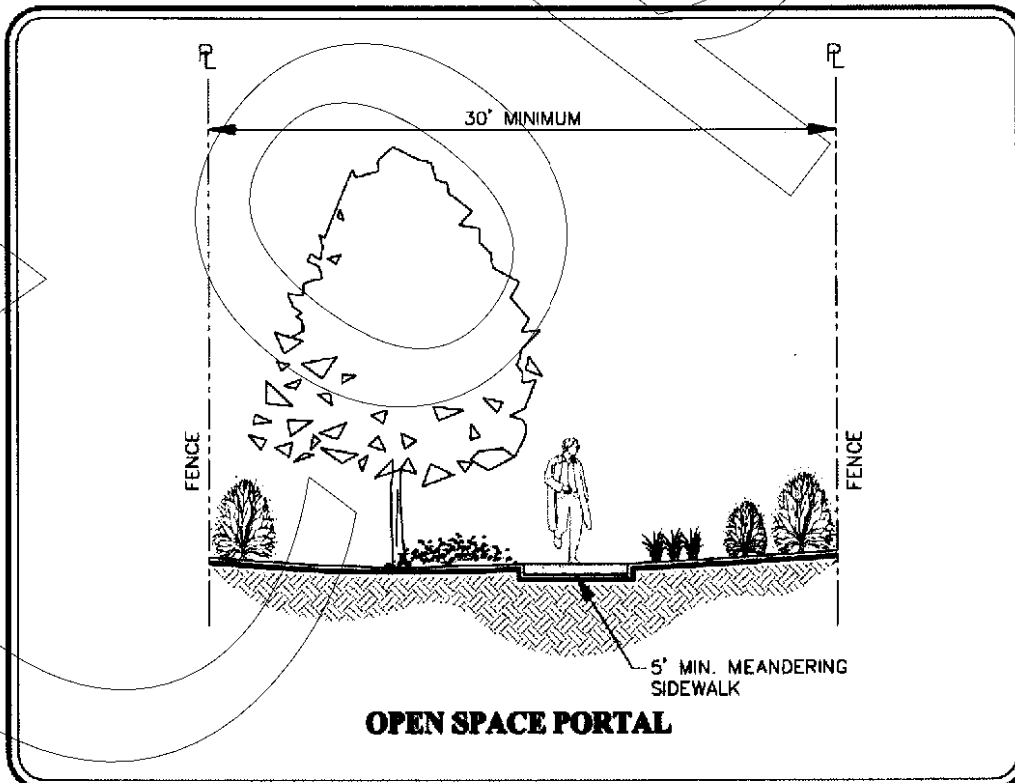


Figure 9 – Open Space Access Portal Section



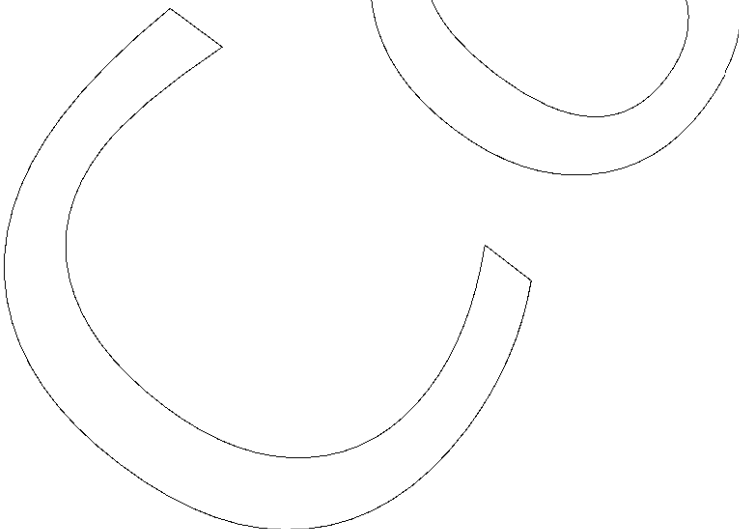
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### **Project Entrances and Signage**

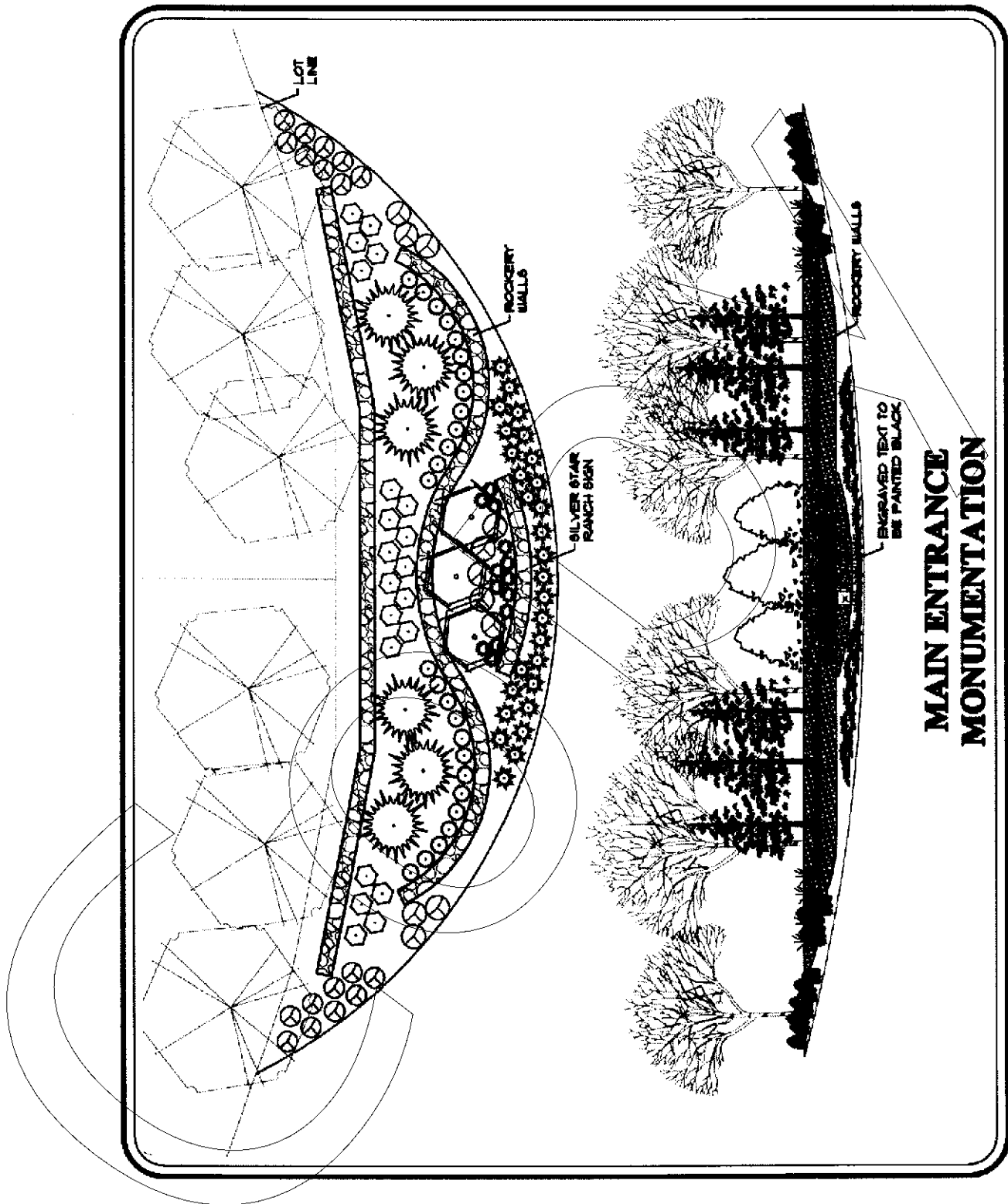
Silver Star Ranch shall have a landscaped main entry monument feature with signage where Silver Parkway enters the development from the east. This entrance feature will be approximately 3,000 s.f. in area and will be located at the northeast corner of Village 8 as shown on Figure 7. Conceptual standards for this feature have been depicted in Figure 10 of this section. Detailed design standards including landscaping, hardscape materials and signage materials/size shall be finalized and submitted with the first tentative map for approval by the Planning Commission, and shall be constructed with the roadway improvements for the adjacent section of Silver Parkway.

Each village will have an entry monument feature that is consistent with all other villages and the standards outlined in this section. Individual village entry features shall be approximately 250 s.f. in area and be located at a minimum of one (1) village entrance off of Silver Parkway or the collector roadways to the satisfaction of City staff. This standard shall apply to Villages 1-6, Village 8 and Village 9. The entry features for Village 7 shall be located at the two entrances closest to Silver Parkway. The entry features for Village 10 shall be located at the single entrance to this village. Approximate locations for the village entry monuments are depicted on Figure 7 but may be relocated at the developer's discretion and to the satisfaction of City staff. Conceptual standards for the village entry features have been depicted in Figure 11. Detailed design standards including landscaping, hardscape materials and signage materials/sizes for all village entry monuments shall be finalized during the review of the first tentative map submitted for approval by the Planning Commission. Each subsequent village entry feature shall be constructed consistent with the standards approved with the first tentative map and with the residential collector or local roadway to which the feature is adjacent.



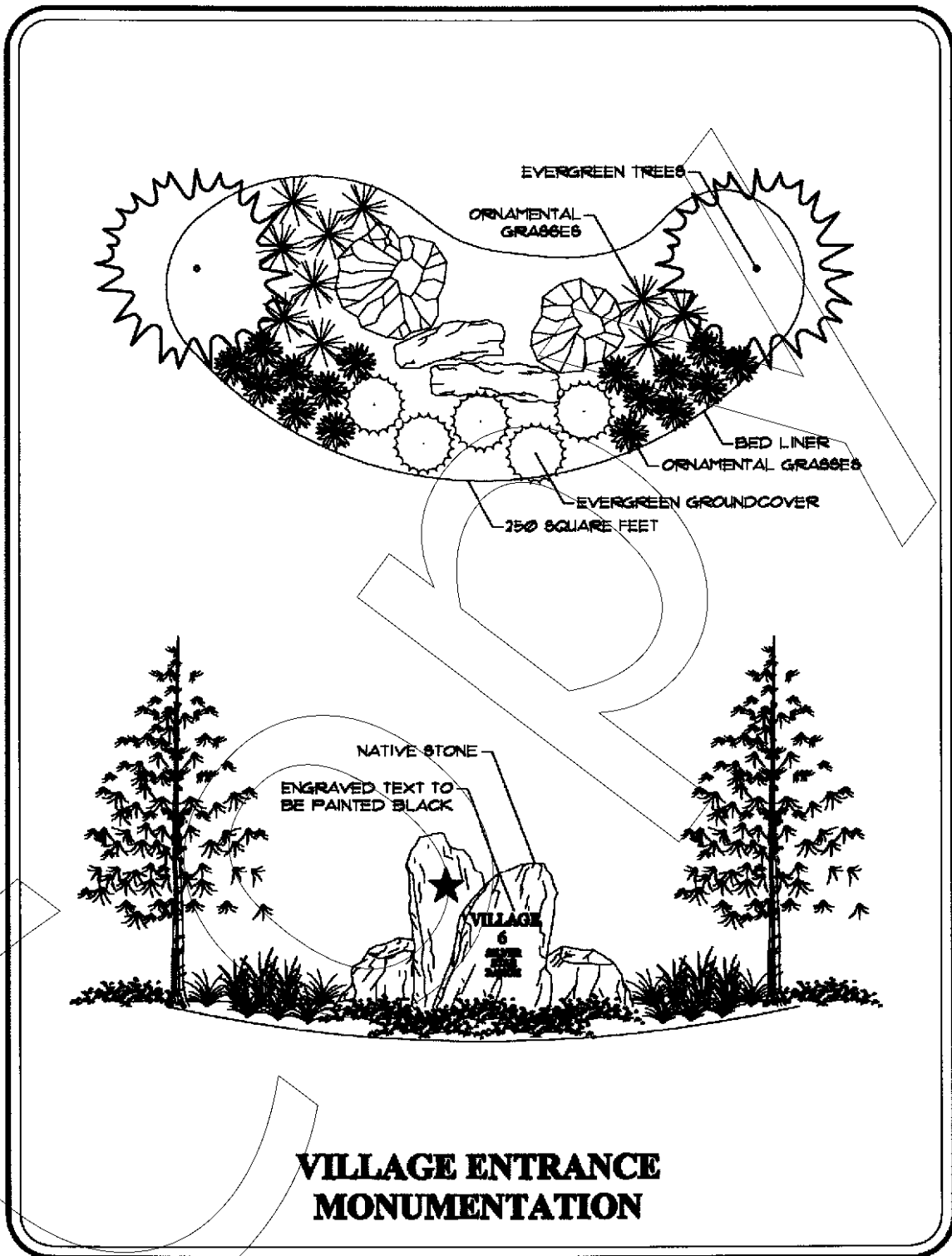
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**FIGURE 10 – Main Entrance Feature**



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Figure 11 – Village Entry Feature



# SILVER STAR RANCH

## Planned Unit Development Handbook

Reno, Nevada



### Section III – Land Use/Development Standards

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Planned Unit Development Handbook for Silver Star Ranch  
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## LAND USE/DEVELOPMENT STANDARDS

### Land Use Designations

The land plan for Silver Star Ranch is designed to meet the objectives of this planned unit development. Figure 12A - Silver Star Ranch Land Use Plan establishes the types and location of the land uses that will be allowed. Specific land use designations include:

- Residential Very Low;
- Residential Low;
- Residential Medium;
- Residential Town Home;
- Open Space/Trails/Parks; and
- Neighborhood Commercial and Public Facilities

Other land uses shown on the Silver Star Ranch Land Use Plan including major roads and the detention areas are encompassed within these six land use designations.

### Zoning Conversions

City of Reno Annexation and Land Development Code zoning categories are used to further define these land uses. The development standards section of this PUD identifies the permitted uses for each of these categories and establishes design standards. The conversion of each land use category in the Silver Star Ranch Land Use Plan to a specific zoning classification will occur according to Table 7 - Zoning. The specific process that will be used is detailed in the Implementation section of this PUD on page IV-1.

Planned Unit Development Handbook for Silver Star Ranch  
Section III - Land Use / Development Standards







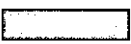




Figure 12A - Land Use Plan



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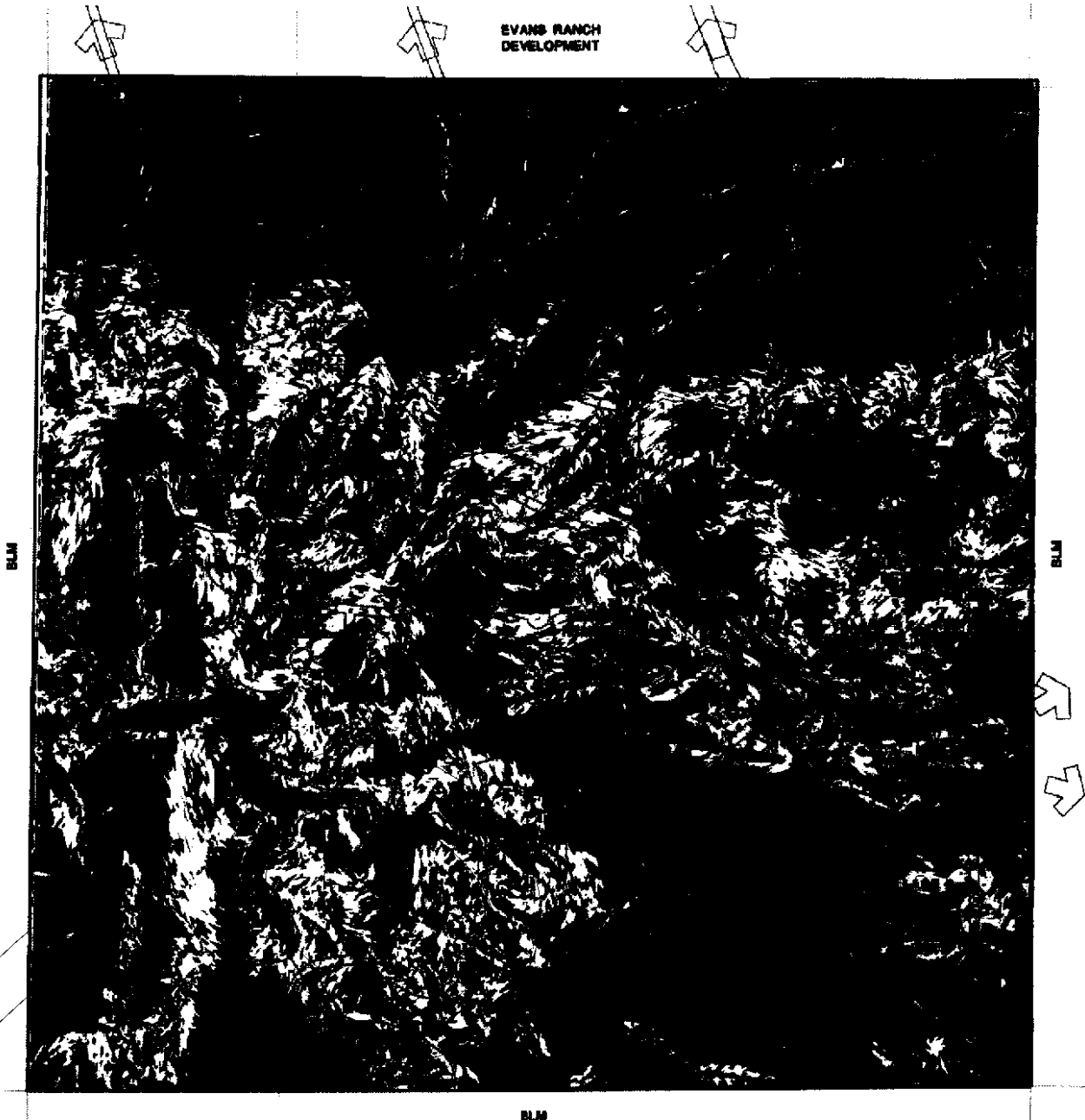
Figure 12B – Land Plan Site Data

**SITE DATA**

	ENTRY MONUMENT		
	POTENTIAL INGRESS/EGRESS OFF SITE		
	POTENTIAL INGRESS/EGRESS ON SITE		
	PROPERTY LINE		
	TOTAL OPEN SPACE	210.6 AC	-----
	DETENTION AND OR EFFLUENT STORAGE	(+/- 22.8 AC)	-----
	PARKS	(+/- 13.0 AC)	-----
	OPEN SPACE	(+/- 174.8 AC)	-----
	RESIDENTIAL VERY LOW	45.8 ACRES	+/- 55 UNITS
	RESIDENTIAL LOW	39.9 ACRES	+/- 87 UNITS
	RESIDENTIAL MEDIUM	296.5 ACRES	+/- 1,138 UNITS
	TOWNHOMES	28.6 ACRES	+/- 320 UNITS
	ROADWAYS	11.8 ACRES	-----
	OFFSITE ROADWAYS	8.9 ACRES	-----
<hr/>			
	TOTAL UNITS		+/- 1,600 TOTAL
	TOTAL ACRES	633.2 ACRES	-----
	GROSS DU/ACRE	2.5 DU/AC	
	NET DEV. DU/ACRE	3.8 DU/AC	

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Figure 12C – Land Plan with Slope Map



Color	Range Beg.	Range End	Percent	Area Sq.Ft.	Area Acres
■	0.00	15.00	67.0	18,325,467.22	420.69
■	15.01	20.00	15.0	4,110,617.43	94.37
■	20.01	25.00	8.8	2,405,480.10	5.22
■	25.01	30.00	4.9	1,328,064.22	30.49
■	30.01	100.00	4.3	1,171,742.99	26.90

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**Table 7  
Zoning**

<b>Silver Star Land Use Designation (Table 8)</b>	<b>Silver Star Conforming Zoning District</b>
Residential Very Low	LLR1 Large Lot Residential - 1 acre LLR.5 Large Lot Residential - .5 acre
Residential Low	SF15 Single Family Residential – 15,000sf SF9 Single Family Residential – 9,000sf
Residential Medium	SF6 Single Family Residential – 6,000sf SF4 Single Family Residential – 4,000sf Small Lots, as defined in Table 18.12-1
Residential Town Home	MF 14 Multi Family MF 21 Multi Family
Open Space	OS Open Space
Neighborhood Commercial & Public Facility	PF – Public Facility and Neighborhood Commercial

For planning purposes Silver Star Ranch has been broken down into sub units called Villages. The villages that comprise Silver Star Ranch represent a potential sequential development pattern. Each village has a proposed density range and is bound by one or more major streets. Table 8 – Land Use by Village shows the land use types and number of units proposed for each village. Dwelling units may be transferred between villages with individual tentative maps except where there are slopes or open spaces present. In no case will the total number of dwelling units within Silver Star Ranch exceed 1,600. Non-residential uses are allowed in Village 9 consistent with the standards contained in this PUD (Table 8).

With each development application within Silver Star Ranch, with the exception of parcel maps establishing roadways, parcel maps creating large parcels for further subdivision, or building permits, the applicants shall complete a zoning process set forth within this PUD to establish zoning for the property subject to the development application. This zoning process is outlined in the Implementation section of this handbook and is found on Pages IV-1 and IV-2.

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**Table 8  
Land Use by Village**

Land Use	Village (Acres)										Totals
	1	2	3	4	5	6	7	8	9	10	
Residential Very Low								45.8			45.8
Residential Low							27.9			12	39.9
Residential Medium	37.8	26.8		33	39.5	161.9			5.6		304.6
Town Home			28.6								28.6
Neighborhood Commercial/Public Facility	Site Coverage at .25 FAR = +/- 61,000 sf*										
Acres	37.8	26.8	28.6	33	39.5	161.9	27.9	45.8	5.6	12	418.9
Dwelling Units	164	150	320	118	163	514	82	55	29	5	1,600
Density (DU/AC)	4.3	5.6	11.2	3.6	4.1	3.2	2.9	1.2	5.2	0.4	3.8

\* If Neighborhood Commercial/Public Facility uses are established in Village 9, then the number of units displaced may be transferred to another Village.

### Permitted Uses and Standards

All development standards and procedures not addressed in this PUD will be in accordance with the Reno Land Development Code and Reno Municipal Code as amended. If there is a conflict between City Code and the Silver Star Ranch PUD, the PUD shall prevail. Additional uses beyond those shown in the following tables may be permitted in accordance with 18.08.201(a)(4) as amended.

The following sections detail the areas where the Silver Star Ranch Planned Unit Development will depart from standard City Codes. These departures from City Code are necessary to achieve the design objectives of the Silver Star Ranch Planned Unit Development. Each section references the chapter, article and section as it is listed in the Reno Annexation and Land Development Code.

Planned Unit Development Handbook for Silver Star Ranch  
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Chapter 18.08-Article II: Permitted Uses and Regulations

<b>Table 9: SUMMARY LAND USE TABLE CELL ENTRIES</b>	
<b>SUMMARY LAND USE TABLE CELL ENTRY</b>	<b>MEANING OF SUMMARY LAND USE TABLE CELL ENTRY</b>
"P"	<ul style="list-style-type: none"> <li>• The use is permitted as a principal use in the zoning district by right, and is not subject to a discretionary review procedure.</li> <li>• The use shall comply with all applicable use-specific regulations referenced in the "additional regulations" column of the summary use table, and with all general development and design standards applicable to such use and/or zone district as set forth in this chapter and title.</li> </ul>
"SUP"	<ul style="list-style-type: none"> <li>• The use is permitted in that zoning district only after first obtaining a special use permit (SUP) according to the procedures and criteria set forth in Section 18.06.405, as amended. A special use permit shall be classified as either "major" or "minor".</li> <li>• The use shall comply with all applicable use-specific regulations referenced in the "additional regulations" column of the summary use table, and with all general development and design standards applicable to such use and/or zone district as set forth in this chapter and title.</li> <li>• Any specific regulations referenced in the summary use tables are the minimum conditions for approval of a special use permit for the subject use. Additional conditions may also be required during the public hearing process to ensure compatibility of that use in relation to surrounding uses and the pattern of development, and as needed to make the findings in Section 18.08.405, as amended.</li> <li>• Uses subject to special use permits that do not have additional regulations referenced in the summary use tables may have conditions placed on the proposed use during the public hearing process to ensure compatibility of the use in relation to surrounding uses and the pattern of development, and as needed to make the findings in Section 18.06.405, as amended.</li> </ul>
"SPR"	<ul style="list-style-type: none"> <li>• The use permitted in the zoning district only after first obtaining administrative approval of a site plan review as set forth in Section 18.06.407, as amended.</li> <li>• The use shall comply with all applicable use-specific regulations referenced in the "additional regulations" column of the summary use table, and with all general development and design standards applicable to such use and/or zone district as set forth in this chapter and title.</li> </ul>
"A"	<ul style="list-style-type: none"> <li>• The use is permitted as an accessory use to a primary use allowed in the zoning district.</li> <li>• Establishment of the specific accessory use listed in the table does not necessarily exclude other land uses that are generally considered accessory to the primary use.</li> <li>• The accessory use shall comply with all applicable use-specific regulations referenced in the "additional regulations" column of the summary table, with the accessory use and structure standards stated in Section 18.08.203, as amended, of this chapter, and with all general development and design standards applicable to such accessory use and/or zone district as set forth in this chapter and title.</li> </ul>
Blank Cell	<ul style="list-style-type: none"> <li>• The use is prohibited in the zoning district.</li> </ul>

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Section III – Land Use / Development Standards

**Section 18.08.201 Permitted Uses by Base Zone District**

(a) Interpretation of Summary Land Use Tables, Buildings, structures, and land shall be used only in accordance with the uses permitted in the following Summary Land Use Tables, subject to all other applicable requirements of the Reno Annexation and Land Development Code, as amended, that do not conflict.

(1) Organization of uses and interpretation of table cell entries. The Summary Land Use Tables in the following subsections set forth the principal, accessory, and temporary uses of land, buildings, and structures allowed in each of the base zone districts in this PUD. Specific uses are organized alphabetically under the following five broad use categories:

- a. Residential;
- b. Commercial, Recreation, Entertainment and Amusement
- c. Institutional, Public, and Community Service;
- d. Accessory and Temporary Uses.

The entry in each table cell indicates whether the use may be established in the particular zone district and what type of review procedure is applicable prior to establishment of the use. A blank square or cell shall mean that the use is not allowed in that zoning district as a principal, accessory, or temporary use. An entry in the cell indicates the use is allowed in the zoning district subject to compliance with all applicable regulations and with the specific type of review procedure.

(2) Additional regulations and references.

- a. General. All allowed uses, whether permitted by-right, conditionally, or by special use permit or site plan review, are subject to all applicable zoning, development, and design standards in the Silver Star Ranch PUD and the Reno Annexation and Land Development Code. Where there is a conflict, the Silver Star Ranch PUD shall prevail.
- b. Base zoning district regulations. Land uses shown in the Summary Land Use Tables may be subject to specific regulations and limitations established in the applicable base zoning district.
- c. Use-specific regulations. Allowed uses may also be subject to specific use regulations, as referenced in the "Additional regulations" column of the Summary Land Use Tables. These additional use-specific regulations are found in Sections 18.08.202, 18.08.203, and 18.08.204, as amended, immediately following the use tables, and apply in all zoning districts unless otherwise expressly stated.
- d. All RMC section references listed under additional use regulations in the following tables shall be those in effect at the time of the tentative map application as they may be amended.

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**(3) Additional thresholds for special use permit review.**

- a. Additional special use permit review thresholds. In addition to the establishment of “special use permit” uses in certain zoning districts as indicated by a “SUP” entry in the Summary Land Use Tables, approval of a special use permit is required for certain categories of uses and development activity, regardless of zoning district, as specified in the applicability and exemption provisions of Section 18.06.405 (Special Use Permit), as amended. For example, development of commercial uses in a non-residential zoning district may trigger special use permit review if located adjacent to residentially zoned property.

**(4) Similar and prohibited uses.**

- a. The uses permitted in this section are classified on the basis of common operational characteristics and land use compatibility. Uses not specifically listed in this section and in the summary uses tables below are prohibited. However, additional new and unlisted uses may be permitted by the administrator if it is found that the use is similar to other uses listed and allowed in the same zoning district.
- b. When considering requests for a new land use, the administrator shall consider the potential effects of the use on adjacent properties in terms of requirements for services, visual impact, traffic generation and parking, the extent to which the use is consistent with other uses allowed in the district, and other issues the administrator deems appropriate.

**(b) Definitions.** Unless otherwise defined in this PUD all uses shall be as defined in the Reno Annexation and Land Development Code, as amended.

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(Provided from the City of Reno's Land Development Code)

TABLE 10: USES PERMITTED IN RESIDENTIAL BASE ZONING DISTRICTS									
USE CATEGORY/ Specific Use Type	P=PERMITTED BY RIGHT, SPR=SITE PLAN REVIEW REQUIRED, SUP=SPECIAL USE PERMIT REQUIRED, A=PERMITTED AS AN ACCESSORY USE								ADDITIONAL USE REGULATIONS (Apply in all Districts Unless Otherwise Noted)
	RESIDENTIAL BASE ZONING DISTRICTS								
	LLR1	LLR.5	SF15	SF9	SF6	SF4	MF14	MF21	
<b>PRINCIPAL USES</b> See Section 18.08.202 (Additional Regulations for Principal Uses)									
<b>RESIDENTIAL</b>									
Cluster Dev.	SUP	SUP	SUP	SUP	SUP	SUP			18.08.202(a)(1)
Group Home	P	P	P	P	P	P	P		18.08.202(a)(4)
Hospice	P	P	P	P	P	P	P	P	
Multi-Family					SUP	SUP	P/ SPR/ SUP	P/ SPR/ SUP	18.08.202(a)(7), All Districts: SUP and parcel/ subdivision plat required for condominium conversions. MF14, MF21, MF21, MF30: SPR required if more than 4 and less than 50 units; SUP required if 50 or more units.
Nursing Home/Assisted Living Facility							SUP	SUP	18.08.202(a)(8)
Single-Family, Attached/ Condominium Townhouse				P/ SPR/ SUP	P/ SPR/ SUP	P/ SPR/ SUP	P/ SPR/ SUP	P/ SPR/ SUP	18.08.202(a)(9). All Districts: SPR required if more than 4 units and less than the SUP review threshold. SF6, SF9, SF4, MF14, MF21, MF30: SUP required if 50 or more units.
Single-Family Detached	P	P	P	P	P	P	P	P	
Single-Family, Zero Lot Line	P	P	P	P	P	P	P		
<b>COMMERCIAL, RECREATION, ENTERTAINMENT, AND AMUSEMENT</b>									
Child Care Center					SPR	SPR	SPR	SPR	18.08.202(b)(6)
Community Center, Private	SUP	SUP	SUP	SUP	SUP	SUP	SUP		
County Club, Private	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	18.08.202(c)(1)
Public Park or Recreation Area	P	P	P	P	P	P	P	P	
Stable (Commercial)	SUP								
Stable (Private)	P	P	P						18.08.202(c)(4)
Mini-warehouse			SUP	SUP	SUP	SUP	SUP	SUP	18.08.202(f)(8)

Planned Unit Development Handbook for Silver Star Ranch  
Section III – Land Use / Development Standards

TABLE 10: USES PERMITTED IN RESIDENTIAL BASE ZONING DISTRICTS									
USE CATEGORY/ Specific Use Type	P=PERMITTED BY RIGHT, SPR=SITE PLAN REVIEW REQUIRED, SUP=SPECIAL USE PERMIT REQUIRED, A=PERMITTED AS AN ACCESSORY USE								ADDITIONAL USE REGULATIONS (Apply in all Districts Unless Otherwise Noted)
	RESIDENTIAL BASE ZONING DISTRICTS								
	LLR1	LLR.5	SF15	SF9	SF6	SF4	MF14	MF21	
<b>PRINCIPAL USES</b> See Section 18.08.202 (Additional Regulations for Principal Uses)									
<b>INSTITUTIONAL, PUBLIC, AND COMMUNITY SERVICE</b>									
Church/House of Worship		SUP	SUP	SUP	SUP	SUP	SUP	SUP	
Communication Facility, Equipment Only	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	18.08.202(e)(5)
Electric Generating Plant	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	18.08.202(e)(6)
Electric Utility Substation	SPR	SPR	SPR	SPR	SPR	SPR	SPR	SPR	18.08.202(e)(6)
Public Transit or School Bus Shelter	P	P	P	P	P	P	P	P	
School, Primary (Public or Private)	SPR	SPR	SPR	SPR	SPR	SPR	SPR	SPR	18.08.202(e)(10)
School, Secondary (Public or Private)	SPR	SPR	SPR	SPR	SPR	SPR			18.08.202(e)(11)
Utility Box/Well House, Back-up Generator, Pumping or Booster Station	P	P	P	P	P	P	P	P	18.08.202(e)(14)
Utility Installation, Other than Listed	SPR	SPR	SPR	SPR	SPR	SPR	SPR	SPR	
Utilities, Major	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	18.08.202(e)(13)

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TABLE 10: USES PERMITTED IN RESIDENTIAL BASE ZONING DISTRICTS									
USE CATEGORY/ Specific Use Type	P=PERMITTED BY RIGHT, SPR=SITE PLAN REVIEW REQUIRED, SUP=SPECIAL USE PERMIT REQUIRED, A=PERMITTED AS AN ACCESSORY USE RESIDENTIAL BASE ZONING DISTRICTS								ADDITIONAL USE REGULATIONS (Apply in all Districts Unless Otherwise Noted)
	LLR1	LLR.5	SF15	SF9	SF6	SF4	MF14	MF21	
<b>ACCESSORY USES</b> See Section 18.08.203 (Standards for Accessory Uses and Structures)									
Caretaker Quarters (Permanent)	A	A					A	A	18.08.203(e)(1). Accessory to a principal multi-family, single family or non-residential use only as listed.
Child Care, In Home (1-6 Children)	A	A	A	A	A	A	A	A	18.08.202(e)(3)
Child Care, In Home (7-12 Children)	A-SUP	A-SUP	A-SUP	A-SUP	A-SUP	A-SUP	A-SUP	A-SUP	18.08.202(e)(3). Permitted as an accessory use subject to SUP review procedure as shown.
Community Center, Private	A	A	A	A	A	A	A	A	Reviewed as part of a tentative map.
Home Occupation	A	A	A	A	A	A	A	A	18.08.203(e)(3)
Satellite Dish	A	A	A	A	A	A	A	A	18.08.203(e)(4)
Stable (Private)	A	A	A						18.08.203(e)(4)
Tennis Courts	A	A	A	A	A	A	A	A	18.08.203(e)(5)
<b>TEMPORARY USES</b> See section 18.08.204 (Standards for Temporary Uses and Structures)									
Garage Sales	P	P	P	P	P	P	P	P	18.08.204(d)(1)
Temporary Asphalt or Concrete Batch Plant	SUP	SUP	SUP	SUP	SUP	SUP			
Temporary Construction Structures	P	P	P	P	P	P	P	P	18.08.204(d)(5)
Temporary Real Estate Sales Office	P	P	P	P	P	P	P	P	18.08.204(d)(6)
Temporary caretakers quarters/ recreational vehicles	SPR	SPR	SPR	SPR	SPR	SPR	SPR	SPR	One within all of Silver Star Ranch for a caretaker/security associated with the plant nursery.
Plant Nursery	SPR	SPR	SPR	SPR	SPR	SPR	SPR	SPR	For on-site project landscaping materials. No retail sales.

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<b>Table 11: USES PERMITTED IN NC NEIGHBORHOOD COMMERCIAL DISTRICT</b>		
<b>USE CATEGORY/Specific Use Type</b>	<b>P = Permitted by Right SPR = Site Plan Review SUP = Special Use Permit A = Permitted as Accessory Use</b>	<b>ADDITIONAL USE REGULATIONS</b>
<b>RESIDENTIAL</b>		
Congregate Care Facilities	P/SUP	18.08.202(a)(2) SUP if 100 or more units; SUP if 200 or more beds in a dormitory project.
Hospice	P	
Multi-Family	P/SPR/SUP	18.08.202(a)(7) SUP and parcel/subdivision plat required for condominium conversions. SPR required for >4 units <20 units. SUP for > 20 units.
Single-Family attached/Condominium Townhouse	P/SPR/SUP	18.08.202(a)(9) SPR required for >4 units and <20 units. SUP if >20 units.
Nursing Home/Assisted Living Facility	P	18.08.202(a)(8)
<b>COMMERCIAL</b>		
Animal Clinic, Shelter, Hospital or Boarding Kennel	P	18.08.202(b)(2)
Antique/Collectible Store	P	
Bakery	P	18.08.202(b)(4)
Bar	SUP	
Barber/Beauty Shop	P	
Car Wash	SPR	
Child Care Center	P	18.08.202(b)(6)
Cleaners, Commercial	P	18.08.202(b)(7)
Convenience Store	SUP	
Copy Center	P	
Custom and Craft Work	P	18.08.202(b)(9)
Drive Through Facility	SUP	18.08.202(b)(10)
Financial Institution	SPR	SUP for drive through facility
Freestanding Automated Teller Machine	P	18.08.202(b)(13)
General Personal Services	P	
General Retail Store or Commercial Use Other Than Listed	P	18.08.202(b)(15)
Household Goods, Light	P	18.08.202(b)(16)
Laundry Drop Off/Pick Up	P	18.08.202(b)(18)
Laundry, Self Service	P	
Medical Facility, Day Use Only	P	
Office Other Than Listed	P	
Pet Store	SUP	18.08.202(b)(23)
Plant Nursery/Garden Supply	P	18.08.202.(b)(24)
Restaurant without Alcohol Service	P	
Restaurant with Alcohol Service	SUP	18.08.202(b)(24)
Sale of Low Volume Bulky Goods	P	
Service Station	SUP	18.08.202(b)(25)

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<b>Table 11: USES PERMITTED IN NC NEIGHBORHOOD COMMERCIAL DISTRICT</b>		
<b>USE CATEGORY/Specific Use Type</b>	<b>P = Permitted by Right SPR = Site Plan Review SUP = Special Use Permit A = Permitted as Accessory Use</b>	<b>ADDITIONAL USE REGULATIONS</b>
TV Broadcast & Other Communication Services	P	18.08.202(b)(26)
Fitness Center	P	
Night Club	SUP	18.08.302
Public Park or Recreation Area	P	
Tennis Courts	P	
Theatre (No Drive-In)	SUP	
Video Arcade	P	
<b>LODGING</b>		
Bed & Breakfast Inn	SPR	18.08.202(d)(1)
<b>INSTITUTIONAL, PUBLIC AND COMMUNITY SERVICE</b>		
Church/House of Worship	P	18.08.202(e)(4)
Communication Facility, Equipment Only	P	18.08.202(e)(5)
Electric Utility Substation	SUP	18.08.202(e)(6)
Government Facility	P	
Library, Art Gallery or Museum	P	
Post Office	SPR	
Public Transit or Bus Shelter	P	
Utility Box/Well House, Back-up Generator, Pumping or Booster Station	P	18.08.2020(e)(14)
Utility Installation Other Than List	SPR	
Utilities, Major	SUP	18.08.2020(e)(13)
<b>ACCESSORY USES</b> See Section 10.08.203 (Standards for Accessory Uses and Structures) as amended		
Caretakers Quarters	A	18.08.203(e)(1)
Child Care, In Home	A	18.08.202(e)(3)
Child Care, In Home (7-12 Children)	A	18.08.202(e)(3). Permitted as an accessory use to a principal residential use.
Child Care Center	SPR	18.08.202(b)(6)
Gaming Operation, Restricted	A	18.08.202(c)(2)
Home Occupation	A	18.08.203(e)(3)
Indoor Storage, Incidental to a Permitted Use	A	
Sidewalk Cafes	A	18.08.203(e)(5)
<b>TEMPORARY USES</b>		
Temporary Christmas Tree Sales Lot & Similar Uses	P	18.08.204(d)(4)
Temporary Construction Structures	P	18.08.204(d)(5)

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Bulk/Dimensional, Density & Intensity Standards (Chapter 18.12-Article I)

Section 18.12.102 Standards for Single-Family Residential Base Zoning Districts  
(Provided from the City of Reno's Land Development Code)

(a) Summary Table--Single-Family Residential Zoning Districts

(1) The Single-Family Residential Districts Bulk/Dimensional and Density Standards Table (Table 12) sets out maximum standards for density and building height, and the minimum standards for setbacks, site area and lot width in the LLR1, LLR.5, SF15, SF9, SF6, and SF4 Zoning Districts.

(2) The table shall establish the minimum requirements for these elements.

(Provided from the City of Reno's Land Development Code)

Table 12 - SINGLE-FAMILY RESIDENTIAL DISTRICTS- BULK/DIMENSIONAL & DENSITY STANDARDS BLANK CELL = STANDARD NOT APPLICABLE IN ZONING DISTRICT								
	LLR1	LLR5	SF15	SF9	SF6	SF4	Small Lot (1)	Additional Regulations (2)
Max Base Density (# dwelling units per acre)	1 du per acre	2 du per acre	2.90 du per acre	4.84 du per acre	7.26 du per acre	10.89 du per acre		
Min. Lot Size	1 acre	0.5 acre	15,000 sf	9,000 sf			2,400 sf	18.12.302 (b) (1). SUP required for small lot.
Corner Lot					7,000	5,000		
Interior Lot					6,000	4,000		
Min. Lot Width (ft.)	120	100	80	70				
Corner Lot					70	50	30	
Interior Lot					60	40	30	
Min Front Yard (ft.) (3)	30	30	30	10	10	10	10	
Adjacent to Arterial Roadway				30 ft. for 2-story residential bldgs; 20 ft. for 1-story residential bldgs.				
Porches							5	
Min. Side Yard (ft.) (3)	12	10	5	5	5	5	0.5	All Districts: 18.12.102(b)(2). Small Lots: 18.12.102(b)(3)
Min. Rear Yard (ft.) (3)	30	30	30	20	20	20	10	All Districts: 18.12.102(b)(2). SF4: 18.12.102(b)(1)
Canopies							5	
Min. useable yard				400 sf	400 sf	400 sf	400 sf	
Max. slope of useable yard				7:1	7:1	7:1	7:1	
Min. dimension (ft.) of usable yard				8	8	8	8	
Max Building Coverage (all principal and accessory buildings)				40% of the lot or common open space shall be provided equal to 20% of the gross project area.				
Max. Stories	3	3	2.5	2.5	2.5	2	2	
Max. Building Height (ft.) Principal buildings only	45	45	35	35	35	30	30	Accessory structure height is regulated in Section 18.08.201-203 of the City of Reno Development Code, as amended.
Min. Garage Setback (front setback to face of garage)	30	30	30	20	20	20	20	
Notes to table 12:								
(1) "Small lot" modifies the minimum lot size; the density of the underlying district does not change unless modified by approval of a cluster development. Allowed only in SF4 and SF6 zones.								
(2) Additional regulations apply in all zoning districts unless otherwise specified.								
(3) See figure 18.12-1 for yard determination regulations. (Per City of Reno Land Development Code)								

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**(b) Additional Standards for Single Family Districts**

- (1) Rear Yards in the SF-4 Zoning District with Zero Lot Line Development.**
  - (a) When the proposed rear yard abuts the rear yard of an existing single family zoned lot, such yard shall be at least as deep as the minimum required rear yard of the existing single-family lot.**
  - (b) The rear yard may be ten feet if one side yard is at least 20 feet wide and contains a minimum of 400 square feet having a maximum slope of seven to one (7:1).**
- (2) Setback Requirements When a Use Permitted by Special Use Permit.** Any use permitted by the approval of a special use permit in a single family residential zoning district, except for cluster developments, must have a minimum 20-foot setback from any property line that adjoins a single family dwelling use.
- (3) Side Yards in Small Lot Developments.** The principal residential building shall either be placed on the property line, or setback a minimum of 5 feet. However, if the building is located immediately adjacent to a property that is not designated a "small lot" according to this title, the setback shall be a minimum of 5 feet.

**Section 18.12.103 Standards for Multi-Family Residential Base Zoning Districts**  
(Provided from the City of Reno's Land Development Code)

**(a) Summary Table - Multi Family Residential Districts**

- (1) The Multi-Family Districts—Bulk/Dimensional and Density Standards Table (Table 13) sets out maximum standards for density and building height, and the minimum standards for setbacks, open space area, and lot width.**
- (2) The table shall establish the minimum requirements for these elements.**

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<b>Table 13 MULTI-FAMILY RESIDENTIAL DISTRICTS- BULK/DIMENSIONAL &amp; DENSITY STANDARDS BLANK CELL = STANDARD NOT APPLICABLE IN ZONING DISTRICT</b>			
	MF14	MF21	ADDITIONAL REGULATIONS
Max. Residential Density (# dwelling units per square feet of lot area)	1 du/3,000 sf	1 du/ 2,000 sf	
Min. Lot Area (sq. ft.)	3,000	3,000	All Districts: 18.12.103(b)(1)
Min. Lot Width (ft.)	40	50	All Districts: 18.12.103(b)(1)
Zero Lot Line Development	0	0	18.12.103(b)(1)
Min. Front Yard (ft.)	15	15	All Districts: 18.12.103(b)(1)
Adjacent to arterial street or freeway	30	30	The minimum front yard setback shall be fully landscaped except for the minimum amount required for driveways according to 18.12.1205
Min. Side Yard (ft.)	5	5	All Districts: 18.12.103(b)(1)
Projects with 2 or more units – side yard adjacent to SF zoned property	10	10	
Zero Lot Line Development	10 ft. on one side and 0 ft. on other.	10 ft. on one side and 0 ft. on other.	
Min. Rear Yard (ft.)	20/10	10	All Districts: 18.12.103(b)(1) MF14: 18.12.103(b)(2)
Max Stories	2	3	
Max Building Height (ft.) (Principal Buildings only)	35	45	Accessory structure height is regulated in Section 18.08.201-203 of this Code.
Min. Useable Open Space (sf per unit)	100 sf/unit	100 sf/unit	“Open Space” shall include patio areas and balconies and excludes parking areas and other paved areas. Except for patio areas and balconies, open space area shall be landscaped or improved with outdoor recreational facilities.
Minimum Building Separation	20 feet between main buildings on the same lot for developments of 50 units or more, and 10 feet for developments of less than 50 units.		
Notes to table 13: (1) Additional regulations apply in all zoning districts unless otherwise indicated. (Provided from the City of Reno's Land Development Code)			

**(b) Additional Standards for Multi Family Districts**

**(1) Additional Regulations for Uses Allowed by Special Use Permit**

- a. Reduction of standards with special use permit. Required lot area, setback and width may be reduced or eliminated as part of a special use permit for multi-family dwellings or cluster development.
- b. Setback requirements when a use is permitted by a special use permit. Any use permitted by the approval of a special use permit in a multi-family residential zone must have a minimum 20' setback from any property line that abuts single-family zoned property. For purposes of this provision, “abut” means sharing a common property line, but not including properties separated by a road right-of-way, drainage easement, or alley.

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(2) Rear Yards in the MF-14 Zoning District

- a. The rear yard shall be 20 feet for each parcel, with a minimum useable rear yard of 400 square feet and a maximum slope of seven to one (7:1).
- b. The rear yard for each parcel may be ten feet if one side yard is at least 20 feet wide and contains a minimum of 400 square feet having a maximum slope of seven to one (7:1).

Section 18.12.104. Standards for Nonresidential Base Zoning Districts.

(a) SUMMARY TABLE – NONRESIDENTIAL DISTRICTS.

- (1) The Nonresidential Bulk/Dimensional and Intensity Standards Table (Table 14) sets out maximum standards for intensity and building height, and the minimum standards for setbacks, site area and lot width.
- (2) The following table shall establish the minimum requirements for these elements.

Table 14: COMMERCIAL ZONING DISTRICTS – BULK/DIMENSIONAL & INTENSITY STANDARDS BLANK CELL = STANDARD NOT APPLICABLE IN ZONING DISTRICT			
	PF	NC	Additional Regulations
Min. Lot or Development Site Size	6,000 sf		
Min. Lot Width (ft.)	50	50	
Min. Front Yard (ft.)	10	10	All minimum yard setbacks shall be landscaped except for the minimum amount required for driveways according to 18.12.1205. NC – Side and Rear Yards: 18.12.104(b)(1).
Min. Side Yard (ft.)	5	0 or 10	
Min. Rear Yard (ft.)	10	0 or 10	
Max. # Stories	3	2	
Max. Building Height (ft.)		35	
Min. Building Separation	10 feet		

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**(b) ADDITIONAL STANDARDS FOR NONRESIDENTIAL DISTRICTS.**

- (1) Side and Rear Yards in the NC District. The building shall either be placed on the property line, or setback a minimum of ten feet. However, if the building is located immediately adjacent to a residentially zoned property, the minimum setback shall be ten feet, and subject to residential adjacency standards in Section 18.12.304.

**Site and Building Design Standards (Chapter 18.12-Article III)**

**Section 18.12.301. Generally Applicable Site and Building Design Standards.**

**(a) BUILDING ARTICULATION.**

- (1) Applicability. All facades on buildings constructed in a multi-family, commercial or public facility zoning district (MF14, MF21, NC or PF Districts) shall meet the building articulation standards of this section (See Figure 13).
- (2) Purpose. The purpose of these articulation standards is to discourage large blank building facades.
- (3) Requirements. All facades subject to this subsection shall meet the following minimum standards for articulation, as illustrated in Figure 13.
  - a. Horizontal Articulation. No plane of a building wall shall extend for a horizontal distance greater than two times the height of the wall without having an off-set of 15 percent of the wall's height, and that new wall plane shall extend for a distance equal to at least 25 percent of the maximum length of the first plane.
  - b. Vertical Articulation. No wall shall extend for a horizontal distance greater than two times the height of the wall without changing height by a minimum of 15 percent of the wall's height.
  - c. Exposed Columns. Exposed structural support columns shall be constructed of, or clad in, the same materials as the principal structure, unless the change in materials adds to the visual interest.

- (b) PARKING GARAGE FACADES. The facades of parking garages shall be compatible with the architecture of buildings within the area in which the garage is located.

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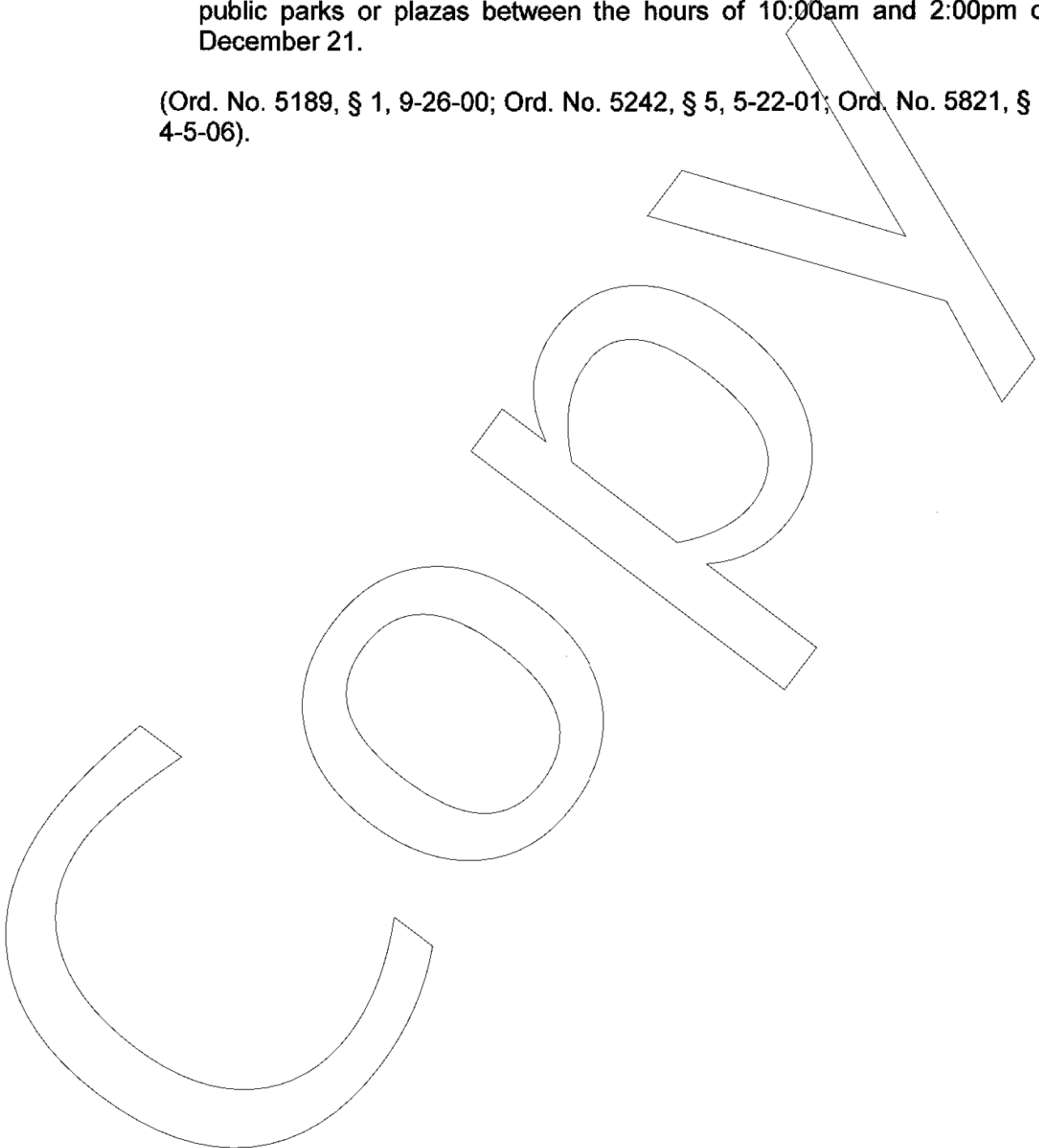
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**(c) SHADING OF PARKS AND RESIDENCES.**

(1) Residential Shading. Structures, which exceed 35 feet in height, shall not cast a shadow on residentially zoned property between the hours of 10:00am and 2:00pm on December 21.

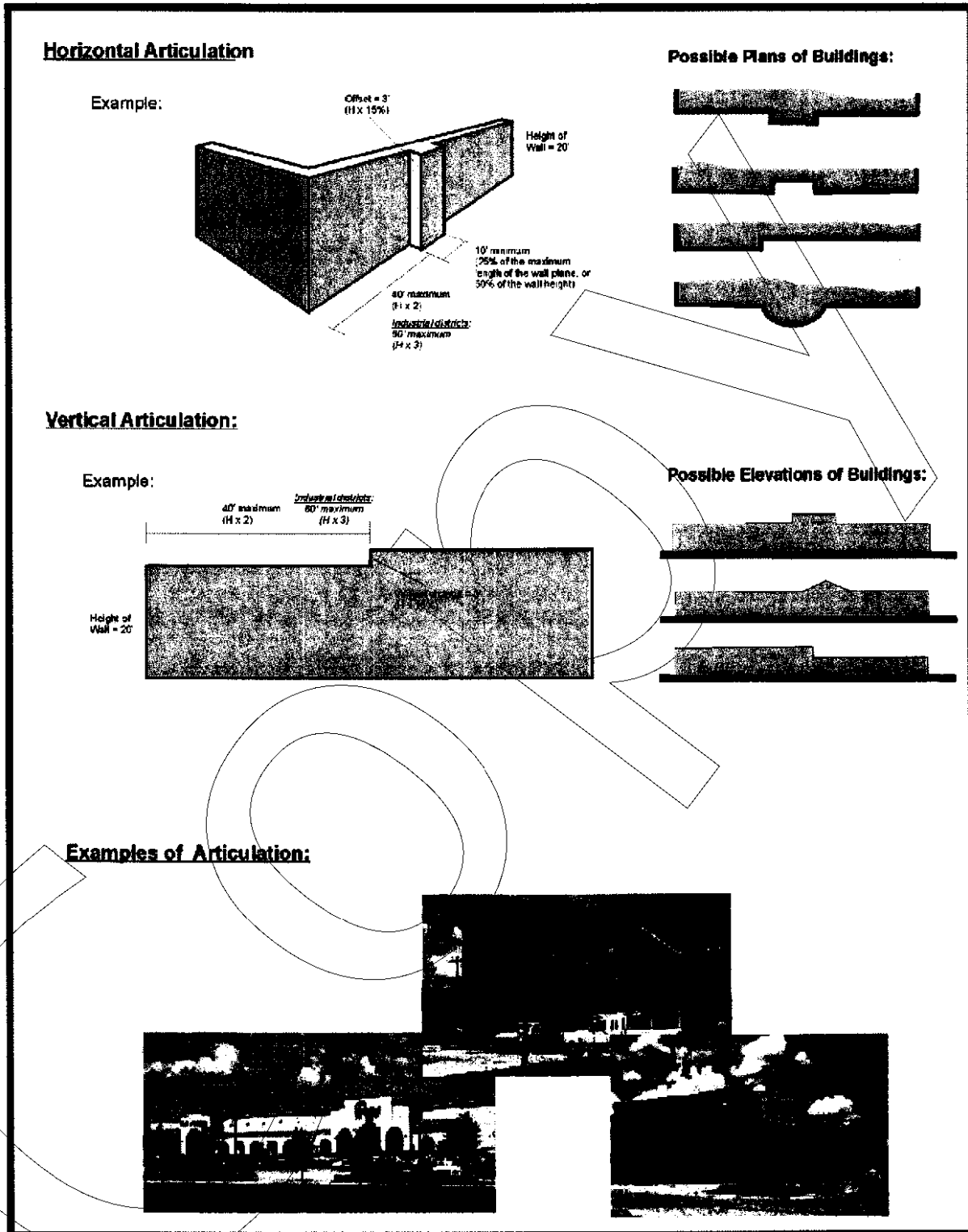
(2) Public Parks and Plaza Shading. No structure may cast a shadow on public parks or plazas between the hours of 10:00am and 2:00pm on December 21.

(Ord. No. 5189, § 1, 9-26-00; Ord. No. 5242, § 5, 5-22-01; Ord. No. 5821, § 1, 4-5-06).



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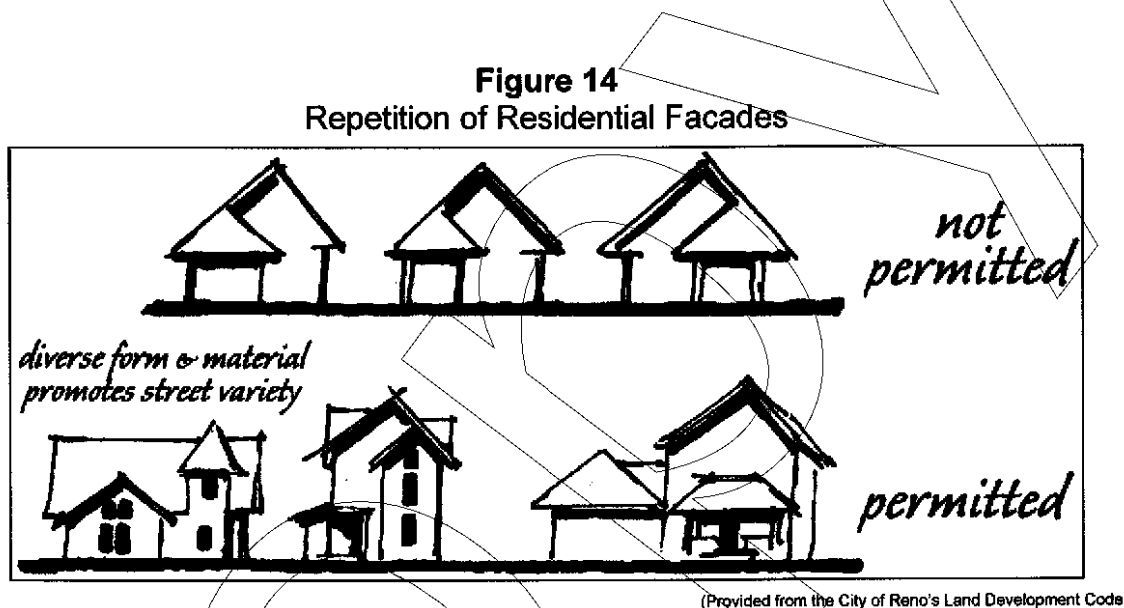
Figure 13 – Building Articulation



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Section 18.12.302. Residential Site and Building Design Standards.

- (a) House Plans. Each village shall have a minimum of four (4) distinct house plans. House design shall vary throughout each village with no one elevation repeated for abutting homes, or mirrored across the street. Adjacent lots may share the same floor plan, but must have different elevations. Garage forward plans shall be limited to 2 of the 4. Side loaded garages shall not be considered garage forward plans if elevations are architecturally consistent. Different elevations for purposes of this section means a different roof line and/or footprint. See Figure 14.



- (b) General Residential Design Standards Applicable to SF4, SF6, and SF9 Zoning District.

(1) **Applicability.** The standards in this section shall apply to the SF4, SF6 and SF9 Districts. When not in direct conflict, all other provisions of this section and other city ordinances and policies shall apply. Required lot area and width in the SF4 and SF6 zones may be modified or waived with a special use permit to those shown on Table 12 (Section 18.12.102 as amended) under "small lot."

(2) **Sidewalks.** A minimum four-foot sidewalk shall be provided on at least one side of the street. Cul-de-sacs of more than 20 lots shall have sidewalks on both sides of the street unless an alternative plan for access is provided at the time of the tentative map application. Topography, property shape or proximity to the trail system may justify sidewalks on only one side of the street.

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- (3) **Parkways.** Landscaped parkways shall be provided consistent with Figures 2A, 2B, and 2E, the landscape standards in Figures 3A, 3B & 3C and Tables 2A, 2B, 3 & 4.
- (4) **Cluster Development.** (Figure 16) Cluster homes shall be allowed within all LLR and SF zoning districts contained in this PUD with a Special Use Permit.

Cluster development may result in an increase of overall development density of no more than 15 percent over that which is otherwise permitted by the zoning district in which the lot or parcel is located, providing that the standards of Section 18.08.202(a)(1) are met. Clustering driven by hillside slope density requirements in Article XVI (Hillside Development) of this chapter shall not qualify for a density bonus. However, in no event shall the total number of residential units within this PUD exceed 1,600.

All cluster development shall comply with the following regulations:

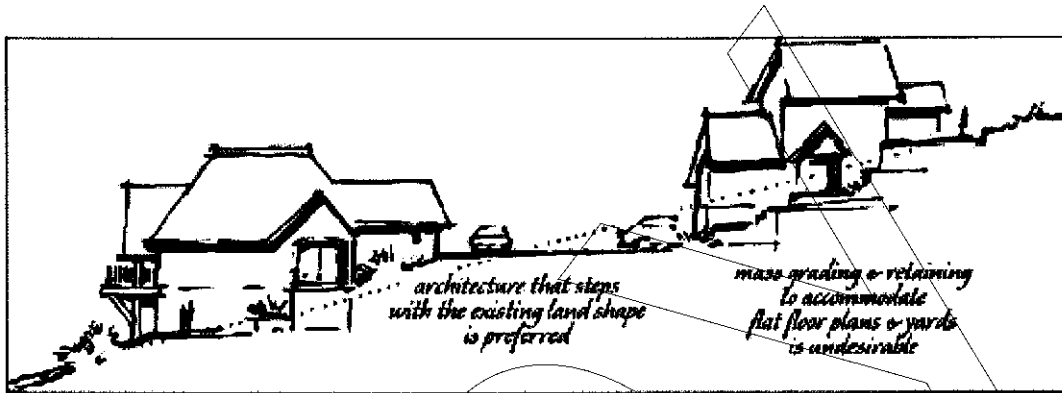
- (a) Either "a.1" or "a.2" below, and all of "a.3" – a.6" must be met:
1. The natural area being preserved includes features such as a wetland, creek or a stand of trees; or
  2. The area will be landscaped and developed with significant amenities; and
  3. The area being preserved has direct access to a roadway in public or common ownership; and
  4. The area being preserved will be held in public or common ownership; and
  5. The area being preserved is suitable for recreational use; and
  6. The open space area is at least ten percent of the gross project acreage.
- (b) Cluster development shall meet the standards of the underlying zone or the "Small Lot" standards on Table 12, Section 18.12.102 (Standards for Single Family Residential Base Zoning Districts)
- (c) Small Lot standards may only be utilized in the SF-4 and SF-6 Zoning Districts contained within this PUD.

**(c) Street Image Standards for New Single-Family Residential Structures.**

- (1) **Applicability.** This subsection's street image standards shall apply to all new single-family (detached and attached) residential structures in this PUD.

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- a. Hillside adaptive architecture. Within hillside developments and on properties with an average slope exceeding ten percent, homes shall be built on existing grade. This option may be used if the development requires minor grading for driveways, rear yards and other features but may not be used in projects that mass grade sites to provide flat foundations and yards. See Figure 15.

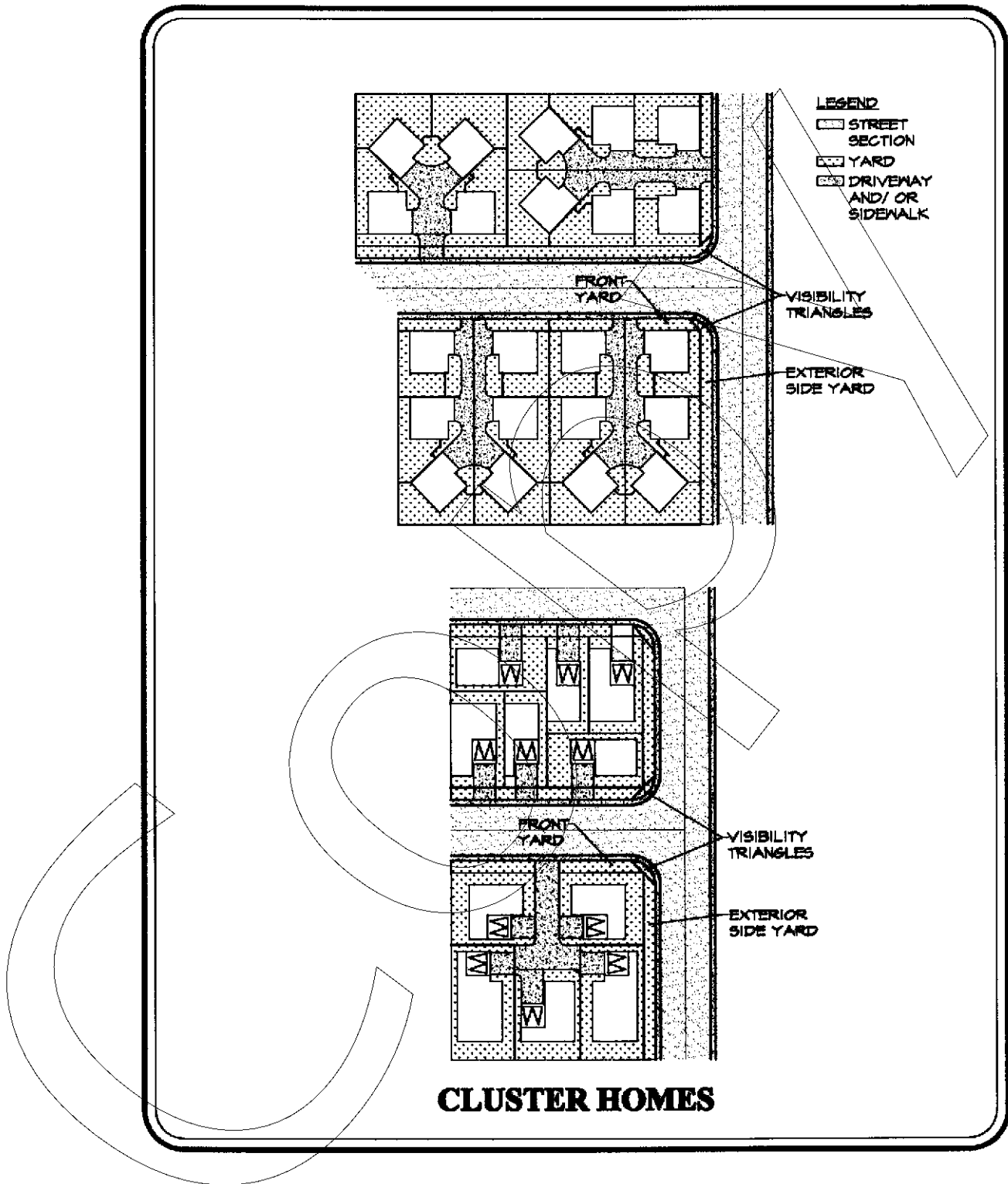


**Figure 15**  
**Hillside Adaptive Architecture**  
(Provided from the City of Reno's Land Development Code)

- b. Neotraditional Design. If vehicular access is provided exclusively from rear yard alleys, street image requirements shall be satisfied. To promote neotraditional development and compensate for otherwise developable land that is used for alleys, minimum lot sizes and dimensions may be reduced by 20 percent, maximum lot coverage may be increased to 50 percent, and garage setbacks from alleys may be reduced to zero feet if access is provided exclusively from alleys.
- c. Custom Street Image Plans. Custom street image plans may be approved by special use permit. In order to approval a special use permit for custom street image plans, the planning commission shall make the standard special use permit findings and an additional finding that the proposed street image plan meets the intent of reducing the prominence of garages, promoting pedestrian activity and creating visual diversity in single-family neighborhoods.
- d. Landscaping. Each village shall include a conceptual landscape plan with landscape themes provided with the application for each tentative map. These plans shall include a minimum of four (4) different front yard landscape designs.

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Figure 16 – Cluster Homes

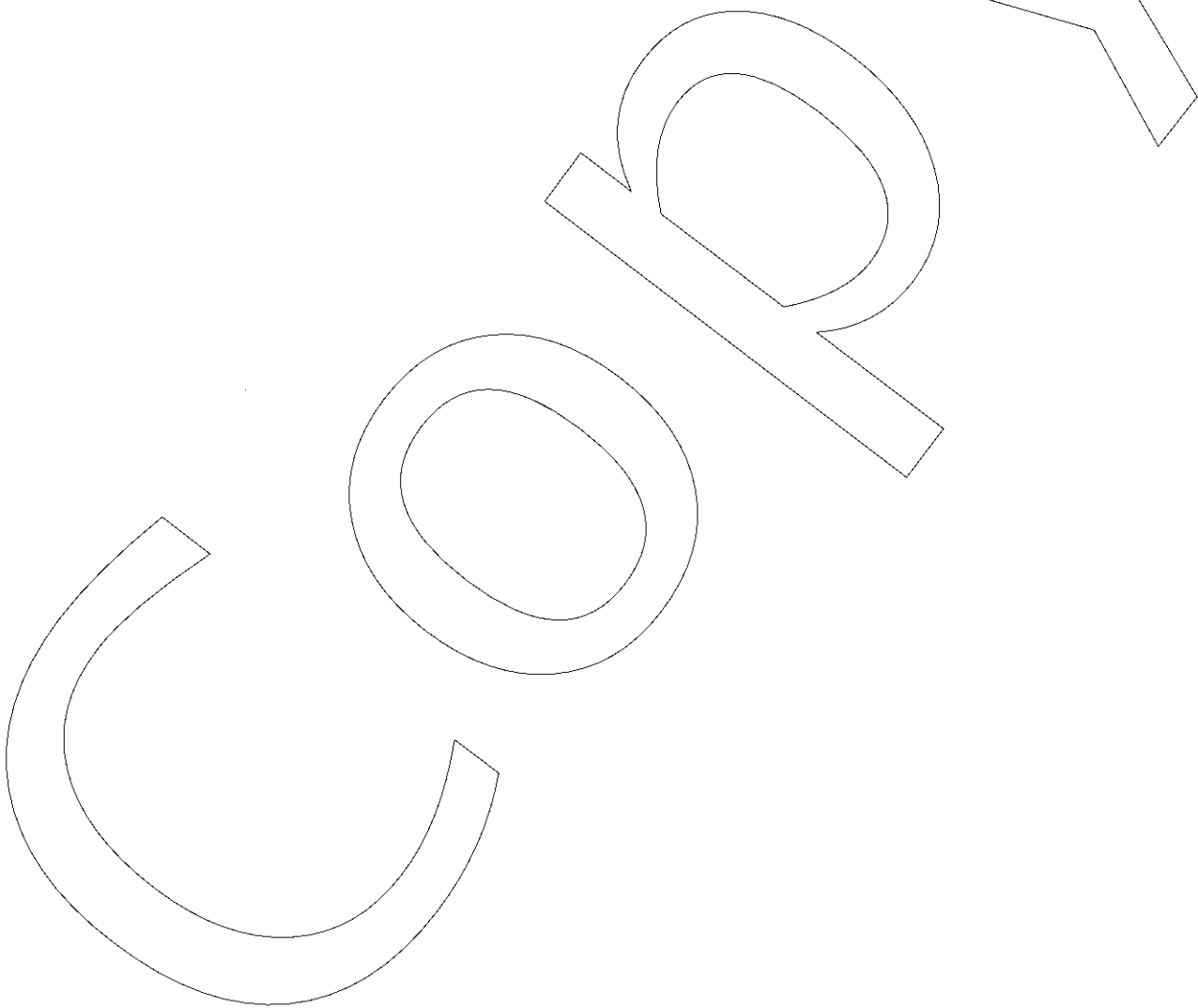


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**Hillside Development. (Chapter 18.12 – Article XVI).**

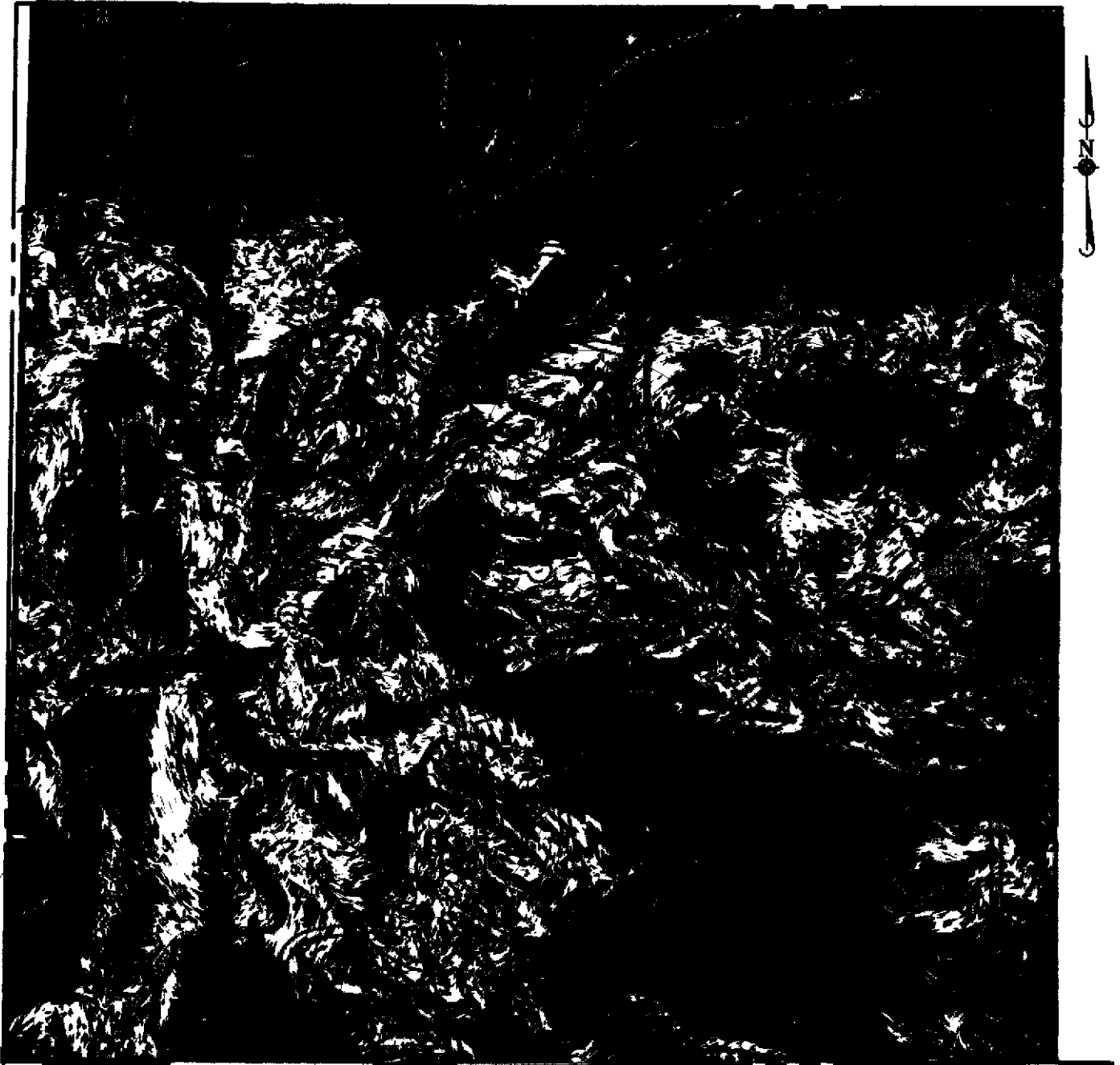
Topographical constraints exist throughout the Silver Star Ranch site and the land plan has been designed to preserve a majority of these areas as open space. However, the south portions of Villages 1 and 4 and the west half of Village 6 contain significant topography (greater than 30% as identified on the Hillside Development Areas map in Figure 17) that are proposed for development. Development in these areas will be subject to the standard City of Reno code requirements for Hillside Development as outlined in this section related to grading, cuts and fills, and hillsides, as well as the additional standards in Section 18.12.1606, Hillside Grading Strategies. As each tentative map is submitted for the project, the developer shall demonstrate that the proposed development complies with the City of Reno code as it relates to grading, cuts and fills, and the hillside ordinance, as amended.



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**Figure 17 – Hillside Development Areas**



**LEGEND**

 HILLSIDE AREAS

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**Section 18.12.1601. Purpose.**

The purpose of regulations regarding hillside development is to:

- (a) Acknowledge that as a slope increases, so does the potential for environmental degradation including slope failure, increased erosion, sedimentation and stormwater run-off.
- (b) Preserve and enhance the beauty of the landscape by encouraging retention of natural topographic features, including but not limited to prominent ridgelines, major drainageways, and significant rock outcrops.
- (c) Encourage innovative grading practices which are more appropriate in hillsides, and hide from public view unsightly scarring.
- (d) Take into account that hillside development sites have unique topographic, landscape, and geotechnical settings and thus require site-specific design solutions.
- (e) Promote the preservation of significant topographic features by retaining portions of development sites as undisturbed open space.

**Section 18.12.1602. Applicability and Exemptions.**

- (a) Grading for Silver Star Ranch shall be reviewed with each tentative map submittal to determine applicability of hillside development standards.
  - (b) Hillside development regulations apply to developments that have an average slope, as calculated below, equal to or greater than ten percent or slopes that exceed 15 percent on 25 percent or more of the site.
  - (c) Hillside developments shall be subject to the approval of a major special use permit according to Section 18.06.405 of this title. In addition to the standard special use permit findings, the additional findings listed below must be met.
    1. The proposed project mitigates environmental degradation, including slope failure, erosion, sedimentation, and stormwater run-off;
    2. The proposed project utilizes grading practices that are appropriate for hillsides and designed to minimize the visibility of unsightly scarring;
    3. The proposed project provides open space based on hillside constraints;
    4. The proposed project adheres to applicable hillside development design standards and to master plan provisions related to development in sloped areas;
    5. The proposed project's site layout and design features adequately mitigate potential visual impacts of development near prominent ridgelines and within other visually prominent areas.
  - (d) Development of one single-family house and permitted accessory structures, activities typically associated with and accessory to legally establish uses, and trails shall be exempt from this article's regulations.
-

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- (e) Utility box/well house, back-up generator, and pumping or booster station uses shall be exempt from the special use permit process requirement as long as structures total no more than 2,000 square feet in size on the subject parcel. Compliance with this section shall be verified during building permit review for such facilities.

**Section 18.12.1603. Compilation of Slope.**

- (a) Slope shall be computed on the existing slope of the land before any grading for the proposed development has commenced, as determined from a topographic map having a scale of not less than one inch equals 60 feet, and a contour interval of not more than two feet. Average slope of a development and slope cell sizes shall not be derived from lower resolution topographic data.
- (b) Percent slope for cells shall be computed by dividing the contour interval by the horizontal distance between contour intervals then multiplying by 100 percent, or by a comparable digital slope analysis.
- (c) For purposes of determining the applicability of a project to this article's standards, the average slope formula below or a comparable digital slope analysis shall be used.

$$S = \frac{(0.0023)(l)(L)}{A}$$

Where:

S = Average percent slope

L = Summation of length of contours in scale feet

l = Contour interval in feet

A = Area in acres of parcel being considered

**Section 18.12.1604. Required Plans.**

- (a) Plans for a hillside development shall depict existing contours, proposed finish contours, representative cross sections showing existing and proposed conditions, ridgelines and their proposed treatment, proposed erosion control and slope stabilization techniques, structure citing criteria, building envelopes, any height limitations, and solar orientation considerations, grading treatments necessary to provide access to building envelopes, vehicular circulation routes, and pedestrian circulation routes. Locations of all six-inch caliper or larger trees proposed to be maintained or removed with development shall also be noted on aerial photographs or site plans.
- (b) Additional grading plans and site improvement plans shall be superimposed over a color slope cell map that groups pre-grading slopes into categories identified in Table 15 (Hillside Density Calculation).

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- (c) All projects proposing development on hills or mountains, as shown on the “visually prominent ridgeline and landforms” map (adopted by reference and available for inspection or purchase at the administrator’s office), shall provide additional application material indicating how mapped ridgelines and other visually prominent portions of the project are proposed to be treated. Application material may include photosimulations, sight-line analyses, three-dimensional models, three-dimensional computer generated images, or similar representations of the proposed project.
- (d) All required plans shall be wet-stamped, signed and certified accurate by a civil engineer licensed in the State of Nevada.

**Section 18.12.1605. Calculation of Density.**

To retain the natural features of hillsides, the maximum number of dwelling units shall be reduced as slope increases in accordance with Table 15 (Hillside Density Calculation), and the following standards:

- (a) Each property to be developed shall be divided into cells of similar slope, utilizing the slope ranges listed in Table 15.
- (b) The 100-year floodplain of major drainageways plus a 15 foot wide buffer of both sides on both sides shall be excluded from density calculations and shall not be allocated any development for purposes of hillside density calculations (See Article XIX (Drainageway Protection Standards) for applicable major drainageways standards.) Notwithstanding the above, the area excluded from density calculations shall not exceed 80 feet in width along each major drainageway.
- (c) In zoning districts without residential base density standards, allowable development density shall be based on other applicable provisions of this Title 18.
- (d) The maximum number of dwelling units allowed by Table 15 may only be realized if the proposed development complies with all other applicable provisions of this article.

<b>Table 15: HILLSIDE DENSITY CALCULATION (1)</b>				
<b>SLOPE RANGE</b>	<b>COLUMN A: DENSITY REDUCTION FACTOR</b>	<b>COLUMN B: BASE ZONING DENSITY (UNITS/ACRE) (2)(3)</b>	<b>COLUMN C: ACRES WITHIN SLOPE RANGE (3)</b>	<b>COLUMN D: DWELLING UNIT ALLOCATION (3)(4)(5)(6)</b>
0-15%	1.0 (No Reduction)			
15.1-20%	0.6			
20.1-25%	0.2			
25.1-30%	0.1			
Greater than 30%	0 (No Density Allocation)			

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<b>Table 15: HILLSIDE DENSITY CALCULATION (1)</b>				
<b>SLOPE RANGE</b>	<b>COLUMN A: DENSITY REDUCTION FACTOR</b>	<b>COLUMN B: BASE ZONING DENSITY (UNITS/ACRE) (2)(3)</b>	<b>COLUMN C: ACRES WITHIN SLOPE RANGE (3)</b>	<b>COLUMN D: DWELLING UNIT ALLOCATION (3) (4) (5) (6)</b>
				Sum of Column D Entries = Maximum Dwelling Units for the Project
<p><b>Table 15 Notes:</b></p> <p>(1) Allowable dwelling units are determined at the project level – the dwelling unit allocation for each slope range is for calculations purposes only.</p> <p>(2) Base zoning density is identified in Table 12 of Section 18.12.102 for single-family residential zoning districts and in Table 18.12-2 of Section 18.12.103 for multi-family residential zoning districts.</p> <p>(3) Base zoning density acres within each slope range, and the unit allocation for each slope range shall be rounded for two decimal points.</p> <p>(4) For each row, columns A, B and C are multiplied to determine the number of dwelling units allocated to each slope range (column D).</p> <p>(5) The sum of allowable units within each slope range represents the maximum number of dwelling units for each project.</p> <p>(6) Maximum dwelling units for the project shall be rounded down to the next whole number.</p>				

#### Section 18.12.1606. Hillside Grading Strategies.

Sensitive grading strategies shall be used in areas of hillside development where slopes exceed 15%. Areas specifically identified within the Silver Star Ranch development that will require special attention include the south portions of Villages 1, 4 and the west and north portions of Village 6 as shown on Figure 17, Land Use Plan with Slope Map. Hillside adaptive architecture, per Figure 15 shall be utilized to mitigate extensive disturbance.

When slope grading and retaining walls are warranted to accommodate development in these hillside areas, the following standards shall be followed:

- (a) Retaining walls will have a maximum height of 8' as shown on Figures 18 and 19. In the event that terracing of retaining walls is proposed, the resulting benches shall have a minimum horizontal width of eight feet to provide for a minimum 5' width of landscaping located between the uphill wall face and the drain rock of the downhill wall. Landscape standards for the benches are provided in Table 16. Retaining walls shall be constructed with decorative materials such as natural rock, brick, stamped and tinted concrete, or similar materials in conformance with City of Reno Development Standards. Retaining walls shall utilize colors and materials consistent with the area to ensure blending, to the satisfaction of City staff.

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**Table 16**  
**Bench Landscape Standards**

+/- 500 s.f. per 100 l.f.

Shrubs	30 Shrubs (5 Gallon) = (200 s.f.)/40%
Shrubs	25 Shrubs (1 Gallon) = (125 s.f.)/25%
Ornamental Grasses	25 Shrubs (1 Gallon) = (75 s.f.)/15%
Living Groundcover	17 (1 Gallon) = (100 s.f.)/20%

**Notes:**

- (1) All planting areas are to receive rock or bark mulch 4" in depth.
  - (2) All planting areas shall be drip irrigated.
- (b) Open space corridors may be created between rear property lines as a result of hillside development. These corridors shall be a minimum of 50' wide (undisturbed ground), as shown on Figures 18 and 19. The appropriateness of open space corridors between rear lot lines shall be determined with the tentative map grading plan based on the proposed lot configuration. Open space corridors within development areas may be less than 50' at the discretion of the administrator or designee at time of tentative map approval if it can be demonstrated that grading and slope disturbance is reduced. Open space corridors shall have semi-formal landscaping and an 8'-10' pathway as shown on Figure 8 in Section II, Services and Facilities. Semi-formal landscaping shall be defined as pockets of native or non-native drought-tolerant plant materials located every 200' along pathways which are consistent with the landscape standards in Table 17. Pedestrian benches shall be placed every 1,000' along the pathways adjacent to the semi-formal landscaping.

**Table 17**  
**Landscape Pocket Standards**

+/- 300 s.f. per 200 l.f.

Shrubs	9 Shrubs (5 Gallon) = (120 s.f.)/40%
Shrubs	15 Shrubs (1 Gallon) = (105 s.f.)/35%
Living Groundcover	20 (1 Gallon) = (75 s.f.) / 25%

**Notes:**

- (1) All planting areas are to receive decomposed granite 4" in depth.
- (c) Where slopes transition into existing open space, 2:1 slopes with a maximum height of 30' shall be used to minimize disturbed areas. These

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slopes will be revegetated with native seed mix and plant materials as demonstrated in Figure 20 where slopes transition into existing open space. Slopes that are not screened from adjacent roadways by homes, landscaping or natural landforms shall be shaped to mimic natural hillside conditions. Areas to receive this special treatment shall be identified and reviewed with each tentative map. When transitioning to adjacent roadways, slopes shall be revegetated with formal landscaping as demonstrated in Figure 21. In slope areas located between formal and native landscaping, a 50' transition area will be provided which will include irrigation as necessary. The standards for this transition area shall be determined during review of the associated tentative map based on the extent of the adjacent formal and native landscaping, to the satisfaction of City staff. All slope areas located outside of individual residential lots are common open space and will be maintained by the homeowners association.

- (d) All up and down slope areas exceeding 10' in height shall be removed from the rear yards of individual lots, restored with native, semi-formal or formal landscaping based upon location per items b and c above. These slopes shall be maintained as common open space by the homeowners' association. Limited variation to this standard may be considered on an individual basis with the review of the tentative map.

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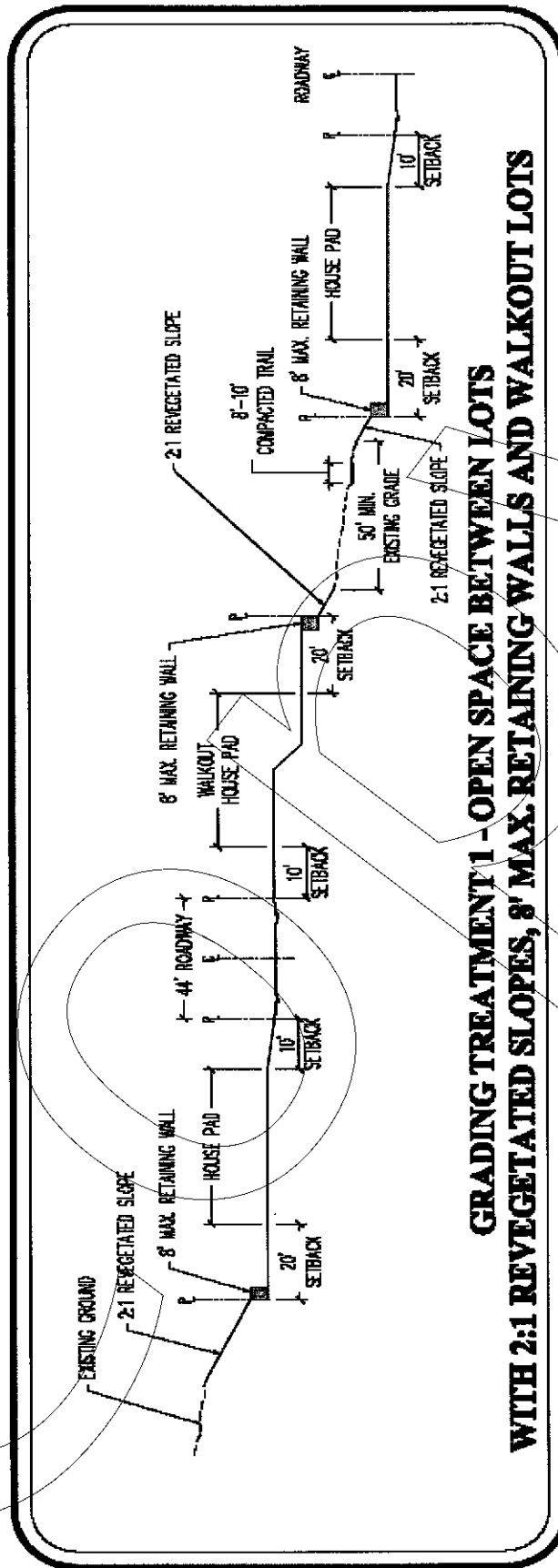


Figure 18

Planned Unit Development Handbook for Silver Star Ranch  
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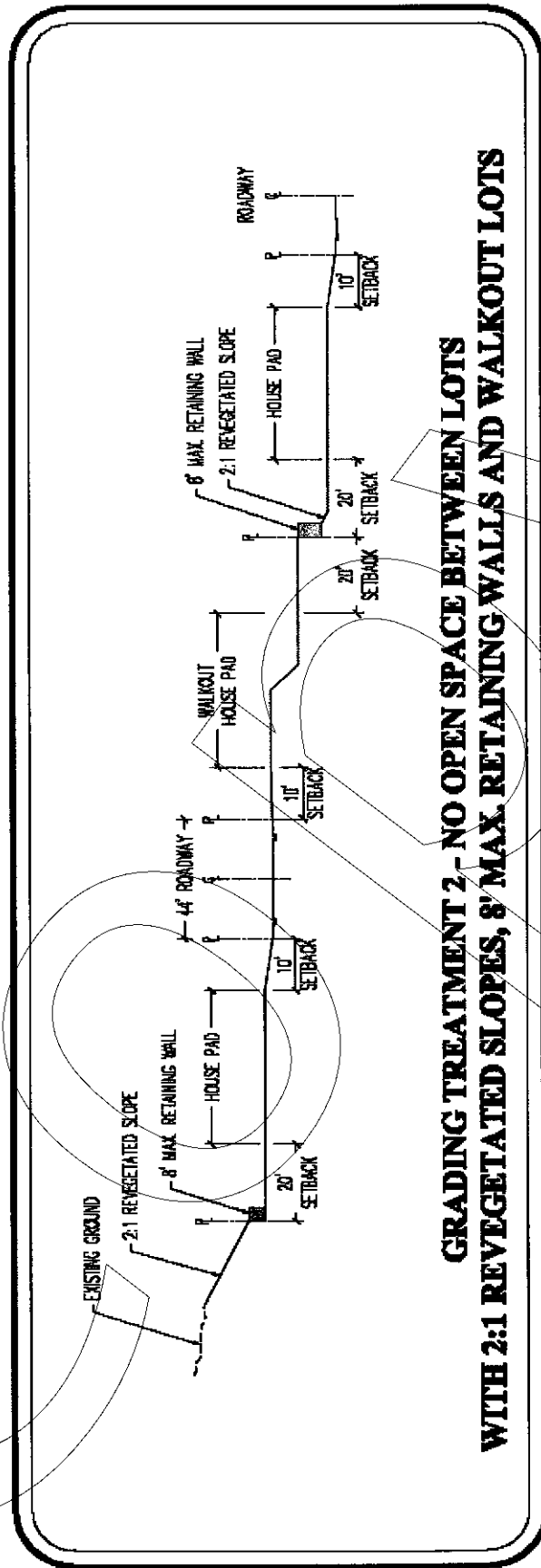


Figure 19

Planned Unit Development Handbook for Silver Star Ranch  
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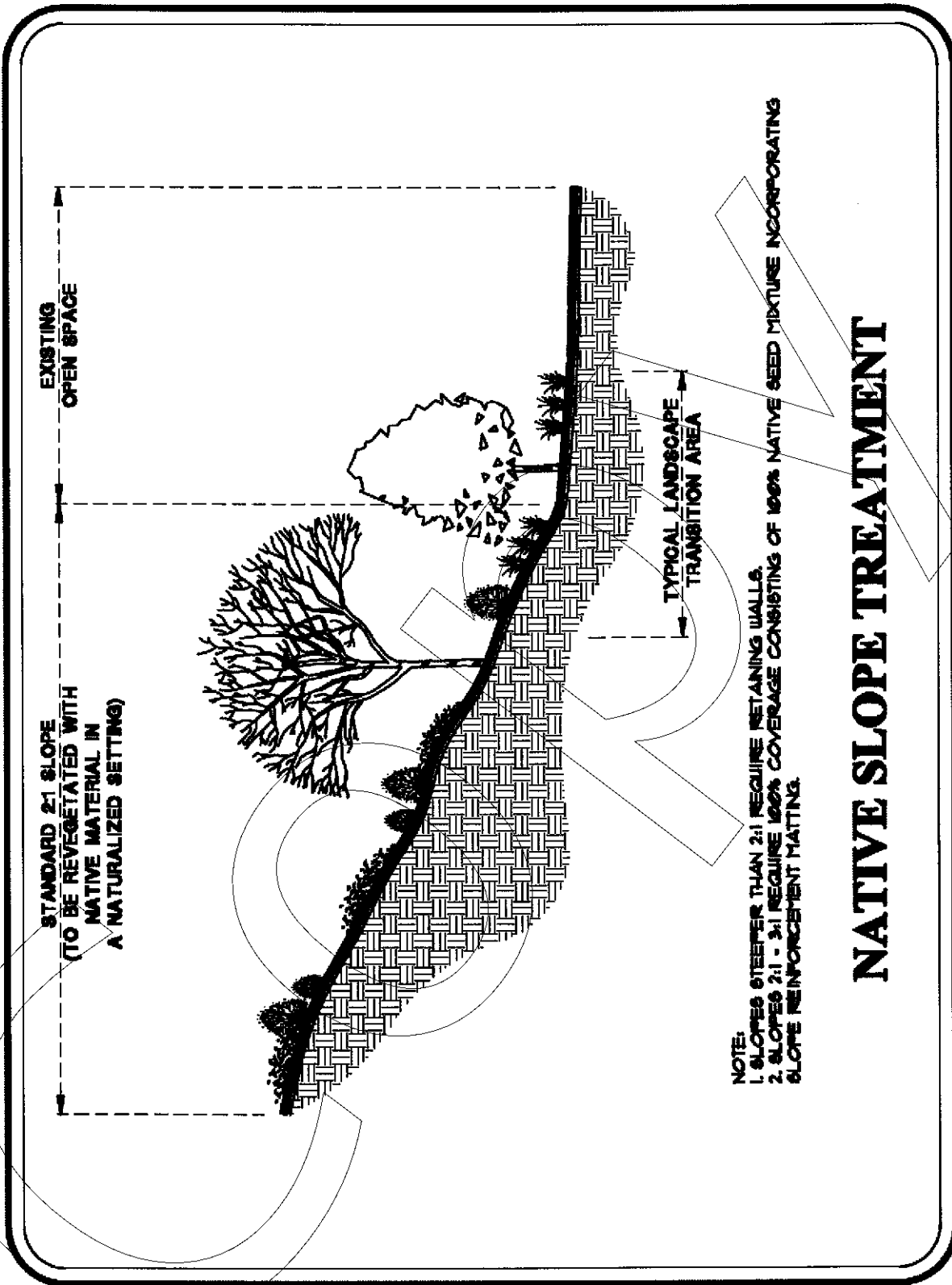


Figure 20

Planned Unit Development Handbook for Silver Star Ranch  
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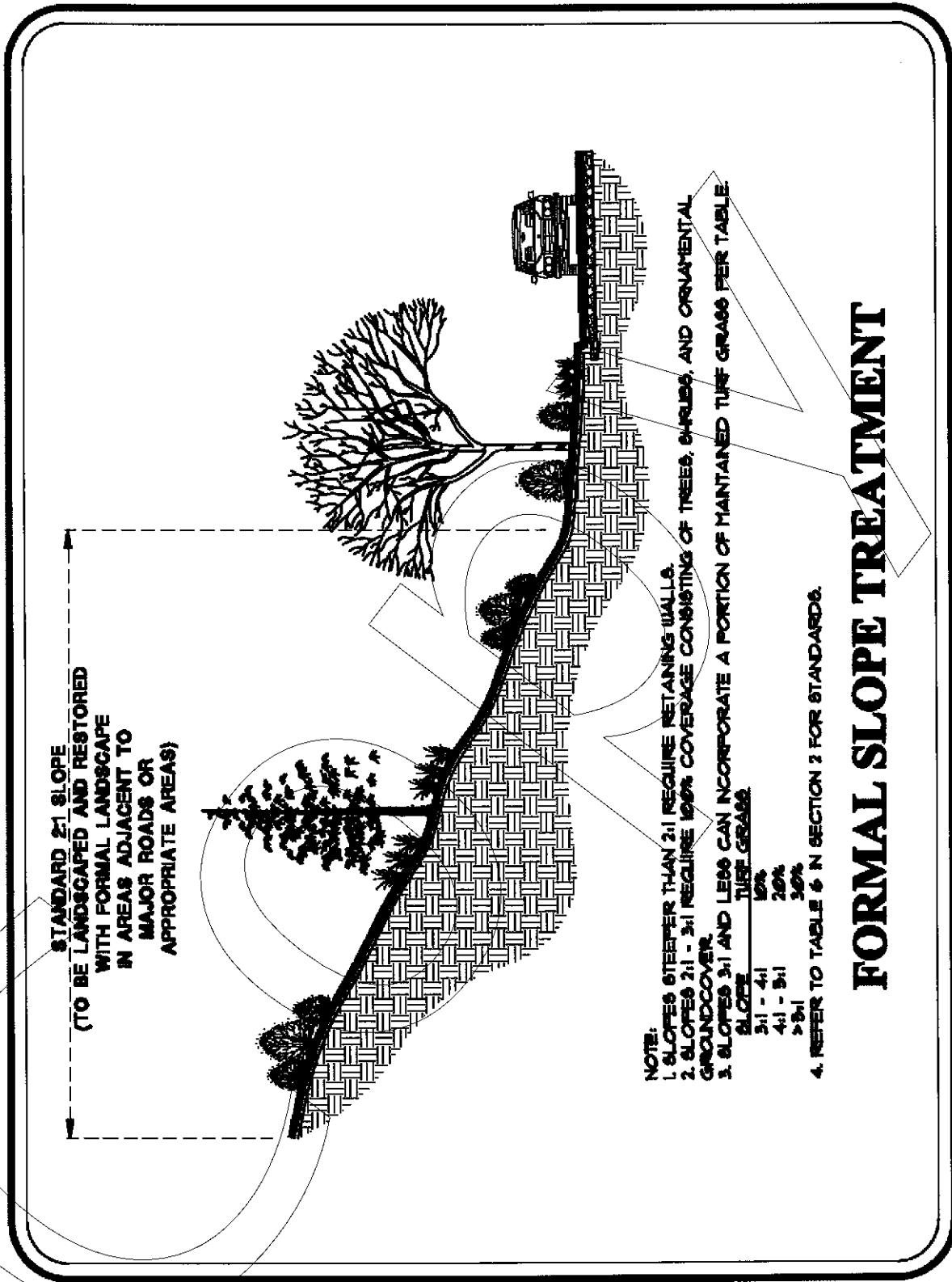


Figure 21

Planned Unit Development Handbook for Silver Star Ranch  
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**Section 18.12.1607. Required Open Space.**

- (a) Open space shall be preserved in accordance with Table 18 (Required Open Space).

<b>Table 18: REQUIRED OPEN SPACE IN HILLSIDE DEVELOPMENTS (1)</b>			
<b>SLOPE RANGE</b>	<b>COLUMN A: MINIMUM OPEN SPACE (%)</b>	<b>COLUMN B: ACRES WITHIN SLOPE RANGE (2)</b>	<b>COLUMN C: REQUIRED OPEN SPACE WITHIN EACH SLOPE RANGE (ACRES) (2) (3) (4)</b>
0-15%	None		
15.1-20%	25%		
20.1-25%	50%		
25.1-30%	75%		
Greater than 30%	100%		
			<b>Sum of Column C Entries: Open Space Required for the Project</b>
<b>Table 18 Notes:</b>			
(3) Required open space determined at the project level – the open space required for each slope is for calculations purposes only.			
(4) Acres within each slope range and required open space shall be rounded by two decimal points.			
(5) For each row, columns A and B are multiplied together then divided by 100% to determine the required open space for each slope range in acres (column C).			
(6) The sum of allowable units within each slope range represents the minimum amount of open space required for the project.			

- (b) Open space required by other subsections of this article's hillside regulations shall be added to open space required by Table 18 and may be provided within any slope range.
- (c) Property that is zoned to open space in conjunction with a hillside development shall qualify towards open space by Table 18.
- (d) Required open space areas shall be strategically located to include some of the site's environmental, recreational, or scenic areas. Environmental, recreational or scenic amenities include, but are not limited to, major drainageways, wetlands, riparian vegetation, high value groundwater recharge areas, visually prominent areas (including ridgelines on the "visually prominent ridgeline and related landforms" map), recreational amenities (including connections to off-site amenities), rock outcrops, and viewpoints.
- (e) Required open space shall be retained in a natural state without clearing, grading, or other construction-related disturbance, or shall be restored or improved with landscaping or recreational amenities.
- (f) At its sole discretion, the decision-making body may allow some or all of the required open space to be incorporated within the private lot lines if the project site meets the following standards:
- (1) The site does not include a major drainageway;

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- (2) The site does not abut an existing or planned open space or public recreational area;
- (3) Visual impacts in any sensitive viewshed area are mitigated using alternative means; and
- (4) The alternative site layout is determined to be more compatible with nearby development.

**Section 18.12.1608. Visually Prominent Ridgelines.**

Potential visual impacts of development containing ridgelines identified on the “visually prominent ridgelines and related landforms” map shall be mitigated with site design, structure locations, and/or architectural treatments. Techniques to mitigate visual impacts may include preserving ridgelines as open space, providing setbacks from ridgelines and other visually prominent areas, building height limitations, structure colors consistent with the natural environment, architectural treatments, or similar techniques.

**Section 18.12.1609. Development on 30 Percent and Greater Slopes.**

Development on natural slopes greater than 30 percent shall be permitted in accordance with subsections (a) and (b) below.

- (a) The following developments may be allowed on 30 percent or greater slopes in accordance with other provisions of this PUD.
  - (1) Communication facilities;
  - (2) Recreation facilities;
  - (3) Utilities;
  - (4) Agriculture;
  - (5) Forestry;
  - (6) Mining; and
  - (7) Residential development at a maximum density of one unit per 40 acres.
- (b) All other development on 30 percent or greater slopes shall comply with the requirements of this article, Title 18, and the following conditions:
  - (1) A 2:1 ratio of property with slopes under 30 percent shall be added to the project open space requirement for all encroachments of development into 30 percent or greater slopes; and
  - (2) Encroachments are determined to improve or not significantly impact the open space network, based on the standards in Section 18.12.1606 above.
  - (3) The number of units within the project need not be reduced below 1,600 provided that all requirements for hillside development are met.

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**Section 18.12.1610. Slope Treatment.**

- (a) Where possible, without significantly increasing the amount of cut and fill, angles at the edge of cut and fill slopes shall be rounded off in a natural manner.
- (b) Unless following the standards outlined in 18.12.1606(c), cut and fill slopes over ten feet in height shall be designed with natural appearing variations in slope, aspect and surface treatment to minimize the engineered appearance of these slopes.

**Section 18.12.1611. Pedestrian Circulation.**

- (a) Sidewalks or walkways shall be provided in accordance with a total pedestrian circulation plan that addresses projected needs, including those of school children.
- (b) Safe pedestrian access shall be provided between occupied structures and recreational facilities on or adjacent to the site.
- (c) Sidewalk standards may be modified to minimize grading disturbances.
- (d) The pedestrian circulation plan shall be evaluated with respect to safety, accessibility and recreational value.

**Section 18.12.1613. Reduction of Street Width.**

On-street parking lanes may be omitted from streets when the result is a substantial decrease in cutting and/or filling. Off-street parking areas shall provide one additional space for each dwelling unit that does not front an on-street parking lane. Local streets may be reduced to 20 feet in width for one-way travel, 24 feet in width for two-way travel (with no on-street parking), or 34 feet in width (with on-street parking).

**Section 18.12.1614. Hillside Architecture.**

Hillside adaptive architecture features shall be strategically utilized to reduce grading disturbances in areas where standard construction methods would generate major grading disturbances and deviations from standard construction methods would not prevent effective utility and service delivery. Examples of major grading disturbances include but are not limited to cut or fill slopes that exceed 30 feet in height, cut or fill slopes that exceed 15 feet in height within or adjacent to areas with public access and fill depths that generally exceed ten feet at project edges and interfaces with major drainageways. Hillside adaptive architecture features include but are not limited to, multi-level foundations, height restrictions, view corridor provisions, construction of structures on the existing natural ground, single loaded streets and similar techniques.

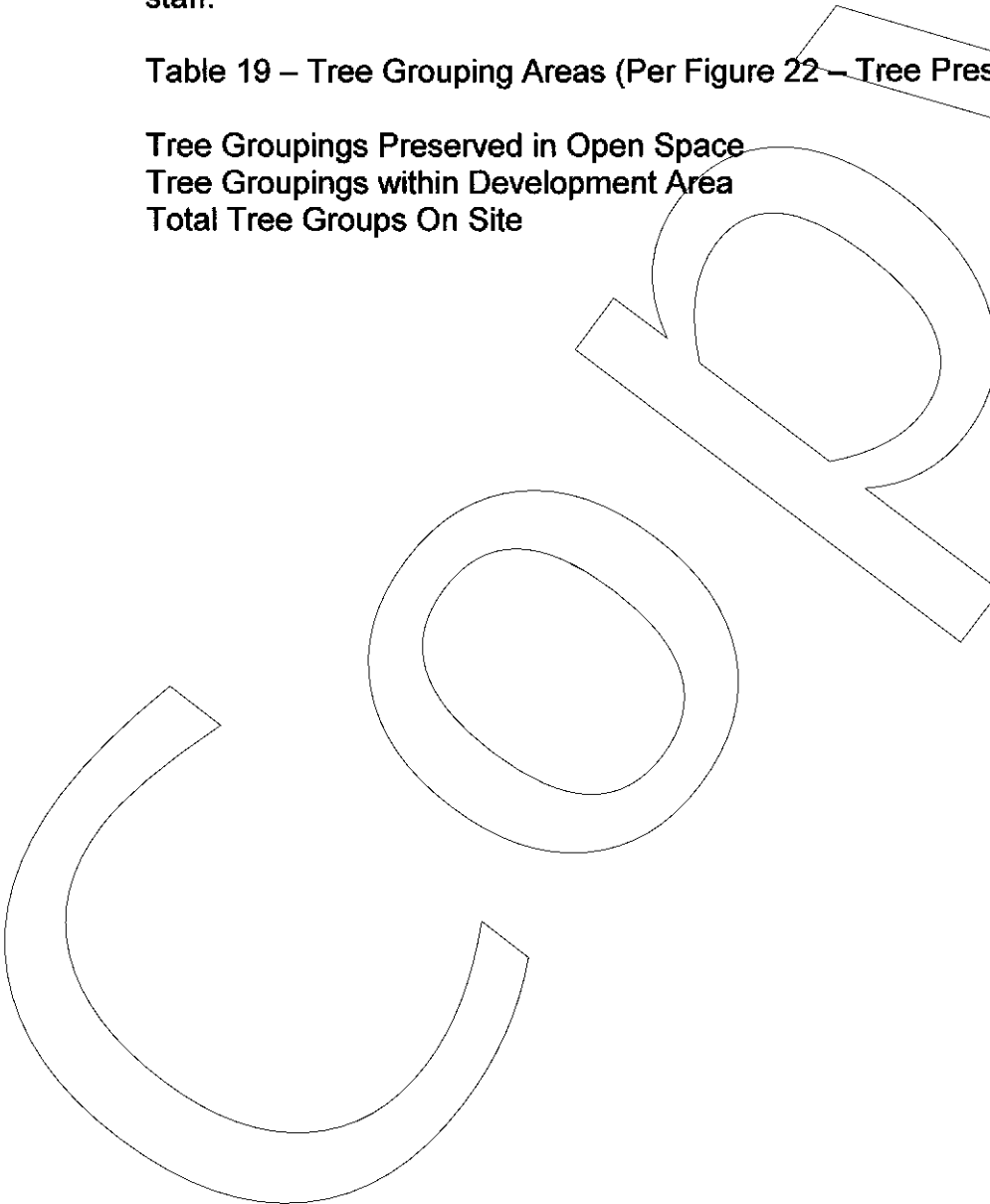
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**Section 18.12.505. Tree Preservation.**

The Silver Star Ranch site is sparsely vegetated with native shrubs, grasses, Pinion and Juniper Pines. Configuration of the project's open space provides for the preservation of many substantial native tree groupings. Approximately 32.25 acres of these trees are located within areas proposed as open space (Table 19 and Figure 22). In addition, several tree groups are located within the proposed development area (Table 19 and Figure 22). Tree groupings located within the development areas shall be preserved where grading and layout allows. Tree preservation in development areas shall be addressed with the design and approval of each tentative map and shall comply with the tree mitigation standards in the City of Reno Land Development Code to the satisfaction of City staff.

**Table 19 – Tree Grouping Areas (Per Figure 22 – Tree Preservation)**

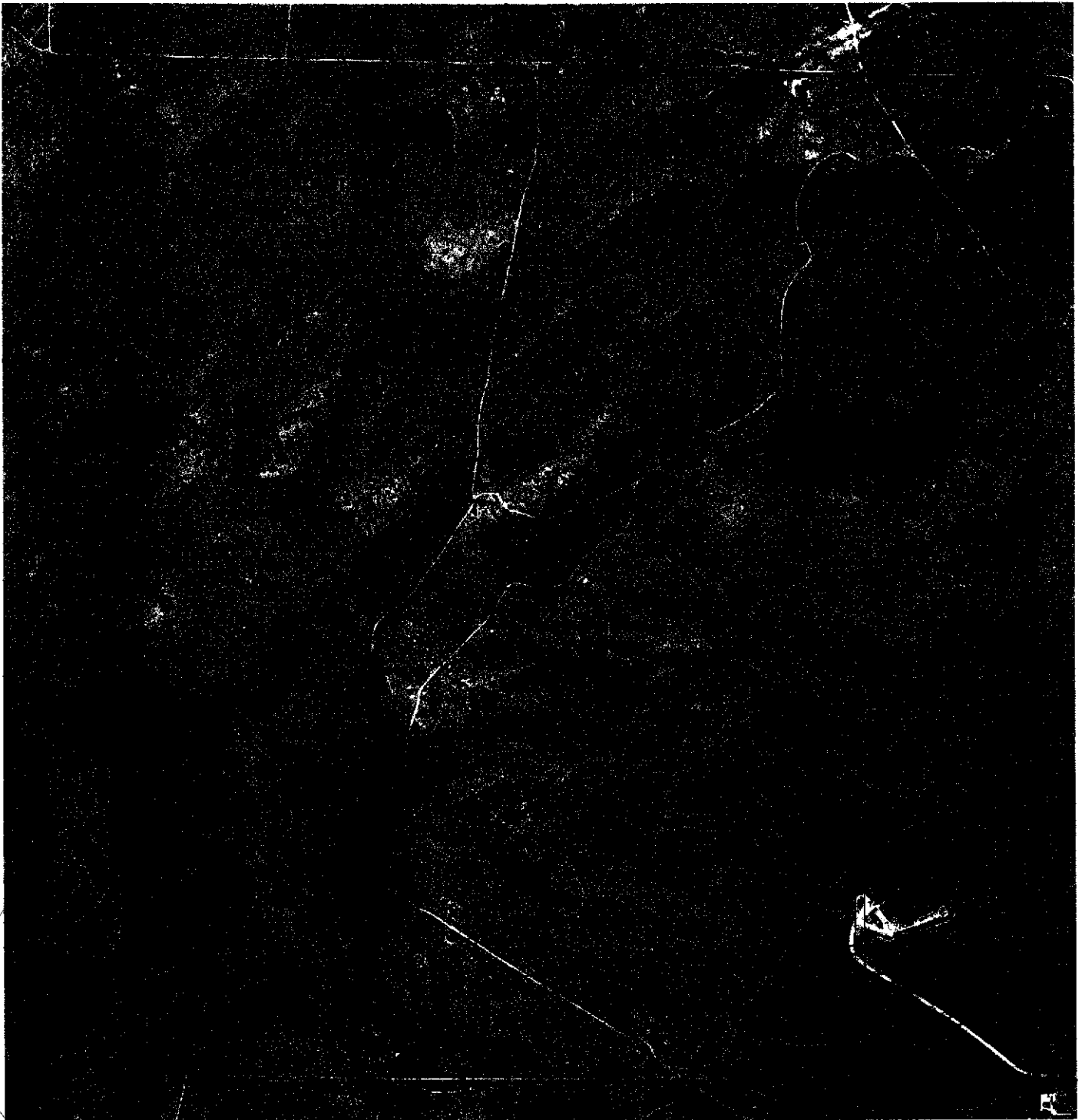
Tree Groupings Preserved in Open Space	32.25 Acres (56%)
Tree Groupings within Development Area	24.83 Acres (44%)
<b>Total Tree Groups On Site</b>	<b>57.08 Acres</b>



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**Figure 22 – Tree Preservation Plan**



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**Streets. (Chapter 18.12-ArticleVII)**

(Provided from the City of Reno's Land Development Code)

**Section 18.12.701. Street Design—General Standards**

(a) The City of Reno Public Works Design Manual (January 2009), as amended, is hereby incorporated by reference and made a part of this PUD.

(b) **Minimum Street Design Requirements.** All street design shall conform to Figures 2A through 2E of this PUD, the Public Works Design Manual and City standards. Where there is conflict between the Design Manual, City standards and this PUD, the PUD shall prevail.

(c) **Reduction of Street Widths.** On-street parking lanes may be omitted from streets when the result is a substantial decrease in cutting and/or filling or will reduce vehicle speeds. Off-street parking areas shall provide one additional space for each dwelling unit that does not front an on-street parking lane. Local streets may be reduced to 20 feet in width for one-way travel (with no on street parking), 24 feet in width for two-way travel (with no on-street parking), or 34 feet from front face of curb to front face of curb for local streets (parking on both sides). Any reductions in street width must include proper justification and be presented at the time of the tentative map application.

**Section 18.12.703. Street/Intersection Spacing**

Street spacing and intersection placement shall be as follows:

(Provided from the City of Reno's Land Development Code)

**Table 20: Spacing and Intersection Placement**

Classification	Minimum Distance between Intersections
Minor Arterial	900 feet

**Note:** Any roadway associated with development located in RL and RVL zoning shall meet spacing requirements in the public works design manual.

**Note:** Intersection spacing for roadways other than the Minor Arterial will meet City of Reno standards. If reduced spacing is desired and acceptable, it may be approved with the review of the associated tentative map.

**Note:** The northernmost access into Village 5 shall be designated as a right-in, right-out access only unless acceptable intersection spacing can be met, which will be determined with the review of the associated tentative map.

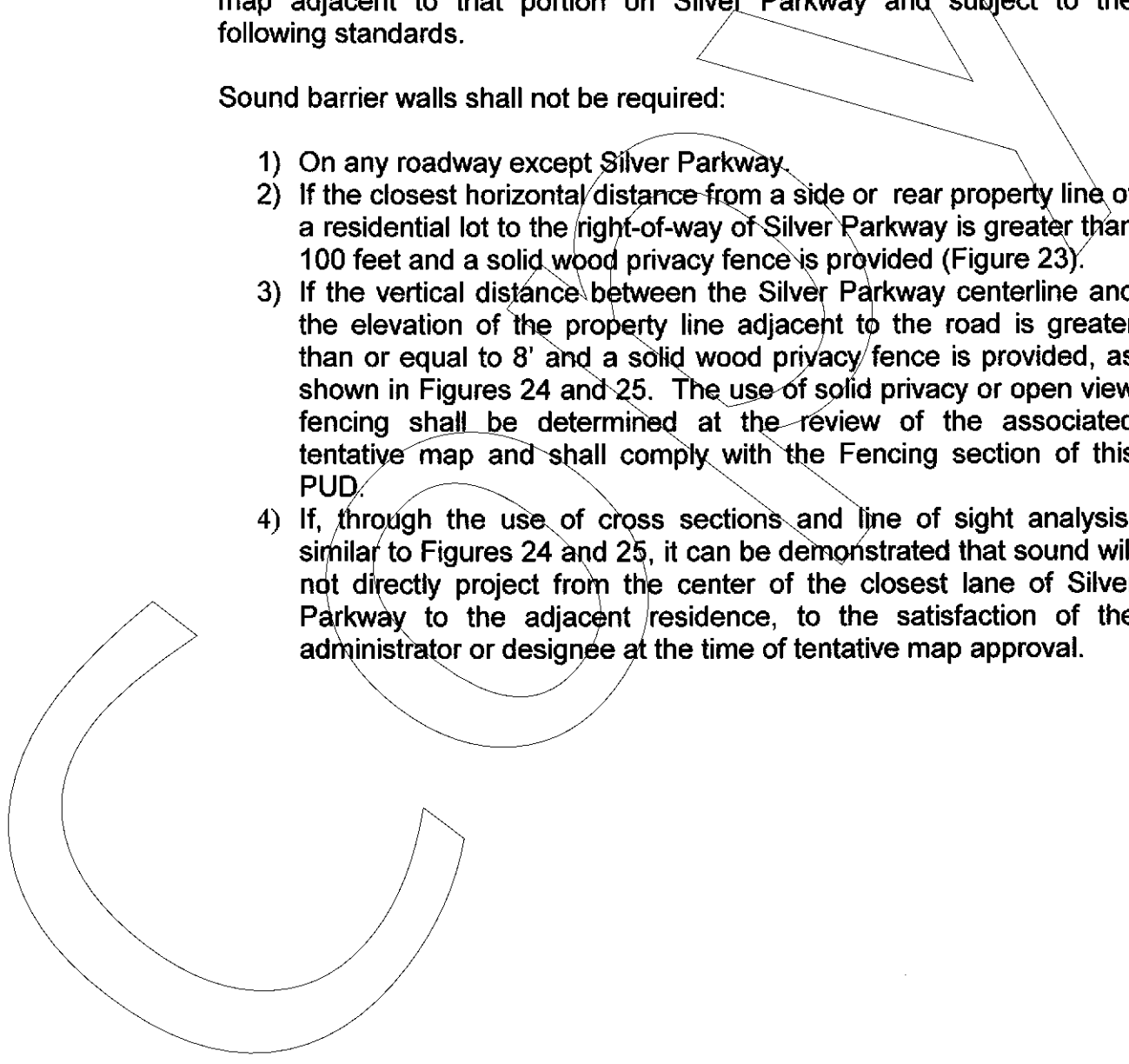
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**Section 18.12.702. Sound Barriers.**

- (a) The Silver Star Ranch land plan has rear yards backing up to Silver Parkway, making the selective installation of sound barrier walls necessary. While they are effective in reducing noise, long sound barrier walls can be aesthetically unattractive and often result in increased vehicular speeds. Therefore Silver Star Ranch has set forth criteria to determine when sound barrier walls will be required in an effort to place them only where warranted. The location and type of sound barrier walls along Silver Parkway shall be determined prior to approval of the tentative map adjacent to that portion on Silver Parkway and subject to the following standards.

Sound barrier walls shall not be required:

- 1) On any roadway except Silver Parkway.
  - 2) If the closest horizontal distance from a side or rear property line of a residential lot to the right-of-way of Silver Parkway is greater than 100 feet and a solid wood privacy fence is provided (Figure 23).
  - 3) If the vertical distance between the Silver Parkway centerline and the elevation of the property line adjacent to the road is greater than or equal to 8' and a solid wood privacy fence is provided, as shown in Figures 24 and 25. The use of solid privacy or open view fencing shall be determined at the review of the associated tentative map and shall comply with the Fencing section of this PUD.
  - 4) If, through the use of cross sections and line of sight analysis, similar to Figures 24 and 25, it can be demonstrated that sound will not directly project from the center of the closest lane of Silver Parkway to the adjacent residence, to the satisfaction of the administrator or designee at the time of tentative map approval.
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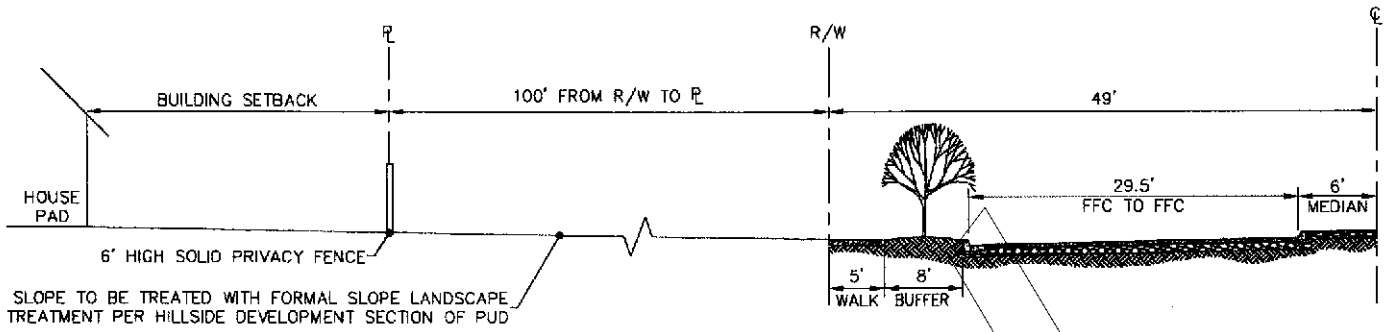


Figure 23

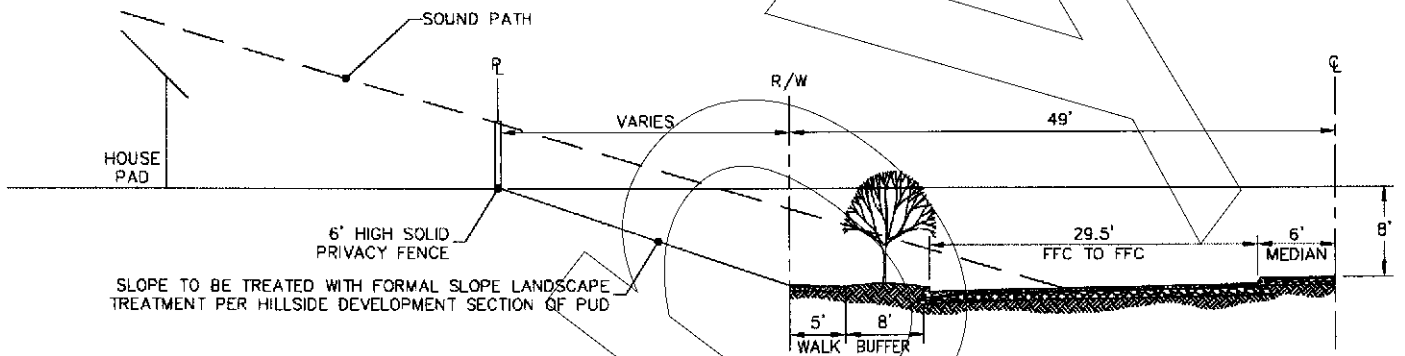


Figure 24

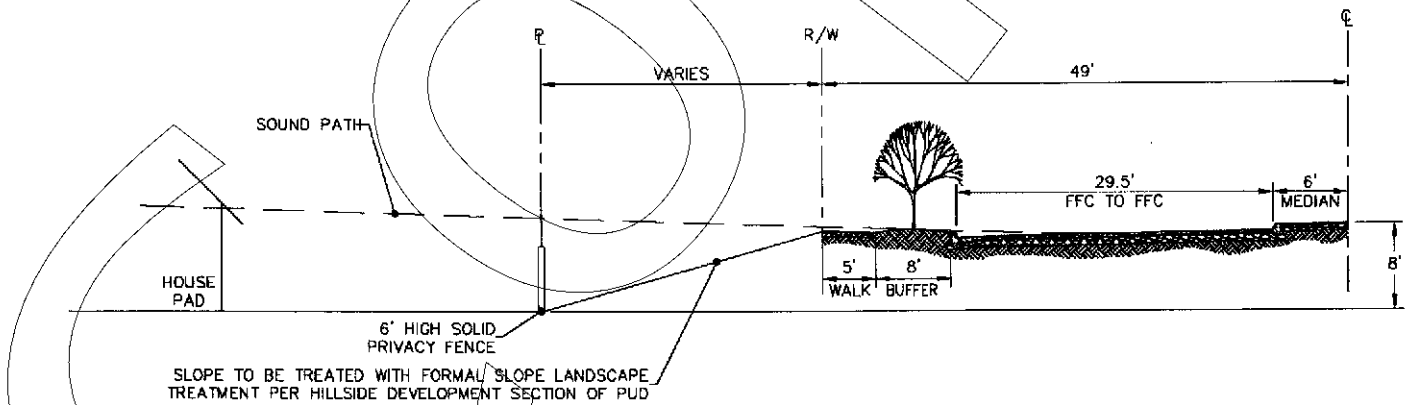


Figure 25

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Sound barrier walls, where required, shall:

- 1) Be no more that 6' high
- 2) Be of solid construction, either masonry block wall covered with stucco or other decorative façade, or pre-fabricated solid concrete with decorative design as shown in Figures 26 or 27. Decorative facades or designs on sound barrier walls shall be approved with the first tentative map and shall be consistent with these standards to the satisfaction of City staff. The decorative facades and design for the sound barrier walls approved with the first tentative map will apply to all subsequent sound barrier walls required within the PUD.
- 3) Be separated by solid pilasters as shown in Figure 26 at distances not greater than 40' and/or at each change in wall direction or grade.

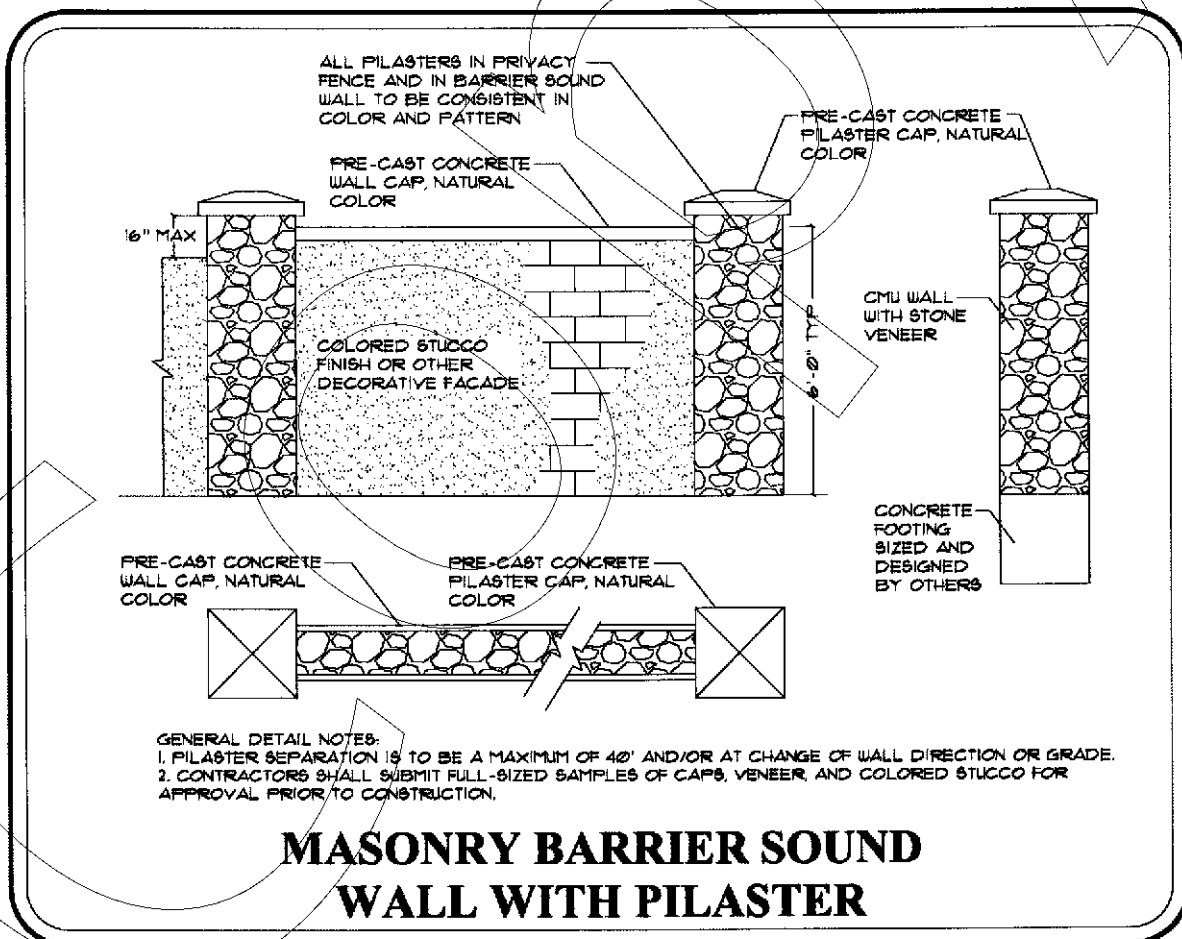


Figure 26

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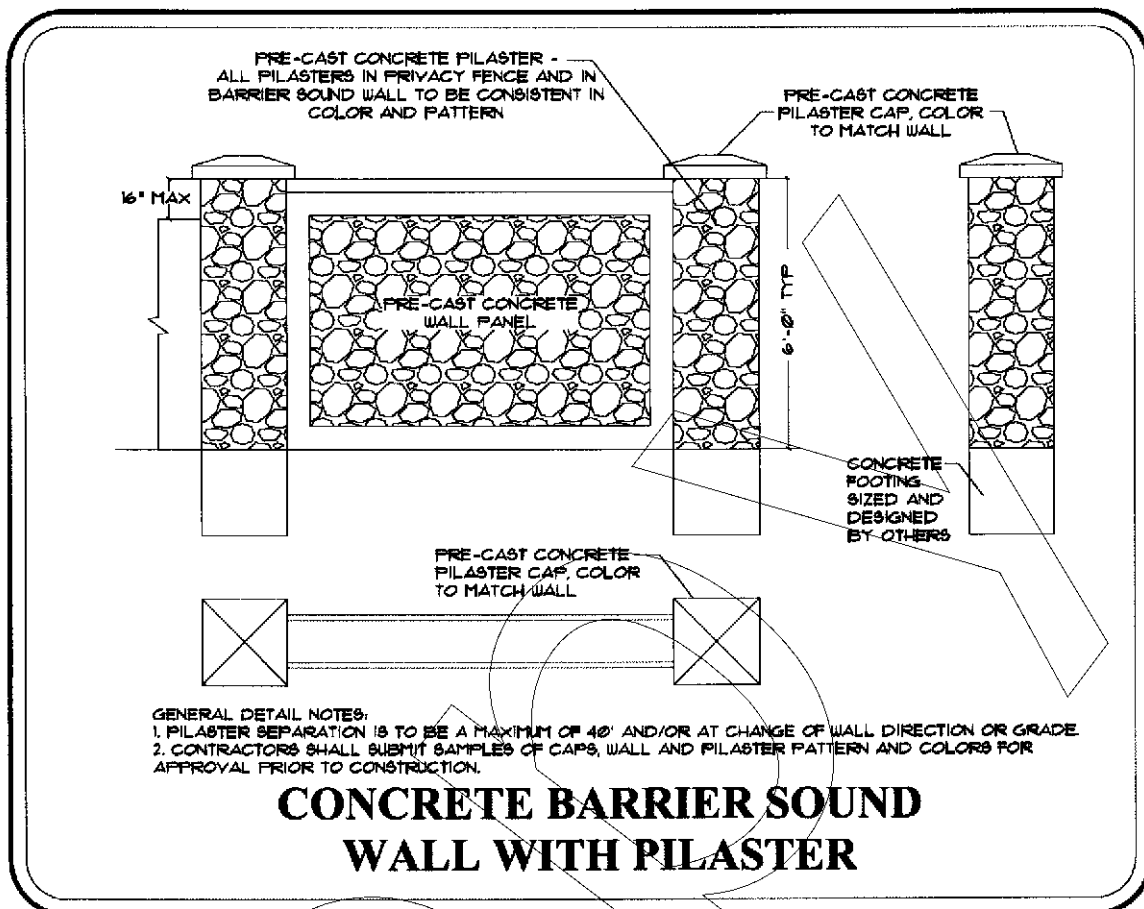


Figure 27

- (b) The builder shall demonstrate that construction and distance measures to be used will assure an interior noise level of 45Ldn or better and all such homes shall be provided with air conditioners.
- (c) When sound barrier walls are required, they shall be separated from the adjacent sidewalk by at least 3' of landscaping to be installed with the adjacent wall, as shown in Figure 34. Sound barrier walls shall be owned and maintained by the property owners' association.
- (d) When required, sound barrier walls shall be constructed either with the construction of Silver Parkway or with the construction of village improvements adjacent to Silver Parkway, whichever is deemed appropriate by mutual agreement of the developer and City staff. Construction of sound barrier walls shall be completed prior to the issuance of any certificate of occupancy for houses located adjacent to Silver Parkway, to the satisfaction of City staff.

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**Section 18.12.705. Private Streets**

(Provided from the City of Reno's Land Development Code)

(a) **Applicability.** Development with private streets instead of public streets may be allowed if the development complies with the requirements of this section. A special use permit will not be required for a private street development. Variances to these requirements shall not be permitted. The use of private streets shall be identified with the respective tentative map.

(b) **Design and Construction Standards.** Private streets shall conform to the same standards regulating the design and construction of public streets. These standards shall include, but are not limited to the following:

- (1) Circulation chapter of the master plan;
- (2) Public Streets ordinance;
- (3) Public works design manual and standard details for public works construction; and
- (4) Street naming and addressing policies.

(c) **Streets Excluded.** Streets identified as minor arterial or collector roadways in Figure 2 of this PUD shall not be used, maintained or constructed as private streets. The planning commission may, in the tentative map process, deny the creation of any private street if in the planning commission's judgment the private street would:

- (1) Negatively affect traffic circulation on public streets;
- (2) Impair access to property either on site or off-site to the development;
- (3) Impair access to or from public facilities including schools, parks, and libraries; or
- (4) Delay the response time of emergency vehicles.

(d) **Property Owners' Association Required.**

- (1) **Mandatory Association.** Developments with private streets shall have a mandatory property owners association which includes all property served by private streets. The association shall own and be responsible for the maintenance of private streets and appurtenances. Such documents must be reviewed and approved with the final map that proposes the use of the private streets.

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(2) Association Standards. The association documents shall be filed of record prior to the approval of the final map. Lot deeds must convey membership in the association and provide for the payment of dues and assessments required by the association. The association may not be dissolved without the prior written consent of the City. Nor may any portion of the association documents pertaining to assessments and the maintenance of the private streets be amended without the written consent of the City.

(e) Private Street Lot. Private streets must be constructed within a separate lot owned by the property owners' association. This lot must conform to the City's standards for public street right-of-way and this PUD. An easement covering the street lot shall be granted to the City and utility companies providing unrestricted use of the property for utility maintenance. This right shall extend to all utility providers including telecable companies and emergency services operating within the City. The easement shall also provide the City with right of access for any purpose related to the exercise of a governmental service or function, including, but not limited to, fire and police protection, inspection and code enforcement. The easement shall permit the City to remove any vehicle or obstacle within the street lot that impairs emergency access.

(f) Construction and Maintenance Cost. The City shall not pay for any portion of the cost of constructing or maintaining a private street including street signs and regulatory signage. Cost incurred for construction will not offset any impact fee charges.

(g) Utilities. Sewer, drainage facilities, and signs placed within the private street shall be installed to City standards. Dedication to the City shall occur prior to acceptance of the development and/or release of securities. All City and regulations relating to infrastructure financing, developer cost participation and capital cost recovery shall apply to developments with private streets.

(h) Plans and Inspections. Developments proposed with private streets must submit the same plans and engineering information required to construct public streets and utilities. Requirements pertaining to inspection and approval of improvements prior to final map approval shall apply. Fees charged for these services shall also apply. The City may periodically inspect private streets and require repairs necessary to insure emergency access. The City may take legal action to insure necessary repairs are made and/or perform the repairs and charge the owner actual cost.

(i) Access Restrictions. The entrances to all private streets shall be marked with a sign stating that it is a private street. Guard houses, access control gates and cross arms may be constructed. All restricted access entrances shall be manned 24 hours every day, or provide an alternative means of ensuring access to the

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development by the City and other utility service providers with appropriate identification. If the association fails to maintain reliable access as required to provide City services, the City may enter the development and remove any gate or device which is a barrier to access, at the sole expense of the association. The association documents shall contain provisions in conformity with this paragraph which may not be amended without the written consent of the City.

(j) Access Restricted Entrance Design Standards. Any private street which has an access control gate or cross arm must have a minimum uninterrupted pavement width of 22 feet at the location of the access control device. If an overhead barrier is used, it must be a minimum of 14 feet in height above the road surface. All gates and cross arms must be of a break-away design. A turnaround space must be located in front of any restricted access entrance to allow vehicles denied access to safely exit onto public streets. The location and design of gates is subject to City approval.

(k) Waiver of Services. The subdivision final map or other final development plan or permit, property deeds and property owner association documents shall note that certain City services shall not be provided on private streets. All private traffic regulatory signs shall conform to the Manual of Uniform Traffic Control Devices. Depending on the characteristics of the proposed development, services may not be provided.

(l) Petition to Convert to Public Streets. The property owners' association documents shall allow the association to request the City to accept private streets and associated property as public streets and right-of-way upon written notice to association members, and the favorable vote of a majority of the membership. However, in no event shall the City be obligated to accept the streets as public. Should the City elect to accept the streets as public, the City may inspect the private streets and assess the lot owners for the expense of needed repairs concurrent with the City's acceptance of the streets. The City will be the sole judge of whether repairs are needed. The City may also require, at the association's expense, removal of guardhouses, access control devices, landscaping or other aesthetic amenities located within the street lot. The association documents shall provide for the City's right to such assessment. Those portions of the association documents pertaining to the subject matter contained in this paragraph shall not be amended without the written consent of the City.

(m) Termination of Property Owners' Association. Should the property owners' association be terminated, then the private streets shall be offered to the City of Reno for acceptance. Prior to accepting the streets as public, the City may inspect the private streets and assess the lot owners for the expense of needed repairs. The City will be the sole judge of whether repairs are needed. The City may also require, at the lot owners' expense, removal of guardhouses, access

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Planned Unit Development Handbook for Silver Star Ranch  
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control devices, landscaping or other aesthetic amenities located within the street lot.

**Drainageway Protection Standards (Section 18.12-1903)**

(Provided from the City of Reno's Land Development Code)

(a) **Applicability.** The Silver Star Ranch property contains one "Natural" major drainageway as defined by City of Reno Code Section 18.12.1903(a), (Section II – Drainage on Page II-21). No subdivision/land development activities are planned in this area. However, a portion of this major drainageway is located within Washoe County's proposed effluent storage/detention area. The extent of possible improvements associated with the effluent storage/detention facility in this major drainageway is currently unknown. Regardless of its nature, if development is proposed in this major drainageway, then compliance with the City of Reno drainageway protection standards for natural drainageways is required.

If the development of Silver Star Ranch results in the creation of any major drainageway, as defined by Section 18.12.1903(a), then the City of Reno natural drainageway protection standards will apply where appropriate.

As shown in Figure 28, "Landscaped" drainageways will take storm water run off from existing upstream "Natural" drainageways and reroute it through the development. If necessary, the upstream natural drainageways will be improved to lessen impacts to the proposed land plan and to improve water quality. If it is determined that relocation or modification of natural drainageways is necessary, the improvements will meet the natural drainageway standards in this section. Any proposed relocation of existing natural drainageways as identified in Figure 28 will be shown on the applicable tentative map and will be accompanied by the required studies outlined in this section.

The developer or property owners' association shall be required to remove all vegetation from detention basins and low-flow channels every two (2) years. If the responsible party fails to perform this periodic maintenance, then the City has the right to enter the property and perform said maintenance. If the City removes the vegetation from detention basins and low-flow channels, then the City can require reimbursement for these services from either the developer or the property owners' association, whichever is the property owner at the time.

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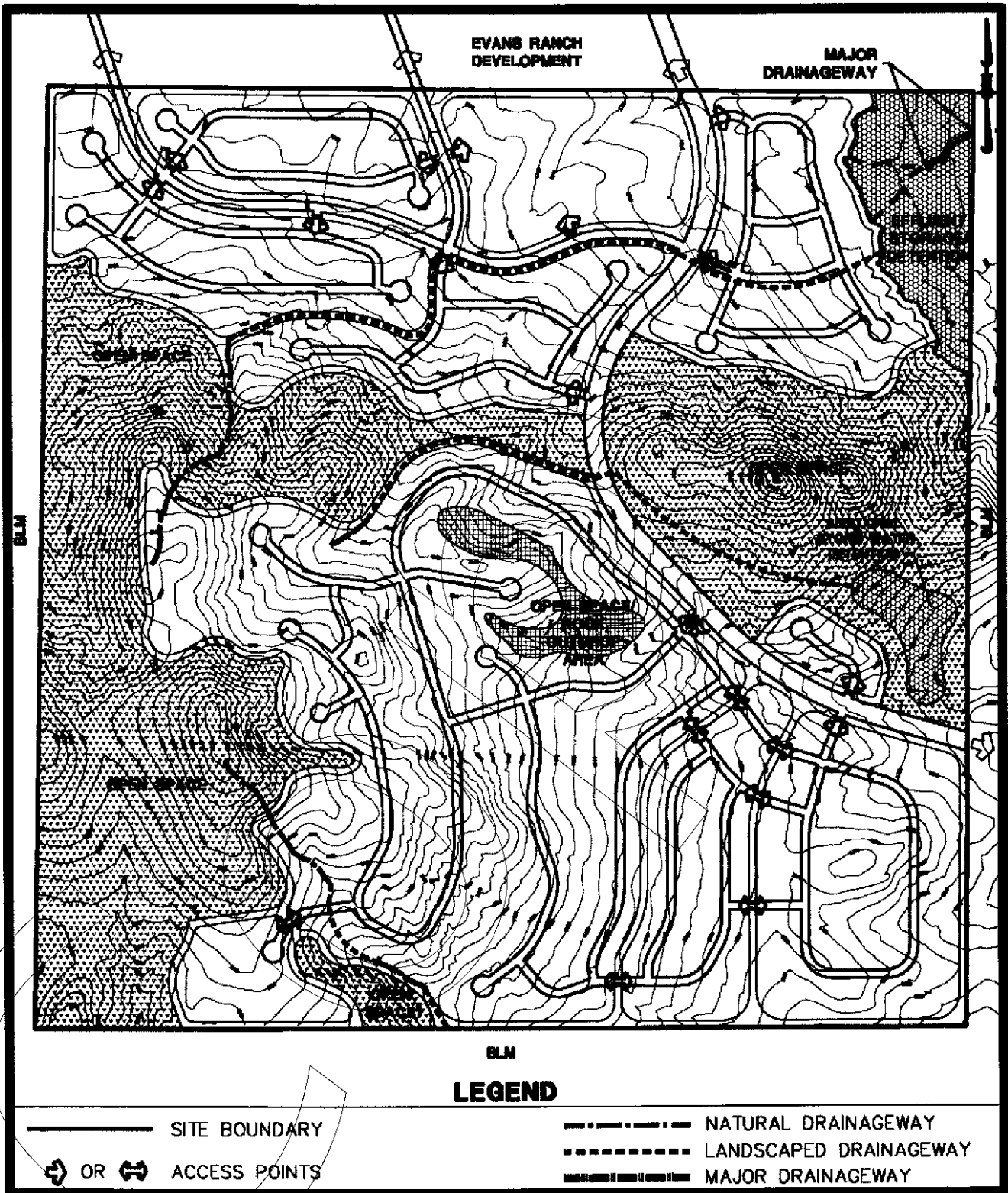


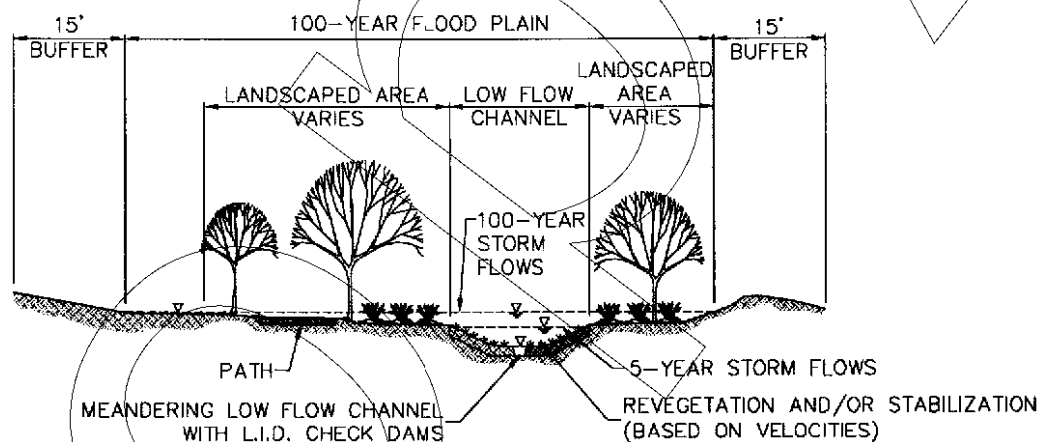
Figure 28

**Planned Unit Development Handbook for Silver Star Ranch**  
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For the purposes of this PUD, Drainageways will be classified as:

(a) "Natural" – Drainageways, as identified in Figure 28, which will not be altered and shall have widths defined consistent with the Reno "Major Drainageways Plan".

(b) "Landscaped" – drainageways which will be improved and altered with landscaping and may include turf or non-native plant species and are designed to address aesthetics. They also include water quality, stormwater management and recreation functions where appropriate. These landscaped drainageways shall be designed to improve water quality with the inclusion of low flow channels, check dams and use of appropriate plant materials. The width of landscaped drainageways will be large enough to contain the 100-yr flow and provide a 15-foot buffer on each side, consistent with Figures 29 and 30.

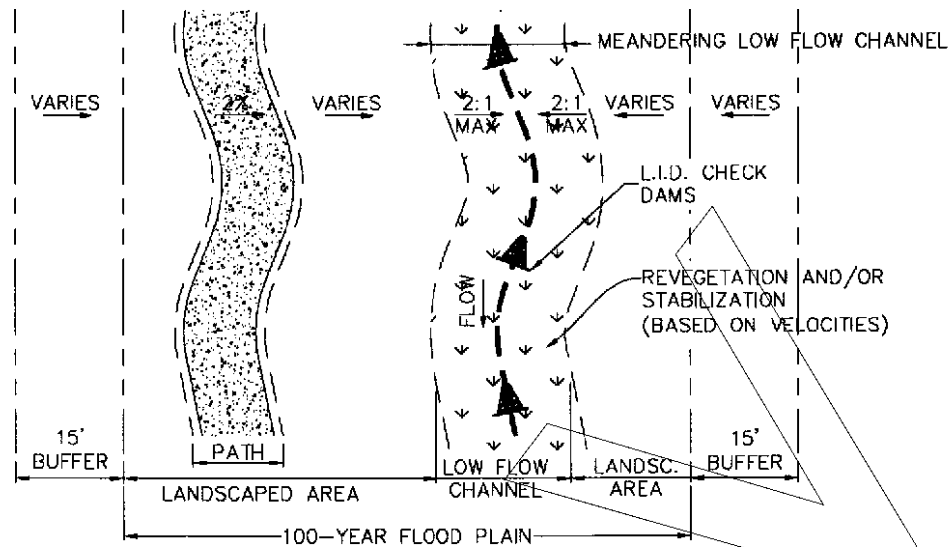


NOTE: ACTUAL DRAINAGWAY DIMENSIONS, DRAINAGWAY LANDSCAPE TREATMENT AND BUFFER LANDSCAPE TREATMENT SHALL BE DETERMINED AT TENTATIVE MAP. LANDSCAPING SHALL BE CONSISTENT WITH THE STANDARDS OUTLINED IN TABLE 6 IN SECTION II OF THIS PUD.

### LANDSCAPED DRAINAGWAY - CROSS SECTION

**Figure 29**

**Planned Unit Development Handbook for Silver Star Ranch  
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NOTE: ACTUAL DRAINAGWAY DIMENSIONS, DRAINAGWAY LANDSCAPE TREATMENT AND BUFFER LANDSCAPE TREATMENT SHALL BE DETERMINED AT TENTATIVE MAP. LANDSCAPING SHALL BE CONSISTENT WITH THE STANDARDS OUTLINED IN TABLE 6 IN SECTION II OF THIS PUD.

### LANDSCAPED DRAINAGWAY - PLAN VIEW

**Figure 30**

In areas where landscaped drainageways transition to or from natural drainages, or abut natural open space, the landscaping will transition from formal landscaping to natural landscaping including native and drought-tolerant or riparian vegetation, whichever is deemed most appropriate. This transition will be 50' wide and shall be determined at tentative map based on the extent of the adjacent formal and native landscaping, to the satisfaction of City staff.

Specific drainageway widths and landscape design standards shall be provided at the tentative map to the satisfaction of the administrator or designee. Each tentative map application shall include plan views and cross sections for the proposed landscaped drainageways demonstrating the landscaping standards that will be utilized.

**Section 18.12.905. Additional Standards for Natural or Landscaped Drainageways.**

- (a) All "Natural" drainageways shall remain undisturbed except for enhancements to existing vegetation.
- (b) No grading shall occur within a "Natural" drainageway except for that which is required for the construction of bicycle/pedestrian or necessary roadway or utility crossings.

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- (c) Whenever development comes in contact with a “Natural” drainageway, the drainageway shall be marked and restricted as a non-construction area during construction (i.e. no stock piling of materials, no parking of equipment, no dumping of refuse, soil, or rocks, and no construction roads). Sediment fencing or other best management practices (BMPs) shall be employed to protect the channel from sediment loaded runoff into the drainageway.
- (d) The fencing of properties adjacent to the “Natural” drainageway shall be open view and no more than six feet in height and shall be wooden split-rail, ornamental iron or an acceptable alternative (no chain link). Such alternative treatment shall be described in detail at the time the tentative map is presented to the planning staff. Vegetative screening is permissible. Solid wooden fences are strongly discouraged adjacent to drainageways; but may be allowed under certain circumstances such as limited utility screening, roadway buffering, etc. as determined appropriate with review of the associated tentative map. Ornamental iron with sharp protrusions will not be allowed in drainageways that are adjacent to any wildlife corridor or public land that functions as open space. Any development adjacent to a drainageway shall submit a detailed fencing plan for approval with the associated tentative map.
- (e) Native and drought-tolerant or riparian vegetation, whichever is deemed most appropriate, shall be used in the “Natural” drainageway.
- (f) If channelization of a “Natural” drainage course is deemed necessary by the City, natural materials must be utilized. If determined to be necessary with the tentative map review, piping shall be minimized.
- (g) If a natural or landscaped drainageway is proposed to be disturbed during development activity, (e.g. stripping of natural vegetation), the developer will be required to:
- (1) Perform analysis of soils including pH texture, depth, type and compaction;
  - (2) Identify the direction of exposure (i.e. southern) of all surfaces and slopes of the drainageway;
  - (3) Prepare discussion of the characteristic behavior of water and moisture in the drainageway;
  - (4) Except for drainageways designated to be “landscaped”, prepared listing of diversified plant communities, with an emphasis on shrubs and forbs and consideration of wildlife

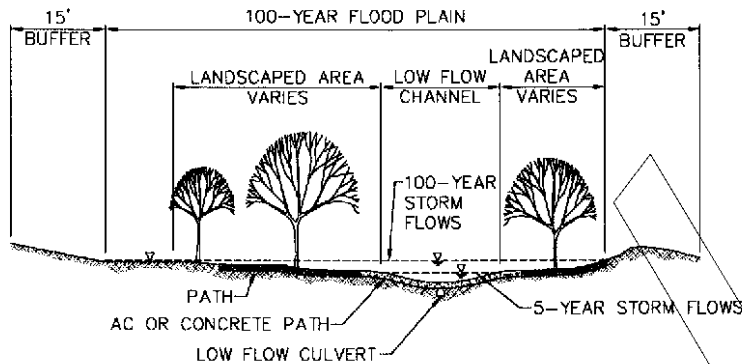
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Planned Unit Development Handbook for Silver Star Ranch  
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needs, proposed for planting in the drainageway and the method for irrigation;

- (5) Submit above with any other information explaining process by which the drainageway will be enhanced or the natural condition reestablished for review and approval by planning staff;
  - (6) If the rehabilitation or modification is deemed acceptable, the owner/developer shall deposit a bond or letter of credit in the amount determined by the City to assure that plantings within the natural drainageway will be permanently established. The security shall remain in effect until the City determines that plantings have been permanently established, or for a period of not more than four years; and
  - (7) In the event the City determines that rehabilitation and plantings have not been permanently established within the four-year period following construction, the City will determine the cost to replace and permanently establish such plantings. Such costs shall be deducted from the security and retained by the City for rehabilitating the drainageway. Any remaining security will be returned to the owner/developer.
- (h) All roadway crossings of drainageways shall include culvert arches, con span bridges or acceptable alternatives that provide an exterior treatment that mimics a bridge including bridge railings. Pedestrian/trail system crossings of drainageways will be via low flow crossings per Figures 31 and 32. Design details for crossings shall be provided with the applicable tentative map.

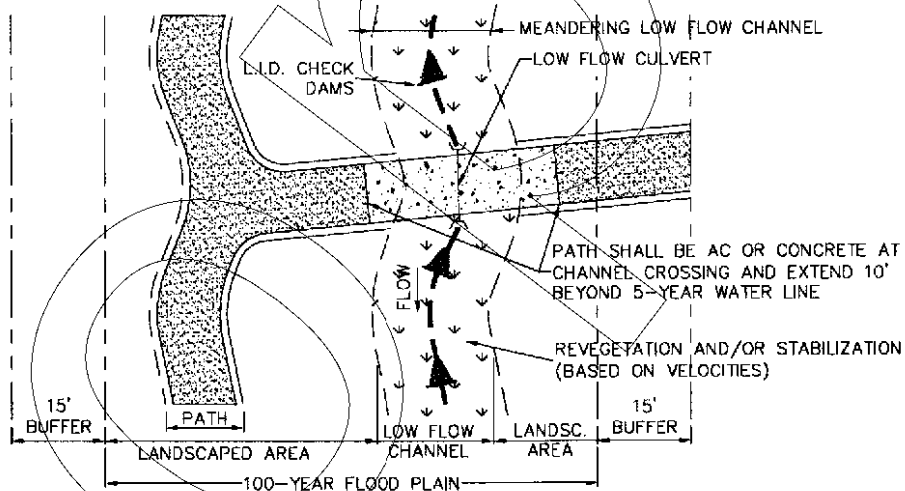
Planned Unit Development Handbook for Silver Star Ranch  
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NOTE: ACTUAL DRAINAGEWAY DIMENSIONS, DRAINAGEWAY LANDSCAPE TREATMENT AND BUFFER LANDSCAPE TREATMENT SHALL BE DETERMINED AT TENTATIVE MAP. LANDSCAPING SHALL BE CONSISTENT WITH THE STANDARDS OUTLINED IN TABLE 6 IN SECTION II OF THIS PUD.

**LANDSCAPED DRAINAGEWAY - PEDESTRIAN/TRAIL SYSTEM CROSSING  
 CROSS SECTION**

Figure 31



NOTE: ACTUAL DRAINAGEWAY DIMENSIONS, DRAINAGEWAY LANDSCAPE TREATMENT AND BUFFER LANDSCAPE TREATMENT SHALL BE DETERMINED AT TENTATIVE MAP. LANDSCAPING SHALL BE CONSISTENT WITH THE STANDARDS OUTLINED IN TABLE 6 IN SECTION II OF THIS PUD.

**LANDSCAPED DRAINAGEWAY - PEDESTRIAN/TRAIL SYSTEM CROSSING  
 PLAN VIEW**

Figure 32

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**Adjacency Standards (Section 18.08.404 (c) (3))**

(Provided from the City of Reno's Land Development Code)

(a) Purpose. The purpose of these adjacency standards is to apply regionally accepted standards for buffering and transitions to development that presently exists adjacent to the exterior boundary of this PUD.

(b) Applicability. This subsection's adjacency standards shall apply to new development located within 500 feet of existing platted lots exterior to the boundary of this PUD.

(c) Wherever, in the opinion of the Reno Zoning Administrator, a natural barrier (e.g., ridgeline, open space, or terrain change) buffers the existing built environment or platted lots from the proposed new development, these adjacency standards shall not apply. This determination will be made at the time when the tentative map is processed.

(d) Internal density transfers allowed. If these standards would result in a development density along the edge of the property that is less than would be allowed in the approved zoning designation, any loss of development units may be transferred to any other village of Silver Star Ranch, with the exception of the edge of the property in the southeast corner. In no event shall the total number of dwelling units in the PUD exceed 1,600.

(e) Height. Lots proposed within a new subdivision that share a common property line with an established subdivision shall not contain structures that exceed the maximum height of the adjacent equivalent zoning or land use district.

(f) Grading adjacency standards. All grading for subdivision improvements, minor or major special use permits, or other discretionary or building permits adjacent to lots up to five acres in size shall:

(1) Not result in slopes on fill in excess of, or steeper than, three horizontal to one vertical (3:1).

(2) For a distance of 50 feet from the shared common property line with an existing residence (see RMC Figure 18.08.19 as amended), fills shall not differ from the natural grade by more than 48 inches and may not exceed a slope of three horizontal to one vertical (3:1).

(3) Not result in slopes that differ from the natural grade by more than 20 feet within 500 feet of a shared common property line with existing development.

(4) Within 500 feet of the shared property line, but be limited on cut slopes equal to, or less than, a slope of three to one (3:1). However, major cut

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slopes, in excess of 100 lineal feet, shall be permitted when the cut slopes include stepped back structural containment in the form of benches and terraces that include landscaping on the terraces. Rockery walls used to create benches are limited to a maximum vertical height of six feet and minimum horizontal width of six feet to provide for the landscaped bench. An exception may be allowed for cuts into stable rock, supported by a geotechnical report.

(5) Utilize a gradual transition or “rounding or contouring” of the manufactured slope at the intersection of a manufactured cut or fill slope and a natural slope.

(6) Visually integrate all slope faces (cut or fill) into the natural terrain by a gradual transition or “contouring/rounding” of the man-made land forms into the natural terrain and add sinuosity to the grading of the site.

(7) Prohibit the use of riprap and gabions as a mechanical stabilization for cut slopes, except where essential for safe access, for passage within the rights-of-way of public roads and for storm drainage control device(s).

(8) Address compatibility with adjacent lots, demonstrate visual impacts to the community, and propose design criteria, landscaping and buffering to mitigate impacts on adjacent property owners and the community’s scenic character, if the applicant proposes cut, fills or slopes in excess of the requirements. Alternative materials and procedures supported by adequate engineering documentation may be approved, provided that they meet the aesthetic intent of these requirements and incorporate mitigation. All mitigation shall be reviewed and approved by the Reno Zoning Administrator.

(g) Light and glare. This subsection sets forth criteria to mitigate impacts caused by lighting and glare. Where this subsection and the following exterior lighting section conflict, the most restrictive standards shall apply.

(1) Light. All light sources shall be located and installed in such a way as to prevent spillover lighting onto adjoining properties. The following provisions shall apply to all existing and proposed development.

a. Any lighting facilities shall be so installed as to reflect away from adjoining properties. Covers must be installed on all lighting fixtures and lamps must not extend below the bottom of the cover.

b. Light standards located within 100’ of residential zones shall not exceed 12 feet in height. Additional height for standards may be permitted by the administrator provided such lights are a sharp cutoff lighting system.

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- c. No permanent rotating searchlights shall be permitted except that an administrative permit may be issued by the administrator for a period not to exceed three days for a temporary searchlight. The administrative permit shall be limited to a maximum of three times in any one calendar year.
- d. Lighting design. The style and intensity of lighting shall consider not only function and appearance, but shall reflect the existing character of surrounding areas and shall replicate natural light as much as possible.
- e. Glare. Reflected glare on nearby buildings, streets or pedestrian areas shall be avoided by incorporating overhangs and awnings, using non-reflective building materials for exterior walls and roof surfaces, controlling angles of reflection, and placing landscaping and screening in appropriate locations.
- f. Interior Lighting. Where residential uses abut non-residential uses, interior lighting of the non-residential uses shall be controlled at night through the uses of timers, window blinds, or other acceptable means. This provision shall apply to all existing and proposed development.
- g. Conflict with other portions of Title 18. Where another provision of Title 18 conflicts with the provisions of this subsection, the more restrictive provision shall control.

**Exterior Lighting.**

(a) The following standards are intended to implement "Dark Sky" principles. In addition to the standards herein applying to private development, the Reno Zoning Administrator is authorized to further reduce lighting impacts by reducing the amount and placement of streetlights that might be otherwise required by City Code. Lighting plans shall be provided with each tentative map or special use permit showing how "Dark Sky" best practices are being used.

(b) All exterior lighting shall be full cut-off fixtures with the light source fully shielded, with the following exceptions:

- (1) Luminaires that have a maximum output of 260 lumens per fixture, regardless of number of bulbs, (equal to one 20 watt incandescent light), may be left unshielded, provided the fixture has an opaque top to keep light from shining directly up.

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(2) Luminaires that have a maximum output of 1,000 lumens per fixture, regardless of number of bulbs, (equal to one 60 watt incandescent light) may be partially shielded, provided the bulb is not visible, and the fixture has an opaque top to keep light from shining directly up.

(3) Flood lights with external shielding may be angled provided that no light escapes above a 25 degree angle measured from the vertical line from the center of the light extended to the ground, and only if the light does not cause glare or shine on adjacent property or public rights-of-way. Floodlights with directional shielding are encouraged. Photocells with timers that allow a floodlight to go on at dusk and off by 11:00pm are encouraged.

(4) Holiday lights are exempt from the requirements of this Ordinance for a two-month period from November 15<sup>th</sup> to January 15<sup>th</sup>. Holiday lights shall be turned off after 11pm and after close of business with the exception of Christmas Eve.

(5) Sensor-activated lighting may be unshielded provided it is located in such a manner as to prevent direct glare and lighting into properties of others or into a public right-of-way, and provided the light is set to only go on when activated and to go off within five minutes after activation has ceased, and the light shall not be triggered by activity off the property.

(c) Vehicular lights and all temporary emergency lighting needed by the Fire and Police Departments, or other emergency services shall be exempt from these requirements.

(d) All non-essential exterior commercial and residential lighting shall be turned off after business hours and/or when not in use. Lights on a timer are encouraged. Sensor activated lights are encouraged when lighting is desired for security purposes.

(e) Parking area lights must be greater in number, lower in height and lower in light level, as opposed to fewer in number, higher in height and higher in light level.

(f) Uplighting is prohibited in all zoning districts, except in cases where the fixture is shielded by a roof overhang or similar structural shield from the sky, and a Nevada licensed architect or engineer has stamped a prepared lighting plan that ensures that the light fixture(s) will not cause light to extend beyond the structural shield.

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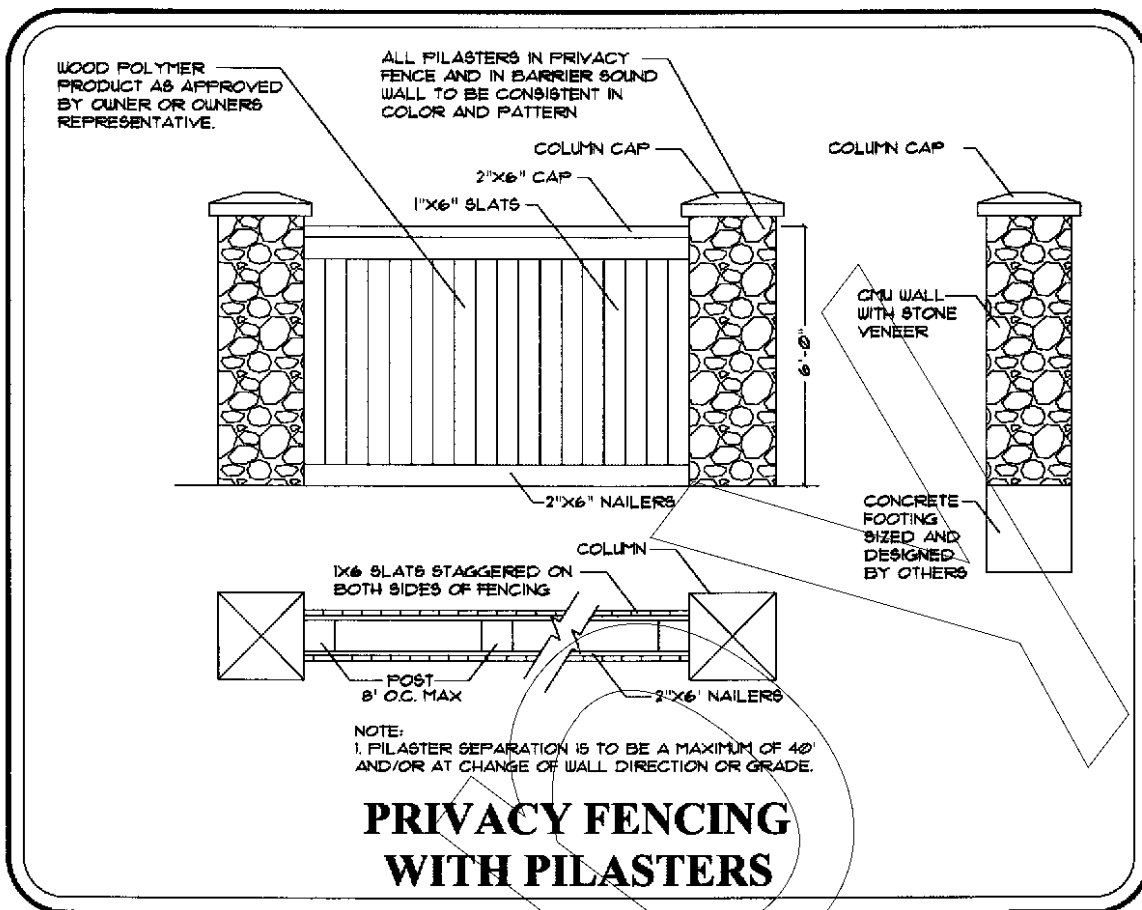


Figure 33

**Fencing.**

Each tentative map application shall include a fencing plan detailing the location and types of fencing proposed within the subdivision. Once the fencing plan is approved through the tentative map process, the fencing plan shall control the placement and types of fencing allowed within the particular subdivision. The following standards shall apply to these plans:

(a) Fencing along Silver Parkway shall follow the criteria set forth in the 18.12.702 Sound Barriers on Page III-44 of this PUD. If sound barriers are not required, the fencing standards outlined in this section shall be followed.

(b) Rear and side yard privacy fencing along minor arterial roadways, collector roadways and residential collector roadways shall be 6' solid wood or other material acceptable to the administrator or designee and shall be separated by stone or concrete pilasters as shown in Figure 33. These pilasters must be architecturally consistent with stone or concrete pilasters used for sound barrier walls throughout this PUD.

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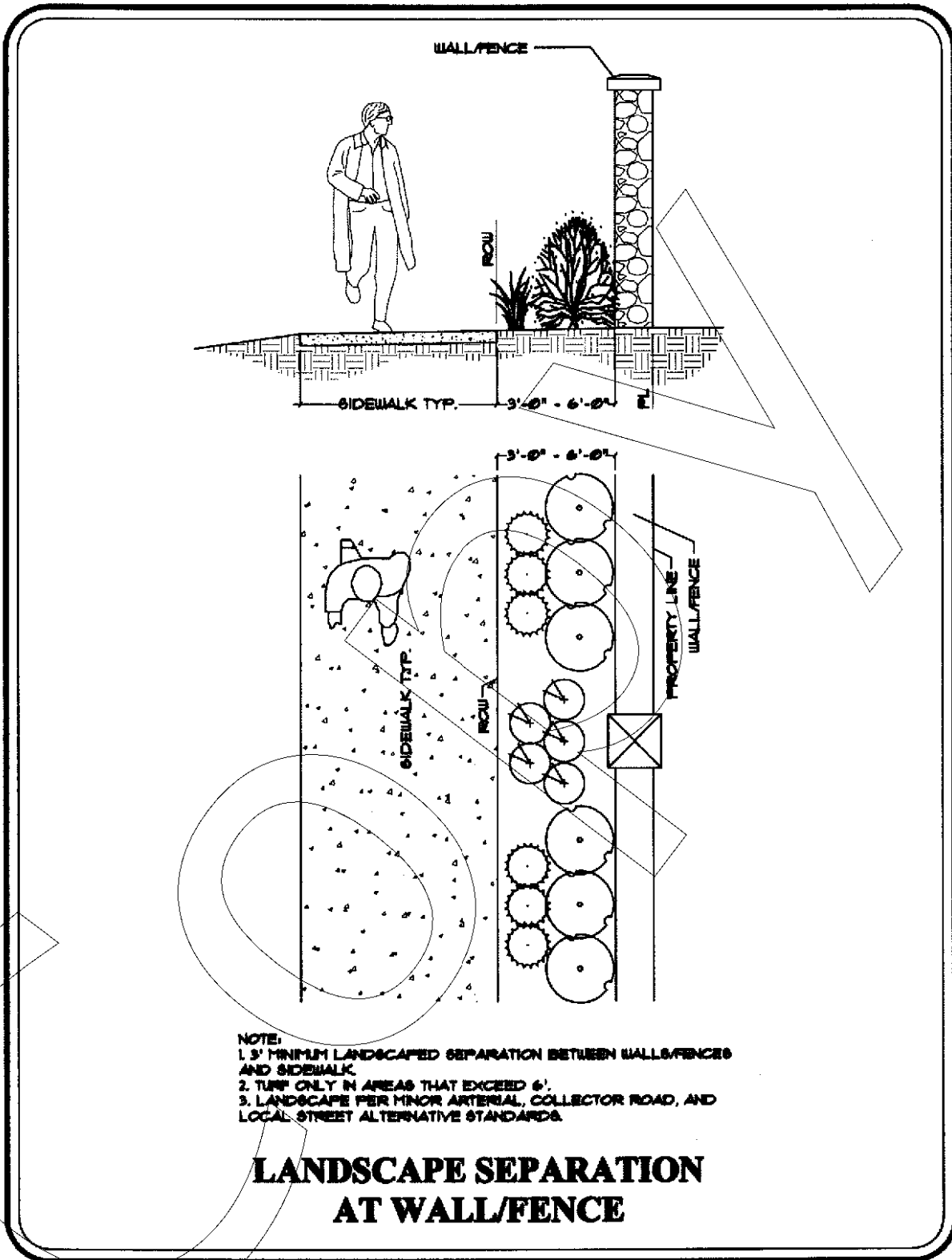


Figure 34

Planned Unit Development Handbook for Silver Star Ranch  
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(d) All fencing and walls adjacent to roadways shall be separated from the adjacent sidewalk by a minimum of 3' of landscaping as shown in Figure 34. Landscaping in these areas shall be consistent with the landscape standards outlined in Table 21 below.

**Table 21**  
**Wall/Fence Separation Landscape Standards**

+/- 300 s.f. per 100 l.f.

Shrubs	9 Shrubs (5 Gallon) = (120 s.f.)/40%
Shrubs	12 Shrubs (1 Gallon) = (105 s.f.)/35%
Living Groundcover	20 (1 Gallon) = 75 s.f.)/25%

**Notes:**

1. All planting areas are to receive rock or bark mulch 4" in depth.
2. 3' minimum landscape separation between walls/fences and sidewalk.
3. Turf only in areas that exceed 6' in width, not to exceed 30% coverage.
4. Trees only in areas that exceed 5' in width, not to exceed 3 trees per 100 l.f. All deciduous trees shall be 2.5" caliper or larger. All evergreen trees shall be at least 10' tall.
5. Landscape areas that exceed 3' in width are to receive 3 – 5 Gallon Shrubs, 5 – 1 Gallon Shrubs, and 7 – 1 Gallon living ground cover per 100 square feet.

(e) Rear and side yard privacy fencing between yards shall be 6' solid wood or other material acceptable to the administrator or designee as shown in Figure 35.

(f) No front yard fencing shall be allowed in Silver Star Ranch.

(g) No ornamental iron or other metal fencing with protrusions will be allowed on properties that adjoin public lands and open space unless the applicant submits a letter from the Nevada Department of Wildlife (NDOW) that the proposed fencing has been determined by NDOW to be safe for wildlife.

(h) Fencing must follow all rules and standards for fencing in City Code that are not contrary to this PUD.

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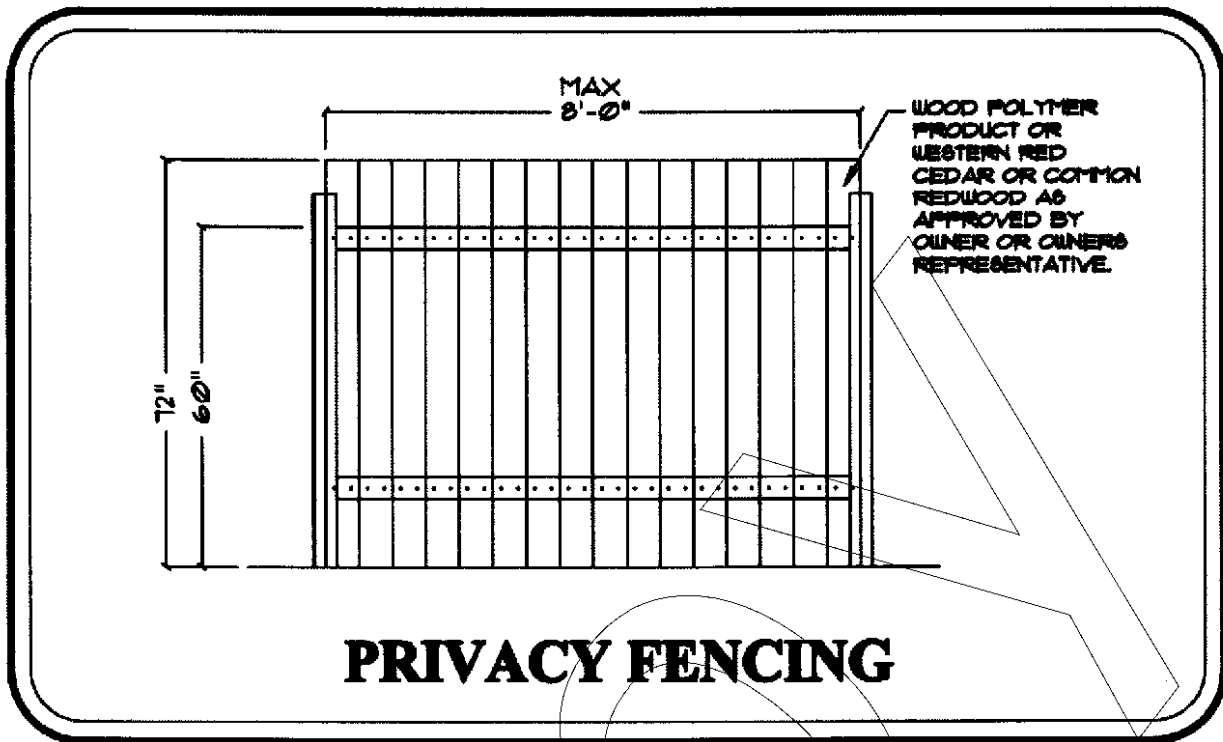


Figure 35

(i). Open Space. Fencing abutting open space must be open view, no more than six feet in height and shall be wooden rail, ornamental iron or an acceptable alternative (no chain link) as demonstrated in Figures 36 and 37. Such alternative treatment shall be described in detail at the time the tentative map is presented to the planning staff. Vegetative screening is permissible. Solid wooden fences are strongly discouraged adjacent to open space; but may be allowed under certain circumstances, such as limited utility screening, roadway buffering, or to protect privacy of adjacent houses abutting trail access points, etc. as determined appropriate with review of the associated tentative map.

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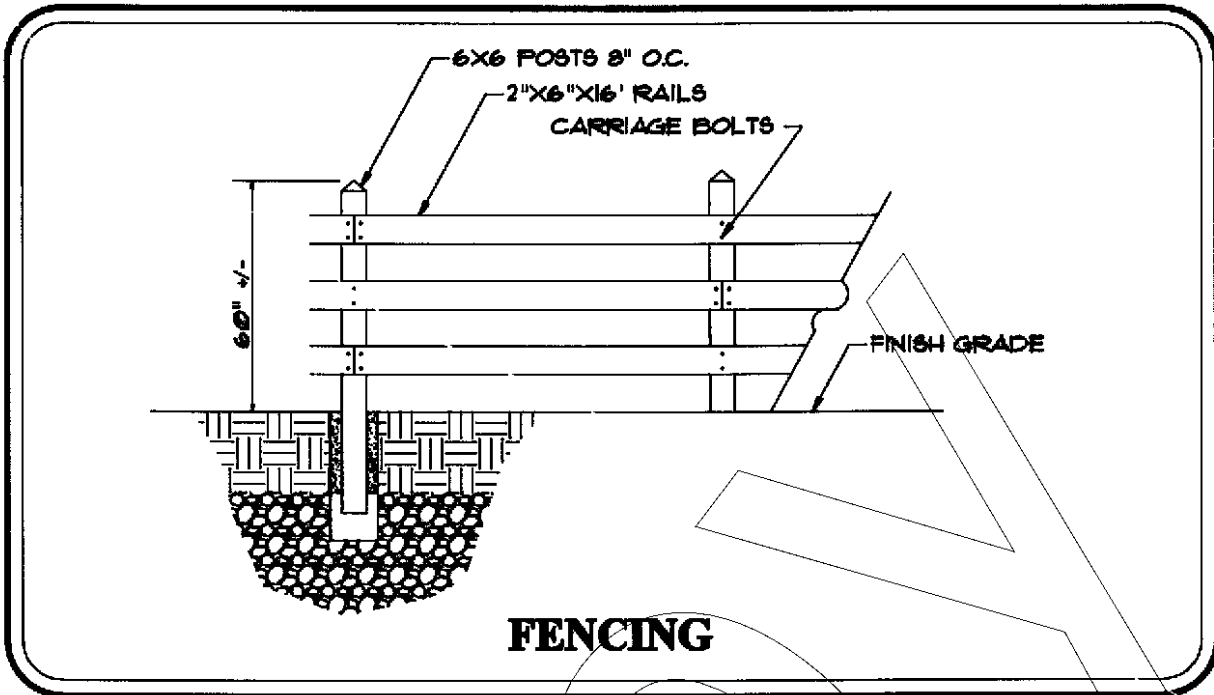


Figure 36

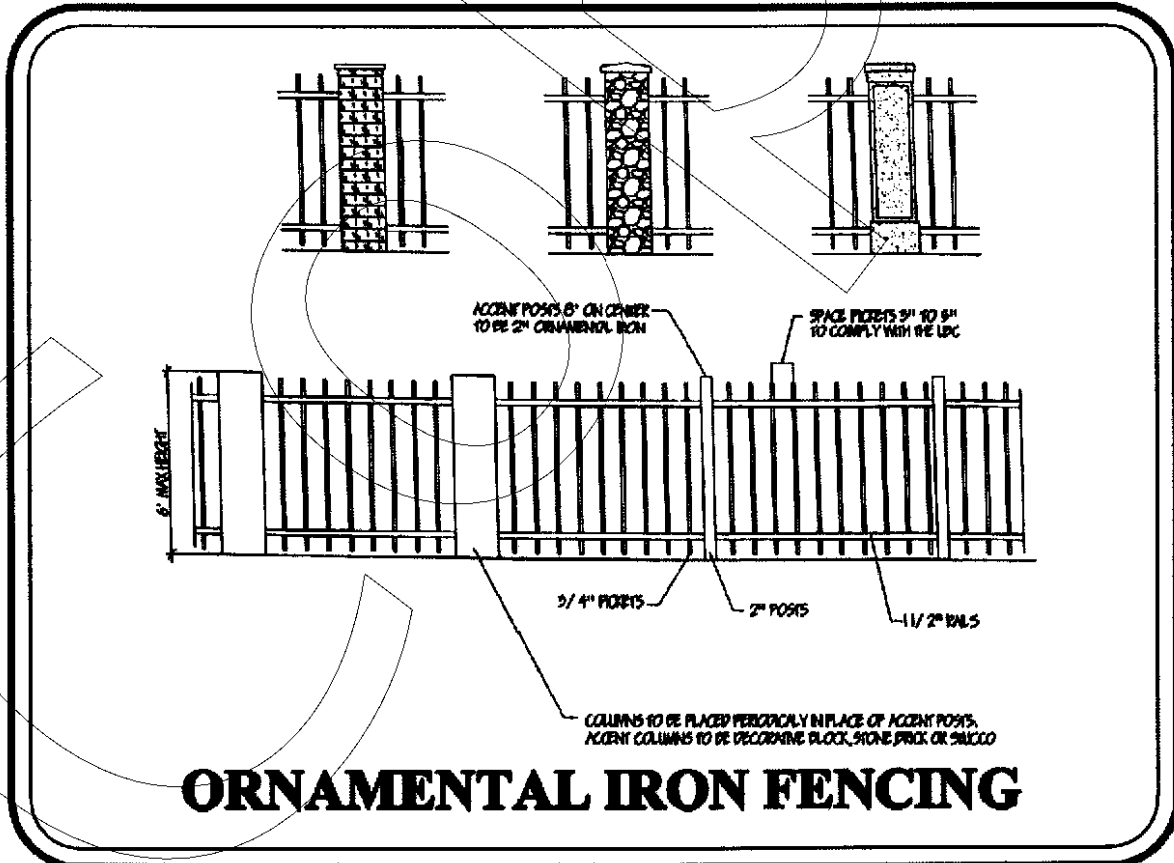


Figure 37

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Planned Unit Development Handbook for Silver Star Ranch  
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**Wildlife.**

To address or off-set potential impacts to wildlife resulting from the development of the property, a Wildlife Interface Plan will be completed in coordination with the Nevada Department of Wildlife to the satisfaction of City staff. This plan will be completed and submitted for approval by the planning commission with the first tentative map. The elements addressed in the Wildlife Interface Plan may include, but are not limited to:

- Removal of Vegetation in Stages
- Impacts to Existing Vegetation from Development
- Fire Suppression & Prevention
- Fencing
- Open Space Corridor Widths
- Traffic Calming Devices
- Signs
- Offroad Vehicles
- Use of Firearms
- Determination of appropriate buffers from identified sensitive wildlife areas.

# SILVER STAR RANCH

## Planned Unit Development Handbook

Reno, Nevada



SILVER STAR RANCH

**Section IV – Implementation**

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Planned Unit Development Handbook for Silver Star Ranch  
Section IV – Implementation

## IMPLEMENTATION

### Administration.

The Silver Star Ranch PUD shall be administered by the Zoning Administrator or his/her designee as defined by the City of Reno Annexation and Land Development Code. The administrator shall have the authority to interpret and apply this PUD Handbook.

There shall be a master developer in place from the first stage of development of the PUD. This master developer shall continue throughout the development of the PUD until and unless a master homeowners association or other entity is created to serve the role of the master developer. The role of the master developer, for the purposes of this PUD, shall be:

- to prescribe and administer methods and procedures to ensure and control the quality of development that occurs in Silver Star Ranch;
- maintain all common area improvements, storm drain channels, detention basins and other flood control facilities (with the exception of the effluent maintenance pond, should it be constructed). The maintenance of this facility will be determined at the time of its construction);
- construct, or have constructed, all pathways, trails, and sidewalks.

Only the master developer or its authorized designee may initiate an amendment to this PUD. Each development application submitted to the City shall include documentation that the master developer has reviewed the application.

### Zoning.

With each development application, except parcel maps establishing roadways or creating large parcels for further subdivision, or building permit, the applicant shall provide the City with the following:

- A copy of a title report identifying the owner of record of the subject property.
- A letter from the applicant selecting a zoning district as set forth in Section III, Table 7 – Zoning in the Silver Star Ranch PUD consistent with Figures 12A and 12B – Land Use Plan that is to apply to the property that is the subject of the application or permit;

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Section IV – Implementation

- A letter from the applicant describing the number of dwelling units or acreage of non-residential use being requested with the application or permit. This letter shall also include a running total of the number of dwelling units and non-residential acres remaining in the applicable Village and Silver Star Ranch as a whole and a map depicting such;
- A legal description and a drawing showing the boundaries of the subject property in digital format to the specifications of the City;
- Pay any application fee established by the City to pay for the direct costs of completing this process.

Once this process and the development described in the permit or application has been completed through the final map or building permit process for a particular property, then the zoning district standards selected shall be the standards for that property from that day forward. In other words, this process shall only be used one time for each property, unless the subject tentative map or building permit expires or becomes null and void. In that instance, the process may be repeated for each affected property.

**Land Use and Development Standards.**

Silver Star Ranch shall utilize the land use and development standards set forth in this handbook for all development associated with the PUD. If specific standards are not addressed by this handbook, the standards in the City of Reno Municipal Code in effect at the time of development shall apply.

**Property Owners' Association Governance.**

A property owners' association will be created for the enforcement of the CC&Rs, the collection and management of assessments, and the implementation and maintenance of any amenities which are privately held for the benefit of the Silver Star Ranch residents.

Any land that is set aside for common open space within the planned unit development must be owned and maintained by the property owners' association. The property owners' association may not be dissolved or dispose of any such common open space by sale or otherwise, without first offering to dedicate this common open space to the City of Reno. The City of Reno shall have 120 days to accept or reject the offer to accept the common open space.

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Planned Unit Development Handbook for Silver Star Ranch  
Section IV – Implementation

**Fire Services Agreement.**

The developers of Silver Star Ranch and the City will complete a Fire Services Agreement prior to approval of the first tentative map for the project. This agreement will include one of the two options outlined below, as well as the provisions that follow:

OPTION (1): Enter into a written agreement with the City of Reno, which must be approved by City Council, to pay its proportionate share of the proposed Evans Ranch Fire Station #22 in order to provide required fire protection to the proposed Silver Star Ranch development area and comply with all terms and conditions of such agreement. This option requires that the Evans Ranch Fire Station #22 must be constructed as required in LDC08-00150, prior to the issuance of a Certificate of Occupancy for any building within the Silver Star Ranch development. The issuance of Certificates of Occupancy for Silver Star Ranch shall not be prevented if the fire station is not immediately staffed following dedication to the City of Reno. If Evans Ranch does not proceed as indicated above, the Silver Star Ranch project would be delayed until compliance is obtained from the developers of Evans Ranch, or,

OPTION (2): Enter into a written fire station development agreement with the City of Reno to construct and dedicate a new two (2) bay fire station on a 2.5-acre site for the Reno Fire Department and comply with all terms and conditions of such agreement. This fire station shall serve both the Silver Star Ranch development as well as the Evans Ranch development and shall have an approximate square footage of plus or minus 7,200 square feet, and shall be positioned on the acreage to allow for a future addition of a third fire truck bay. This new Fire Station #22 generally shall be modeled after the Somerset Fire Station and the Cold Springs Fire Station and shall meet fire department specifications, in the City's sole discretion.

Specific requirements for a turn-key fire station will be included in the fire station development agreement. Silver Star Ranch will propose possible fire station locations at the time of application of the first tentative map. This new fire station shall be constructed, completed, dedicated and accepted by the City of Reno on or before the issuance of the first Certificate of Occupancy for any unit, even if the

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Planned Unit Development Handbook for Silver Star Ranch  
Section IV – Implementation

unit is commercial, within the Silver Star Ranch development.

Silver Star Ranch will provide and dedicate land, water, utilities and construct a turn-key (meaning fully equipped ADA assessable and functional fire station building excluding fire-fighting apparatus and vehicles. The materials utilized and details of which shall be a term and condition of the fire station development agreement, which may include but is not limited to specified rooms, furnishings and fixtures, exercise equipment, generator, traffic control devices, and landscaping) new full-time two (2) bay fire station to be located within the Silver Star Ranch development in the area of Village 9. This area has been demonstrated to City of Reno as being within adequate distance to serve all necessary areas within Evans Ranch as contemplated as of January 13, 2010. The location of the new fire station shall be to the approval of the Reno Fire Department.

The fire station may be one or two stories in height at Silver Star Ranch's discretion. Silver Star Ranch shall dedicate the fully constructed fire station and land to the City of Reno, free and clear of all hazardous waste and contaminants, liens, special assessments, homeowner association requirements, other encumbrances and title exceptions on the timeline set forth below. Any title exceptions which Silver Star Ranch Development requests remain on the fire station site will require the approval of the Reno City Council.

The developer shall establish a per residential unit fee sufficient to fund the obligations of the developer to construct a turn-key fire station as referenced in the February 1, 2010 letter from the City of Reno Fire Department and collect it at the time each building permit is obtained for each residential unit, to cover either the proportionate share or the full cost of the applicable turn-key fire station and such fees shall be held in a City of Reno established restricted fund. If any residual portion of the property is sold after the construction and dedication of the fire station to the City of Reno, such fees shall be immediately reimbursed to the developer.

Any modifications to the Evans Ranch PUD and related maps, which are necessitated by developer's selection of Option 2, shall be the responsibility of developer to coordinate with the developer of Evans Ranch to assure proper modification of the Evans Ranch PUD.

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Planned Unit Development Handbook for Silver Star Ranch  
Section IV – Implementation

Additionally, as part of the PUD requirements, applicant shall comply with nationally recognized standards such as the latest edition of the "*International Wildland-Urban Interface Code*" and "*Living With Fire: A Guide for the Homeowner*" written by Ed Smith, University of Nevada Cooperative Extension. The program will be developed and maintained as part of the Silver Star Ranch Planned Unit Development Handbook.

#### **Police Services Agreement.**

Silver Star Ranch will enter into an agreement with the City of Reno to provide for public police facilities within the fire station outlined in the fire services agreement section above, either as a part of the agreement to pay its proportionate share of the Evans Ranch fire station (Option 1), or to construct and dedicate a fire station within Silver Star Ranch (Option 2). These public police facilities will include an additional 600 square feet of office space with separate access in the fire station building, four (4) additional parking spaces designated for police vehicles or for the use of those conducting police business, three (3) computers, three (3) desks and three (3) chairs, or the equivalent thereof provided to the sole satisfaction of the City of Reno.

#### **Schools.**

Silver Star Ranch shall enter into an agreement with the Washoe County School District prior to approval of the first tentative map to provide an elementary school to serve the residents of Silver Star Ranch. This agreement shall include the following provisions:

1. The location of a suitable elementary school site 8.5-10 acres in size. This site shall be located either on BLM land immediately adjacent to the Silver Star Ranch development or within the Silver Star Ranch development in a location acceptable to the Washoe County School District and City of Reno staff.
2. Any school site identified and acquired by the Washoe County School District as a result of this project shall not be located adjacent to an arterial street.
3. Silver Star Ranch shall dedicate 8.5-10 acres to be used for the elementary school, shall rough grade the school site and shall stub utilities beyond the pavement of the adjacent roadway.
4. A Safe Route to Schools plan shall be provided with each tentative map to the satisfaction of City staff.

Planned Unit Development Handbook for Silver Star Ranch  
Section IV – Implementation

**Fees.**

Prior to the approval of each final map within Silver Star Ranch, the applicant shall pay the following fees, per residential unit, to the City of Reno:

- Any per residential unit fire department facilities fee as established in the Fire Services Agreement shall be paid prior to recordation of each final map or building permit based upon the total number of units within the final map or building permit;
- A fee of \$500 per residential unit for police capital facilities to be established in a Police Department Facilities Services Agreement, or per any residential lot and commercial acreage fee established with the adoption of a citywide Police Department Facilities fee. Credit shall be given for the cost of any police department facilities provided within Silver Star Ranch. This fee shall be paid prior to recordation of each final map or building permit based upon the total number of units within the final map or building permit unless the Service Agreement and/or citywide Police Department Facilities fee establishes a different time of payment.
- Any and all other generally applicable fees adopted by ordinance or resolution of the City Council unless such fees duplicate either of the two previously mentioned fees to include dedications and contributions referenced in the fire services agreement.

**Parks Agreement.**

Parks within the Silver Star Ranch development shall be designed and constructed pursuant to a Park Development and Maintenance agreement between the City of Reno and the developers of Silver Star Ranch. This agreement will be completed and approved by City Council prior to the approval of the first final map within the project. Silver Star Ranch has tentatively identified two neighborhood park locations as shown on Figure 7 in Section II, Services and Facilities. These parks total 13 acres and are in conformance with the requirement for 3.5 acres per 1,000 residents at build-out (estimated at 12-13 acres). Final details and locations will be in accordance with the City Master Plan and defined in the Park Development and Maintenance Agreement. Consistent with RMC 18.14.405 as amended, the parks will include all or a combination of the following elements per park:

LOCAL PARK BASIC ELEMENTS	ACRES
Children's play apparatus area	.50 to .75
Landscape park-like and quiet areas	.50 to 1.0
Family picnic area	.25 to .75
Game court area	.25 to .50
Turf playfield	1.0 to 3.0

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Planned Unit Development Handbook for Silver Star Ranch  
Section IV – Implementation

The Park Development and Maintenance agreement shall also include the following provisions:

- A schedule for completion of the parks;
- Joint use of parks adjacent to elementary schools;
- An approved budget for construction of these parks;
- Parks, trails, trailheads and associated trailhead parking lots will be constructed by the developers of Silver Star Ranch or the City. All parks, public trailheads or associated trailhead parking lots constructed by the developer shall be eligible reimbursement of Residential Construction Tax dollars generated within the Park District;
- Method of dedication and the responsibility for maintenance;
- A specific Park District will be created for Silver Star Ranch;
- Park design will include landscaping and irrigation as appropriate for the planned uses as approved by the City of Reno and as determined with review of the construction plans. It is intended that these parks will be irrigated with treated effluent;
- All design elements related to the trails system including, but not limited to: trail widths, surface signs, amenities, trailheads, trailhead parking lots and their locations, etc. as determined appropriate by the City of Reno Parks and Recreation staff.
- Should a private entity, such as the property owners' association, be named responsible for maintenance of any parks, trails, trailheads, trailhead parking lots or other associated amenities, and fail to maintain these amenities, then the City shall have the right to enter the property to perform maintenance and require reimbursement for said maintenance. The parks development and maintenance agreement shall address maintenance of the amenities listed within this section to the satisfaction of City staff.
- The parks development and maintenance agreement shall include the Schematic Master Trails Plan (including phasing). This plan is required to be approved by the Planning Commission with the first tentative map.

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Planned Unit Development Handbook for Silver Star Ranch  
Section IV – Implementation

**Affordable Housing.**

In recognition of the importance of expanding homeownership opportunities to all members of the City and region, Silver Star Ranch will prepare and submit an affordable housing program. This program will assure that 2% of the homes (up to 32 units) within Silver Star Ranch will be sold to qualified individuals or families with moderate incomes. The program will be submitted to the City for review and approval prior to the recordation of the first final map (excluding parcel maps).

**Project Design Flexibility.**

Redistribution of dwelling units shall be permitted between parcels within Silver Star Ranch through the tentative map or special use permit process. This will allow more flexibility in responding to individual site characteristics and constraints, changes in market conditions and desires of future homeowners, changes in technology and better overall site design. Redistribution of units shall be subject to the following limitations:

1. Redistributed units may be transferred anywhere in the development, with the exception of edge parcels in the southeast corner. The transfer of units from edge parcels to internal parcels will be permitted;
2. Redistribution of units shall not result in an increase of the overall unit count beyond 1,600;
3. Establishment of any neighborhood commercial or public facility uses within Village 9 shall be consistent with standards contained in this handbook.

**Green Development Practices.**

Silver Star Ranch will include leading edge practices for the reuse of treated effluent. Low Impact Development (LID) best practices will be utilized where feasible in the design and construction of all commercial or residential developments to increase water infiltration and improve water quality. Any ordinances the City adopts that prescribe green building practices will be required in Silver Star Ranch, as they become effective. Plans demonstrating application of best practices or conformance with adopted green development standards shall be provided with each tentative map, special use permit and/or building permit as applicable.

In addition, to encourage the passive utilization of solar energy, Silver Star Ranch will not restrict the reasonable use of solar facilities in the CC&R documents for the development, will not allow building heights in excess of those set forth in City of Reno development code and will encourage the placement of

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Planned Unit Development Handbook for Silver Star Ranch  
Section IV – Implementation

houses such that excessive shadows are not cast that could restrict the use of solar facilities.

### **Water Tanks.**

The Water and Wastewater Facility Plans of this PUD identify two options for the general location of water tanks to serve the project. Final locations will be determined with utility designs completed prior to the approval of the associated tentative map(s). All tanks will be subject to the approval of a Site Plan Review prior to construction. Tank placement and design shall, at a minimum, consider the following:

1. Mitigation of the visual impacts of grading;
2. Selection of an appropriate color consistent with the area in which the tank is placed;
3. Appropriate screening which may include landscaping, revegetation or other suitable methods;
4. Application of the most current design requirements of Reno Municipal Code related to Hillside Development and cuts of 20 feet or more or fills of 10 feet or more.

### **Hours of Operation.**

Hours of operation for exterior construction activity or heavy equipment operation within the Silver Star Ranch PUD shall be limited as follows:

1. Monday – Friday 6 AM to 8PM;
2. Saturday – 9 AM to 6 PM;
3. No heavy equipment operations on Sundays or holidays (New Years Day, Thanksgiving Day and Christmas Day);
4. Exceptions to these hours of operation may be granted by the Administrator for construction activities that are of limited scope or unique and necessary based on weather, the time of season or nature of the particular activity (e.g. concrete pours, roadway paving, utility installation, etc.).
5. Days and hours of operations for blasting activities shall be limited to Monday – Friday between the hours of 9am and 4pm, unless further restricted by a City of Reno Fire Department blasting permit.

# **SILVER STAR RANCH**

## **Planned Unit Development Handbook**

**Reno, Nevada**



**Section V – City of Reno’s Notice of Final Action**

## **CONDITIONS**

### **Engineering and Traffic Conditions**

1. Prior to the approval of each final map, the applicant shall have an approved Sewerage Report in accordance with the Public Works Design Manual. Adequate access shall be provided for all sanitary sewer improvements per the Public Works Design Manual. All required on-site and off-site sanitary sewer improvements necessary to serve the project shall be complete and functional prior to the issuance of any certificate of occupancy.
2. As applicable, on-site sewer facilities and improvements shall be privately owned and maintained and shall be designed and constructed, with adequate access, in accordance with the City's minimum standards as set forth in the Public Works Design Manual.
3. Prior to the approval of each final map, the applicant shall have an approved Hydrology Report addressing on-site and off-site storm water flows and facility capacities for the pre-development and post-development site conditions.
4. As applicable, on-site storm water management facilities and appurtenances will be privately owned and maintained. Adequate maintenance access shall be provided for all storm water management improvements per the Public Works Design Manual.
5. Site circulation design, traffic control devices, and operational characteristics of the site accesses, common use driveways, on-site drive aisles, emergency accesses, fire access lanes, pedestrian routes, sidewalks, and parking areas shall be in accordance with the Public Works Design Manual and shall meet with the approval of the City Fire and Community Development Departments.
6. Prior to the approval of each final map, the applicant shall submit an updated total of all residential units generated by this and all previously submitted final maps associated with the Silver Star Ranch project.
7. Prior to the approval of the first final map, the applicant shall have approved a Capital Contribution Front End Agreement (CCFEA) traffic study for the project as reviewed by City and RTC staff, to the satisfaction of City staff. This study shall evaluate background and project traffic patterns, site accesses, and pedestrian routes and review of the roadway capacities, intersection levels of service for the roadway network included in the project. Prior to issuance of any certificate of occupancy for this final map, the applicant shall have plans approved and securities in place for all recommended roadway or intersection improvements and/or shall provide alternate traffic mitigation plans as identified in the City/RTC approved CCFEA traffic study.
8. Prior to the approval of a final map for the 800<sup>th</sup> residential unit (50% development), the applicant shall update the City approved traffic study for the project. This update shall evaluate background and project traffic patterns, site accesses, and pedestrian routes and review of the roadway capacities, intersection levels of service for the roadway network included in the project master traffic report. Prior to issuance of any certificate of occupancy for the associated final map, the applicant shall have

approved plans and securities in place for all recommended roadway or intersection improvements and/or shall provide alternate traffic mitigation plans as identified in the City approved 50-percent residential unit traffic study update.

9. Prior to the approval of a final map for the 1,440<sup>th</sup> residential unit (90% development), the applicant shall update the City approved traffic study for the project. This update shall evaluate background and project traffic patterns, site accesses, and pedestrian routes and review of the roadway capacities, intersection levels of service for the roadway network included in the project master traffic report. Prior to issuance of any certificate of occupancy for the associated final map, the applicant shall have approved plans and securities in place for all recommended roadway or intersection improvements and/or shall provide alternate traffic mitigation plans as identified in the City approved 90-percent residential unit traffic study update.
10. Prior to approval of any final map, the applicant shall provide a written response from RTC defining transit requirements for this project and shall dedicate rights-of-way or grant appropriate easements and construct transit improvement in accordance with RTC's requirements prior to the approval of any certificate of occupancy to the satisfaction of the Community Development Department staff.
11. Prior to approval of each final map, the applicant shall demonstrate all necessary on-site and off-site easement vacations, relocations, and grants are complete or in place. These easements include, but are not limited to; project construction, site access and cross access, utility access, emergency access, maintenance access, sewer lines, surface drainage, storm drains, and utility improvements. All required access, sewer, storm drainage, and utility improvements shall be constructed prior to the issuance of any certificates of occupancy.
12. Prior to approval of each final map, the applicant shall have plans approved and shall obtain associated encroachment and excavation permits. Additionally, the applicant shall provide necessary dedications for rights-of-way and/or public use easements for the roadway, sidewalk, and pedestrian ramp improvements proposed along each project frontage.
13. Prior to the approval of each permit, the applicant shall have a preconstruction meeting and an approved Construction Management Plan. This plan shall include provisions for on-site and off-site construction material storage, employee parking and construction activity phasing and staging. The plan shall also depict the proposed construction transportation and delivery routes within the project vicinity. Access to adjacent businesses and properties shall be maintained during construction.
14. Prior to approval of the final map for the 400<sup>th</sup> residential unit (25%), the applicant shall develop a rehabilitation plan in conjunction with requirements established by engineering staff to determine the extents and nature of upgrades, repairs, renovations, or reconstruction of the pavement structure and surface for the roadways identified as construction transportation and delivery routes within the project vicinity as depicted in the Construction Management Plan and all updates thereto. The rehabilitation plan shall establish milestone traffic generating occupancies for completion of the required roadway rehabilitation. Prior to the

issuance of any certificate of occupancy associated with the improvements required by the rehabilitation plan, the applicant shall complete all pavement structure and roadway surface improvements necessary to sustain minimum roadway functional classifications within the project vicinity resulting from construction and project traffic impacts. The applicant shall replace all roadway markings and striping affected or displaced by the pavement improvements.

15. Prior to the approval of each final map, the applicant shall comply with the Quality Assurance Program as set forth in the Public Works Design Manual, Chapter VI, titles "Inspection, Testing and Verification" and "Quality Assurance Program."

#### **Trails**

16. Prior to approval of the Schematic Master Trail map, the applicant shall develop and have approved an appropriate set of standards relating to trail operations including but not limited to: trailhead locations and design, consistent signs, intended users of each trail type, restoration of unused/unauthorized trails/roads and a management plan to provide maintenance and weed abatement.

#### **District Health Department**

17. Prior to approval of each final map or grading permit as applicable, the applicant shall utilize landscaping and grading techniques which minimize water run-off onto adjacent impervious surfaces.
18. Prior to approval of each final map or grading permit, as applicable, the applicant shall demonstrate that all drainageway and detention facilities have been designed to minimize the ponding of water within these facilities.
19. Prior to approval of the first final map in each village, the applicant shall incorporate language into the project CC&R's to require home owners association (HOA) maintenance of the detention basins and low flow channels by removing all vegetation, debris and blockages in these areas at least once every two years.

#### **BLM Conditions**

20. Prior to approval of each tentative map or other development which required installation of any facilities or utilities on adjacent BLM property such as, but not limited to, roads, water storage tanks, utility lines, effluent storage ponds, etc., the applicant shall provide suitable verification that all such facilities/utilities proposed to be installed on BLM property have received all necessary approvals from BLM, to the satisfaction of City of Reno Community Development staff. Surface mounted facilities such as water/effluent tanks, shall be subject to standards contained in the implementation section on Page VI-6 of this PUD, to address grading, color, visual impact, slope restoration, etc.
21. Prior to approval of the first tentative map and/or grading associated with an on-site major drainageway, the applicant shall have plans approved for appropriate perimeter fencing designed to restrict livestock from residential areas within the project. This plan shall be prepared in coordination with BLM, NDOW and City staff, to the satisfaction of City of Reno Community Development staff.

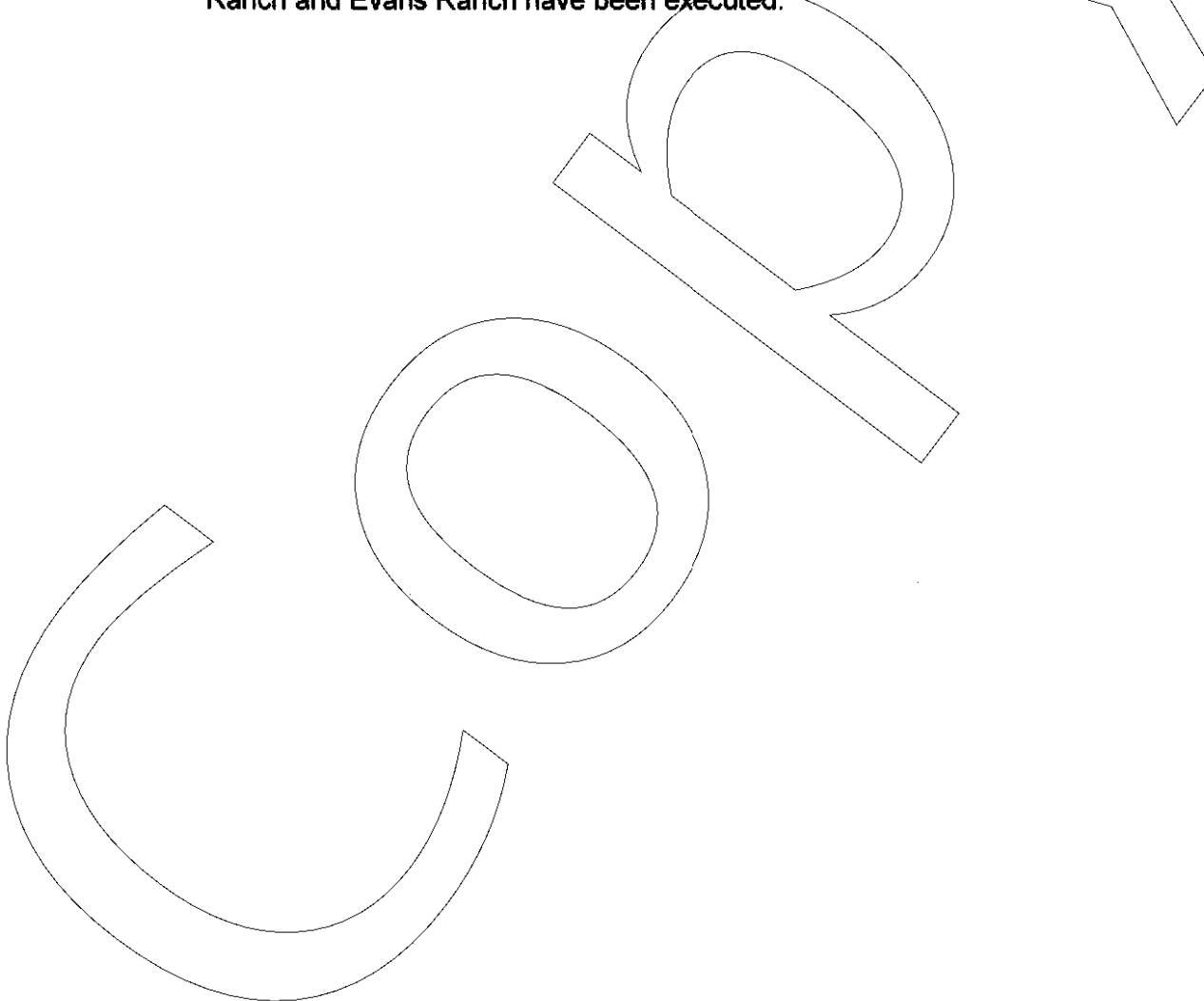
22. Prior to approval of the first tentative map, the applicant shall have a trails, trailhead and public access plan approved for all access points to adjoining public lands. The plan shall be prepared in coordination with BLM, City staff and the developer to the satisfaction of City staff. This plan shall provide standards, restrictions and identify the types of uses allowed at each access point to public land.

**Airport Authority**

23. Prior to approval of the first final map, the applicant shall provide appropriate documentation to City staff that an aviation easement for aircraft overflights and noise over the property has been granted to and accepted by the Reno-Tahoe Airport Authority.

**City Council**

24. Prior to the certification of the PUD Handbook by City Council, and following approval by the Regional Planning Commission, the applicant shall demonstrate to the satisfaction of the Community Development Department that either an access agreement or access easements addressing public access between Silver Star Ranch and Evans Ranch have been executed.





Daniel P. Douglass

Case No. LDC09-00058 (Silver Star Ranch)

March 26, 2010

Page 2

The Council added the following condition:

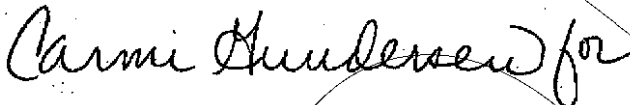
24. Prior to the certification of the PUD Handbook by the City Council, and following approval by the Regional Planning Commission, the applicant shall demonstrate to the satisfaction of the Community Development Department that either an access agreement or access easements addressing public access between Silver Star Ranch and Evans Ranch have been executed.

Council directed staff to examine the possibility of providing more flexibility in the language related to public safety fees and park districts.

On March 24, 2010, prior to adoption of the ordinance, Council directed staff to add language to the handbook to prohibit locating schools associated with the project adjacent to an arterial street.

The approved zoning map amendment will become effective upon passage and adoption of the appropriate ordinance; upon approval of finding of conformance by the Truckee Meadows Regional Planning Agency; certification by the City Council of the PUD Handbook; and recordation of the PUD Handbook for LDC09-00058.

Sincerely,



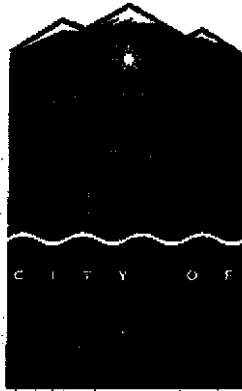
Lynnette R. Jones  
City Clerk

LRJ:edg

xc: Community Development  
Traffic Design Engineer  
Terry Zeller, Parks, Recreation & Community Services  
Marchon Miller, Regional Transportation Commission  
Silver Star Resources, LLC  
Susan Dorr, Manhard Consulting

Lynnette R. Jones  
City Clerk  
(775) 334-2030  
ljonesl@reno.gov

Carmi D. Gundersen  
Chief Deputy City Clerk  
(775) 334-2030  
gundersen@reno.gov



Office of the City Clerk  
Central Copying (775)334-2032  
Parking Tickets (775)334-2279

May 21, 2010

Daniel P. Douglass  
P. O. Box 60734  
Reno, NV 89506-0014

FILED THIS DATE  
5/27/10  
BY: [Signature]  
CITY CLERK

RE: Case No. LDC09-00058 (Silver Star Ranch) - **NOTICE OF FINDING OF CONFORMANCE**

Dear Applicant:

At a regular meeting held March 10, 2010, the City Council approved the subject project, to become effective upon a determination of conformance by the Regional Planning Commission. On May 12, 2010, the Regional Planning Commission (RPC) held a public hearing and determined that the above matter conforms to the comprehensive Regional Plan. Please see attached letter dated May 13, 2010, from the Regional Planning Commission.

Sincerely,

*Carmi Gundersen for*

Lynnette R. Jones  
City Clerk

LRJ:cdg

- xc: Community Development
- Traffic Design Engineer
- Terry Zeller, Parks, Recreation & Community Services
- Marchon Miller, Regional Transportation Commission
- Silver Star Resources, LLC
- Susan Dorr, Manhard Consulting





# REGIONAL PLANNING COMMISSION

## MEMBERS

Jim Newberg, Chair	Jackie Peterson
Dian VanderWell, Vice-Chair	Dennis Romeo
Roger Edwards	Doug Voelz
Roy Hibdon	Kevin Weiske
Tom Lean	

Rosanna Coombes, Director

May 13, 2010

Rosanna Coombes  
 Director of Regional Planning, and  
 Clerk of the Regional Planning Commission  
 One East First Street, Suite 1100  
 Reno, Nevada 89501

Received by Clerk: 5/14/10 etc.

Mailed: 5/14/10 82

Dear Ms. Coombes:

On May 12, 2010, the Regional Planning Commission (RPC) held a public hearing and determined that the following matter conforms with the comprehensive Regional Plan:

Regional Plan Conformance Review – project of regional significance, Silver Star Ranch PUD (CR10-005) – a project of regional significance for: a) the creation of more than 625 housing units; b) sewage generation of more than 187,500 gallons per day; and, c) traffic generation in excess of 6,250 average daily trips. The ±633 acre project site is located ±2,350 feet (0.44 miles) northwest of the Red Rock Road/Adobe Drive intersection which is ±5 miles north of the Red Rock Road/US 395 intersection, and ±4,150 feet (0.78 miles) northeast of the Aquamarine Drive/Aquamarine Court intersection in Woodland Village.

This letter has been filed with the Clerk of the Regional Planning Commission on this date and constitutes notice of final action under NRS 278.0235, "Actions against Agency: Commencement," unless a petition for review is timely filed by a person seeking review of the RPC action or determination pursuant to section I.3 of the Regional Planning Governing Board's *Regulations on Procedure*.

Please do not hesitate to contact me at 775/321-8392 if you have any questions on this matter.

Sincerely,

Sienna Reid  
 Regional Planner

cc: File CR10-005

John Hester, City of Reno  
 Carmi Gunderson, City of Reno  
 Armando Ornelas, City of Sparks  
 Debra Goodwin, RTC

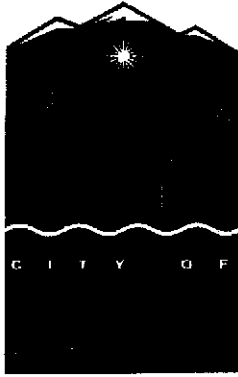
Adrian Freund, Washoe County  
 Kim Robinson, Washoe County  
 Vern Kloos, City of Reno



One East First Street, Suite 1100, Reno, NV 89501-1625

775/321-8385; Fax 775/321-8386

www.tmrpa.org



DDREN

**Lynnette R. Jones**  
City Clerk  
(775) 334-2030  
[jonesl@reno.gov](mailto:jonesl@reno.gov)

**Office of the City Clerk**  
Central Cashiering (775)334-2032  
Parking Tickets (775)334-2279

**Carmi D. Gundersen**  
Chief Deputy City Clerk  
(775) 334-2030  
[gundersen@reno.gov](mailto:gundersen@reno.gov)

July 6, 2010

FILED THIS DATE  
7/6/10  
BY: [Signature]  
CITY CLERK

Daniel P. Douglass  
P. O. Box 60734  
Reno, NV 89506-0014

RE: Case No. LDC09-00058 (Silver Star Ranch PUD) - Request for certification of the Silver Star Ranch PUD (Planned Unit Development) Handbook

Dear Applicant:

At a regular meeting held June 23, 2010, the City Council certified the Silver Star Ranch PUD (Planned Unit Development) Handbook. The Handbook has been reviewed and approved by staff as to its conformance with the PUD tentatively approved by City Council on March 10, 2010. The property is located ±2,350 feet (.44 miles) northwest of the Red Rock Road/Adobe Drive intersection (13,700 Red Rock Road) which is ±5 miles north of the Red Rock Road/US 395 intersection, and ±4,150 feet (.78 miles) northeast of the Aquamarine Drive/Aquamarine Court intersection in Woodland Village and consists of ±633 acres.

In order to effectuate the PUD, the handbook must be recorded at the Washoe County Recorder's Office in accordance with NRS 278A.

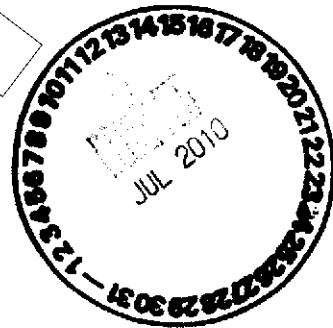
Sincerely,

*Carmi Gundersen for*

Lynnette R. Jones  
City Clerk

LRJ:cdg

xc: Community Development  
Traffic Design Engineer  
Terry Zeller, Parks, Recreation & Community Services  
Marchon Miller, Regional Transportation Commission  
Silver Star Resources, LLC



One East First Street, Second Floor\*P.O. Box 7, Reno, NV 89504  
[www.reno.gov](http://www.reno.gov)

# SILVER STAR RANCH

## Planned Unit Development Handbook

Reno, Nevada



### Appendix A – Traffic Analysis

**SOLAEGUI**  
ENGINEERS

November 25, 2008

Mr. William Gall  
City of Reno  
P.O. Box 1900  
Reno, Nevada 89505

RE: Silver Star Ranch

Dear Bill:

At the request of our client, we are providing this traffic analysis for the Silver Star Ranch development located in the City of Reno, Nevada. The project site is located west of Red Rock Road and south of Evans Ranch. Access will be provided from one roadway connection to Red Rock Road to the east and three roadway connections to Evans Ranch to the north. The location of the site is shown in the attached Figure 1. The project site is generally undeveloped land. Red Rock Road, Village Parkway, and White Lake Parkway have been identified for roadway capacity analysis for the 2018, 2030 and 2040 base and base plus project scenarios. The purpose of this letter is to address the project's impact on the adjacent street network.

The proposed Silver Star Ranch development will consist of the construction of 1,280 single family homes and 320 townhomes for a total of 1,600 dwelling units. The information contained in this letter includes a review of existing and proposed roadways, trip generation calculations, a review of future year average daily traffic (ADT) volumes, and capacity analysis of the key roadway segments. These topics are discussed as follows.

**Existing and Proposed Roadways**

Red Rock Road is a four-lane roadway with two lanes in each direction between the U.S. 395 northbound ramps and Moya Boulevard and a two-lane roadway with one lane in each direction from Moya Boulevard to north of Lemmon Drive. The speed limit is posted for 40 miles per hour. Roadway improvements generally include paved travel lanes and graded shoulders on the two-lane section with some curb, gutter, and sidewalk improvements on the four-lane section.

White Lake Parkway is a two-lane roadway with one lane in each direction between U.S. 395 and Village Parkway. The speed limit is posted for 35 miles per hour. Roadway improvements generally include paved travel lanes with graded and paved shoulders with some curb, gutter, and sidewalk improvements along developed frontages.

Village Parkway is a two-lane roadway with one lane in each direction from U.S. 395 to east of Georgetown Drive. The speed limit is posted for 35 miles per hour. Roadway improvements generally include paved travel lanes and graded shoulders between U.S. 395 and White Lake Parkway and paved travel lanes with curb, gutter, and sidewalks from White Lake Parkway to Woodland Village.

### Trip Generation

In order to assess the magnitude of traffic impacts of the proposed development on the key roadways, trip generation rates and peak hours had to be determined. Trip generation rates were obtained from the Seventh Edition of *ITE Trip Generation* (2003) for Land Use 210: Single Family Detached Housing and Land Use 230: Residential Condominium/Townhouse.

Trips generated by the proposed development were calculated for an average weekday and for the weekday peak hours between 7:00 and 9:00 AM and 4:00 and 6:00 PM, which correspond to the peak hours of adjacent street traffic. The trip generation worksheets are attached. Table 1 shows a summary of the average daily traffic (ADT) volumes and peak hour volumes generated by the proposed development.

TABLE 1  
TRIP GENERATION

<u>LAND USE</u>	<u>ADT</u>	<u>AM PEAK HOUR</u>			<u>PM PEAK HOUR</u>		
		<u>IN</u>	<u>OUT</u>	<u>TOTAL</u>	<u>IN</u>	<u>OUT</u>	<u>TOTAL</u>
Single Family Homes 1,280 Dwelling Units	10,854	226	679	905	670	393	1,063
Townhomes 320 Dwelling Units	1,725	22	109	131	105	51	156
<b>TOTAL TRIPS</b>	<b>12,579</b>	<b>248</b>	<b>788</b>	<b>1,036</b>	<b>775</b>	<b>444</b>	<b>1,219</b>

### Projected Traffic Volumes

Future average daily traffic volumes on the key roadways were obtained directly from the Regional Transportation Commission's (RTC) traffic forecasting model. The attached Figure 2 shows the 2018 average daily traffic volumes for the base and base plus project scenarios. The attached Figure 3 shows the 2030 average daily traffic volumes for the base and base plus project scenarios. The attached Figure 4 shows the 2040 average daily traffic volumes for the base and base plus project scenarios.

Roadway Capacity Analysis

Red Rock Road, Village Parkway and White Lake Parkway were reviewed for capacity for the 2018, 2030, and 2040 traffic volumes based on the average daily level of service thresholds established by the Regional Transportation Commission. Red Rock Road is classified as a rural highway with moderate access control from U.S. 395 to the north limit of the North Valley Planning area. White Lake Parkway is classified as an arterial with moderate access control from U.S. 395 to Village Parkway. Village Parkway is classified as an arterial with moderate access control from U.S. 395 to Georgetown Drive. Table 2 shows the daily level of service thresholds for moderate access control arterials.

TABLE 2  
LEVEL OF SERVICE CRITERIA FOR ROADWAY SEGMENTS

FACILITY/LANES	LOS A-C	AVERAGE DAILY TRAFFIC VOLUME		
		LOS D	LOS E	LOS F
Moderate Access Arterial				
2 Lanes	≤14,800	14,801-17,500	17,501-18,600	>18,600
4 Lanes	≤32,200	32,201-35,200	35,201-36,900	>36,900
6 Lanes	≤49,600	49,601-52,900	52,901-55,400	>55,400
8 Lanes	≤66,800	66,801-70,600	70,601-73,900	>73,900

A summary of the "Level of Service" (LOS) operation for the roadway segments in this analysis is shown in Table 3.

TABLE 3  
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS

ROADWAY/FACILITY	YEAR 2018		YEAR 2030		YEAR 2040	
	BASE	WITH	BASE	WITH	BASE	WITH
RED ROACK ROAD						
North of Silver Lake	13,800	14,800	21,900	24,300	22,100	25,000
4 Lane Moderate	C	C	C	C	C	C
North of Moya	12,800	14,000	23,200	26,400	23,100	26,700
2 Lane Moderate	C	C	F	F	F	F
4 Lane Moderate	C	C	C	C	C	C

**TABLE 3 (CONTINUED)**  
**ROADWAY SEGMENT LEVEL OF SERVICE RESULTS**

<u>ROADWAY/FACILITY</u>	<u>YEAR 2018</u>		<u>YEAR 2030</u>		<u>YEAR 2040</u>	
	<u>BASE</u>	<u>WITH</u>	<u>BASE</u>	<u>WITH</u>	<u>BASE</u>	<u>WITH</u>
<b>RED ROACK ROAD</b>						
South of Osage	12,800	14,000	23,200	26,400	23,100	26,700
2 Lane Moderate	C	C	F	F	F	F
4 Lane Moderate	C	C	C	C	C	C
North of Osage	9,800	11,000	19,500	22,700	19,300	22,900
2 Lane Moderate	C	C	F	F	F	F
4 Lane Moderate	C	C	C	C	C	C
North of Silver Knolls	8,100	9,400	16,600	20,000	16,600	20,400
2 Lane Moderate	C	C	D	F	D	F
4 Lane Moderate	C	C	C	C	C	C
North of Placerville	7,300	8,700	15,400	18,900	15,100	18,900
2 Lane Moderate	C	C	D	F	D	F
4 Lane Moderate	C	C	C	C	C	C
South of Lemmon	1,400	2,100	2,800	3,300	3,000	3,900
2 Lane Moderate	C	C	C	C	C	C
North of Lemmon	1,000	2,300	1,100	2,500	1,400	3,100
2 Lane Moderate	C	C	C	C	C	C
<b>WHITE LAKE PARKWAY</b>						
North of U.S. 395	17,300	17,400	28,300	28,500	28,400	28,900
2 Lane Moderate	D	D	F	F	F	F
4 Lane Moderate	C	C	C	C	C	C
Further North of U.S. 395	7,300	7,300	12,400	12,500	12,600	12,900
2 Lane Moderate	C	C	C	C	C	C
South of Crystal Canyon	6,900	6,900	11,700	11,800	11,900	12,200
2 Lane Moderate	C	C	C	C	C	C
North of Crystal Canyon	6,500	6,500	10,900	11,000	11,000	11,400
2 Lane Moderate	C	C	C	C	C	C

**TABLE 3 (CONTINUED)**  
**ROADWAY SEGMENT LEVEL OF SERVICE RESULTS**

<u>ROADWAY/FACILITY</u>	<u>YEAR 2018</u>		<u>YEAR 2030</u>		<u>YEAR 2040</u>	
	<u>BASE</u>	<u>WITH</u>	<u>BASE</u>	<u>WITH</u>	<u>BASE</u>	<u>WITH</u>
<b>VILLAGE PARKWAY</b>						
East of U.S. 395	11,900	12,000	14,500	14,300	16,100	15,700
2 Lane Moderate	C	C	C	C	D	D
North of White Lake	17,500	17,600	23,300	23,300	25,100	25,000
2 Lane Moderate	D	E	F	F	F	F
4 Lane Moderate	C	C	C	C	C	C
West of Georgetown	14,300	14,300	16,800	16,600	17,400	17,100
2 Lane Moderate	C	C	D	D	D	D

#### RED ROCK ROAD

Red Rock Road was reviewed for capacity as a moderate access control arterial. The existing four-lane section between Silver Lake Road and Moya Boulevard is anticipated to operate at level of service C for the 2018, 2030, and 2040 base and base plus project traffic volumes. The existing two-lane section from Moya Boulevard to north of Lemmon Drive is anticipated to operate at level of service C for the 2018 base and base plus project traffic volumes. The existing two-lane section from Moya Boulevard to Silver Knolls Boulevard is anticipated to operate at level of service F for the 2030 and 2040 base and base plus project traffic volumes. The existing two-lane section from Silver Knolls Boulevard to the project access is anticipated to operate at level of service D for the 2030 and 2040 base traffic volumes and level of service F for the 2030 and 2040 base plus project traffic volumes. The existing two-lane section from the project access to north of Lemmon Drive is anticipated to operate at level of service C for the 2030 and 2040 base and base plus project scenarios.

In summary, the section of Red Rock Road from Moya Boulevard to the project access will need to be widened to four lanes in order to maintain policy level of service D or better operation for the 2030 and 2040 traffic volumes. The RTC's draft 2040 Regional Transportation Plan dated July 15, 2008 indicates that Red Rock Road is planned to be widened to four lanes from Moya Boulevard to the Evans Ranch access by 2030.

## WHITE LAKE PARKWAY

White Lake Parkway was reviewed for capacity as a moderate access control arterial. The existing two-lane section from U.S. 395 to Village Parkway is anticipated to operate at policy level of service D or better for the 2018, 2030, and 2040 base and base plus project traffic volumes. The existing two-lane section immediately north of U.S. 395 is anticipated to operate at level of service F for the 2030 and 2040 base and base plus project traffic volumes. The existing two-lane section further north of U.S. 395 extending to Village Parkway is anticipated to operate level of service C for the 2030 and 2040 base and base plus project traffic volumes.

In summary, the section of White Lake Parkway immediately north of U.S. 395 will need to be widened to four lanes in order to maintain policy level of service D or better operation for the 2030 and 2040 traffic volumes. The RTC's draft 2040 Regional Transportation Plan dated July 15, 2008 indicates that White Lake Parkway is planned to be widened to four lanes from U.S. 395 to Crystal Canyon Boulevard by 2030.

## VILLAGE PARKWAY

Village Parkway was reviewed for capacity as a moderate access control arterial. The existing two-lane section from U.S. 395 to White Lake Parkway is anticipated to operate at policy level of service D or better for the 2018, 2030, and 2040 base and base plus project traffic volumes. The existing two-lane section from White Lake Parkway to Mud Springs Drive is anticipated to operate at level of service D for the 2018 base traffic volumes, level of service E for the 2018 base plus project traffic volumes, and level of service F for the 2030 and 2040 base and base plus project traffic volumes. The existing two-lane section from Mud Springs Drive to Georgetown Drive is anticipated to operate at level of service D or better for the 2018, 2030, and 2040 base and base plus project traffic volumes.

In summary, the section of Village Parkway from White Lake Parkway to Mud Springs Drive will need to be widened to four lanes in order to maintain policy level of service D or better operation for the 2018, 2030, and 2040 traffic volumes. The RTC's draft 2040 Regional Transportation Plan dated July 15, 2008 indicates that the section of Village Parkway from White Lake Parkway to Cold Springs Drive is planned to be widened to four lanes by 2018 and the section of Village Parkway from U.S. 395 to White Lake Parkway is planned to be widened to four lanes by 2030.

Recommendations

It is recommended that any required signing, striping or traffic control improvements comply with Nevada Department of Transportation and City of Reno requirements.

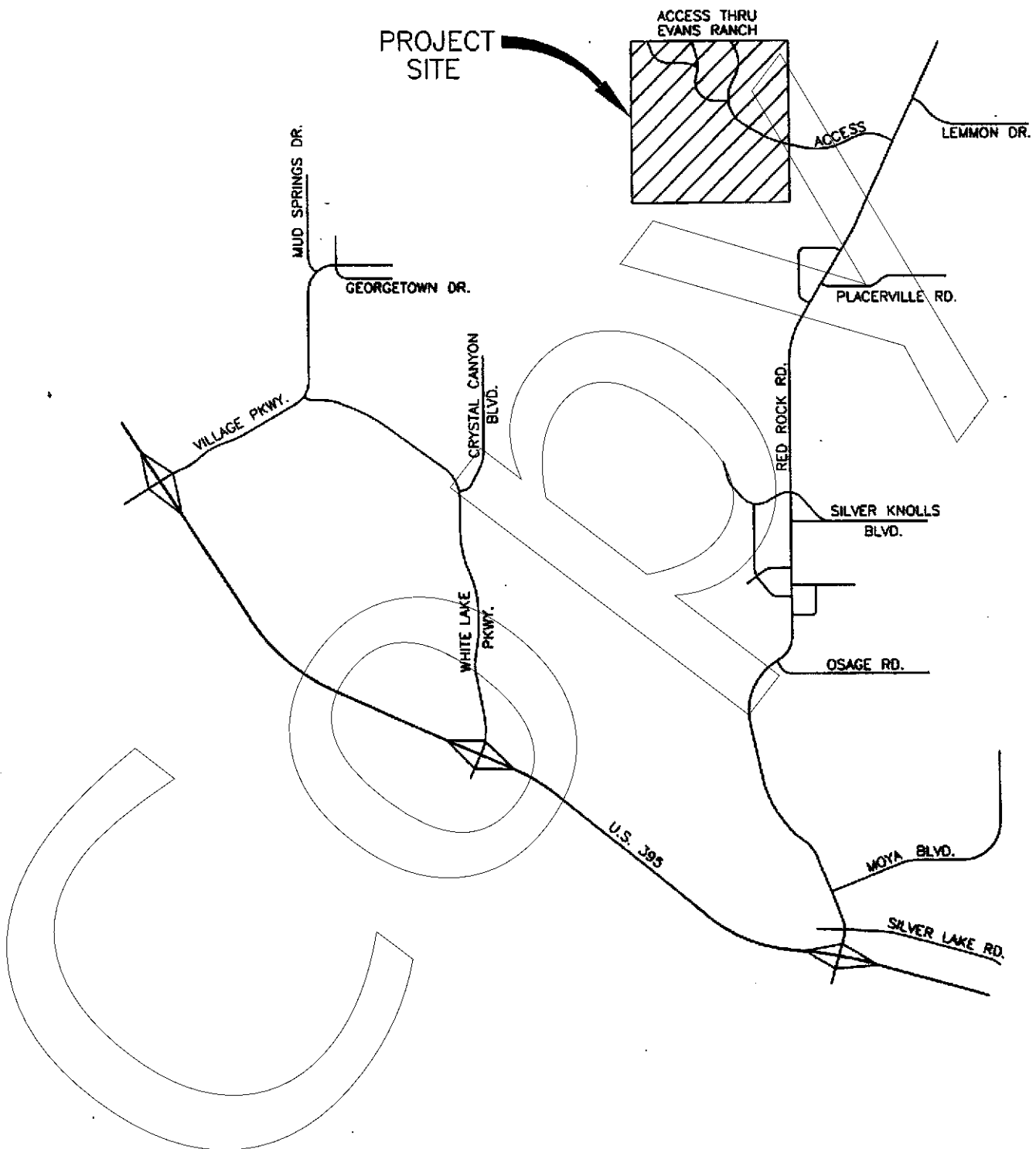
We trust that this information will meet your requirements. Please call if you have any questions or comments.

Very truly yours,  
SOLA ENGINEERS, LTD.  
SOLA ENGINEERS, LTD.  
SOLA ENGINEERS, LTD.  
CIVIL  
Paul W. [Signature]  
11-25-08  
EXP 6-30-10

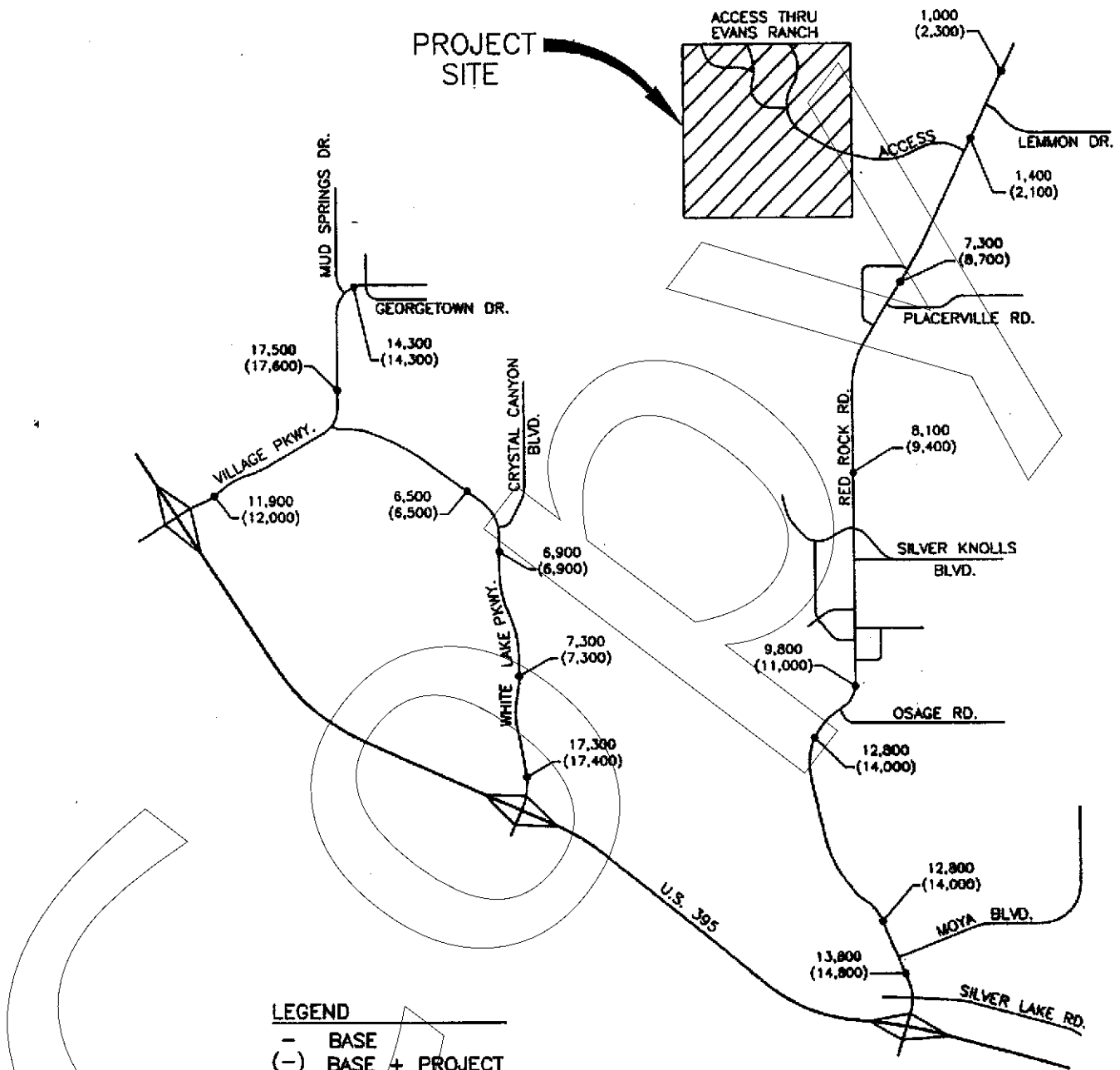
cc Susan Dorr  
Enclosures

Eng 5/Letters/Reno/Silver Star Ranch

C O R



SILVER STAR RANCH  
VICINITY MAP  
FIGURE 1



**LEGEND**

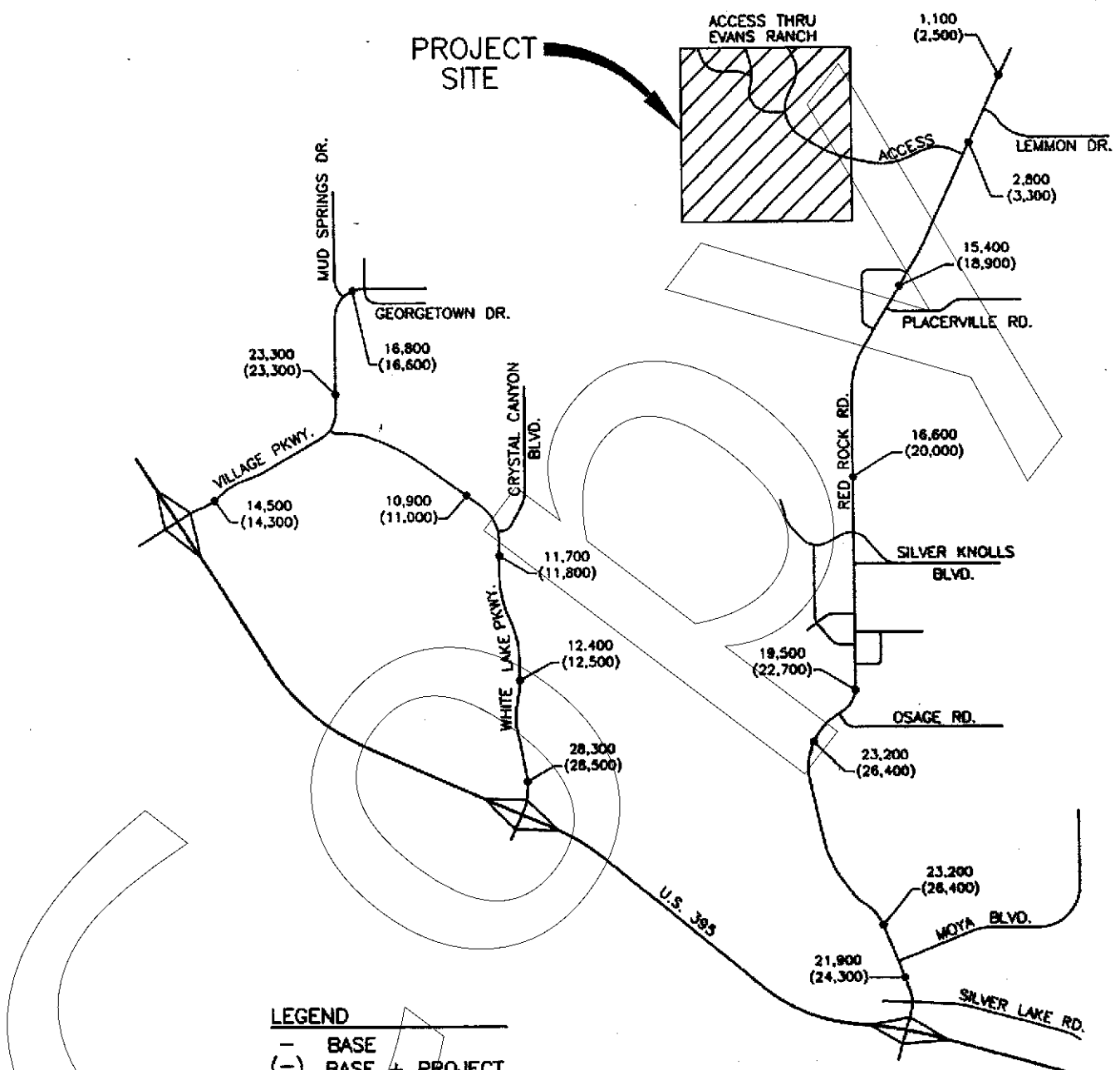
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**SILVER STAR RANCH**

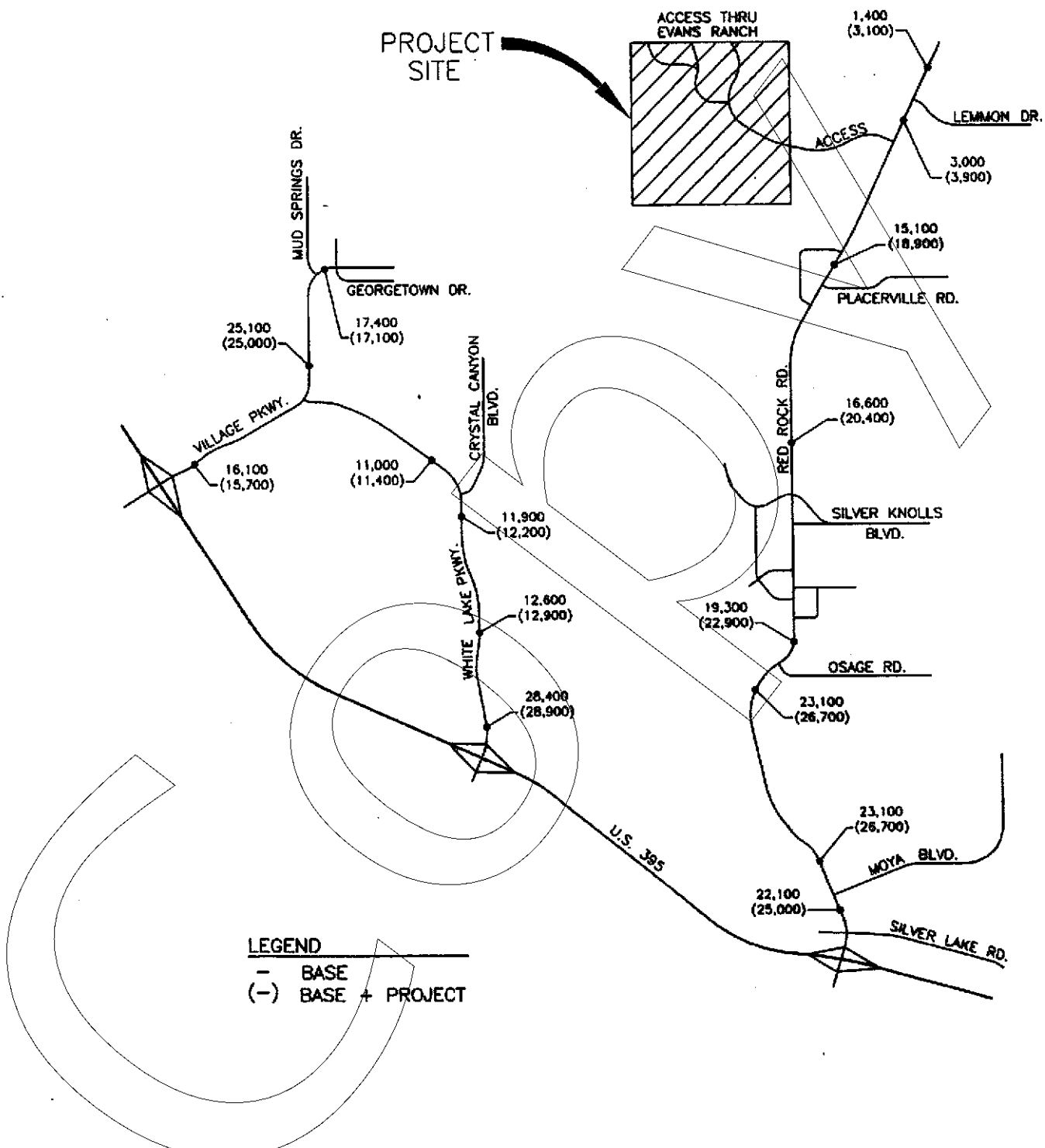
**2018 AVERAGE DAILY TRAFFIC VOLUMES**

**FIGURE 2**



**LEGEND**  
 - BASE  
 (-) BASE + PROJECT

**SILVER STAR RANCH**  
**2030 AVERAGE DAILY TRAFFIC VOLUMES**  
**FIGURE 3**



**LEGEND**  
 - BASE  
 (-) BASE + PROJECT

**SILVER STAR RANCH**  
**2040 AVERAGE DAILY TRAFFIC VOLUMES**  
**FIGURE 4**

Summary of Average Vehicle Trip Generation  
 For 1280 Dwelling Units of Single Family Detached Housing  
 November 24, 2008

	24 Hour Two-Way Volume	7-9 AM Pk Hour		4-6 PM Pk Hour	
		Enter	Exit	Enter	Exit
Average Weekday	10854	226	679	670	393
	24 hour Two-Way Volume	Peak Hour			
		Enter	Exit		
Saturday	11560	621	529		
Sunday	11293	479	425		

Note: A zero indicates no data available.

The above rates were calculated from these equations:

24-Hr. 2-Way Volume:	$LN(T) = .92LN(X) + 2.71, R^2 = 0.96$
7-9 AM Peak Hr. Total:	$T = .7(X) + 9.43$
	$R^2 = 0.89, 0.25 \text{ Enter, } 0.75 \text{ Exit}$
4-6 PM Peak Hr. Total:	$LN(T) = .9LN(X) + .53$
	$R^2 = 0.91, 0.63 \text{ Enter, } 0.37 \text{ Exit}$
AM Gen Pk Hr. Total:	$T = .7(X) + 12.05$
	$R^2 = 0.89, 0.26 \text{ Enter, } 0.74 \text{ Exit}$
PM Gen Pk Hr. Total:	$LN(T) = .89LN(X) + .61$
	$R^2 = 0.91, 0.64 \text{ Enter, } 0.36 \text{ Exit}$
Sat. 2-Way Volume:	$LN(T) = .94LN(X) + 2.63, R^2 = 0.93$
Sat. Pk Hr. Total:	$T = .89(X) + 10.93$
	$R^2 = 0.9, 0.54 \text{ Enter, } 0.46 \text{ Exit}$
Sun. 2-Way Volume:	$T = 8.83(X) + -9.76, R^2 = 0.94$
Sun. Pk Hr. Total:	$LN(T) = .89LN(X) + .44$
	$R^2 = 0.88, 0.53 \text{ Enter, } 0.47 \text{ Exit}$

Source: Institute of Transportation Engineers  
 Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS

Summary of Average Vehicle Trip Generation  
 For 320 Dwelling Units of Residential Condominium / Townhouse  
 November 24, 2008

	24 Hour Two-Way Volume	7-9 AM Pk Hour Enter	Exit	4-6 PM Pk Hour Enter	Exit
Average Weekday	1725	22	109	105	51
	24 hour Two-Way Volume	Peak Hour		Enter	Exit
Saturday	1586			73	62
Sunday	1359			61	63

Note: A zero indicates no data available.

The above rates were calculated from these equations:

24-Hr. 2-Way Volume:	$LN(T) = .85LN(X) + 2.55$ , $R^2 = 0.83$
7-9 AM Peak Hr. Total:	$LN(T) = .8LN(X) + .26$ $R^2 = 0.76$ , 0.17 Enter, 0.83 Exit
4-6 PM Peak Hr. Total:	$LN(T) = .82LN(X) + .32$ $R^2 = 0.8$ , 0.67 Enter, 0.33 Exit
AM Gen Pk Hr. Total:	$LN(T) = .82LN(X) + .17$ $R^2 = 0.8$ , 0.18 Enter, 0.82 Exit
PM Gen Pk Hr. Total:	$T = .34(X) + 38.31$ $R^2 = 0.83$ , 0.64 Enter, 0.36 Exit
Sat. 2-Way Volume:	$T = 3.62(X) + 427.93$ , $R^2 = 0.84$
Sat. Pk Hr. Total:	$T = .29(X) + 42.63$ $R^2 = 0.84$ , 0.54 Enter, 0.46 Exit
Sun. 2-Way Volume:	$T = 3.13(X) + 357.26$ , $R^2 = 0.88$
Sun. Pk Hr. Total:	$T = .23(X) + 50.01$ $R^2 = 0.78$ , 0.49 Enter, 0.51 Exit

Source: Institute of Transportation Engineers  
 Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS

# **SILVER STAR RANCH**

## **Planned Unit Development Handbook**

**Reno, Nevada**



SILVER STAR RANCH

**Appendix B – Water Facilities Study**



# Manhard<sup>TM</sup>

CONSULTING LTD

## WATER FACILITY PLAN

FOR

### Silver Star Ranch

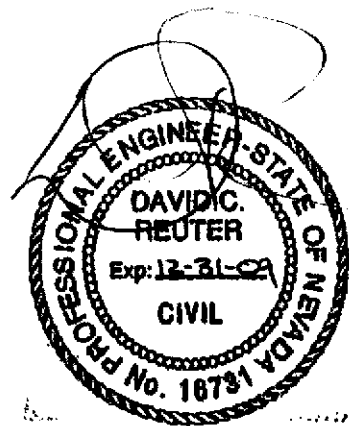
CITY OF RENO, NEVADA

Prepared for:

Dan Douglass  
1150 Selmi Drive #501  
Reno, NV 89512

Prepared by:

Manhard Consulting Ltd.  
9850 Double R Boulevard  
Suite 101  
Reno, Nevada 89521



**Overview.....Section 1**

- 1.1 Introduction
- 1.2 Location
- 1.3 Site Parameters
- 1.4 Development Constraints

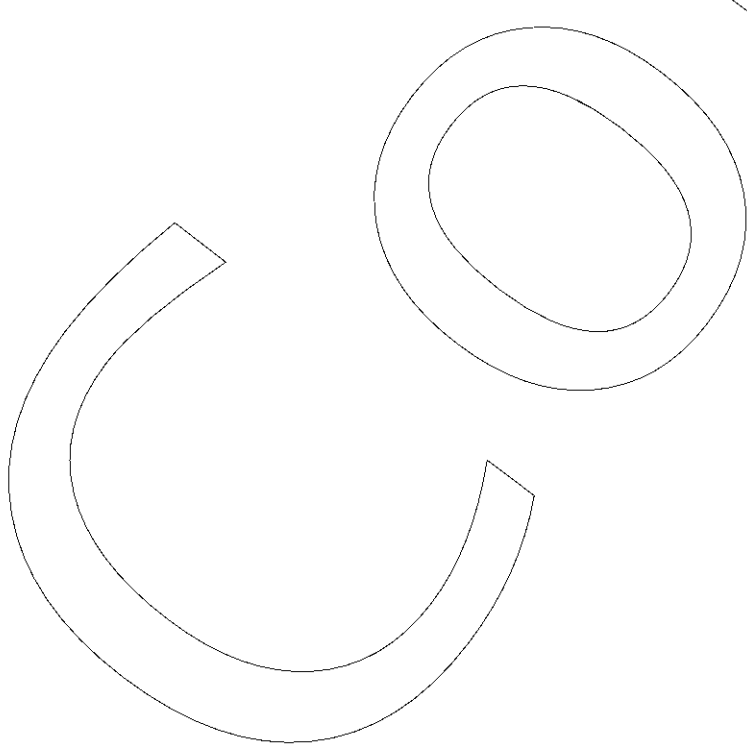
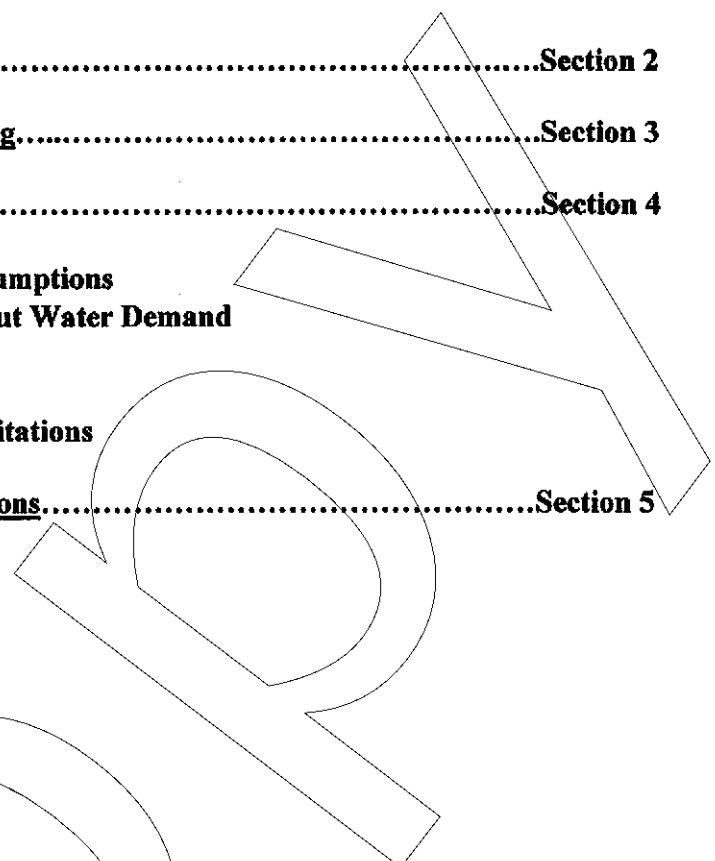
**Service Providers.....Section 2**

**Existing Infrastructure Planning.....Section 3**

**Water Facilities.....Section 4**

- 4.1 Regulations and Assumptions
- 4.2 Existing and Build-out Water Demand
- 4.3 Water Resources
- 4.4 Planned Facilities
- 4.5 Water Planning Limitations

**Conclusion and Recommendations.....Section 5**



*Silver Star Ranch  
City of Reno, NV*

*Water Facility Plan*

**Exhibit 1.....Vicinity Map**

**Exhibit 2.....Silver Star Ranch Overall Site Plan**

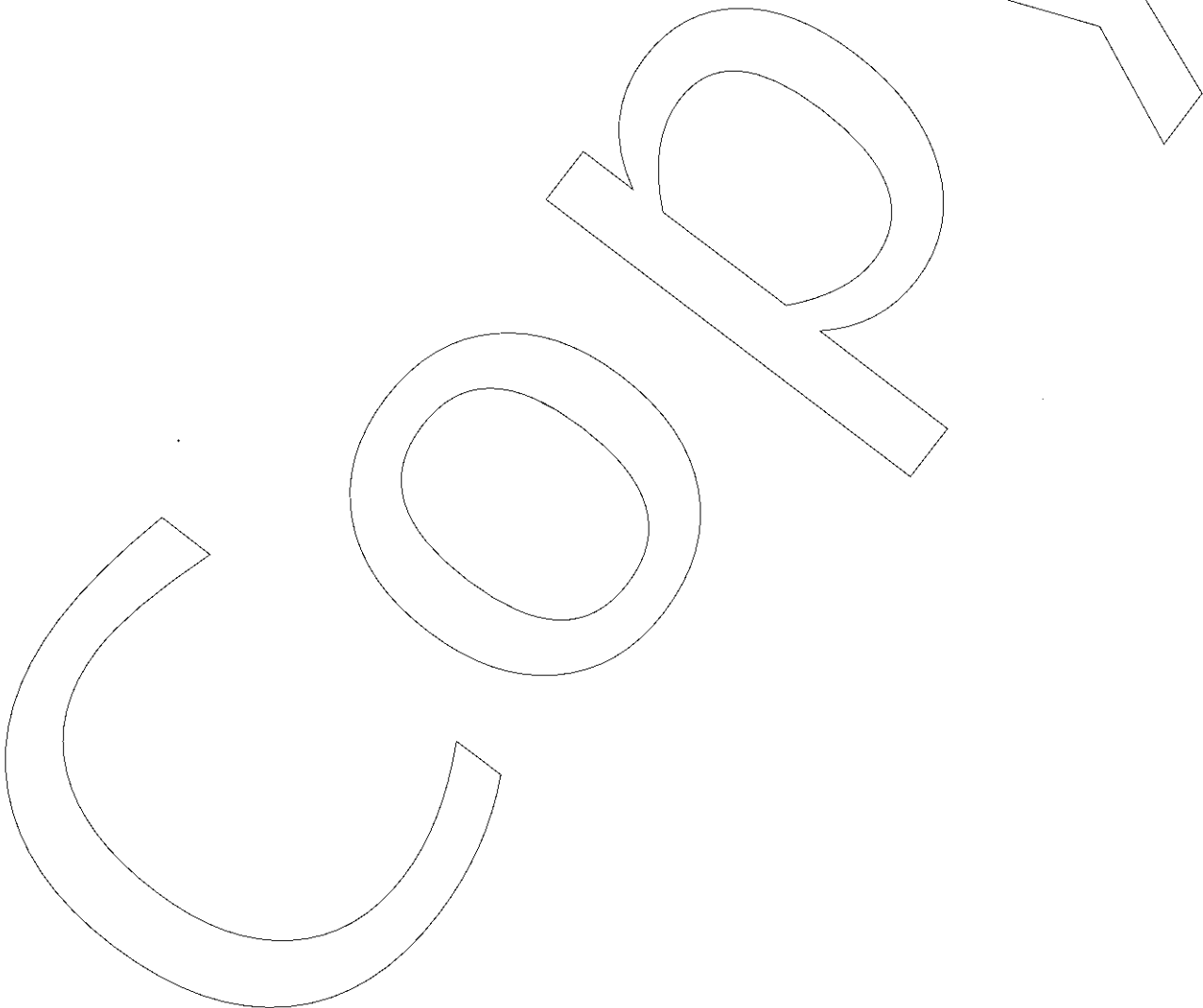
**Exhibit 3.....Development Constraints**

**Exhibit 4.....Build-out Water Demand Calculation**

**Exhibit 5.....Pressure Zone Map**

**Exhibit 6.....Overall Water Facility Plan**

**Exhibit 7.....Silver Star Ranch Conceptual Landplan**



## Section 1 - Overview

### 1.1 - INTRODUCTION

This water facility plan has been prepared at the request of Dan Douglass to provide an outline of the water facility infrastructure improvements required to supply water to the proposed Silver Star Ranch. This study will also approximately locate and size the necessary onsite water infrastructure for the development.

This report will provide descriptions of the water infrastructure and hydraulic modeling results. The modeling has focused on the location and size of storage tanks, pump stations, pressure regulating stations and water mains. The "City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan – Volume 1", by Ecologic Engineering and HDR dated June/2007, and also the "Cold Springs Valley Water Master Plan Update", by Lumos and Associates dated May 20, 2004, as well as the "Water Facility Plan for Evans Ranch and White Lake Vistas," dated October 2007 by Manhard Consulting, Ltd., have been used to determine ultimate and interim offsite build out conditions, and are referenced throughout this report.

### 1.2 - LOCATION

The Silver Star Ranch site is generally located North of US Highway 395, and west of Red Rock Road, in Township 21N, Range 18E, Section 11. (See Exhibit 1), it is within the jurisdiction of the City of Reno, and includes parcel# 087-021-25.

### 1.3 - SITE PARAMETERS

The Silver Star Ranch Planned Unit Development will be a master planned community with residential, and recreational land uses. The Silver Star Ranch Subdivision is a proposed development of roughly 430 developed acres on a total site area of approximately 633 acres. Preliminary overall land planning proposes:

- 1,600 dwelling units;
- Approximately 200 acres of open space;

See Exhibit 2 for the proposed general subdivision layout plan and Exhibit 7 for a conceptual landplan.

### 1 - 4 DEVELOPMENT CONSTRAINTS

Areas with slopes greater than thirty percent, water bodies and floodplain areas are potentially limited or constrained from future development. Exhibit 3 depicts the extents of each one of these areas within the proposed Silver Star Ranch.

## Section 2 – Service Providers

According to the “City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan – Volume 1”, the Silver Star Ranch is within the Washoe County Water sphere of influence.

Service provider’s alternatives would include Washoe County, Utilities Inc. or TMWA. Formalization of the service provider will be defined with tentative or final maps.

## Section 3 – Existing Infrastructure Planning

The “City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan – Volume 1” for the Cold Springs area including the Silver Star Ranch site developed backbone distribution system facilities. An existing 30” water main will be utilized to service the Evans Ranch development, which in turn will service the Silver Star Ranch.

## Section 4 – Water Facilities

### 4.1 – REGULATIONS AND ASSUMPTIONS

As per the “City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan – Volume 1”, water demand factors used to generate demand are based on TMWA design standards for both the City of Reno and Washoe County TMSA. The TMWA Rule 7 demand factors are relevant because new development is assumed to dedicate water resources in accordance with TMWA water rights dedication policies. The report also notes that water demand policies within the Utilities Inc. service area are different than the TMWA policy; therefore, TMWA criteria was applied to the Silver Star Ranch.

Because detailed project data and improvement plans are not available at this time, the project water demands shown on this report are for planning purposes only.

Hydraulic modeling and design of the water system have taken the following various requirements and assumptions into consideration:

- NAC Requirements
- Hydraulic Design Assumptions:
  - Pipe Roughness “C” factor = 130
  - Pipe Velocity
    - Maximum pipe velocity during Maximum Day Demand (MDD) = 8 fps
    - Maximum pipe velocity during MDD plus FF = 10 fps

- **Storage TMWA:**

Total Storage Required = Operating Storage + Emergency Storage + Fire Flow

Operating Storage = 15% (Total Maximum Day Demand)

Emergency Storage = Average Day Demand (ADD)

- **Fire Flow per International Fire Code:**
  - Residential = 2,000 gpm for 2 hours
  - Commercial = 4,000 gpm for 4 hours

The upper tank located on Silver Star Ranch property will serve only residential. Therefore, tank sizing will be based on residential fire flow.

- **Peaking Factors:**
  - ADD to MDD – 2.5
  - MDD to Peak Hour Demand (PHD) – 1.5
- **Estimated Average Day Demands:**
  - Silver Star Ranch - Residential – per TMWA Rule 7 (based on lot size).
  - Commercial – 1,000 gpd per acre
  - Industrial – 1,000 gpd per acre
  - School – 1.4 gpm per acre
- **Pressures – per NAC 445A.6711:**
  - MDD plus FF – 20 psi minimum
  - MDD – 40 psi minimum
  - Static Conditions – 100 psi maximum
  - PHD – 30 psi minimum

#### 4.2 – EXISTING AND PROPOSED WATER DEMAND

Other than a single existing residence that is served off of a domestic well, there are no water uses at the Silver Star Ranch.

Projected water demands were calculated based on the preliminary land planning available for the Silver Star Ranch – See Exhibit 4.

#### 4.3 – WATER RESOURCES

Potential water supply sources include the existing and future water resources available from the Utilities Inc. groundwater supply wells, the Fish Springs Water Supply project, the future Intermountain Water Supply Project, along with the potential use of Reclaimed Water Resources for irrigation. Future water resources that may become available,

including potential groundwater supply wells located to the north of the Silver Star Ranch site, and to the south and west of the Utilities Inc. system, are also considered a potential source alternative.

Per the "City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan - Volume 1", the Fish Springs Water Supply project will provide 8,000 AFA of new water to serve the Cold Springs TMSA (including areas within the jurisdiction of both City of Reno and Washoe County). Construction is complete and the facility is operational. Also according to that report, the Intermountain Water Supply Project has received permitting approvals from the BLM and Washoe County, and could be implemented within one-year time frame once all construction related approvals have been obtained. The Intermountain Water Supply facilities could potentially provide 2,000 AFA of new water.

Utilities Inc. water distribution system services areas that are within elevations of approximately 5,038 feet above sea level to a high of about 5,160 feet above sea level, separated into four distinct pressure zones. With ground elevation ranging from a low of approximately 5,280 feet above sea level to a high of approximately 5,620' above sea level, Silver Star Ranch is not within the Utilities Inc. pressure zones. Therefore, the Utilities Inc. system would require a booster pump station to provide water to the Silver Star Ranch.

Under the assumption the City of Reno will build effluent water mains through the Silver Star Ranch Planned Unit Development, this report considers that reclaimed water will be used for irrigation of common areas (parks, parkways, open spaces). The Reno-Stead and Cold Springs Wastewater Treatment Plants may potentially be effluent sources.

In addition to that use, reclaimed water could also potentially be used for residential yard irrigation, which would represent a potable water demand reduction of approximately 175-250 AFA (See Exhibit - 4). For planning purposes, this report assumes all residential yard irrigation supply is originated from potable water sources, but future study will be provided to determine the viability of residential yard irrigation with reclaimed water.

#### 4.4- PLANNED FACILITIES

The proposed backbone distribution system for the proposed Silver Star Ranch is shown on Exhibit 6. The entire water facility system was designed assuming adequate water supply will be available to the site as described in Section 4.3 above. For final design, further analysis of the system will be completed once more detailed land planning becomes available.

As mentioned above, the Silver Star Ranch water supply can potentially originate from the Fish Springs, the Intermountain water tanks, and other future resources that may become available. An existing 36" main has already been built from the Fish Springs tank to the Waterash/Lemmon Valley Dr. intersection. Approximately 26,000 feet of 30" supply water main would be required to connect the project site from this 36" main to the

proposed offsite pump station located near the Red Rock Rd. and Lemmon Dr. intersection. Approximately 13,600 feet of 30" supply water main would be required to connect the project site from the future Intermountain tank to the proposed offsite pump station located near the Red Rock Rd. and Lemmon Valley Dr. intersection (point of connection).

From the point of connection, water would flow through a 30" water main west to a proposed 4 million-gallon potable water storage tank located on the Evans Ranch Property and then south to a 0.5 million-gallon tank located on the Silver Star Ranch Property. The proposed pad elevation of the first tank is 5,545 feet and is based on the pressure zones established to operate in conjunction with the second tank located on Silver Star Ranch at an elevation of 5,700'. The second tank (elevation 5,700') is used to service the highest lots for the Silver Star Ranch (see Exhibit 5) and a small portion of Evans Ranch.

The flows required for Silver Star Ranch are 279 gpm on an average daily basis (as determined by TMWA's Rule 7), as a result a 1.5 million gallon tank would be capable of serving the entire project with commercial fire flows of 4,000 gallons per minute for 4 hours. However, as a result of the proposed lot elevations within Silver Star Ranch in relation to those in Evans Ranch, it is feasible to feed both projects using the upper tank located in the Silver Star Ranch and the lower tank located in Evans Ranch. In the event that placing the lower tank in Evans Ranch becomes problematic, there are multiple locations within Silver Star Ranch where the tank can be constructed. The Upper Tank (base elevation 5,700) is necessary to service a MDD of approximately 174 gpm generated between the lots with 133.5 gpm serving Silver Star Ranch and 40.5 gpm serving Evans Ranch developments. In addition, the upper tank would only be required to provide a residential fire flow of 2,000 gallons per minute for two hours. As a result, the upper tank can be sized at 0.5 million-gallons. The Lower Tank, located at an elevation of 5,545' on the Evans Ranch property, would provide enough storage and pressure to service the remaining lots in Silver Star Ranch (MDD of 571.5 gpm) and Evans Ranch. In addition, 960,000 gallons of fire flow storage (4,000 gpm for 4 hours) for the remaining residential within the Silver Star Ranch will be provide in the lower tank.

There are two potential tank site locations for service to the upper zone of Silver Star Ranch (See Exhibit 6). Upper Tank site Option #1 is located in the Silver Star Ranch just West of the Project. Upper Tank site Options #2 is located in Evans Ranch land on section 1 to the north of the project site. The Lower Tank site Options are located in Evans Ranch. It was determined that the most efficient way to provide service to Silver Star Ranch, and ultimately Evans Ranch was to utilize the two tanks to allow the water to be pumped only to the elevations required to meet pressure requirements. This will be more efficient and cost effective than lifting all of the water to a tank placed at an elevation of 5,700 and using pressure reducing valves to feed back down through multiple pressure zones. Based on the current model it will be necessary to pump approximately 12,500 gallons to an elevation of 5,545 and from that elevation pump 174 gallons per minute to an elevation of 5,700 feet.

An optional interconnection storage tank is shown to connect the Utilities Inc. distribution system to the Evans Ranch/Silver Star Ranch system because potential infrastructure savings could be realized with a conjunctive use operation of the two water systems as indicated on the "City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan – Volume 1".

A 0.4 million gallon effluent storage tank would also be required to provide reclaimed water for irrigation of common areas, assuming the City of Reno would make effluent available to the development. Irrigation service lines would run parallel to the potable water distribution system shown on Exhibit 6.

The "City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan – Volume 1" indicates a potentially available supply capacity of approximately 3,900 gpm and a 2030 build-out MDD of approximately 12,500 gpm when additional resources become available in the future. For the sizing of the conceptual water main system for the Silver Star Ranch, MDD was assumed to be approximately 4,246 gpm - see Exhibit 4.

Geographically, the Evans Ranch Subdivision is separated into four distinct pressure zones. The pressure zones are based on operating pressures between 60 and 100 psi. The pressure zones are located between the following elevations: Pressure zone 1: 5,600' – 5,469', Pressure zone 2: 5,469' – 5,377', Pressure zone 3: 5,377' – 5,284', and Pressure Zone 4: 5,284' – 5,192' (see Exhibit 5). In areas where transmissions main pressures exceed 100 psi, pressure-reducing valves (PRVs) will be required at distribution main connection for each of the pressure zone elevations. The distribution lines required for this project will be 8", 10", 12", and the 30" transmission main. While MDD was used to determine the water network, MDD plus fire flow was used in the sizing of the pipes. Besides a pump station to supply water from the source to the tank, no pump stations will be required for this site. A parallel water main will be run from the Upper Tank Location to either the Evans Ranch Location or the Silver Star Location to service the lots that are located in the highest-pressure zone regardless of the location of the Upper Tank. This will be necessary due to the need of PRVs throughout the project. This is proposed for some of the lots in the northern portion of Evans Ranch as well as the lots located in the Western portion of Silver Star Ranch.

#### 4.5 – WATER PLANNING LIMITATIONS

- All pipes within the proposed development will be sized and constructed to accommodate ultimate build out. Only the MDD scenario, and the MDD with fire flow scenarios were considered for facility planning. These calculations show that the pipe sizes determined will meet NAC and Washoe County Codes with respect to pressure and velocity.

- Only supply and transmission water mains were planned as part of this report. Distribution lines will be determined once final improvement plans become available.
- Once more detailed project design, final improvement plans and additional water supply information become available, the proposed water distribution facilities will have to be further analyzed and refined.
- The supply water main shown on the "City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan- Volume 1" was sized for the 2030 build-out demand. This type of analysis is outside the scope of this report; therefore, for planning purposes, the supply water main was sized for the project site demands only.
- The conceptual water system has been designed assuming the potable water storage tanks are located on private property in both the Evans Ranch and Silver Star Ranch.

## **Section 5 – Conclusion and Recommendations**

There are adequate planned potential water and effluent resources available to meet the estimated demands of the Silver Star Ranch and Evans Ranch developments. This water facility plan demonstrates how potable water supply from known sources could be delivered to the properties. The infrastructure identified in this plan could be modified to accommodate additional sources that may become available in the future.

Potential water supply sources for Silver Star Ranch include the Fish Springs and Intermountain projects and effluent from the Reno-Stead and/or Cold Springs wastewater treatment facilities. Water for the Silver Star Ranch would be pumped to the 4 MG tank located in Evans Ranch and would feed south to the Silver Star Ranch via the existing 30" transmission main while the Upper Tank would feed the upper most zone located within the Silver Star Ranch or Evans Ranch properties. It is recommended that the Upper tank be located in Silver Star Ranch, as this would provide for the shortest parallel main that would be required to service the upper zone located in both Evans Ranch and Silver Star Ranch. The total length of this transmission main would be 11,421' of 12" water main as opposed to 18,162' of 12" water main.

Silver Star Ranch  
City of Reno, NV

Water Facility Plan

POTENTIALLY AVAILABLE FUTURE WATER RESOURCES\*

PROJECT SITE	SUPPLY (AFA)
Utilities Inc. Groundwater	987
Fish Springs Water Supply Project	8,000
Intermountain Water Supply Project	2,000
<b>Total</b>	<b>10,987</b>

\*According to the "City of Reno TMSA/FSA Water, Wastewater and Flood Management Facility Plan- Volume 1".

COPY

Silver Star Ranch  
City of Reno, NV

Water Facility Plan

**RESIDENTIAL RECLAIMED IRRIGATION DEMAND RANGE**

AREA	RESIDENTIAL IRRIGATION DEMAND RANGE (AFA)
Silver Star Ranch	175-200
Total	175-200

\*According to TMWAs rule 7

A summary of the estimated water demand for Silver Star Ranch is listed below:

**ESTIMATED WATER DEMAND TOTALS\***

PROJECT SITE	DEMAND (AFA)
Silver Star Ranch Planned Unit Development	449
Total	449

\*Numbers are approximate. See Exhibit 4 for detailed water demand calculation.

The conceptual water system infrastructure and approximate conceptual level costs for the Silver Star:

**OFF-SITE SUPPLY INFRASTRUCTURE  
SOURCE: FISH SPRINGS TANK**

FACILITY	QUANTITY	TOTAL COST (\$M)
Approx. Length of Supply Main	26,150 LF	2.6
Pump Stations	1	0.7
<b>TOTAL</b>		<b>3.3</b>

**OFF-SITE SUPPLY INFRASTRUCTURE  
SOURCE: INTERMOUNTAIN TANK**

FACILITY	QUANTITY	TOTAL COST (\$M)
Approx. Length of Supply Main	13,600 LF	1.4
Pump Stations	1	0.7
<b>TOTAL</b>		<b>2.1</b>

**SILVER STAR RANCH PLANNED UNIT DEVELOPMENT**

FACILITY	QUANTITY	TOTAL COST (\$M)
Approx. Length of Transmission Main	25,000 LF	2.5
0.5 MG Potable Water Storage Tank	1	0.5
Pump Station	1	0.6
<b>TOTAL</b>		<b>3.6</b>

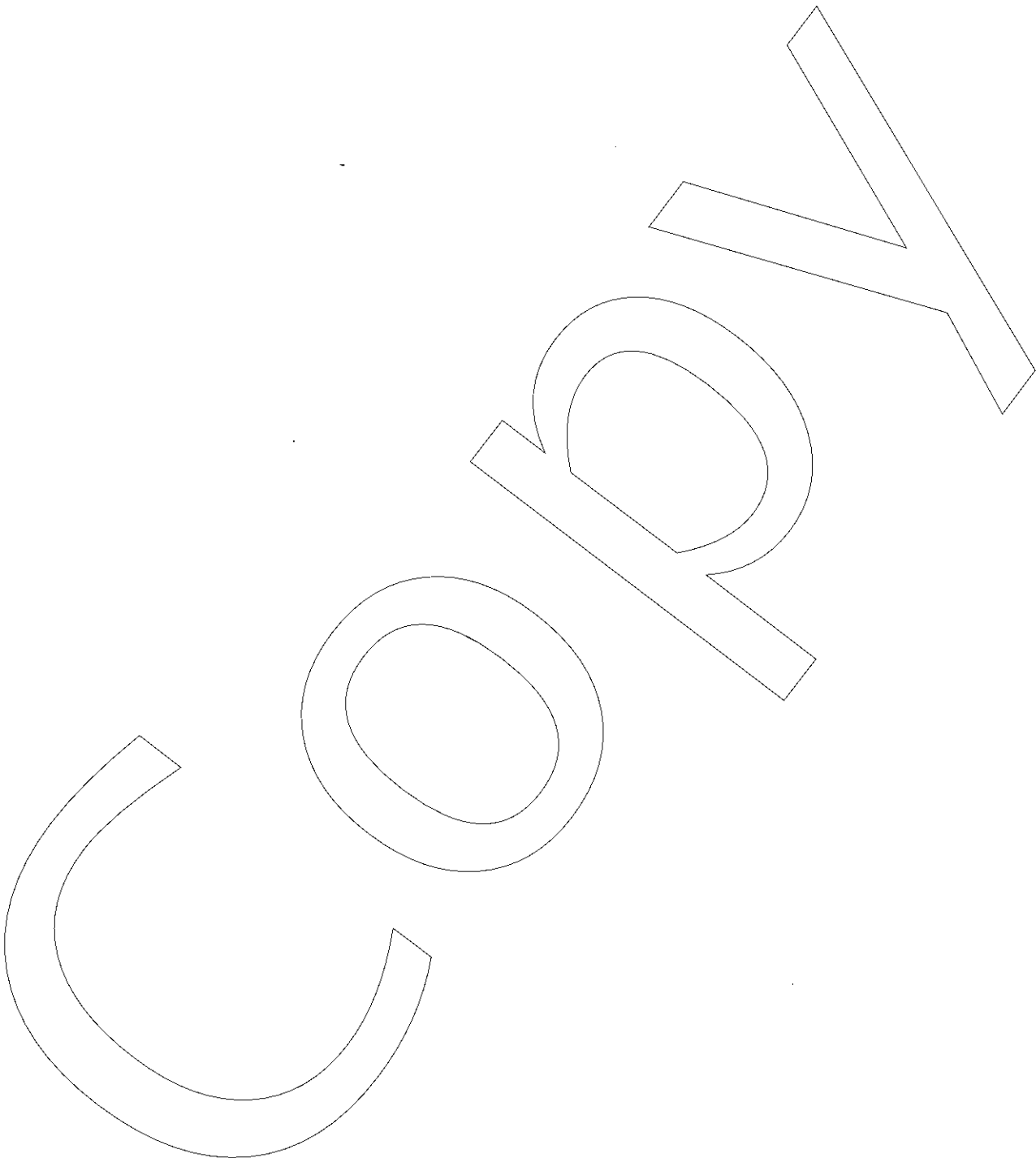
**INTERCONNECTION SYSTEM**

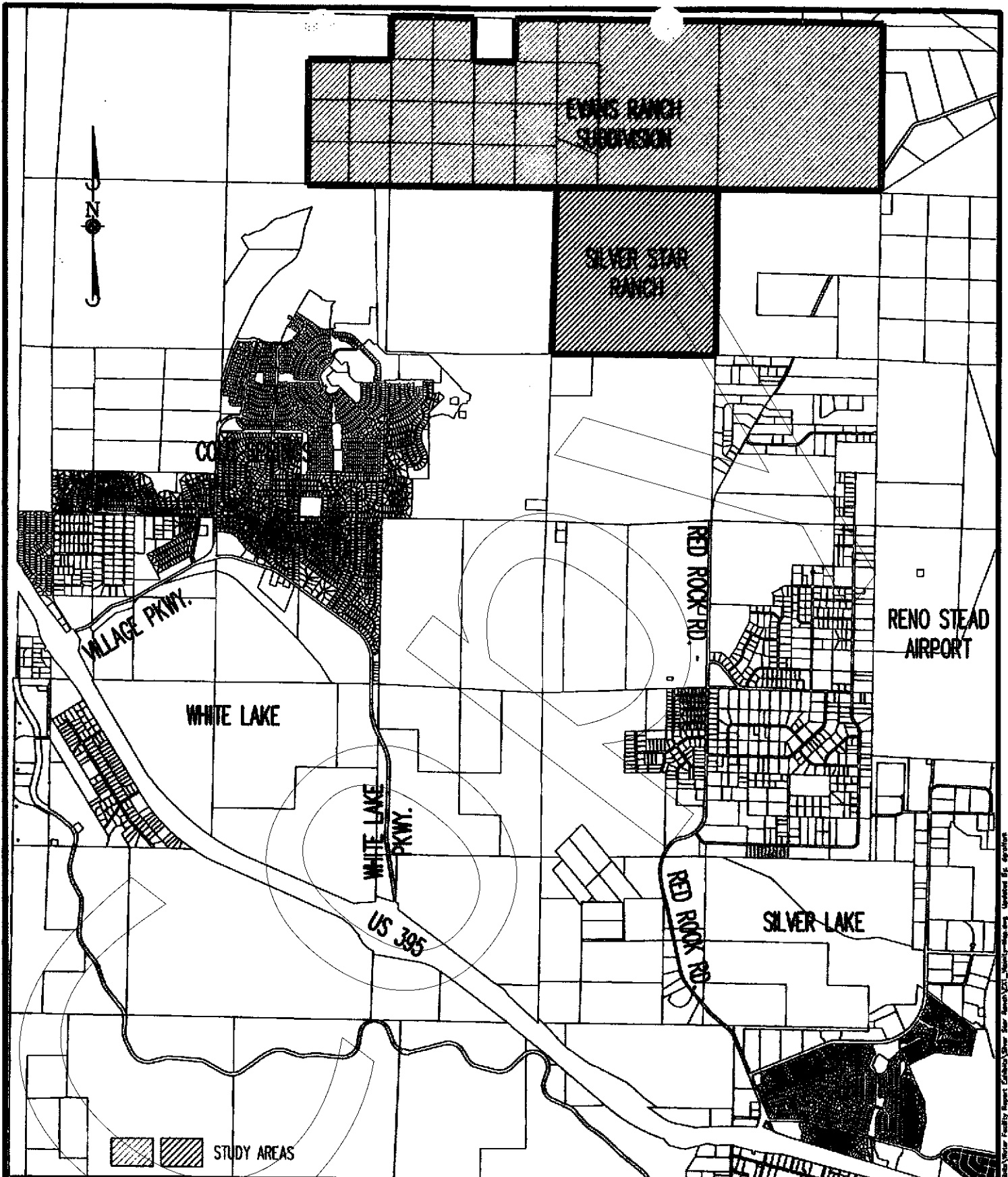
FACILITY	QUANTITY	TOTAL COST (\$M)
Total Length of Transmission Main	15,000 LF	1.5
1MG Potable Water Storage Tank	1	1.0
Pump Station	1	0.7
<b>TOTAL</b>		<b>3.2</b>

*Silver Star Ranch  
City of Reno, NV*

*Water Facility Plan*

**In summary, Silver Star Ranch is estimated to have a cumulative water demand of 449 AFA. Evans Ranch will have a cumulative water demand of 2,310 AFA. Known available water supply sources, including effluent reuse, total between 11,587 and 12,190 AFA.**

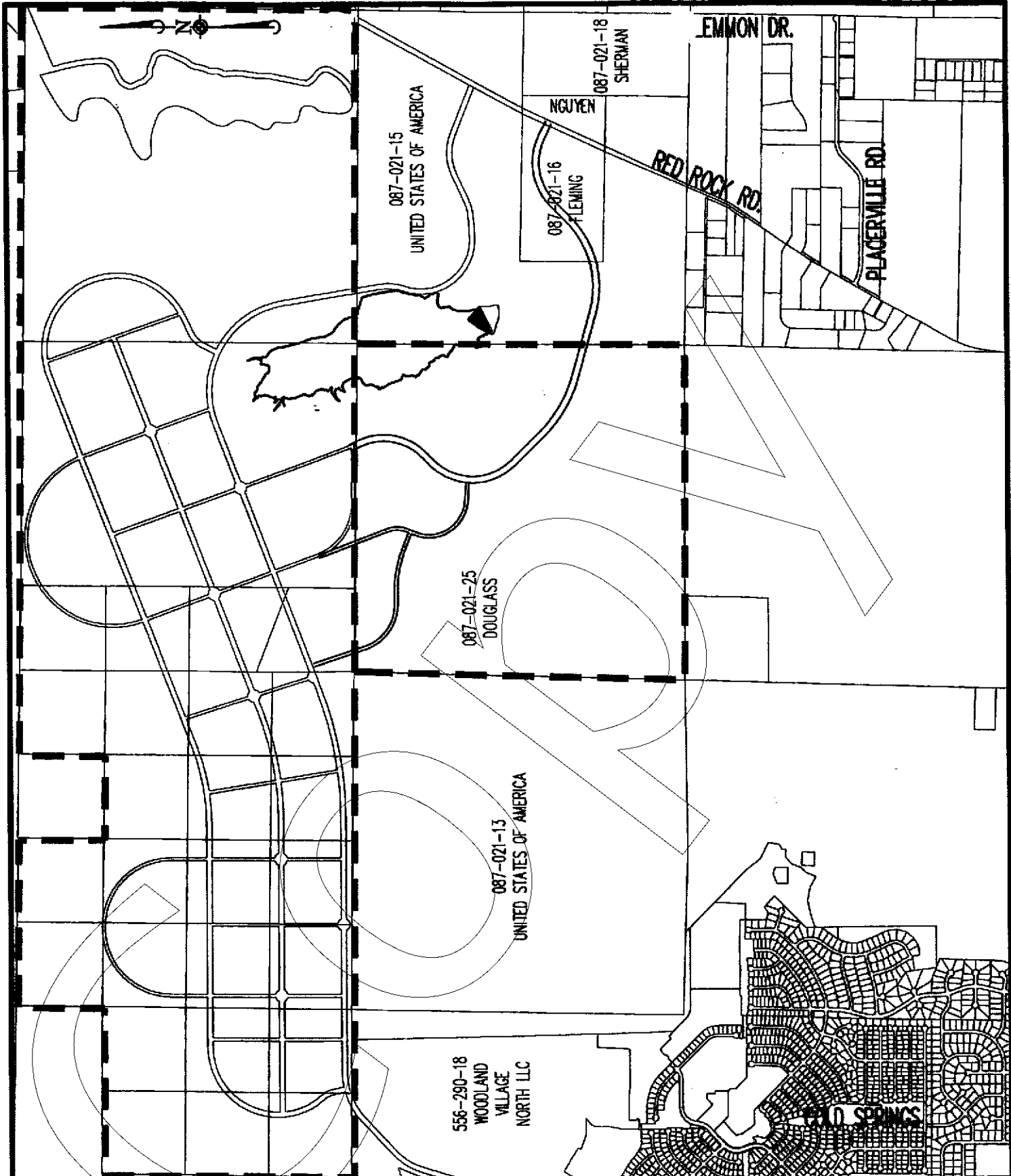




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<b>SILVER STAR RANCH SUBDIVISIONS</b>	
<b>CITY OF RENO, NEVADA</b>	
<b>STUDY AREAS</b>	
PROJ. MGR.: <b>MAR</b>	SHEET
DRAWN BY: <b>DBG</b>	<b>EXHIBIT 1</b>
DATE: <b>DEC. 2008</b>	<b>DDREN</b>
SCALE: <b>1"=4000'</b>	<b>61192</b>

Proj Name: P:\Manhard\City\Projects\Water\Health\Report\Exhibit\Silver Star Ranch\GIS\StudyAreas.mxd Operator: J.S. April 10/10



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SILVER STAR RANCH SUBDIVISION

CITY OF RENO, NEVADA

SILVER STAR - OVERALL SITEPLAN

PROJ. MGR.: MAR

SHEET

DRAWN BY: DRG

## EXHIBIT

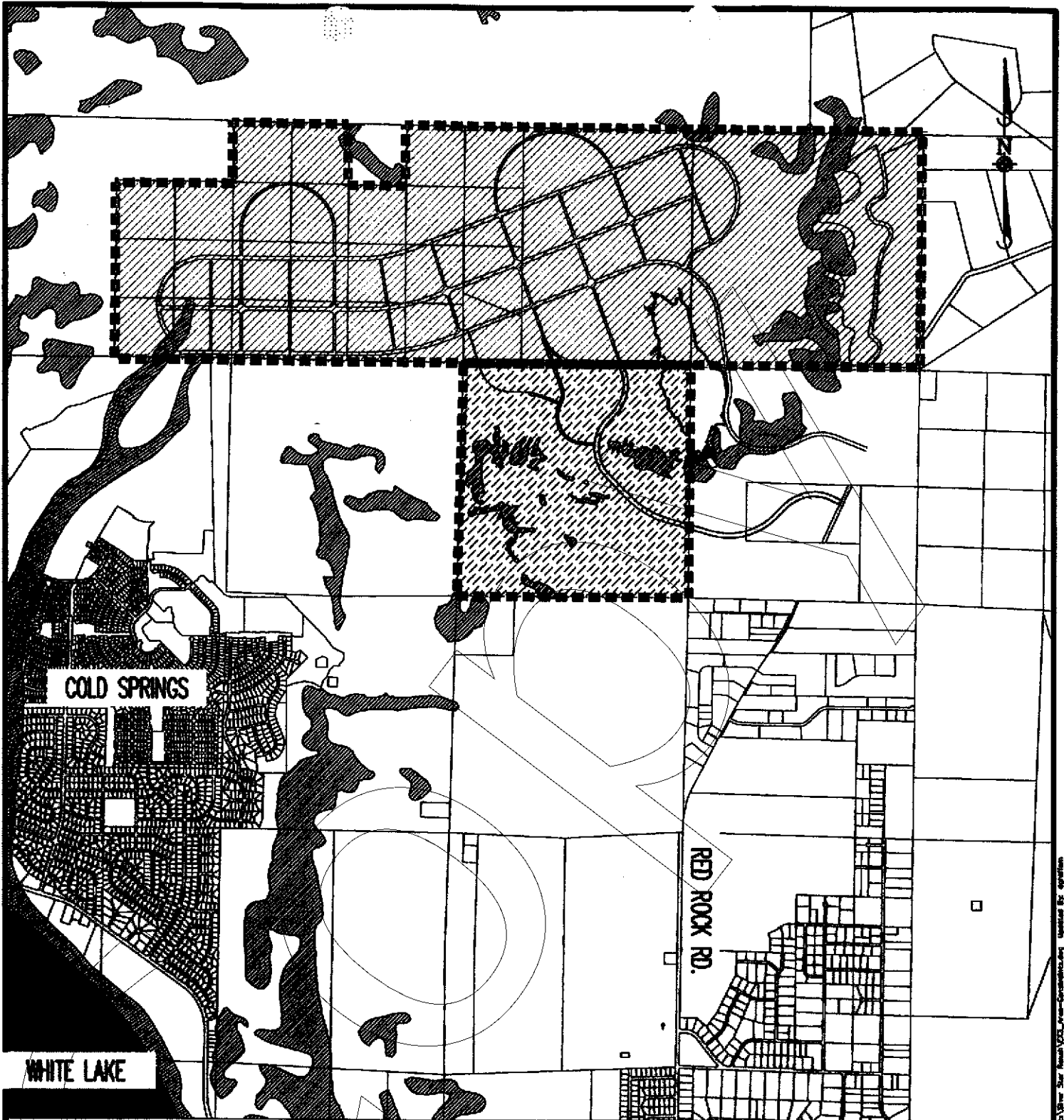
## 2

DATE: DEC. 2008

BTREN

61192

SCALE: 1"=2000'



**LEGEND:**

- EVANS RANCH SUBDIVISION
- SILVER STAR RANCH
- 100-YEAR FLOOD PLAIN ZONES
- WATER BODIES
- SLOPES > 30%

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**SILVER STAR RANCH SUBDIVISIONS**  
**CITY OF RENO, NEVADA**  
**AREA CONSTRAINTS**

PROJ. MGR.: <u>  MAR  </u>	SHEET
DRAWN BY: <u>  DRG  </u>	<b>EXHIBIT</b>
DATE: <u>  DEC. 08  </u>	<b>3</b>
SCALE: <u>  1"=4000'  </u>	<b>DDREN 061192</b>

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### EXHIBIT 4

## SILVER STAR RANCH PLANNED UNIT DEVELOPMENT

**DOMESTIC:**

LOT TYPE	UNITS	LOT WIDTH [ft]	LOT DEPTH [ft]	AREA [acres]	ADD [AFA/unit]	ADD [gpm/unit]	TOTAL ADD [AFA]	TOTAL ADD [gpm]	TOTAL MDD [gpm]	TOTAL PHD [gpm]
Very Low Residential	55	100	300	38	0.70	0.43	39	24	60	90
Low Residential	5	200	500	11	0.83	0.51	4	3	6	10
Low Residential	80	120	100	22	0.52	0.32	42	26	64	97
Medium Residential	1,140	50	100	131	0.32	0.20	365	226	565	848
Townhomes	320	N/A	N/A	27	0.12	0.07	38	24	60	89
<b>TOTALS</b>	<b>1,800</b>			<b>202</b>			<b>449</b>	<b>279</b>	<b>696</b>	<b>1,044</b>

	TOTAL ADD [AFA]	TOTAL MDD [gpm]	TOTAL PHD [gpm]
<b>SUBDIVISION TOTAL</b>	<b>449</b>	<b>696</b>	<b>1,044</b>

### SILVER STAR RANCH UNIT DEVELOPMENT POTABLE WATER TANK SIZING

STORAGE	VOLUME (MG)
Operating	0.2
Emergency	0.4
Fire	1.0
<b>TOTAL</b>	<b>1.5</b>

**IRRIGATION DEMAND**

**SILVER STAR RANCH RESIDENTIAL IRRIGATION DEMAND**

LOT TYPE	UNITS	ADD* [gpm/unit]	TOTAL ADD [gpm]	TOTAL ADD [AFA]
Very Low Residential	55	0.29	16.2	26.1
Low Residential	5	0.37	1.9	3.0
Low Residential	80	0.18	14.6	23.5
Medium Residential	1,140	0.06	66.6	107.4
Townhomes	320	0.03	9.6	15.5
<b>TOTALS</b>	<b>1,600</b>	<b>-</b>	<b>109</b>	<b>176</b>

Silver Star Ranch Residential Irrigation Demands could be removed from the overall potable demand in the event that effluent reuse was utilized for residential irrigation.

**SILVER STAR RANCH COMMON AREAS IRRIGATION DEMAND**

LOT TYPE	ACRES	ADD [AFA/acre]	TOTAL ADD [AFA]	TOTAL MDD [gpm]
Parks	14	3.5	24	37
Roadway Landscaping	16	3.5	27	42
Open Space	20	3.5	34	53
<b>TOTALS</b>	<b>50</b>	<b>-</b>	<b>85</b>	<b>132</b>

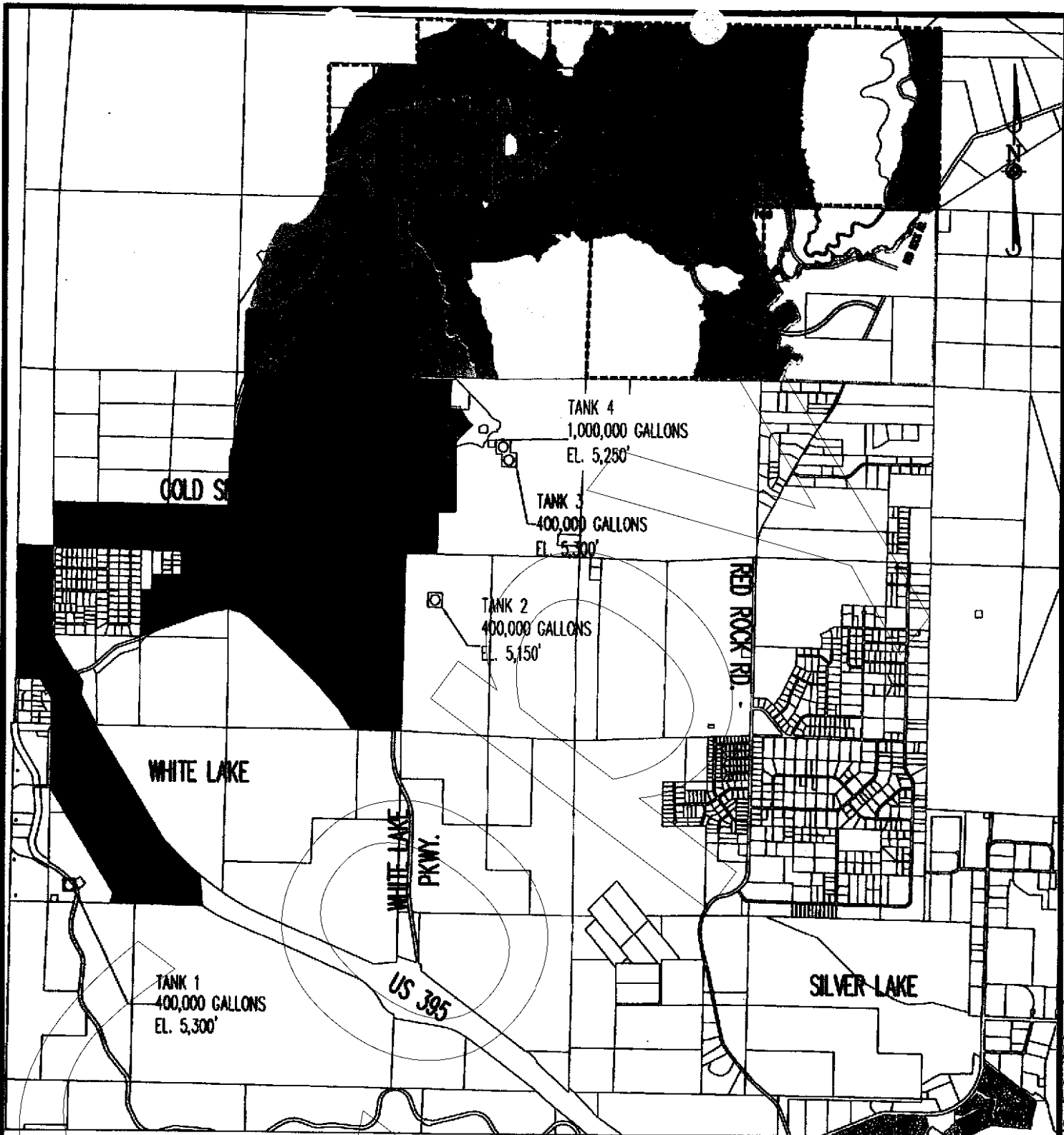
Common Areas would be irrigated with treated effluent therefore demand totals are not included in the potable supply calculations.

**Required Effluent Storage Tank Volume for Common Area Irrigation = MDD for 48 hours = 6.4 MG**

**ASSUMPTIONS:**

Open Space acreage is based on 10% of project open space requiring irrigation.

3905331 Page 174 of 201 - 07/27/2010 01:53:40



<b>LEGEND:</b>	EVANS RANCH ZONE VII 5,700' - 5,469'	FUTURE ZONE VII	UTILITIES INC. ZONE I	UTILITIES INC. ZONE IV
	EVANS RANCH ZONE VI 5,469' - 5,376'	FUTURE ZONE VI	UTILITIES INC. ZONE II	
	EVANS RANCH ZONE V 5,376' - 5,284'	FUTURE ZONE V	UTILITIES INC. ZONE III	PROJECT AREAS

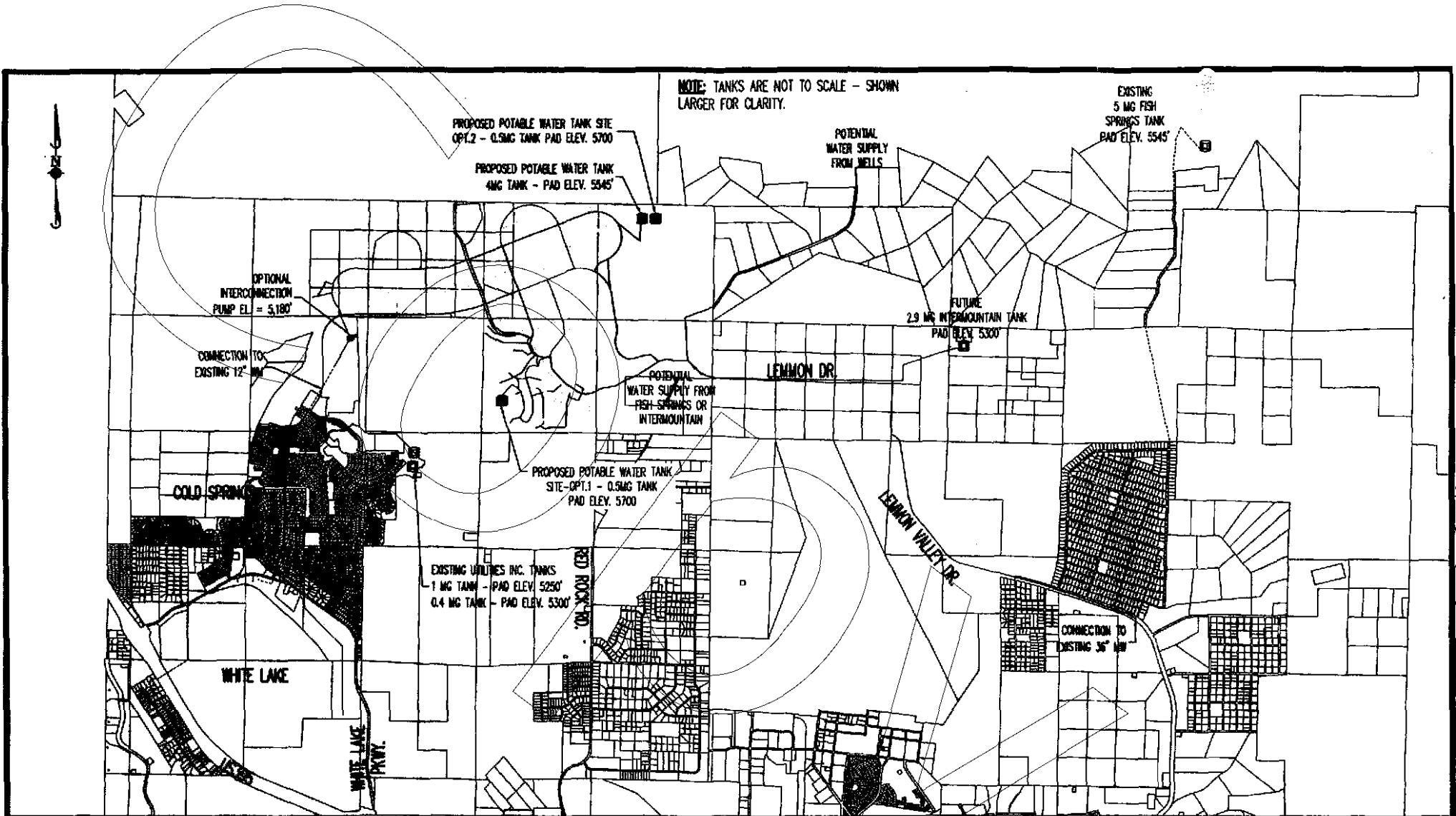
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**SILVER STAR SUBDIVISION**  
**CITY OF RENO, NEVADA**  
**PRESSURE ZONES**

PROJ. MGR.: <b>MAR</b>	SHEET
DRAWN BY: <b>DRG</b>	<b>EXHIBIT 5</b>
DATE: <b>DEC. 2008</b>	<b>DDREN</b>
SCALE: <b>1"=4000'</b>	<b>61192</b>

City of Reno, Silver Star Subdivision, Water Facility Report, Exhibit 5, Silver Star Subdivision, Pressure Zones, 12/1/08, 11:53 AM, 175 of 201



NOTE: TANKS ARE NOT TO SCALE - SHOWN LARGER FOR CLARITY.

LEGEND

-----	EXISTING 6" WATER MAIN	-----	PROPOSED 8" WATER MAIN	-----	PROPOSED 16" WATER MAIN
-----	EXISTING 12" WATER MAIN	-----	PROPOSED 10" WATER MAIN	-----	PROPOSED 18" WATER MAIN
-----	EXISTING 14" WATER MAIN	-----	PROPOSED 12" WATER MAIN	-----	PROPOSED 30" WATER MAIN
-----	EXISTING 36" WATER MAIN				

EXHIBIT 6

SILVER STAR RANCH SUBDIVISION  
CITY OF RENO, NEVADA  
OVERALL WATER FACILITY PLAN

DATE	REVISIONS	DRAWN BY	CHECK BY



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DRG	DEC. 2008	1" = 4000'	DDREN	061192

RENO, NEVADA 89503



# SILVER STAR RANCH

## Planned Unit Development Handbook

Reno, Nevada



### Appendix C – Sewer Facilities Study

# WASTEWATER FACILITY REPORT

FOR

# SILVER STAR RANCH

CITY OF RENO, NEVADA

February 2009

PREPARED FOR:

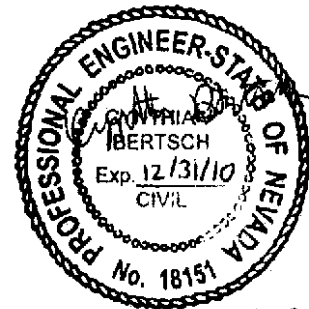
Daniel Douglass

1150 Selmi Drive Suite 501

Reno, NV 89512

PREPARED BY:

ECO:LOGIC Engineering



2-2-2009

## PURPOSE

The purpose of this facility plan is to project wastewater flows, and establish the backbone facilities required for collection, treatment, and disposal of wastewater for Silver Star Ranch.

The potential exists for a coordinated wastewater treatment and disposal strategy with the planned Evans Ranch development, located north of Silver Star Ranch. Because the developments are independent of one another, and the timing of one project may not be appropriate for the other, independent wastewater facility plans were prepared for each area.

## DESIGN FLOWS

The design flows are based on land use data from the developer. The proposed land use is listed in Table 1.

Table 1 - Equivalent Residential Units (a)

	Dwelling Units (ERUs)
Silver Star Ranch	1,600

(a) Data provided from developer.

Projected wastewater flows for the treatment facility and interceptors are based on the criteria listed in Table 2. The wastewater flow factor for the Cold Springs area was assumed from the 2007 Washoe County 208 Water Quality Management Plan. The flow factor ranged from a low of 110 gallons per capita per day (gpcd) to 130 gpcd. An average of 120 gpcd was used for flow projection. During predesign, this flow factor may be modified to the flow factor used to design the existing Cold Springs wastewater treatment facility.

Table 2 - Wastewater Design Criteria

<b>Treatment facility Flow</b>		
Residential flow rate	120	Gpcd
Capita per dwelling unit	2.19	capita/DU
<b>Interceptor/Forcemain Criteria</b>		
Residential flow rate	120 gpcd, 1.5 PF	Gpcd
Infiltration and Inflow	add 10% of average flow	Gpd

The projected wastewater flows are listed in Table 3.

Table 3 - Wastewater Flows

	Treatment facility Flow (MGD)	Interceptor Flow (MGD)
Silver Star Ranch	0.42	0.7

## **COLLECTION SYSTEM**

Recommendations for backbone wastewater collection facilities were developed for the projected flows and are shown on Exhibit 1. Several lift stations will be required to pump wastewater to the existing Cold Springs Water Reclamation Facility (CSWRF). The locations of the recommended facilities are approximate and should be refined when more detailed development plans are available.

Gravity interceptors were sized based on the City's criteria that the depth of flow in the pipe needs to be less than or equal to 0.5 d/D. Force mains were sized to keep peak flow velocities less than 8 fps. Portions of the gravity interceptors and force mains may also need to meet County standards.

## **WASTEWATER TREATMENT**

Wastewater treatment for the Project may be provided through an expansion of Washoe County's Cold Springs Water Reclamation Facility.

CSWRF is located as shown on Exhibit 1. The facility was recently upgraded to accommodate an annual average design flow of 0.7 MGD. The upgraded facilities consist of the following treatment processes:

- Influent Pump Station
- Headworks with mechanical fine screen basket screens and vortex grit removal
- Oxidation Ditch with Secondary Clarifiers
- Effluent Pump Station
- Aerobic Digesters
- Solids Handling Building with Centrifuge Dewatering

The facility discharges undisinfected secondary effluent to 12 rapid infiltration basins (RIBs) located adjacent to the treatment facility. The major components of the next phase of expansion involves the construction of a second oxidation ditch, solids handling improvements, and standby power. This phase would increase the treatment capacity to 1.2 MGD, which would provide enough capacity for Silver Star Ranch. Washoe County indicates that the current RIB disposal facilities can accommodate flows up to 1.3 MGD.

The capacity of the 0.7 to 1.2 MGD expansion is available on a first-come, first-served basis. Several existing and/or planned developments in the Cold Springs area are proposed to be served by the Cold Springs Water Reclamation Facility. Furthermore, based on the City of Reno TMSA/FSA Water, Wastewater, and Flood Management Facility Plan, water reclamation at CSWRF is recommended to provide additional water resources for the Cold Springs area and to efficiently utilize the treated effluent that will be produced. Water reclamation would require additional tertiary level treatment improvements including new filtration and disinfection facilities. Tertiary filtration could be achieved through the use of cloth media filters with rapid mix and flocculation basins. Disinfection would include a chlorine contact basin and associated



chemical feed facilities. Selection of the tertiary treatment processes (filtration and disinfection) would ultimately be selected by Washoe County.

For the purposes of this analysis facility expansion for water reclamation is anticipated to include the following elements:

- New tertiary filters (assumed Cloth Media Filters)
- New Chlorine Contact Basin
- New Chemical Feed and Storage Facilities for Sodium Hypochlorite, and Filter coagulants and polymers

As an alternative to expanding the existing treatment processes, a new membrane bioreactor (MBR) with ultraviolet (UV) disinfection could be constructed adjacent to the existing facilities to provide the necessary capacity with tertiary treatment. The MBR process submerges filter membranes in a reactor basin and eliminates the need for secondary clarifiers. This facility would be a stand alone facility adjacent to the existing treatment facilities. Any modifications to the existing process would need to be approved by Washoe County.

Alternatively, a new stand alone treatment facility could also be constructed off-site and dedicated to the County. Potential sites for a second water reclamation facility are shown in the City of Reno TMSA/FSA Water, Wastewater, and Flood Management Facility Plan (June 2007). A more detailed study of the stand alone treatment facility would be necessary to determine if it is more preferable than expanding the current CSWRF. Final design information and regulatory approval by the Nevada Division of Environment Protection and the County will be needed to determine the appropriate treatment alternative.

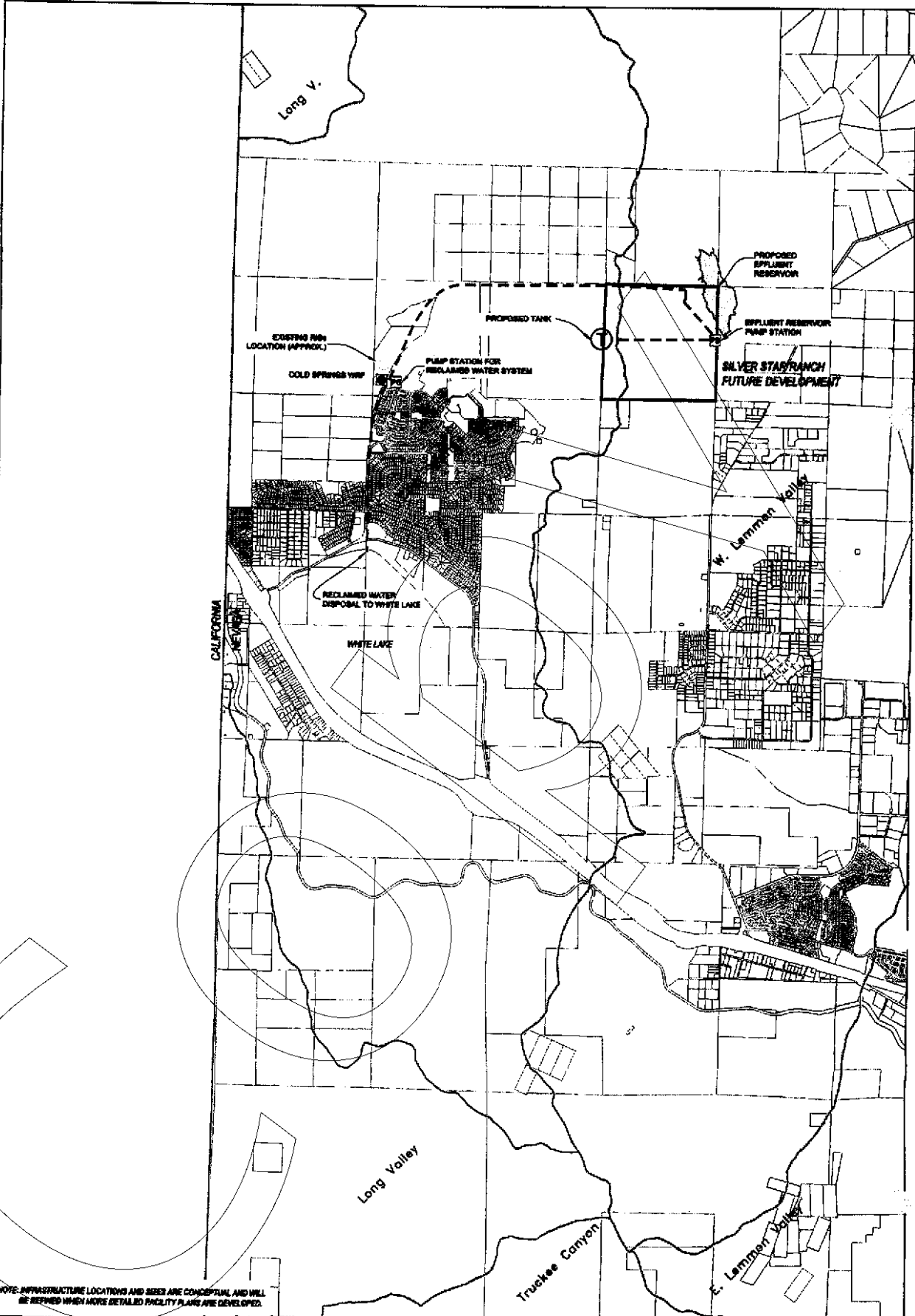
## **EFFLUENT DISPOSAL**

Presently, wastewater is disposed of through the CSWRF rapid infiltration basins. The potential disposal capacity of the RIBs is limited to 1.3 MGD. In addition to the existing RIBs, other possible disposal methods include water reclamation for landscape irrigation within the new developments with seasonal effluent storage in a proposed storage reservoir, and discharge to White Lake. These disposal methods are discussed below. Any effluent disposal method beyond the current RIBs requires Washoe County approval as to the type disposal and the necessary facilities.

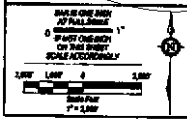
## **RECLAIMED WATER SYSTEM**

Based on the projected 0.4 MGD wastewater flows, up to 447 acre feet of reclaimed water will be generated. A reclaimed water system is proposed to be constructed through the new development for landscape irrigation. Reclaimed water pipelines to the development are shown on Exhibit 2. The reclaimed water would be pumped from the CSWRF to various areas of use and to the proposed effluent storage reservoir. Additional distribution pipes within the developments will also be required. The reclaimed water system may be designed for on-demand use, or water from the storage reservoir may be used to help meet peak seasonal demands.

HA\Projects\3905331\3905331-01\_SilverStar\EXHIBIT\_2.dwg  
 Date: 2010 - 07/27



NOTE: INFRASTRUCTURE LOCATIONS AND SIZES ARE CONCEPTUAL AND WILL BE REFINED WHEN MORE DETAILED FACILITY PLANS ARE DEVELOPED.



LEGEND	
	PUMP STATION
	WATER RECLAMATION FACILITY
	HYDROBASIN BOUNDARY
	FUTURE PIPELINE

**SILVER STAR RANCH - EXHIBIT 2**  
 PLANNED RECLAIMED WATER & DISPOSAL FACILITIES  
 CITY OF BEND, NEVADA

<b>ECO:LOGIC</b>	DATE: 2010	BY: [Signature]	SCALE: 1" = 200'	PROJECT: [Signature]	DATE: 2010
<small>3905331-01</small>	<small>2010</small>	<small>2010</small>	<small>2010</small>	<small>2010</small>	<small>2010</small>

Regional reclaimed water facilities are not shown in this Facility Plan. The City of Reno TMSA/FSA Water, Wastewater, and Flood Management Facility Plan presents the North Valleys regional reclaimed water system that is under investigation by the City of Reno, City of Sparks, and Washoe County.

During the non-irrigation season, the effluent may be disposed of in the RIBs, to White Lake or stored in the proposed effluent reservoir for later use.

#### **EFFLUENT RESERVOIR**

A proposed storm water retention/effluent storage reservoir may be constructed on the property as shown on Exhibit 2. The reservoir could store effluent during the non irrigation season to support peak irrigation demands in the reclaimed water system. Some effluent would also be disposed of by evaporation from the reservoir. Geotechnical investigations have been conducted that confirm the feasibility of the reservoir at this site. This information is presented in the Preliminary Design And Feasibility Report, North Valley Dam, SRK Consulting, March 2007. Detailed design is required to determine the capacity of the reservoir, which could provide up to 2,000 - 3,000 acre feet of storage.

#### **WHITE LAKE DISPOSAL**

As part of a regional effluent management strategy for the Stead, Lemmon Valley and Cold Springs area, the City of Reno and Washoe County are working with landowners to determine the quantity of reclaimed water that can be disposed of to the White Lake playa. Water would be discharged from CSWRF to White Lake similar to how the Reno Stead Water Reclamation Facility currently discharges to Swan Lake in Stead. The water would be evaporated from the lake and would not be reused once discharged to the playa.

#### **WASTEWATER FACILITY COST ESTIMATES**

The cost basis for the wastewater facilities is listed in the Table 4.

Table 4 - Wastewater Cost Basis

Pipeline	\$12/lnLF
Wastewater Lift Station	\$250,000+1.0*average daily flow (gpd)
Reclaimed Water Pump Station	\$250,000+1.0*average daily flow (gpd)
Engineering	20% of capital cost
Contingency	20% of capital cost

The wastewater infrastructure costs are summarized in Table 5. The costs are based on wastewater being conveyed and treated at the existing CSWRF.

Table 5 - Estimated Wastewater Infrastructure Costs (a)

Facility Description	Total Cost (\$M)
<b>Collection System</b>	
5,610 feet of 6-inch forcemain	\$0.6
4,580 feet of 8-inch pipe	\$0.6
13,220 feet of 10-inch pipe	\$2.3
2 Lift Stations	\$2.3
<b>Treatment (b)</b>	
<b>\$7.2</b>	
<b>Reclaimed Water Distribution System</b>	
30,900 feet of 8-inch reclaimed water forcemain	\$3.2
2 Lift Stations	\$0.9
<b>Total</b>	<b>\$17.1</b>

(a) 20 Cities ENRCCI = 8,602 November 2006.

(b) Treatment cost basis shown in Table A-1 in Appendix A.

(c) Regional costs such as the storage reservoir are not included. Tank costs not shown.

The reclaimed water and disposal cost does not include costs for shared regional facilities

#### WASTEWATER CONCLUSIONS

This plan demonstrates that adequate wastewater service could be provided to the Silver Star Ranch. The existing CSWRF could be expanded to meet the estimated 0.4 MGD of flow that may be generated by the proposed project. Alternatively, a new stand alone treatment facility could be constructed. The reclaimed water is proposed to be reused on-site, disposed of by RIBs and/or discharged to White Lake. Based on final design information and regulatory approvals, construction of the proposed infrastructure identified in this plan will assure an adequate system to handle the projected wastewater flows. Any proposal for expansion of the CSWRF would require approval from Washoe County and meet all Washoe County design requirements.

The potential exists for a coordinated wastewater treatment and disposal strategy with the planned Evans Ranch development, located north of Silver Star Ranch. Because the developments are independent of one another, and the timing of one project may not be appropriate for the other, independent wastewater facility plans were prepared for each area.

Table A-1 Capital Cost for CSWRF Expansion from 0.7 MGD to 1.2 mgd

Component	Cost, \$ M
Oxidation Ditch	1.4
Solids Handling Facilities	0.7
Tertiary Filters	0.5
Chlorine Contact Basin	0.3
Chemical Feed Facilities	0.3
Generator	0.1
Subtotal	3.3
Yard Structures (10%)	0.3
Yard Piping/Sitework (10%)	0.3
Subtotal	4.0
Electrical (25%)	1.0
Subtotal	5.0
Contingency (20%)	1.0
Total Construction Cost	6.0
Engineering, Admin, CM (20%)	1.2
Total Project Cost	7.2

# SILVER STAR RANCH

## Planned Unit Development Handbook

Reno, Nevada



Appendix D – Drainage Letter



# Manhard™

CONSULTING LTD

**DRAINAGE LETTER**

**FOR**

**SILVER STAR RANCH**

**CITY OF RENO, NEVADA**

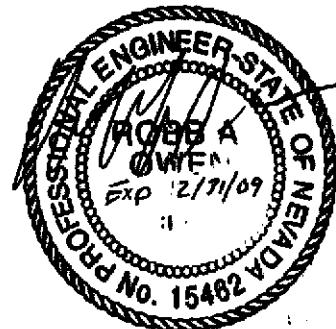
February/2009

Prepared for:

Dan Douglass  
1150 Selmi Drive #501  
Reno, NV 89512

Prepared by:

Manhard Consulting Ltd.  
9850 Double R Boulevard  
Suite 101  
Reno, Nevada 89521



2/5/09

*Silver Star Ranch Subdivision  
City of Reno, NV*

*Drainage Letter*

### **Introduction**

This drainage report has been prepared at the request of Dan Douglass to present a conceptual drainage study for the Silver Star Ranch Subdivision. The Silver Star Ranch Subdivision site is generally located north of US Highway 395, and west of Red Rock Road, in Township 21N, Range 18E, Section 11 (See Exhibit 1-Study Area), parcel 087-021-25, and is within the jurisdiction of the City of Reno.

The Silver Star Ranch Subdivision is a proposed development of roughly 430 developed acres on a total site area of approximately 633 acres. The site is divided into eight major drainage subbasins by several existing ridges. The development slopes range from very steep to relatively flat. The existing groundcover consists of mostly sagebrush, rabbit brush, and buck brush with some trees.

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community-Panel Number 32031C2800E, effective date September 30, 1994 (see attached), the proposed Silver Star Ranch Subdivision is located within Zone X. Zone 'X' is described as an area determined to be outside of the 500-year floodplain; therefore, no improvements are proposed within a flood way.

Based on the existing aerial topography, no off-site drainage enters the site. The majority of the on-site runoff flows to north and northeast via existing drainage swales and sheet flow. The proposed development will continue to route this runoff, generally in the same direction, through the site in some manner in the project's developed state.

The proposed Silver Star Ranch will apply the Truckee Meadows Low Impact Development (LID) policies, which purpose is to reduce quantity and improve the quality of storm water runoff from a proposed development.

### **Detention**

Silver Star Ranch is divided into 11 major on-site drainage subbasins by existing ridges through the site. The majority of the site drains north and east eventually reaching an existing off-site drainage way, which crosses Red Rock road. Detention areas will need to be provided for the drainage areas at the downstream end of each area. The general locations of these detention basins are shown on the attached Proposed Drainage Map.

The proposed detention areas can be used as extended detention basins as described in the LID Handbook. Extended detention basins are designed to retain the volume of storm water runoff from frequently occurring storm events. These basins will incorporate riser pipes or other outlet structures to retain storm water from less frequent storm events. These detention basins will be compromised of two areas. A smaller area to serve only as retention for frequent storm events and a larger area that will serve as detention for less frequent storm events that can also be used as a park, open space, or other landscaped recreation areas.

To further minimize the detention area size many other methods can be utilized. Infiltration systems can allow storm water to enter the ground slowly reducing the total required detention over a period of time. These infiltration systems can also be very effective in filtering the storm water and removing pollutants. Infiltration of the storm waters can also

*Silver Star Ranch Subdivision  
City of Reno, NV*

*Drainage Letter*

help ground water recharge. Improvements to the drainage ways through the site can also help minimize the required detention volume.

### **Drainage Ways**

There are no existing major drainageways on the Silver Star Ranch site as defined by the City of Reno Code Section 18.12.1903(a).

The attached Conceptual Proposed Drainage Map (Figure 1 of 2) shows existing minor drainage ways and potential landscaped drainage ways to convey storm water through the site. The locations of the landscaped drainage ways are preliminary and based on the existing on-site topography. The intention of the plan is to perpetuate the existing minor drainage ways through the site until they reach the landscaped drainage ways. A balance of existing minor drainage ways and landscaped drainage ways may be utilized to protect the existing features of the land while improving channel flows and water quality.

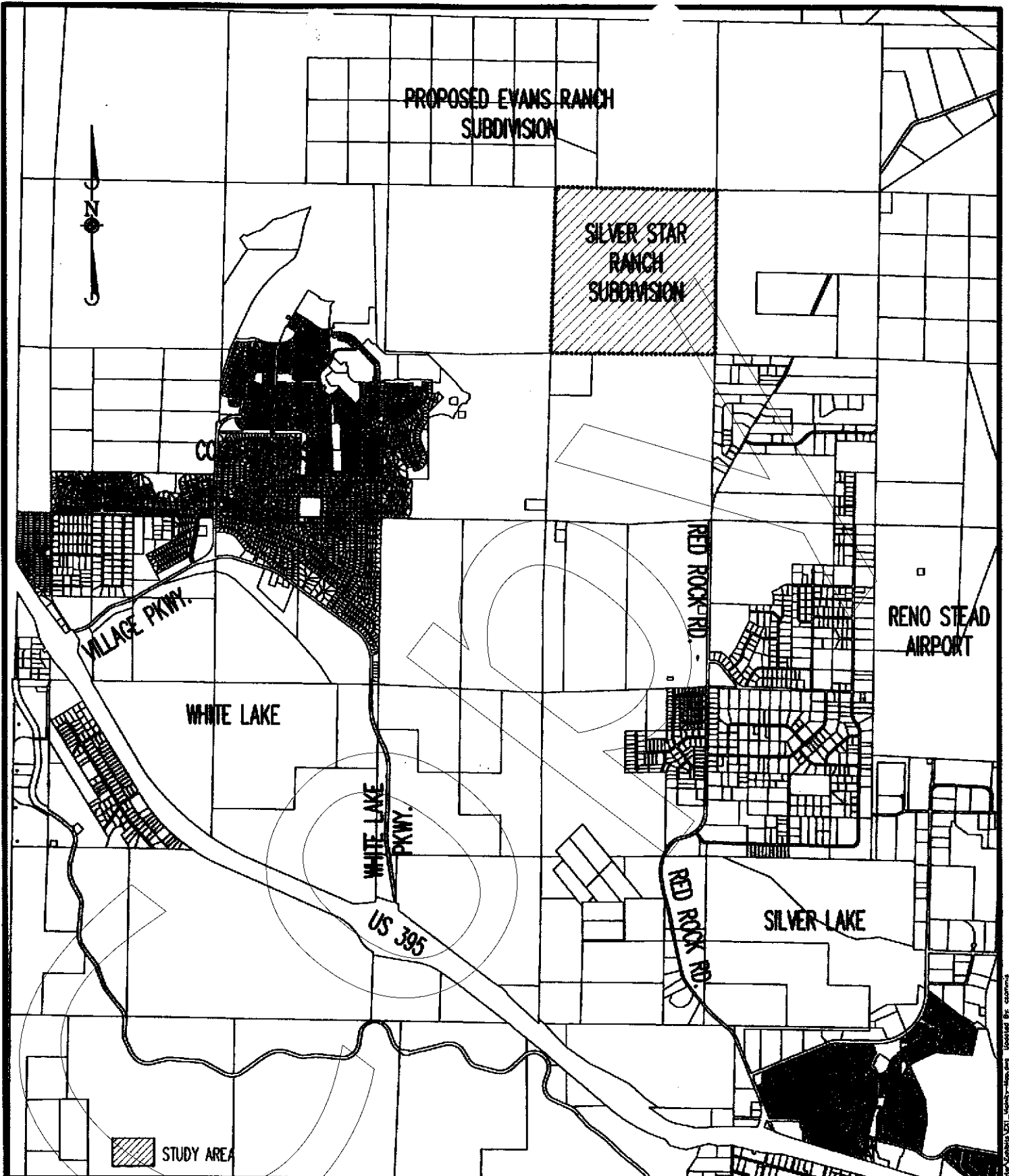
The landscaped drainage ways shown on the Conceptual Proposed Drainage Map will take storm water runoff from existing minor channels and re-route it through the proposed development. The existing minor channels will be improved, as necessary, to lessen impact to the proposed land plan as well as improving water quality of runoff and decreasing channel flows.

The landscaped drainage ways can also be designed with a smaller channel within to route the runoff from frequent storm events. The smaller channels will carry the runoff from more frequent storms through a meandering low flow channel. These low flow swales within the drainage ways can also be detained in stages through the channels using a system of check dams. This system will create areas of the landscaped drainage ways that can serve as landscaped areas, pathways, or other open space areas. Examples showing check dams and a landscaped drainage way cross section are shown on the Drainage Way Details (Figure 2 of 2).

Many storm water management methods can be used in the landscaped drainage ways to improve water quality and decrease flows which will result in less required detention downstream. Bioretention can be utilized as landscaped areas that can be created throughout the drainage ways to capture storm water and remove pollutants from runoff through soils and plant materials. These landscaped areas can also provide infiltration to lessen the runoff downstream.

### **Conclusions**

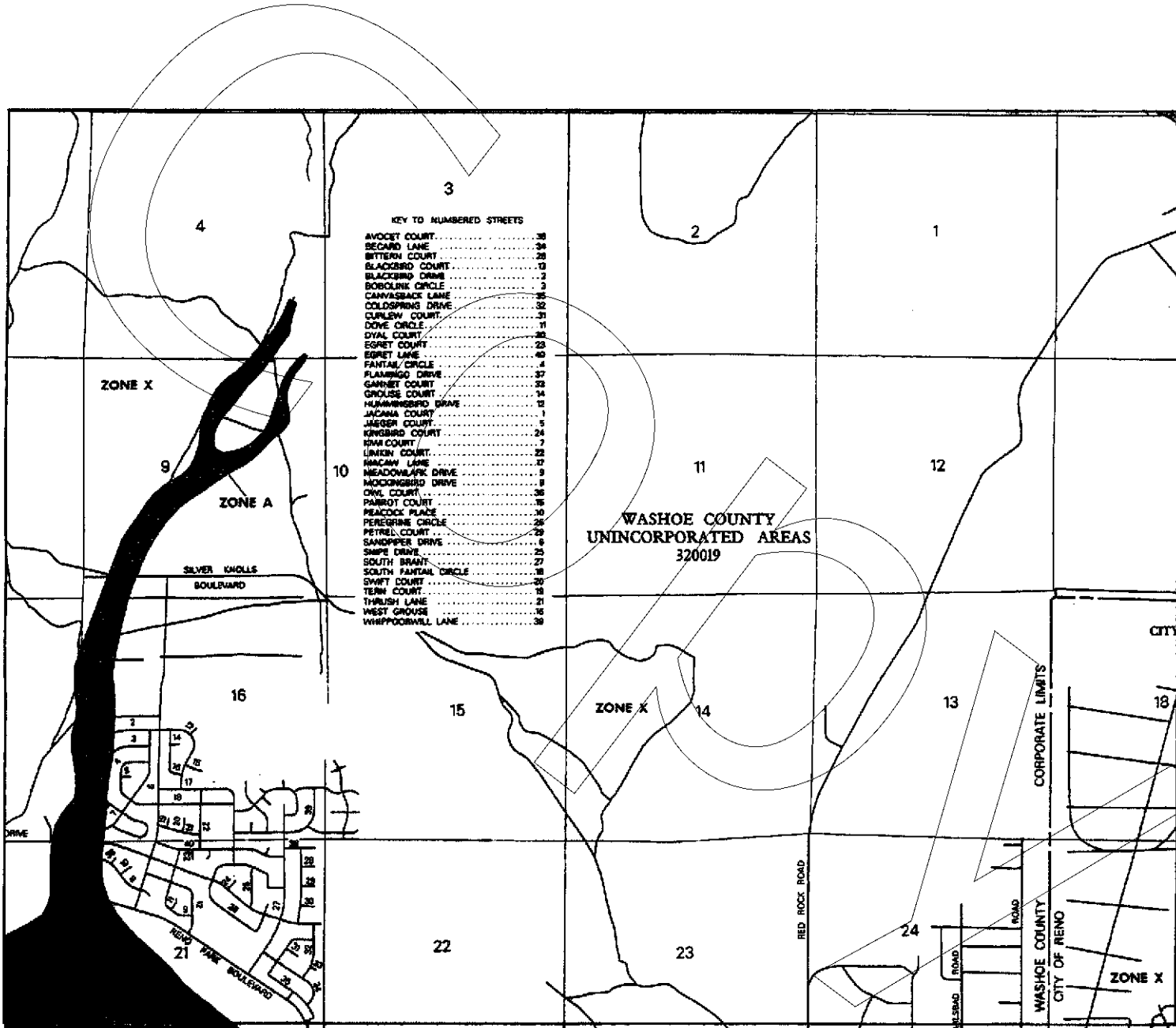
There are many practices for Low Impact Developments that can decrease runoff through drainage ways, decrease required detention volume, improve water quality of runoff, and create more area for parks, open space, and other landscaped areas. Check dams and bioretention in the landscaped drainage ways can help lower velocities and flows of storm water runoff while improving water quality, lessening the required detention volume downstream, and creating recreational areas throughout the site. Extended detention can create additional usable park and recreation areas while improving water quality leaving the development. By utilizing the combination of LID-enhanced drainage ways and proposed detention basins the Silver Star Ranch project can provide mitigation to the impacts of developed storm water runoff.



**Manhard**  
**CONSULTING**

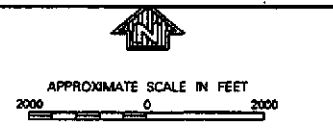
5850 Double R Blvd, Suite 101, Reno, NV 89521 tel: (775) 748-3500 fax: (775) 748-3520 www.manhard.com  
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<b>SILVER STAR RANCH SUBDIVISIONS</b>	
<b>CITY OF RENO, NEVADA</b>	
<b>STUDY AREA</b>	
PROJ. MGR.: <b>MAR</b>	SHEET
DRAWN BY: <b>CMS</b>	<b>1</b>
DATE: <b>JAN. 2009</b>	<b>EXHIBIT</b>
SCALE: <b>1"=4000'</b>	<b>DDREN</b>
	<b>080461</b>



**KEY TO NUMBERED STREETS**

AVOCET COURT	35
BECARD LANE	34
BITTERRI COURT	28
BLACKBIRD COURT	13
BLACKBIRD DRIVE	2
BOBOLINK CIRCLE	3
CANVASBACK LANE	35
COLDSPRING DRIVE	32
CURLEW COURT	31
DOVE CIRCLE	11
DYAL COURT	36
EGRET COURT	23
EGRET LANE	40
FANTAIL CIRCLE	4
FLAMINGO DRIVE	37
GANNET COURT	33
GROUSE COURT	14
HUMMINGBIRD DRIVE	12
JACANA COURT	1
JASPER COURT	5
KINGSBIRD COURT	24
KIWI COURT	7
LINCOLN COURT	22
MACAW LANE	17
MEADOWLARK DRIVE	9
MOCKINGBIRD DRIVE	8
OWL COURT	36
PARROT COURT	15
PEACOCK PLACE	20
PEREGRINE CIRCLE	25
PETREL COURT	29
SANDPiper DRIVE	6
SHRIMP DRIVE	25
SOUTH BRANT	27
SOUTH FANTAIL CIRCLE	18
SWIFT COURT	30
TEAL COURT	19
THRUSH LANE	21
WEST GROUSE	16
WHEEPOORWILL LANE	38



**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**WASHOE COUNTY,**  
**NEVADA AND**  
**INCORPORATED AREAS**

PANEL 2800 OF 3350  
 (SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
RENO CITY OF WASHOE COUNTY UNINCORPORATED AREAS	32030	2800	E
	32030	2800	C

**MAP NUMBER**  
**32031C2800 E**

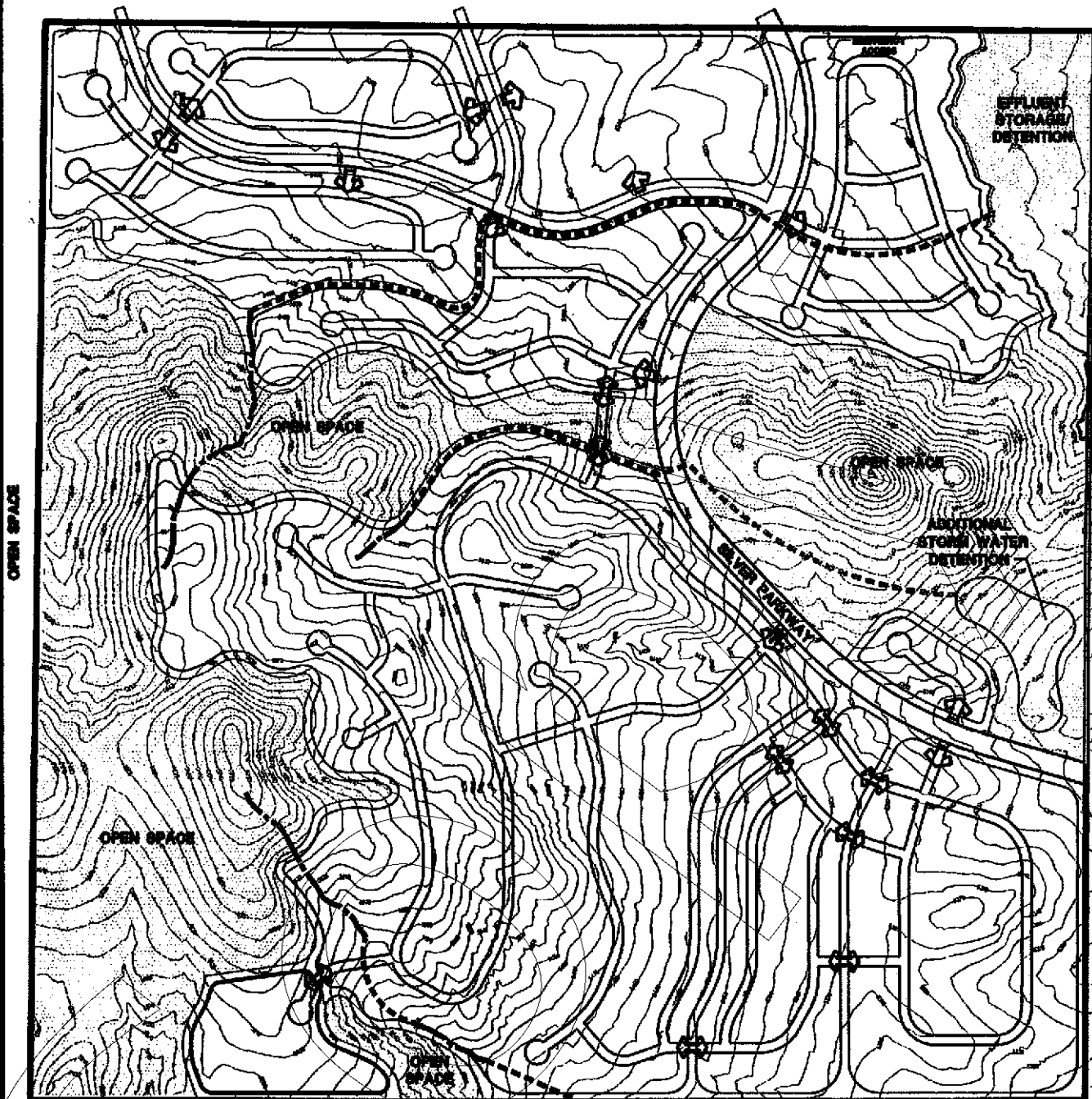
**EFFECTIVE DATE:**  
**SEPTEMBER 30, 1984**



Federal Emergency Management Agency

This is an official copy of a portion of the main nationwide flood map. It was automated using P-NET On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title sheet. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.fema.gov](http://www.fema.gov)

EVANS RANCH  
DEVELOPMENT



BLM  
**LEGEND**

—— SITE BOUNDARY  
↔ OR ↔ ACCESS POINTS

----- EX. MINOR DRAINAGE WAY  
----- LANDSCAPED DRAINAGE WAY

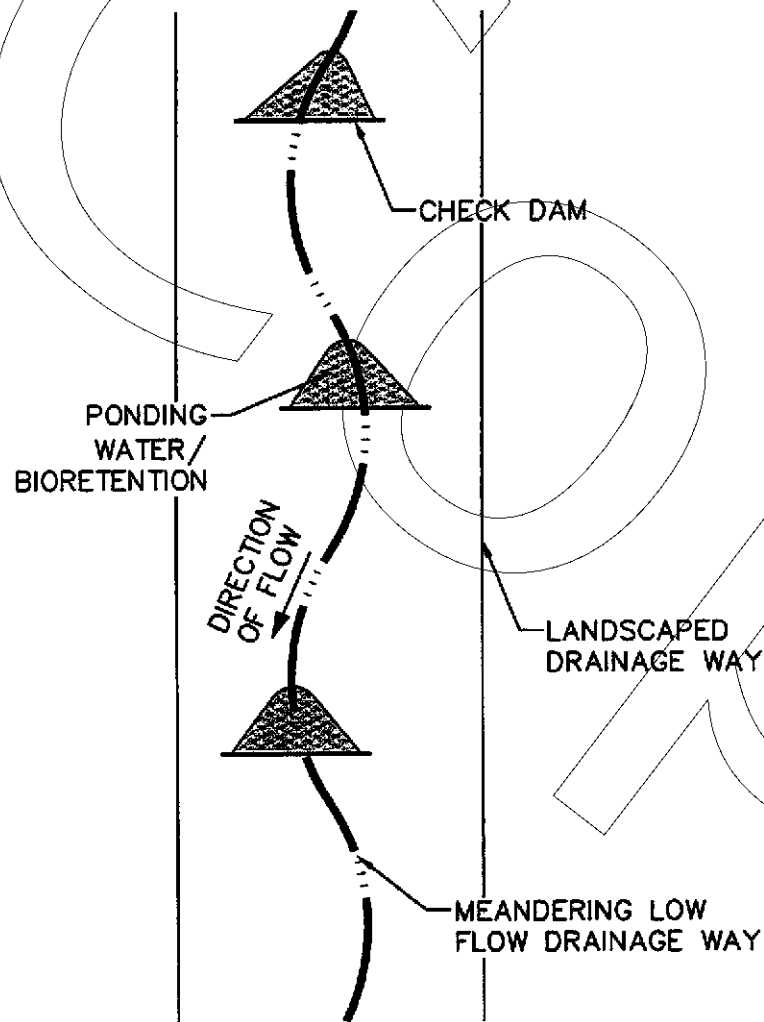


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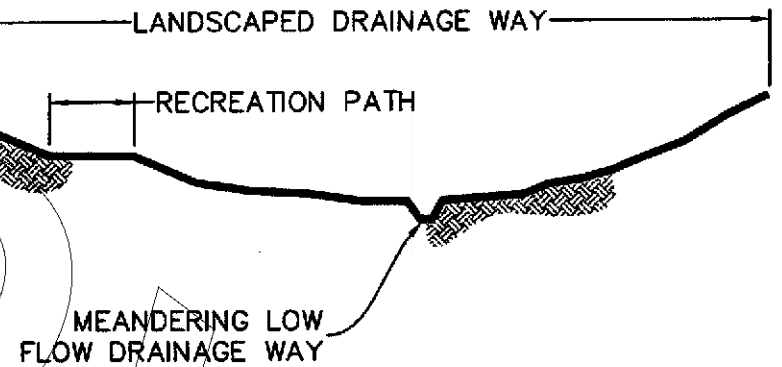
SILVER STAR RANCH	
CITY OF RENO, NV	
PROPOSED CONCEPTUAL DRAINAGE MAP	
PROJ. MGR.: <u>MAR</u>	FIGURE
DRAWN BY: <u>CMS</u>	<b>1</b> OF <b>2</b>
DATE: <u>FEB. 09</u>	<b>DDREN</b> <b>080461</b>
SCALE: <u>N.T.S.</u>	

Dwg Name: P:\Ddren\dwg\Stormwater\Exhibits\Fig 1 of 2\_Proposed Detention.dwg Updated By: csammis 12:12

CHECK DAM EXAMPLE



LANDSCAPED DRAINAGE WAY CROSS SECTION EXAMPLE



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SILVER STAR RANCH SUBDIVISION

CITY OF RENO, NEVADA

DRAINAGE WAY DETAILS

PROJ. MGR:   MAR    
DRAWN BY:   CMS    
DATE:   FEB 09    
SCALE:   N.T.S.  

FIGURE  
**2** OF **2**  
DDREN 080461

# SILVER STAR RANCH

## Planned Unit Development Handbook

Reno, Nevada



### Appendix E – Geotechnical Feasibility Study



November 24, 2008  
Project No. 1612.01

Mr. Dan Douglass  
1150 Selmi Dr. - D#501  
Reno, NV 89512.

**RE: FEASIBILITY LEVEL GEOTECHNICAL STUDY  
SILVER STAR RANCH  
APN 087-021-25**

Dear Mr. Douglass:

*James Edward Engineering, Inc.* is pleased to submit the following feasibility level study for a planned unit development associated with APN 087-021-25. The site is located within a 633 acre parcel approximately 4 ½-miles north of 395, just east of Red Rock Road. The project location is shown in Figure 1. The parcel is contained entirely in Section 11, Township 21, Range 18, MDB&M. Access is from Adobe Drive, off Red Rock Road.

It is our understanding that the project will include the development of approximately 1,600 single family residences with associated improvements including: roadways, utilities, services, parks and open space. The parcel has been annexed to the City of Reno.

Our feasibility level study included review of readily available published geologic maps and fault hazard reports to identify the presence of documented geologic hazards at the site. Geologic maps were also reviewed to assess anticipated soil/bedrock types and likelihood for the need of special construction or development considerations. No field work will be performed as a part of this study.

As previously mentioned the parcel is located off Adobe Road, from Red Rock Road. Total relief across the property is approximately 460 feet, with the local high near the center of the southwest quadrant, and the local low at the northeast corner. The ground

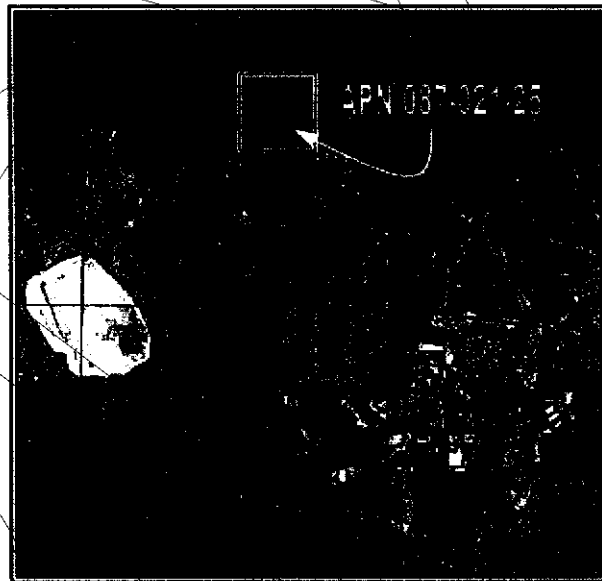


FIGURE 1 – Vicinity Map

**J a m e s E d w a r d E n g i n e e r i n g**

9475 Double R Blvd Suite 3 • Reno, Nevada 89521 • Phone (775) 828-1866 • Fax (775) 828-1871  
1455 Deming Way Suite 1C • Sparks Nevada 89431 • Phone (775) 331-1505 • Fax (775) 331-1258

Mr. Dan Douglass  
 November 24, 2008  
 Page 2 of 4

surface typically slopes at gradients ranging from 5 to 10 percent in the lower reaches of the property, up to 15 to 20 percent where elevations reach their peak.

Drainage is typically by sheet flow. However, as evidenced by the alluvium and channel deposits depicted on the adjacent geologic map, two streams provide surface drainage down the eastern flanks of the western hills. For information regarding groundwater, the Nevada Division of Water Resources Well Driller's Reports were accessed for Section 11. Two well logs were encountered. The well associated with the single family residence located in the southeast portion of the property encountered a static water level at 325 feet below the ground surface in August, 1992. A more recent well log, encountered a static water level of 20 feet below the ground surface during November, 2006. The location of the second well was reported at coordinates N 39.706780, W -119.922205, NA027.

Vegetation consists mostly of brush and native grasses in the lower reaches of the property with cedar trees becoming more prevalent in the upper reaches.

The upper reaches of the property are comprised of granodiorite (Mzgd – light green) and quartz diorite of the Peavine Sequence (Mzv – dark green). The granodiorite is resistant to erosion and forms 'knobby' outcrops. This unit will likely present difficulty when advancing deeper cuts, and blasting may be required. Depending on joint and fracture patterns, cut slopes of 1 ½:1 (H:V) or steeper will likely be stable. This unit will also provide a source of rock fill for mass grading the project.

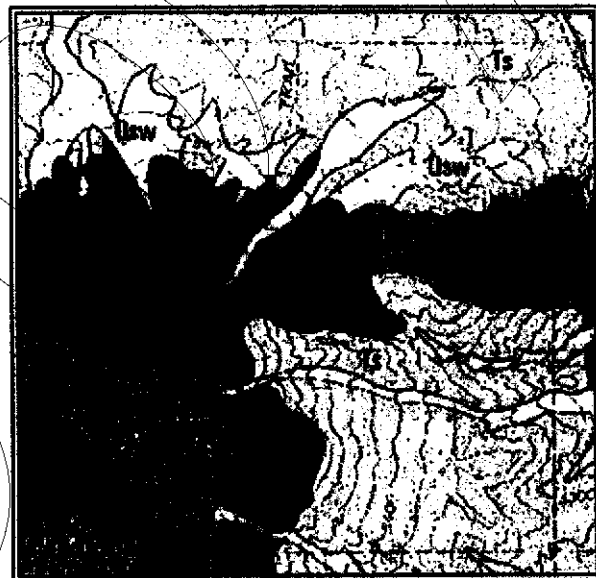


FIGURE 2 – Geologic Map of Project Area Reno NW Quadrangle (Map 4Dg), Nevada Bureau of Mines and Geology, S.A. Soeller & R. L. Nielsen, 1980)

The Mzvs sequence to the south (stippled green) consists of undifferentiated metavolcanic and metasedimentary rock of the Peavine Sequence. Depending on the degree of alteration, this material can vary significantly and selective grading may be required. The metavolcanic and metasedimentary units will have a greater tendency to erode than the granodiorite and limiting cut slopes to 1 ½:1 to 2:1 (H:V) will likely be required. This unit may also present difficulty in advancing the deeper cuts. Blasting could also be required.

The lower reaches of the development area are typically comprised of lacustrine and alluvial sediments (Ts – light blue). These units have been mapped as typically

Mr. Dan Douglass  
 November 24, 2008  
 Page 3 of 4

sandstone, siltstone, pebbly siltstone, with thin beds of ash and diatomite. These units are typically highly variable and can provide material ranging from sand and gravel to clay. Selective grading will likely be required. Because the sediments are generally unconsolidated and bedding is indistinct, cut slopes will likely be limited to 2:1 to 1 ½:1 (H:V) with more aggressive erosion protection measures required than for the granodiorite and quartz diorite of the upper reaches.

The Quaternary alluvium units (Qsw – yellow) are thin, sheetwash deposits, derived from the bedrock sources to the south and west, the material quality will closely reflect the properties of the bedrock source areas.

Based on a review of the Quaternary Fault Map of Nevada – Reno Sheet (Nevada Bureau of Mines and Geology, Bell, John W., 1984) no Quaternary Faults are mapped crossing the parcel. In addition, the USGS interactive fault map (U.S. Geological Survey and Nevada Bureau of Mines and Geology, 2006, Quaternary fault and fold database for the United States, accessed 11-24-08, from USGS web site: <http://earthquakes.usgs.gov/regional/qfaults/>) was reviewed, and no Quaternary aged faults were indicated crossing the project site. Faults in the surrounding area would be considered to be early to late Pleistocene. A criteria for evaluating earthquake faults has been formulated by a professional committee for the State of Nevada Seismic Safety Council, but has not yet been adopted by the State or Counties. The guidelines present that faults with evidence of movement within the past 11,000 years are considered Holocene. Faults with evidence of displacement within the last 130,000 years are considered Late Quaternary and faults with movement within the last 1.8 million years are considered Quaternary. Structural offsets are usually limited to those faults indicating movement in the last 11, 000 years.

Liquefaction is a loss of soil shear strength that can occur during a seismic event, as cyclic shear stresses cause excessive pore water pressure between the soil grains. This phenomenon is generally limited to unconsolidated, clean to silty sand (up to 35 percent non-plastic fines) lying below the ground water table. Due to the close proximity to bedrock for much of the site, and anticipated depth to groundwater, most of the site units are not considered to be particularly susceptible to liquefaction. The need to perform liquefaction analyses can be addressed during the performance of design level investigations. There is no specific policy in Nevada which requires structures to be designed to resist liquefaction. Such designs tend to be very costly and are usually limited to those structures with a public safety function, such as, fire and police facilities and hospitals or buildings with high occupancy, such as, large commercial, retail, office and manufacturing facilities, schools, municipal or major governmental buildings.

Due to the presence of the near surface weathered bedrock, the site can be classified as a Site Class C or D (very dense soil and soft rock, or stiff soil, respectively) listed in Table 1613.5.2 of the 2006 International Building Code. Assuming a Site Class D, and based on the average latitude and longitude of the site (39.7033°N, and -119.9337°W), the Site Coefficients  $F_a$  and  $F_v$ , as a function of site class, are 1.0 and 1.51, respectively.

Based on our understanding of the site geology, we anticipate that the granodiorite (Mzgd)

Mr. Dan Douglass  
November 24, 2008  
Page 4 of 4

and quartz diorite (Mzv) will typically provide material suitable for use as mass graded and structural fill. The metavolcanic and metasedimentary units, as well as portions of the alluvial sediments, may exhibit characteristics that would require as structural fill separation from planned improvements such as foundations or roadways. Selective borrowing and planning of staged development could allow for the use of the granodiorite and quartz diorites within surface fills negating the requirement for special foundation considerations or thickened structural sections.

Where materials are granular and exhibit plasticity indices less than 15, standard spread foundations could be utilized. Limiting cut-fill differentials across a building pad may be required for portions of the development in steeper terrain. For preliminary purposes, maximum fill slopes of 2:1 (H:V) should be anticipated. Cut slope limits have been previously addressed.

The minimum structural pavement section for City of Reno roadways consists of 4 inches of plantmix bituminous pavement capping 6 inches of Type 2 Class B aggregate base on a subgrade exhibiting a minimum R-Value of 30. This section should be considered adequate for local roadways, with or without a parkway. A preliminary minimum structural pavement section of 5 inches of plantmix bituminous pavement capping 8 inches of Type 2 Class B aggregate base should be considered for residential and commercial collector streets. These sections are subject to the overall development plan, and quantity of material to be hauled within the project during development of various phases.

Soluble sulfate testing should be performed on soils during mass grading. Where soluble sulfate levels exceed the negligible limits as stipulated in the 2006 IBC, special concrete considerations will apply. It is anticipated however that standard City mixes will be suitable for most of the concrete improvements.

We thank you for the opportunity to submit this preliminary geotechnical assessment of the Silver Star Ranch project. We look forward to the opportunity to work with you and are available to answer any related questions or comments.

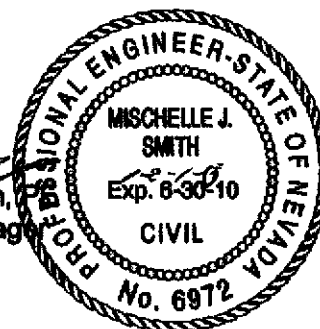
Sincerely,

**JAMES EDWARD ENGINEERING**  
I N C O R P O R A T E D

*James G. Smith*  
James G. Smith, PE  
President

JGS:MJS:dh  
Enclosures

*Mischelle J. Smith*  
Mischelle J. Smith, PE  
Engineering Manager  
RE Number 6972  
Expires 6-30-10





# WASHOE COUNTY RECORDER

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KATHRYN L. BURKE, RECORDER

1001 E. NINTH STREET  
POST OFFICE BOX 11130  
RENO, NEVADA 89520-0027  
PHONE (775) 328-3661  
FAX (775) 325-8010

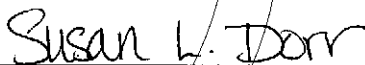
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