## WASTEWATER FEASIBILITY ANALYSIS

### LA BARR MEADOWS ROAD & TAYLORVILLE ROAD CITY OF GRASS VALLEY



Prepared for:

CITY OF GRASS VALLEY 125 East Main Street Grass Valley, CA 95945 (530) 274-4330

Prepared by:

**SCO PLANNING & ENGINEERING, INC.** 140 Litton Drive, Suite 240 Grass Valley, CA 95945 T (530) 272-5841 / F (530) 272-5880

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## SECTION 1 Executive Summary

## **SECTION 1: EXECUTIVE SUMMARY**

#### A. <u>PURPOSE</u>

The purpose of this wastewater feasibility study is to identify the economic & technical feasibility to extend wastewater services to the Study Area located south of the City limits along La Barr Meadows Road & Taylorville Road (*Figure 1*). In determining the economic feasibility, multiple wastewater alignment options were identified and analyzed to compare advantages, disadvantages and costs associated with each alternative. Existing land uses, current zoning and potential alternative land uses were also analyzed to estimate the future wastewater capacity needs of the area.

This report has been prepared as a planning level document and is not intended to replace existing engineering documents related to City Sanitary Sewer.



Figure 1 - Location Map

#### B. FEASIBILITY ANALYSIS SUMMARY

In summary, this study concludes that extension of wastewater services to the overall Study Area is technically feasible. The financial feasibility to extend wastewater services is dependent upon multiple factors, including but not limited to: (1) future land uses; (2) economic factors; (3) other infrastructure such as treated water & adequate roadways; and (4) availability of financing options.

This planning study should be considered an initial first step in the planning process for extension of wastewater services to the area. Key elements to be further addressed include: (1) consideration of recommendations of this study; (2) jurisdictional & property owner commitment; (3) future land use needs and applicable zoning within the Study Area; and (4) financing options.

As part of this feasibility analysis, the following tasks were performed:

- Analyze existing County zoning within the Study Area.
- Analyze existing City General Plan Land Use Designations within the Study Area.
- Analyze existing land uses within the Study Area.
- Conduct public outreach meeting with property owners to determine potential future development plans.
- Assess existing wastewater infrastructure between Study Area and Wastewater Treatment Plant.
- Determine feasible lift station locations and highway crossing locations based on topography, service area and other physical & environmental constraints.
- Identify and evaluate various alternative alignments. Determine costs and evaluate advantages & disadvantages associated with each alternative alignment.
- Evaluate existing and potential land use scenarios.
- Evaluate potential funding sources & financing options.

Four alternatives were ultimately analyzed: *Alternative 1* evaluated "no project" and *Alternatives 2 – 4* evaluated three separate alignments to extend wastewater services to the Study Area.

*Alternative* 2 evaluated an alignment from Study Area A to the north, connecting to the existing wastewater infrastructure and through the existing Joyce Drive lift station. *Alternative* 3 evaluated an alignment from Study Area A to the west, across Highway 49 and ultimately connecting to existing trunk main at Freeman Lane.

Due to the topography, *Alternatives* 2 & 3 each required multiple lift stations to serve the



Figure 2 - Study Area

Study Area. A key objective of this analysis was to determine optimization and potential for expansion of sewer facilities while reducing the overall number of lift stations and/or individual systems. Optimal use of Regional Facility was evaluated in *Alternative 4*. This alternative consists of a single lift station facility that provides service to properties within the Study Area and adjacent properties surrounding the Study Area. A location west of Taylorville Road, identified in *Figure 2* as "Area B", was found to be low enough in elevation to allow gravity flow from the entire study area to a single regional lift station. Evaluation of this alternative, identified in this report as *Alternative 4*, concluded that a single lift station located within Area B could serve a larger geographic area and also eliminate the need for an existing lift station located at Taylorville Road, further reducing long-term maintenance costs.

Upon evaluating each of the four (4) alternatives by analyzing cost comparative data with consideration of long-term operations & maintenance, it was determined the Study Area might be best served by one regional lift station because it could potentially:

- 1) Reduce long-term operation & maintenance costs;
- 2) Reserve capacity of the existing Joyce Drive lift station;
- 3) Eliminate the need for the existing Taylorville Road lift station;
- 4) Avoid "piecemeal" construction to meet future wastewater demands; and
- 5) Provide wastewater services to a larger geographical area, including additional areas within the City's Sphere of Influence (*Area B*).

Advantages and disadvantages of each of the four (4) alternatives are identified and analyzed in Section 3.B. A summary of those alternatives are as follows:

#### <u>Alternative 1 - No Project</u>

If wastewater is not extended into the study area, future growth opportunities will be severely limited. New business opportunities and expansion of existing businesses would need to comply with County Environmental Health Department and Regional Water Quality Control Board (RWQCB) requirements for privately maintained septic systems. Requirements for septic systems include avoidance of steep slopes, setbacks from water courses, drainage ways, property boundaries, and cut-banks; and setting aside large areas of land for Minimum Useable Sewage Disposal Areas (MUSDA's), which limit the amount of land available to expand economic development in the area.

#### • <u>Alternative 2 – Connect to existing Joyce Drive Lift Station</u>

This alternative requires two new lift stations, routing all wastewater flows east of Highway 49 through the existing pipe system to the Joyce Drive lift station. This existing

system has capacity limitations and would require substantial improvements to the entire pipe system and Joyce Drive lift station. This alternative requires the two new lift stations to be utilized in series with existing Joyce Drive lift station, which creates maintenance and operation challenges. Additional wastewater improvements such as ejector pumps and/or upgrades to the existing Taylorville Road lift station would also be required to serve the 3 commercial parcels west of Highway 49, at the end of Taylorville Road.

#### • <u>Alternative 3 – Connect to existing sewer at Freeman Lane</u>

This alternative requires two new lift stations, routing all wastewater flows across to the west side of Highway 49. A force main would extend along Taylorville Road to McKnight Way and connect to the existing 18" sewer main at Freeman Lane. Additional wastewater improvements such as ejector pumps and/or upgrades to the existing Taylorville Road lift station would also be required to serve the 3 commercial parcels west of Highway 49, at the end of Taylorville Road.

#### <u>Alternative 4 – One regional Sewer Lift Station located on west side of Highway 49</u>

Based on a comparative analysis of the 4 alternatives, the "apparent best" alternative in the long-term is Alternative 4. This alternative requires only one regional lift station located on the west side of Highway 49, and could also replace the existing Taylorville Road lift station. Fewer lift stations would significantly reduce long-term costs associated with operation and maintenance and is more consistent with the City of Grass Valley Sewer System Master Plan. This alternative would also have the potential to serve a larger geographic area within the City's near-term annexation horizon, providing more opportunity for additional revenue and future growth.

#### C. <u>RECOMMENDATIONS</u>

In order to implement a process that provides flexibility and the ability for the City to annex and extend sewer services to the Study Area described in this report, we recommend the following next steps to be considered:

- Consider each of the four (4) alternatives based on the advantages & disadvantages summarized above and further described in Section 3.B.
- Upon identification of an apparent best project alternative, environmental review of potential impacts and effects of the project should be further evaluated.
- Consider alternative land uses discussed in Section 2.C. Recommended land uses were based on several factors including existing land uses, input from property

owners, discussions with City Engineering & Planning Staff, environmental constraints, etc.

- This study analyzed current impact fees for the purposes of comparing potential revenue to anticipated costs, and does not intend to imply those fees would be used as a source of funding. Currently, these impact fees are intended for very specific improvements identified in an impact fee study for existing infrastructure. City Impact Fees, or a portion thereof, could be considered as a potential source of revenue to help offset the costs of the overall sewer infrastructure.
- Assess the funding & financing options described in Section 4 of this report. Consideration should be given to initiate an administration process to select and apply for grants and/or loans as funding sources.
- Consideration should be given to expand the geographic area to include "Area B" (See *Figure 2*) for extension of wastewater facilities and evaluation of land uses for the following reasons:
  - **Loss of Southill Village SDA** The loss of a potential commercial center at "Southill Village" creates an unmet demand for additional commercial land area which may not be able to be accommodated within Area A.

The City's General Plan Circulation Element includes future plans for an upgraded Crestview Drive / Highway 49 intersection. Discussions with City Staff have also indicated a potential for a Crestview Drive connection to Taylorville Road. In anticipation of this intersection and potential connection to Taylorville Drive, commercial zoning within Area B warrants consideration.

• **Reduces the need for multiple lift stations** - A regional lift station located within Area B would reduce the need for multiple lift stations to serve Area A. Reducing the number of lift stations overall greatly reduces the cost associated with long-term operation & maintenance.

Discussions with City Engineering Department also indicated that the existing Taylorville Drive lift station will require future upgrades. A new regional lift station in that vicinity could provide a cost savings to the City by eliminating the existing lift station and avoiding costly upgrades.

Future Need for Wastewater Expansion - Area B is within the City's Sphere of Influence. This area will need wastewater services prior to annexation. Cumulative consideration of a larger geographic area within the SOI (Areas A & B) would reduce overall long-term construction costs, and reduce future operation & maintenance costs by reducing the need for multiple lift stations.

## SECTION 2 Land Use

## **SECTION 2: LAND USE**

#### A. EXISTING LAND USES & STUDY AREA CHARACTERISTICS

The Study Area for this wastewater feasibility study includes 54 parcels consisting of an area approximately 311 acres, south of the existing City Limits along La Barr Meadows Road and Taylorville Road. Except for 19 acres in the southernmost portion of the study area, all parcels are within the City's Sphere of Influence (SOI).

The majority of the land area is vacant and undeveloped. About 30% of the land area, mostly along the eastern portion of the study area, consists of steep slopes which are unbuildable. A substantial portion of the existing development is accessed directly off of La Barr Meadows Road and is presently devoted to industrial uses. Lesser portions of existing development include commercial and residential uses. All developed parcels within the study area are currently served by individual onsite systems (i.e., septic systems) for treatment and disposal of sanitary wastes. Future development and/or expansion of existing businesses are limited due to individual sewage disposal systems generally involving septic tanks, leach fields and large repair areas.

During evaluation of potential alternative alignments to serve the Study Area, several factors were considered, including but not limited to:

- General conformance with City's Sewer System Master Plan (2005-2020);
- Location of proposed & existing wastewater transmission line(s);
- Condition & capacity of existing wastewater infrastructure;
- Topography & options for gravity flow to existing infrastructure and/or proposed lift stations;
- Location of potential wastewater crossing to the west side of Highway 49;
- Limit the number of lift stations;
- Easy accessibility to lift station(s);
- Facility improvement costs vs. potential for future economic opportunities;
- Input from property owners & existing businesses within Study Area.

As the factors above were considered and potential alignments were evaluated, it became apparent that any alternative to serve the Study Area would likely require multiple lift stations due to the topography.

With the goal of reducing the number of lift stations to reduce long-term operation & maintenance costs, properties adjacent to the Study Area were analyzed and considered. Land area west of Taylorville Road, identified in *Figure 2* as "Area B", was found to be

easily accessible, within close proximity to the study area, and low enough in elevation to allow gravity flow to a single lift station. It was determined that a new regional lift station located within Area B could limit the number of lift stations to one, serve a larger geographic area, and also has the potential to replace the existing Taylorville lift station.

#### B. GENERAL PLAN AND ZONING

The Study Area is comprised of approximately 311 acres, located within Nevada County, outside of the City of Grass Valley limits. Approximately 292 acres are located within the City's SOI. The SOI is considered a likely candidate for annexation in the future and is reasonably expected to receive city services. As such, the SOI has established joint city/county land use regulations.

*Figure 3* represents the anticipated Land Use Designations per the City's 2020 General Plan and *Figure 4* represents the current Nevada County zoning. Many of the land uses anticipated in the City's General Plan do not reflect the existing land uses. For example, existing industrial uses such as Rare Earth Landscape Materials and Kilroy's Towing Service & Auto Dismantling are both shown as future "Commercial" sites. Other industrial uses on the east side of La Barr Meadows Road such as Hansen Bros. Enterprises are shown as future "Business Park" sites.

Although the General Plan Land Use Element functions as a guide to future development, certain assumptions & expectations have changed over time and should be given consideration in order to help create economic opportunities in the near- and long-term.

In order to assess existing land uses versus recommended zoning, all parcels within the Study Area were analyzed (*Appendix A – Parcel Reports*). Some of the factors that were used as a guide to assess future economic opportunities and land uses are as follows:

- City's General Plan Land Use Designations
- County's Zoning Designations
- Existing Land Uses & Development Patterns
- Recent Changes to SDA Ownership
- Property Owner's Plans & Expectations
- Physical Site Constraints

The following assessment of the City's General Plan and County's Zoning explains how the factors listed above affect the anticipated future uses within the Study Area:

#### City of Grass Valley 2020 General Plan Land Use Designations (Figure 3)

#### Urban Estate Density (UED) ~ 136.4 acres

UED is the lowest density residential category in the City's General Plan; allowing up to one unit/acre. This designation is used to encourage low density, large lots where there are infrastructure limitations and/or environmental constraints which limit urban densities.

Land within the Study Area designated as UED consists of 8 vacant parcels totaling approximately 136 acres which would allow for a maximum density of 136 residential units. Due to steep slopes exceeding 30% and other visible site constraints such as drainage swales and ponds, the actual "buildable" area is approximately 55 acres.

The City's Zoning Ordinance does not allow multi-family units within the UED residential category. Given the limited buildable area and restrictions on attached units, it is unlikely that allowable maximum density could be achieved.

#### Business Park (BP) ~ 83.4 acres

BP land use designation is intended to accommodate a variety of employment generating land uses in a master-planned, campus-type setting. This land use designation is intended to provide opportunities for corporate administrative offices and research & development firms.

Many existing land uses within the Study Area would become nonconforming upon establishment of a BP land use designation. Although 83 acres within the Study Area are designated BP, approximately 41 acres are actually buildable due to steep slopes and other site constraints. In addition, a report commissioned by the City in 2006 titled "*Economic and Fiscal Conditions Study for the City of Grass Valley*" (aka *SDA Study*) concluded there is an overabundance of anticipated Corporate Business Park (CBP) within the overall SOI.

#### Commercial (C) ~ 6.4 acres

Commercial land use designation is intended to encompass all types of retail commercial, including convenience shopping & services to heavier auto-oriented land uses.

Under the City's 2020 General Plan, there are 5 parcels within the Study Area designated as Commercial. The total commercial land area is approximately 6 acres, most of which is located on 2 parcels located east of Highway 49. Existing businesses on the 2 parcels, Rare Earth Landscaping Materials and Kilroy's Towing Service & Auto Dismantling, are compatible with industrial type land uses. The other 3 parcels, consisting of approximately 1.3 acres, are located west of Highway 49 and have a single-family residence on each parcel.

#### Special Development Area (SDA) ~ 65.9 acres

SDA's are reserved for areas to be master planned or subject to a specific plan. These areas serve as a temporary "holding" classification pending approval of a specific plan or master plan.

A Master Plan was prepared for the 66 acres of SDA, formerly known as "Southill Village". The property was intended to include a "mixed-use" development with a commercial retail/shopping complex and business park. The property has since been bifurcated, the southern 20 acres of which are intended for a County corporation yard.

The loss of the SDA represents the loss of zoning intended for a commercial center and a community business park.

#### Other ~ 18.9 acres

Owned by Nevada County, this parcel is currently outside of the City SOI. This area is included in the Study Area at the request of Nevada County. A recent Initial Study prepared for the property indicates that Nevada County intends to rezone this portion of land to "Public" for a future County Corporation Yard.



Figure 3 - City's 2020 GP Land Use Designations

#### Nevada County Zoning (Figure 4)

#### **Residential Agriculture (RA-1.5) ~ 151.0 acres**

RA-1.5 zoning within Nevada County is intended for low density single-family dwellings, at densities equivalent to 1.5 acre minimum parcel size. County zoning would allow up to 100 single-family residences.

Due to steep slopes and other site constraints, the buildable area within the RA-1.5 zoning district is approximately 55 acres. Achieving the allowable maximum density of 100 single-family homes is unlikely due to the limited buildable area.

#### Business Park (BP) ~ 101.3 acres

BP zoning within Nevada County is intended to encourage a variety of employmentoriented uses related to manufacturing, distribution, processing, service, research & development and other related light industries.

Due to steep slopes and other site constraints, the buildable area within the BP zoning district is approximately 66 acres.

#### Commercial (C2) ~ 1.3 acres

C2 zoning within Nevada County is intended to provide a wide range of retail services to serve a variety of needs over a large geographic area. The total area of commercial zoning within the Study Area is approximately 1.3 acres, consisting of 3 developed parcels located west of Highway 49, at the end of Taylorville Road. Existing development on each parcel consists of a single-family residence.

#### Light Industrial (M1) ~ 57.5 acres

M1 zoning within Nevada County is intended for the production, repairing, distribution, and warehousing of goods and equipment.

Due to steep slopes and other site constraints, the buildable area within the M1 zoning district is approximately 33 acres.

In general, of the 311 acres of land within the Study Area, approximately 155 acres (or 50%) has a realistic development opportunity.

#### SCO Planning and Engineering, Inc.



Figure 4 - County Zoning

#### C. <u>RECOMMENDED FUTURE LAND USES (FIGURE 5)</u>

In order to assess potential future land uses within the Study Area, information was compiled on each parcel including existing land uses, zoning, steep slopes & other site constraints, and reasonable assumptions for development potential. This information was used to create individual Parcel Reports (*Appendix A*) which were further used to estimate potential wastewater demands and impact fees based on the current City Impact Fee Schedule.

In addition to studying the physical characteristics and constraints of each parcel, two (2) public outreach meetings were conducted with existing property owners to solicit feedback regarding existing uses and potential future plans. After considering the land area constraints, existing uses and input from property owners, suggested zoning change recommendations were developed.

These recommendations are intended only to be a guide in determining a mix of land uses within the Study Area that may be better suited for future economic opportunities than the current GP Land Use Designations. The recommended City zoning for the properties within the Study Area, as shown on *Figure 5*, are as follows:

#### **Residential and Open Space Zoning**

#### **Residential Estate (RE)**

There is one small parcel (0.5 acres) with an existing single-family home along La Barr Meadows Road near the southern end of the Study Area, currently designated on the City's 2020 General Plan map as SDA (Special Development Area). Changing that zoning to RE (Residential-Low Density) would better reflect the existing use and be consistent with the County Zoning to the south.

#### **Residential (R-2)**

The existing County zoning and City's GP map show a large area of Residential –Estate type zoning (see *Figures 3 & 4*). However, much of this land is constrained by to steep slopes, utility restrictions and access issues.

R-2 (Multi-Family) zoning may be a better use. If the R-2 zoning with a GP Land Use Designation of ULD were permitted it would allow for a density of up to 4 units per acre. The R-2 zoning allows both single-family and multi-family dwellings units to be considered with a density up to 4 units per building per Table 2-7 of City's Development Code. If the R-2 zoning is concentrated to areas with less constraints and the areas that are more constrained were zoned OS (Open Space), the opportunity for clustered development designs that are more efficient and less costly could result in a better use of the land area and still provide housing opportunities close to employment centers.

#### Commercial, Industrial, and Business Park Zoning

Currently there is only 6.4 acres of commercial zoning and excess amount of Business Park zoning and limited Industrial zoning in the Study Area. It was anticipated that additional commercial would occur on the 66 acre SDA (Special Development Area) parcel as explained earlier in this report. However, due to the change of ownership with half of the SDA property purchased by the County of Nevada and the other half by the owners of Rare Earth Landscaping Materials, the potential for developing that site with a Master Planned Commercial and Business Park Center is unlikely. The City's GP map shows 2 parcels which total 5.1 acres as Commercial and approximately 66 acres as SDA. The County zoning shows these properties as BP. All three of these zones conflict with the exiting land uses and the future land uses envisioned by the land owners. The business owners of Kilroy's Towing and Auto Dismantling, and Rare Earth Landscaping Materials have expressed their intentions to continue their existing uses. The owners of the SDA lands, which include the County of Nevada and the owners of Rare Earth Landscaping Materials, have expressed their interest in having Public (P) and Light Manufacturing (M-1) on their respective lands.

A similar condition exists on the properties that support the businesses operated by Hansen Brothers Enterprises and Sierra Plumbing Supply. The City's GP map shows these properties as BP (Business Park) and County zoning shows these parcels as M1 (Light Industrial). Both business owners stated that they have no intentions of discontinuing their uses. Implementing the zoning consistent with the land uses shown on the City's GP map would conflict with these long time established operations.

Recognizing these existing conditions and to avoid potential future zoning conflicts, the following zoning changes, as shown on *Figure 5*, may better serve the area:

#### **Community Business District (C-1) ~ 15.4 acres**

Consider C-1 zoning on the land area around Sierra Plumbing Supply. C-1 zoning would better reflect the existing uses in the area that are, for the most part, more commercially oriented.

#### Light Industrial (M-1) - 49.4 acres

Consider M-1 zoning on portion of those lands shown as SDA on the City's GP map and those lands shown as BP (Business Park) on the County zoning maps. Some additional M-1 Zoning for the 10 acre parcel on the east side of La Barr Meadows Road, currently shown as Residential by both the City and County, should also be considered. This will provide better transition from the high intensity industrial uses to north and those uses across the La Barr Meadows Road.

#### General Industrial (M-2) - 41.2 acres

Consider M-2 zoning for existing industrial businesses such as Kilroy's Towing and Auto Dismantling, Rare Earth Landscaping Materials and Hansen Brothers Enterprises. The M-2 Zoning District is intended to accommodate heavier industrial uses such as manufacturing, assembly & processing, storage & distribution of raw materials, aggregate plants, and other related uses. Existing industrial businesses listed are consistent with the uses allowed in the M-2 Zoning District. The area recommended for M-2 zoning is currently zoned M1 (Light Industrial) in the County and is shown as BP on the City's GP map. Establishing M-2 zoning would reflect the existing uses and avoid future zoning and use

#### **Corporate Business Park (CBP) ~ 19.7 acres**

The *Economic and Fiscal Conditions Study for the City of Grass Valley* (aka *SDA Study*) concluded that there was an overabundance of CBP within the City's SOI. Based on the excess of CBP zoning per the SDA Study and input from various property owners within the Study Area, City Staff recommended reducing the amount of CBP shown on the City's GP map and those lands shown as BP (Business Park) on the County zoning maps to a smaller area of 11 acres in the northern portion of the Study Area and 8 acres in the southern portion of the Study Area. This would still for allow for some corporate office space but at a more appropriate scale in relationship the existing and projected uses for the area.

#### Public (P) ~ 39.2 acres

Public zoning is intended for government uses and non-profit community service uses. County Staff has requested that the lands within the ownership of the County of Nevada, in the southern portion of the Study Area, currently shown as SDA on the City's GP map, be designated as Public (P). This zoning designation is appropriate for lands owned by and intended to be used by Public Agencies for public uses.



Figure 5 - Recommended Zoning

## SECTION 3 Wastewater Facility Alternatives

## **SECTION 3: WASTEWATER FACILITY ALTERNATIVES**

#### A. EXISTING FACILITIES

Currently, there are no public wastewater facilities within the Study Area. All developed parcels in the study area are currently served by individual onsite systems (i.e., septic systems) for treatment and disposal of sanitary wastes. Onsite systems typically include a septic tank for collection and settling of solids, with some type of leaching system for disposal (percolation) of the liquid into the soil. Continued use of onsite sewage disposal can occur as regulated by Nevada County Environmental Health Department. However, use of private systems for future development will limit the amount and type of development that can occur due to space limitations, setbacks and limited capacities of soils for absorption and filtration. The following is a description of existing public sewer facilities within City limits, north of the study area, as shown on *Figure 6*.



Figure 6 - Existing Facilities

#### McKnight Way / S. Auburn Street / Joyce Drive

This existing wastewater system consists of 6"-12" gravity sewer lines which convey flow to the Joyce Drive Sewer Lift Station. Plans showing existing wastewater lines in this area are somewhat limited, however the available data shows antiquated pipe (mostly 6") and manholes that would likely need to be replaced to improve capacity and reduce infiltration during winter events.

- Existing flow comprises of 83% of available Joyce Drive Lift Station total capacity (based on sewer model: 600gpm capacity and 500gpm winter flow)
- Available capacity is approx. 50 gpm = 0.07 MGD, assuming that all pipe and manholes are replaced from McKnight to Joyce Drive. (this assumes 50% of available capacity is for future projects within the existing service area)

#### **Taylorville Road**

This sewer system consists of 8" gravity sewer serving K-Mart and other commercial properties along Taylorville Road. There is a small sewer lift station located on Taylorville Road south of McKnight (north of study area). All sewer flow is conveyed under Highway 49 to the Joyce Drive sewer lift station, where it is then pumped back across Highway 49 to the point of discharge into the 18" sewer trunk main on Freeman Lane. There is opportunity for improvement to this system by extending gravity sewer with a direct connection to Freeman Lane, bypassing the Joyce Drive lift station. Even with this proposed improvement, this system has limited capacity for additional flow due to pipe size (8") and the amount of existing commercial connections.

- Capacity at 0.7 depth is approx. 0.46 MGD (8" flattest slope = 0.0050).
- Existing flow from approx. 34.5 acres commercial is approx. 29,325 gpd ADWF; and 0.28 MGD PWWF
- Available Capacity is approx. 0.46 0.28 = 0.18 MGD, assuming that gravity line is extended to Freeman Lane.

#### <u>Freeman Lane</u>

This sewer system consists of 18" sewer trunk main beginning at approx. 300' north of the intersection of W. McKnight and Freeman Lane and ending at the City Wastewater Treatment Plant. This system conveys flow from the Carriage House Subdivision (via force main), Wolf Creek co-housing and the Pine Creek shopping center. This system has capacity for additional conveyance of wastewater flow to the treatment plant, estimated as follows:

- Capacity at 0.7 depth is approx. 3.11 MGD (18" flattest slope = 0.0030).
- Existing flow from approx. 28.5 acre commercial and 189 residential units is approx. 60,324 gpd ADWF; and 0.49 MGD PWWF
- Available capacity is approx. 3.11 0.49 = 2.62 MGD

Our evaluation of the existing wastewater facilities indicates that the available capacity of the Joyce Drive lift station and Taylorville Road sewer system is minimal. Although the Joyce

Drive and Taylorville Road facilities could be improved and extended, the capacity is still limited and these facilities could only serve a portion of the future development within the Study Area. <u>The Freeman Lane sewer trunk main is identified as having the best available capacity for extension of service to properties within the Study Area.</u>

#### B. ALTERNATIVES FOR EXTENSION OF WASTEWATER FACILITIES

New development under the General Plan will result in increased demand for extension of wastewater collection systems and expanded wastewater treatment systems. The following wastewater project alternatives were considered in developing this feasibility analysis:

#### Alternative 1 - No Project

If wastewater is not extended into the study area, future growth opportunities will be severely limited due to space limitations and setbacks for septic systems, and limited capacities of soils for absorption and filtration. New business opportunities and expansion of existing businesses would need to comply with County Environmental Health Department and Regional Water Quality Control Board (RWQCB) requirements for privately maintained septic systems. Requirements for septic systems include avoidance of steep slopes, setbacks from water courses, drainage ways, property boundaries, and cut-banks; and setting aside large areas of land for Minimum Useable Sewage Disposal Areas (MUSDA's), which limit the amount of land available to expand economic development in the area.

Alternative #1					
Advantages	Disadvantages	Initial Cost			
<ul> <li>No cost to City</li> </ul>	<ul><li>Limited growth opportunities</li><li>Long-term loss of new revenue</li></ul>	None			

#### Alternative 2 – Connect to existing Joyce Drive Lift Station (*Figure 7*)

This alternative shown on *Figure 7* requires two new lift stations, routing all wastewater flows east of Highway 49 through the existing pipe system at McKnight Way and S. Auburn Street to the Joyce Drive lift station. This existing system has capacity limitations and would require substantial improvements to the entire pipe system and Joyce Drive lift station. It is estimated that approx. 10 additional EDU's could be discharged through the existing pipe/manhole and lift station system.

This alternative requires the two new lift stations to be utilized in series with existing Joyce Drive lift station (ie. Wastewater would be pumped to McKnight Way and then be pumped again at Joyce Drive), which creates maintenance and operation challenges because the optimization of the overall system would be dependent on both sewer lift station facilities.

Additional wastewater improvements such as ejector pumps and/or upgrades to the existing Taylorville Road lift station would also be required to serve the 3 commercial parcels west of Highway 49, at the end of Taylorville Road.



Figure 7 - Alternative 2

	Alternative #2					
	Advantages Disadvantages I					
	Needed improvements to existing wastewater system & Joyce Drive lift station	•	Requires substantial upgrades to existing Joyce Drive wastewater system			
		•	Potential operation & maintenance challenges			
•		•	Requires 2 lift stations to serve Study Area A ONLY			
		•	A future 3 <sup>rd</sup> lift station would be required to serve development within Area B	\$4.5 million		
		•	Long term operational & maintenance costs associated with multiple lift stations			
		•	Future upgrades required for existing Taylorville Road lift station			

#### Alternative 3 – Connect to existing sewer main at Freeman Lane (*Figure 8*)

This alternative shown on *Figure 8* requires two new lift stations, routing all wastewater flows to Lift Station #1 and pumped across Highway 49 to Freeman Lane.

Lift Station #2, located in a low area along La Barr Meadows Road would pump over the hill to the south and then gravity flow to Lift Station #1. New force main would extend from Lift Station #1 along La Barr Meadows Road, under Highway 49 to Taylorville Road, continue to McKnight Way and connect to the existing 18" gravity sewer main at Freeman Lane.

Additional wastewater improvements such as ejector pumps and/or upgrades to the existing Taylorville Road lift station would also be required to serve the 3 commercial parcels west of Highway 49, at the end of Taylorville Road.



Figure 8 - Alternative 3

	Alternative #3					
	AdvantagesDisadvantagesInitial Cost					
•	Retains capacity of Joyce Drive lift station Less up front costs than Alternative 2 & 4	<ul> <li>Requires 2 lift stations to serve Study Area A ONLY</li> <li>A future 3<sup>rd</sup> lift station would be required to serve development within Area B</li> <li>Long term operational &amp; maintenance costs associated with multiple lift stations</li> <li>Future upgrades required for existing Taylorville Road lift station</li> </ul>	\$4.0 million			

#### Alternative 4 – One regional Sewer Lift Station located on west side of Highway 49

This alternative shown on *Figure 9* requires only one regional lift station located on the west side of Highway 49, and could also replace the existing Taylorville Road lift station. The entire study area would gravity flow to two low spots and cross Highway 49 at two locations; one near the Crestview Drive intersection and the other just south of the existing Taylorville Road lift station. The gravity flow would terminate at a single lift station and pump up to Taylorville Road to McKnight Way and tie in to the existing gravity sewer main at Freeman Lane.

Fewer lift stations would significantly reduce long-term costs associated with operation and maintenance and is more consistent with the City of Grass Valley Sewer System Master Plan. This alternative would also have the potential to serve a larger geographic area (Area B), providing more opportunity for additional revenue.



Figure 9 - Alternative 4

	Alternative #4 – "Apparent Best" Alternative					
	Advantages		Disadvantages	Initial Cost		
•	Retains capacity of Joyce Drive lift station					
•	Serves a larger geographic area, providing more economic opportunity	•	Larger initial investment			
•	1 "regional" lift station reduces long-term operational & maintenance costs	•	Requires right-of-way and/or easements from at least 4 property owners	\$4.6 million		
•	More consistent with City's Sewer Master Plan					
-	Could replace existing Taylorville Road lift station					

#### C. <u>COMPARATIVE ANALYSIS & ESTIMATED COSTS</u>

A comparative analysis was made of the various alternatives for extension of wastewater facilities considering such factors as initial cost, operation cost, long-term maintenance (i.e. minimizing the number of lift station facilities), feasibility for future expansion, reliability and flexibility, and consistency with the City's Sewer Master Plan. Based on the comparative analysis, the "apparent best" alternative is *Alternative 4*. This alternative ranks the highest (best) in terms of accommodating future growth over a larger geographic area and reducing operation & maintenance costs by limiting the number of lift stations and replacing the existing lift station at Taylorville Road.

Other alternatives were considered (*Alternatives 2 & 3*), however these would require multiple lift stations that would incur higher operations / maintenance (O&M) costs, create operational challenges, and would serve a smaller geographic area.

Cost estimates for the project alternatives are included in *Appendix C*. The estimated costs include capital costs for facilities construction, as well as the necessary engineering, survey, inspection and construction administration. A 15% contingency allowance is also included. Costs that are not included in the estimates include environmental studies, project administration, annexation, financing, and operations /maintenance (O&M) costs.

COMPARATIVE ANALYSIS TABLE					
	Alternative 1	Alternative 2	Alternative 3	Alternative 4	
Description	<ul> <li>No Project</li> <li>Continue use of private septic systems</li> </ul>	<ul> <li>Requires two new lift stations on east side of Highway 49</li> <li>All wastewater flows east of Highway 49 routed north through the existing pipe system to the Joyce Drive Lift Station</li> </ul>	<ul> <li>Requires two new lift stations on east side of Highway 49</li> <li>All wastewater flows routed to a lift station and pumped across Highway 49 to Freeman Lane</li> </ul>	<ul> <li>Requires only one regional lift station located on the west side of Highway 49</li> <li>All wastewater flows routed to a lift station on west side of Highway 49 and pumped to Freeman Lane</li> </ul>	
Initial Cost	No Initial Cost	\$4.5 million	\$4.0 million	\$4.6 million	
Advantages	<ul> <li>No Cost</li> </ul>	<ul> <li>Needed improvements to existing wastewater system &amp; Joyce Drive lift station</li> </ul>	<ul> <li>Retains existing capacity of Joyce Drive lift station</li> <li>Less up-front costs than Alternative 2 &amp; 4</li> </ul>	<ul> <li>Retains existing capacity of Joyce Drive lift station</li> <li>Serves a larger geographic area, providing more economic opportunity</li> <li>Reduces long-term operational &amp; maintenance costs</li> <li>More consistent with City's Sewer Master Plan</li> <li>Replaces existing Taylorville Road lift station</li> </ul>	
Disadvantages	<ul> <li>Limited growth opportunities for the area</li> <li>Long-term loss of new revenue</li> <li>Future annexation unlikely without wastewater extension</li> </ul>	<ul> <li>Requires substantial upgrades to existing Joyce Drive wastewater system</li> <li>Requires 2 lift stations to serve Study Area ONLY</li> <li>Potential operational challenges created with utilizing 2 or more lift stations in series</li> <li>Increased operational &amp; maintenance costs associated with multiple lift stations</li> <li>Future upgrades required for existing Taylorville Road lift station</li> </ul>	<ul> <li>Requires 2 lift stations to serve Study Area A ONLY</li> <li>Increased operational &amp; maintenance costs associated with multiple lift stations</li> <li>Future upgrades required for existing Taylorville Road lift station</li> <li>A future 3<sup>rd</sup> lift station would be required to serve development within Area B</li> </ul>	<ul> <li>Larger initial investment</li> <li>Requires right-of-way and/or easements from at least 4 property owners</li> </ul>	

#### D. ESTIMATED WASTEWATER FLOWS

Wastewater flows for the Study Area were calculated as part of this wastewater feasibility analysis, using the following procedure:

- 1. Compiled data for individual parcels within the Study Area. This includes an assessment of acreage, existing land uses, site constraints and a reasonable assumption of developable potential. (see Appendix A Individual Parcel Exhibits)
- 2. Determined <u>Maximum Build-out</u> based on the following land use designations:
  - a. Existing County Zoning
  - b. City's General Plan Land Use Designations(based on 2020 General Plan)
  - c. Recommended Zoning (described in Section 2C of this report)
- 3. Tabulated Wastewater Demand Ratios (*Appendix B*) for each of the above referenced land use designations. Using the following City of Grass Valley Design Standards, we calculated the average dry weather flows for Maximum Buildout:
  - a. Residential Wastewater Demand = 191 gpd/unit (1 EDU per unit)
  - b. Commercial / Industrial / Business Park = 850 gpd per acre for Commercial and Industrial land use.
- 4. Quantified buildable land area (excluding known site constraints such as 30% slope, ponds, creeks, wetlands, etc.), and the resultant maximum residential density or maximum commercial / industrial building square footage.
- 5. Formulated an opinion of <u>Anticipated Build-out</u> using the data obtained from individual parcel report (i.e. site constraints, existing use, buildable area). It is unlikely that maximum build-out would occur on each parcel, therefore we estimated a more likely building coverage for each parcel to be high (100% coverage), medium (50% coverage) or low (20% coverage) depending on site constraints and development potential.
- 6. Calculated Wastewater Flow for Maximum Build-out for each of the land use designations. Calculations were made using the design criteria outlined in Section 8 of the City of Grass Valley Design Standards. Average Dry Weather Flow was determined using the City flow factor of 191 GPD / unit for Residential and 850 GPD / acre for Commercial, Business Park and Industrial land uses. Peak Flow was determined using the City design standards (table 8-1 along with safety factor of 2.0). Wastewater Flow Calculations for Maximum Build-out are provided in Appendix B.
- 7. Calculated the estimated wastewater flow for Anticipated Build-out based on the approximation of likely building coverage. For this calculation we used the above described anticipated building coverage area square footage. This calculation is intended to be a more specific and more realistic depiction of average flows, therefore it was necessary to assign an appropriate wastewater flow factor based on square footage. For purposes of this estimate, wastewater discharge is estimated at 125 gpd

per 1000 sf of "anticipated bldg coverage". This is based on fixture counts from existing/ comparable developed projects.

#### Estimated Total Wastewater Flow

• Existing

There are a total of 12 developed residential parcels and approx. 64,164 sf of developed commercial buildings within the Study Area. As shown on the Wastewater Flow Calculations in Appendix B, the total estimated peak flow is <u>0.11</u> <u>MGD from existing properties</u>. If wastewater facilities were extended to serve these existing customers, it is likely that the required lift station would have insufficient flows to operate efficiently. Low flowrates are of concern, particularly during the initial years of operation when the lift station facility is operating well below the design capacity. New development of approximately 20% of the Study Area would need to occur in order to generate sufficient flows for the lift station(s) to operate efficiently.

Included in this analysis is a calculation of wastewater flows for anticipated buildout based on County zoning. If land use were to occur *with current County zoning* (i.e. the City extends sewer service but does not annex the Study Area into the City) the estimated peak wastewater flow would be <u>1.06 MGD</u>.

• **City Land Use Designations** (based on City's 2020 General Plan)

The Estimated Peak Wastewater Flow *with City Zoning is 1.19 MGD* for Maximum Build-out and 0.45 MGD for Anticipated Build-out.

• **Recommended Zoning** (described in Section 2C of this report)

The Estimated Peak Wastewater Flow *with Recommended Zoning is 1.61 MGD* for Maximum Buildout and 0.54 MGD for Anticipated Buildout.

As noted in this report, a Regional Facility using **Alternative 4** could serve a larger geographic area. This facility could potentially receive 0.25 MGD peak flow (128 DU) in addition to the maximum determined flow of 1.61 MGD from the Study Area. <u>The</u> *total estimated peak flow for the regional lift station facility is 1.86 MGD*.

For comparison, the City Sewer Master Plan report, prepared in 2006 by Sauers Engineering, provides an estimated flow for a future collection area that closely resembles Study Areas A and B. Figure A-1 of this report shows an estimated average flow of 155,800 gpd, which would equate to a peak flow of 1.1 MGD. (note, this is based on a prior land use plan for Southhill SDA).

The calculated peak discharge using the highest, best use (maximum recommended zoning) for a regional lift station facility was determined to be 1.86 MGD. This is less than the available capacity (2.62 MGD) of the 18" sewer trunk main on Freeman Lane, which would indicate that the proposed point of connection at Freeman Lane is adequate to serve the Study Area.

# SECTION 4 Management & Financing

### SECTION 4: MANAGEMENT AND FINANCING

#### A. <u>POTENTIAL FINANCING OPTIONS</u>

Implementation of the wastewater extension project, as described in this report, will entail securing funding and/or financing. The following funding sources are available for wastewater projects and could be considered:

PROGRAM	PROGRAM DESCRIPTION & KEY	ADMINISTERING AGENCY /
	FEATURES	INTERNET ADDRESS
Clean Water State Revolving Fund (CWSRF)	<ul> <li>Eligible projects include construction of publicly owned facilities (including sewer)</li> <li>Low interest rates (2.2% Avg)</li> <li>Flexible repayment terms up to 20 yrs</li> <li>Can fund up to 100% of project costs</li> <li>Repayment begins 1 yr after construction</li> <li>Maximum \$50 million per project</li> <li>Principal forgiveness up to 50% of loan for qualifying communities (depending on median income)</li> </ul>	EPA & State Water Resources Control Board <a href="http://www.waterboards.ca.gov/water_issues/">http://www.waterboards.ca.gov/water_issues/</a> <a href="http://www.waterboards.ca.gov/water_issues/">http://www.waterboards.ca.gov/water_issues/</a> <a href="http://www.waterboards.ca.gov/water_issues/">http://www.waterboards.ca.gov/water_issues/</a> <a href="http://www.materboards.ca.gov/water_issues/">http://www.waterboards.ca.gov/water_issues/</a> <a href="http://www.materboards.ca.gov/water_issues/">http://www.waterboards.ca.gov/water_issues/</a> <a href="http://www.materboards.ca.gov/water_issues/">http://www.waterboards.ca.gov/water_issues/</a>
Infrastructure State Revolving Fund (ISRF) Program	<ul> <li>Low cost, long-term infrastructure financing for local governments</li> <li>Flexible repayment terms up to 30 yrs</li> <li>Can fund up to 100% of project costs</li> <li>No matching funds required</li> <li>Several repayment options</li> <li>Maximum \$10 million per project</li> </ul>	California Infrastructure & Economic Development Bank (I-Bank) <u>http://www.ibank.ca.gov/infrastructure_loans</u> <b>Carlos Nakata, Manager</b> E-mail: <u>ibank@ibank.ca.gov</u> Phone: (916) 322-1399
Community Facilities District (CFD) or Special Assessment District	<ul> <li>May be set by the City as a "special property tax" to help fund public improvements</li> <li>Taxes raised by the CFD are used to pay back the principal and interest on the bonds</li> <li>A special assessment may only be levied against properties which have been identified as having received a direct and unique "benefit" from the public project.</li> </ul>	City of Grass Valley
City's Current Impact Fee Program	✓ Current Impact Fee Program is specifically for existing infrastructure. To use this fee or a portion of this fee as a funding mechanism for new infrastructure would likely require a new Impact Fee Study	City of Grass Valley

 Table 4a – Financing Options

#### Clean Water State Revolving Fund (CWSRF)

The Clean Water State Revolving Fund (CWSRF) provides loans for the construction of water quality improvement projects. The fund is administered by the Environmental Protection Agency and state agencies. The CWSRF replaced the Clean Water Act Construction Grants program. Congress established the fund in the Water Quality Act of 1987.

Clean Water Act sections 212, 319, and 320 provide the statutory authority for programs funded by the CWSRF. The CWSRF is authorized to provide financial assistance for the construction of publicly owned treatment works, the development and execution of state's comprehensive conservation management plans, and the development and execution of an estuary conservation and management plan.

Eligible projects under CWA section 212 include the capital costs for the construction and maintenance of publicly owned treatment works including **wastewater collection and treatment**, publicly owned municipal storm water projects, sewer overflow, water treatment systems & storage, green infrastructure, water quality portions of municipal landfill projects, water conservation and reuse, and Energy Conservation and Efficiency.

Federal and state laws historically have prohibited the CWSRF from offering grants, and have required complete repayment of all financial assistance. However, beginning in 2009, federal appropriations authorized grants, negative interest rates, and principal forgiveness on a limited basis. California law has been modified to accommodate these additional types of subsidy.

Based on 2010 census criteria related to median income and population, it appears Grass Valley may qualify as a "small, disadvantaged community" (SDAC) which could potentially allow principal forgiveness (PF) up to 50% of the loan, not to exceed \$4 million. For assistance in applying and questions regarding qualifications for SDAC, the point of contact at the State Water Resources Control Board is Meghan Brown, Division of Financial Assistance at 916-341-5729.

#### Infrastructure State Revolving Fund (ISRF) Program

The Infrastructure State Revolving Fund (ISRF) Program provides low-cost financing to public agencies for a wide variety of infrastructure projects. ISRF Program funding is available in amounts ranging from \$250,000 to \$10,000,000, with loan terms of up to 30 years. Loans are categorized into two tiers: Tier 1 loans are available up to \$10 million and Tier 2 loans are available up to \$2.5 million.

Eligible applicants include any subdivision of a local government, including cities, counties, redevelopment agencies, special districts, assessment districts, joint powers authorities and non-profit corporations formed on behalf of a local government.

Eligible project categories include city streets, county highways, state highways, drainage, water supply and flood control, educational facilities, environmental mitigation measures, parks and recreational facilities, port facilities, public transit, **sewage collection and treatment**, solid waste collection and disposal, water treatment and distribution, defense conversion, public safety facilities, and power and communications facilities. Sewage Collection and Treatment is defined as "pipes, pumps, and conduits that collect wastewater from residential, manufacturing, and commercial establishments, the equipment, structures, and facilities used in treating wastewater to reduce or eliminate impurities or contaminants, and the facilities used in disposing of, or transporting, remaining sludge, as well as all equipment used in the maintenance and operation of the foregoing.

#### Community Facilities District (CFD)

California Proposition 13 restricts the ability of local governments to raise property taxes by more than the rise in inflation. As a result, new ways to fund public improvements in local jurisdictions were considered. CFD's (also known as "Mello-Roos" fees) are generally considered an option to fund public improvements since Proposition 13 limits property taxes.

A CFD is an area where a special property tax on real estate, in addition to the normal property tax, is imposed on those real properties within a Community Facilities District. These districts seek public financing through the sale of bonds for the purpose of financing public improvements and services. These services may include streets, water, sewage and drainage, electricity, infrastructure, schools, parks and police protection to newly developing areas. The tax paid is used to make the payments of principal and interest on the bonds.

#### City's Current Impact Fee Program

The City's current impact fee represents the customer's share of capital costs associated with the City's wastewater system. Cost components included are for the treatment plant and collection system and are based on the demand ratios of a wastewater service.

Currently, these impact fees are identified in an impact fee study for existing infrastructure. Consideration of these fees should be given as a potential source of revenue to help offset the costs of the extension of wastewater infrastructure into new development areas.
### B. <u>TIMING AND PROCEDURE FOR IMPLEMENTATION</u>

Timing for implementation to extend wastewater facilities to the Study Area is dependent upon several factors and involves multiple steps. The following initial steps should be taken in regard to facilities management and project financing:

- Initial Study Environmental Review for the overall project
- General Plan Amendment
- Pre-zoning of the Study Area
- Annexation to the City of Grass Valley
- Revise or amend the existing wastewater ordinance and City sewer system capital improvement program (CIP) to include the extension of wastewater facilities required for service to existing and future customers within the annexation area, provided funding mechanisms are determined.
- Acquire grants and/or loan financing (see Table 4a for financing options)
- Assess sewer impact fees to individual properties at time of development

### C. <u>OPERATION, MAINTENANCE AND MANAGEMENT</u>

Once constructed, the project facilities will require ongoing operation and maintenance, the costs for which will be paid through the collection of fees or user charges from all properties served by the project. Wastewater collection, treatment and disposal facilities would be owned and operated by the City of Grass Valley. Operation and maintenance (O&M) activities include facility inspections, maintenance of collection system pipelines and valves, lift station and piping, electrical/mechanical control equipment, and maintenance & monitoring of the wastewater treatment plant. For the purposes of this Feasibility Analysis, it is estimated that O&M costs would be paid by standard City sewer billing rates. O&M costs are spread equally among all properties served jointly by City wastewater facilities.

# Figures 1-9







STUDY AREA WASTEWATER FEASIBILITY ANALYSIS CITY OF GRASS VALLEY









**RECOMMENDED ZONING** 

FIGURE



WASTEWATER FEASIBILITY ANALYSIS CITY OF GRASS VALLEY









# APPENDIX A PARCEL REPORTS

PARCEL REPORT #1 APN 09-620-12



SITE INFORMATION	
APN	09-620-12
Parcel Area (Gross)	19.1 Acres
Nevada County Zoning	RA-1.5
City Land Use Designation	UED
Existing Site Condition	Undeveloped

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~25%
Other Site Constraints	Unknown
Developable Area (Net)	~14.3 acres

- 1. Assumes clustering at an overall density of 1 residential unit per acre of "gross parcel area".
- 2. Assumes clustering at on overall density of 1 residential unit per 1.5 acres (requires the availability of treated water).

SUMMARY:	
Existing Land Use	Vacant
Additional Development Potential	High
Existing Building Coverage	None
Estimated Density (Grass Valley)	19 Units (1)
Estimated Density (Nevada County)	12 Units (2)

PARCEL REPORT #2 APN 22-140-35



SITE INFORMATION	
APN	22-140-35
Parcel Area (Gross)	36.6 Acres
Nevada County Zoning	RA-1.5
City Land Use Designation	UED
Existing Site Condition	Undeveloped

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~50%
Other Site Constraints	Drainage (Ellens Creek)
Developable Area (Net)	~18.3 acres

- 1. Assumes clustering at an overall density of 1 residential unit per acre of "gross parcel area".
- 2. Assumes clustering at on overall density of 1 residential unit per 1.5 acres (requires the availability of treated water).
- 3. Secondary access is questionable.

SUMMARY:	
Existing Land Use	Vacant
Additional Development Potential	Medium (3)
Existing Building Coverage	None
Estimated Density (Grass Valley)	36 Units (1)
Estimated Density (Nevada County)	24 Units (2)

## PARCEL REPORT #3 APN's 22-160-05, 22-230-10, 22-230-52, 22-230-53, 22-200-36 & 22-200-37



SITE INFORMATION	
APN's	22-160-05, 22-230-10, 22-230-52, 22-230-53, 22-200-36 & 22-200-37
Parcel Area (Gross)	80.7 Acres
Nevada County Zoning	RA-1.5
City Land Use Designation	UED
Existing Site Condition	Undeveloped

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~70%
Other Site Constraints	Unknown
Developable Area (Net)	~ 25 acres

- 1. Assumes clustering at an overall density of 1 residential unit per acre of "gross parcel area".
- Assumes clustering at on overall density of 1 residential unit per 1.5 acres (requires the availability of treated water).

SUMMARY:	
Existing Land Use	Vacant
Additional Development Potential	High
Existing Building Coverage	None
Estimated Density (Grass Valley)	80 Units (1)
Estimated Density (Nevada County)	53 Units (2)

### PARCEL REPORT #4 APN 22-140-05



SITE INFORMATION	
APN	22-140-05
Parcel Area (Gross)	1.5 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	~65% Developed
	(Grange Hall)

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	10%
Other Site Constraints	~ 65% Developed
Developable Area (Net)	~1.35 acres

- Notes: 1. Developable area is reduced due to existing development on the site, however potential exists for increased use and/or redevelopment.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan).
- 3. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

### SUMMARY:

Existing Land Use Additional Development Potential Existing Building Coverage Max. Building Coverage (Grass Valley) Max. Building Coverage (County)

Grange Hall Medium.(1) 3,200 sf 14,700 sf (2) 26,000 sf (3)



SITE INFORMATION	
APN	22-140-08, 22-140-10, 22-140-11, 22-140-12, 22-140-22 & 22-140-25
Parcel Area (Gross)	27.9 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Developed (Hansen Bros.)

Slopes in excess of 30%	~50%
Other Site Constraints	~ 50% Developed
Developable Area (Net)	~ 14 acres

- 1. Existing development on the site unlikely to change. Majority of undeveloped portion of property includes steep slopes.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- 3. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

Existing Land Use	Industrial
Additional Developement Potential	Low (1)
Existing Building Coverage	15,684 sf
Max. Building Coverage (Grass Valley)	152,000 sf (2)
Max. Building Coverage (County)	298,000 sf (3)



SITE INFORMATION	
APN 22-140-21	
Parcel Area (Gross)	2.8 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation BP (Business Park)	
Existing Site Condition	Partially Developed

Slopes in excess of 30%	~50%
Other Site Constraints	Partially Developed
Developable Area (Net)	~1.4 acres

- Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
   Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Vacant
Additional Developement Potential	Medium
Existing Building Coverage	0 sf
Max. Building Coverage (Grass Valley)	15,200 sf (1)
Max. Building Coverage (County)	30,000 sf (2)

PARCEL REPORT #7 APN 22-140-36



SITE INFORMATION		
APN 22-140-36		
Parcel Area (Gross)	2.8 Acres	
Nevada County Zoning	M-1 (Industrial)	
City Land Use Designation	n BP (Business Park)	
Existing Site Condition	Mostly Developed	

SITE CONSTRAINTS & DEVELOPABILITY	
~30%	
Mostly Developed	
Flagpole Lot	
~1.4 acres	

- Existing development on the site unlikely to change.
   Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan). Building coverage is reduced due to site constraints.

SUMMARY:	
Existing Land Use	Industrial
Additional Developement Potential	Low (1)
Existing Building Coverage	8,540 sf
Max. Building Coverage (Grass Valley)	15,200 sf (2)
Max. Building Coverage (County)	22,000 sf (3)

## PARCEL REPORT #8 APN 22-140-38



SITE INFORMATION	
APN 22-140-38	
Parcel Area (Gross)	2.2 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Partially Developed

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~30%
Other Site Constraints	Seasonal Swale
Developable Area (Net)	~1.2 acres

- Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
   Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Office
Additional Developement Potential	Medium
Existing Building Coverage	3,440 sf
Max. Building Coverage (Grass Valley)	13,000 sf (1)
Max. Building Coverage (County)	24,000 sf (2)



SITE INFORMATION		
APN	22-140-47 & 22-140-48	
Parcel Area (Gross)	2.0 Acres	
Nevada County Zoning	M-1 (Industrial)	
City Land Use Designation	BP (Business Park)	
Existing Site Condition	Mostly Developed	

Slopes in excess of 30%	~25%.
Other Site Constraints	Mostly Developed
Developable Area (Net)	~ 1.5 acres

- 1. Existing development on the site unlikely to change.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- 3. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Industrial
Additional Developement Potential	Low (1)
Existing Building Coverage	3,626 sf
Max. Building Coverage (Grass Valley)	16,000 sf (2)
Max. Building Coverage (County)	26,000 sf (3)

### PARCEL REPORT #10 APN 22-140-50



SITE INFORMATION	
APN 22-140-50	
Parcel Area (Gross)	2.2 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Mostly Developed

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~ 40%
Other Site Constraints	Mostly Developed
Developable Area (Net)	~1.3 Acres

### Notes:

- 1. Existing development on the site unlikely to change. Majority of undeveloped portion of property includes steep slopes.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- 3. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

# SUMMARY:Existing Land UseOfficeAdditional Development PotentialLow (1)Existing Building Coverage8,398 sfMax. Building Coverage (Grass Valley)14,400 sf (2)Max. Building Coverage (County)26,000 sf (3)



SITE INFORMATION	
APN 22-150-04	
Parcel Area (Gross)	0.3 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Single family residence

SHE CONSTRAINTS & DEVELOPADILIT	SITE CONSTRAINTS &	DEVELOPABILITY
---------------------------------	--------------------	----------------

Slopes in excess of 30%	None
Other Site Constraints	Existing Home
Developable Area (Net)	~0.25 acres

- <u>Notes:</u>
   Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
   Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Residental
Additional Developement Potential	Medium
Existing Building Coverage	1,344 sf
Max. Building Coverage (Grass Valley)	2700 sf (1)
Max. Building Coverage (County)	3,800 st (2)

### PARCEL REPORT #12 APN 22-150-08



SITE INFOR	MATION
APN 22-150-08	
Parcel Area (Gross)	0.02 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Undeveloped

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~50%	
Other Site Constraints	Narrow & Small	
Developable Area (Net)	0.01 acres	

Notes:
1. Future development on the site unlikely to shape & size of parcel. Potential to merge with adjacent parcel or dedicated as right-of-way.

Existing Land Use	Government None
Existing Building Coverage	0 sf
Max. Building Coverage (Grass Valley)	0 sf (1)
Max. Building Coverage (County)	0 sf (1)

## PARCEL REPORT #13 APN 22-150-09



SITE INFORMATION	
APN	22-150-09
Parcel Area (Gross)	0.1 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Automotive Use

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	None
Other Site Constraints	Mostly Developed
Developable Area (Net)	0.1 acres

- 1. Existing development on the site unlikely to change.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- 3. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Automotive
Additional Developement Potential	Low (1)
Existing Building Coverage	735 sf
Max. Building Coverage (Grass Valley)	1,100 sf (2)
Max. Building Coverage (County)	2,000 sf (3)

# PARCEL REPORT #14 APN 22-150-10 STATE HIGHWAY 49 150 0.5 Acres

SITE INFOR	MATION
APN	22-150-10
Parcel Area (Gross)	0.5 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Single family residence

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~15%
Other Site Constraints	Mostly Developed
Developable Area (Net)	0.43 Acres

- 1. Existing development on the site unlikely to change.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Residential
Additional Developement Potential	Low (1)
Existing Building Coverage	930 sf
Max. Building Coverage (Grass Valley)	4,600 sf (2)
Max. Building Coverage (County)	7,600 sf (3)



SITE INFOR	MATION
APN 22-150-11	
Parcel Area (Gross)	0.1 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Undeveloped

Slopes in excess of 30%	~10%
Other Site Constraints	Very Narrow
Developable Area (Net)	0.05 acres

### Notes:

1. Potential location for sewer crossing under Highway 49.

### SUMMARY:

Existing Land Use Additional Developement Potential

Existing Building Coverage 0 s Max. Building Coverage (Grass Valley) Nor Max. Building Coverage (County) Nor

Vacant None O sf None None



### SITE INFORMATION

APN	22-150-03, 22-150-15,
	22-150-16, 22-150-17
Y.	& 22-150-33
Parcel Area (Gross)	1.6 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Mixed Uses

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~10%
Other Site Constraints	Partially Developed
Developable Area (Net)	~ 1.4 acres

### Notes:

- 1. Additional development opportunities exist on portions of the property (ies). on the site unlikely to change.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- 3. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

# SUMMARY:Existing Land UseMixed UsesAdditional Developement PotentialHigh (1)Existing Building Coverage2,700 sfMax. Building Coverage (Grass Valley)16,200 sf (2)Max. Building Coverage (County)30,000 sf (3)



SITE INFOR	MATION
APN	22-150-18
Parcel Area (Gross)	0.4 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Single family residence

Slopes in excess of 30%	None
Other Site Constraints	Existing Home
Developable Area (Net)	~ 0.4 Acres

- Notes: 1. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- 2. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

Existing Land Use	Residential
Additional Development Potential	Low
Existing Building Coverage	936 sf
Max. Building Coverage (Grass Valley)	4,300 sf (1)
Max. Building Coverage (County)	7,800 sf (2)

## PARCEL REPORT #18 APN 22-150-21



SITE INFORI	MATION
APN	22-150-21
Parcel Area (Gross)	1.2 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Single family residence

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~20%
Other Site Constraints	Existing Residence
Developable Area (Net)	~0.96 acres

- 1. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- 2. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Residential
Additional Developement Potential	Medium
Existing Building Coverage	1,128 sf
Max. Building Coverage (Grass Valley)	10,500 sf (1)
Max. Building Coverage (County)	18,000 sf (2)

# PARCEL REPORT #19 APN 22-150-22



SITE INFOR	MATION	
APN	22-150-22	
Parcel Area (Gross)	3.0 Acres	
Nevada County Zoning	M-1 (Industrial)	
City Land Use Designation	BP (Business Park)	
Existing Site Condition	Single family residence	

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~75%	
Other Site Constraints	Partially Developed	
Developable Area (Net)	~ 0.75 acres	

- Notes: 1. Existing single family residence. Majority of undeveloped portion of property includes steep slopes.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan). Max. Building Coverage reduced due to site constraints.
- 3. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Residential
Additional Development Potential	Low (1)
Existing Building Coverage	992 sf
Max. Building Coverage (Grass Valley)	8,200 sf (2)
Max. Building Coverage (County)	13,000 sf (3)



SITE INFOR	MATION	
APN	22-150-28	
Parcel Area (Gross)	0.3 Acres	
Nevada County Zoning	M-1 (Industrial)	
City Land Use Designation	BP (Business Park)	
Existing Site Condition	Multi-family	

Slopes in excess of 30%	~10%
Other Site Constraints	Partially Developed
Developable Area (Net)	0.27 Acres

- 1. Existing development on the site unlikely to change. Majority of undeveloped portion of property includes steep slopes.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Residential
Additional Developement Potential	Low (1)
Existing Building Coverage	628 sf
Max. Building Coverage (Grass Valley)	2,900 sf (2)
Max. Building Coverage (County)	5,000 sf (3)



SITE INFOR	MATION
APN	22-150-32
Parcel Area (Gross)	0.5 Acres
Nevada County Zoning	M-1 (Industrial)
City Land Use Designation	BP (Business Park)
Existing Site Condition	Single family residence

Slopes in excess of 30%	~25%
Other Site Constraints	Partially Developed
Developable Area (Net)	~0.4 acres

- Existing development on the site unlikely to change.
   Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- 3. Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Residential
Additional Developement Potential	Low (1)
Existing Building Coverage	1,164 sf
Max. Building Coverage (Grass Valley)	4,100 sf (2)
Max. Building Coverage (County)	7,000 sf (3)

## PARCEL REPORT #22 APN 22-200-66



SITE INFOR	MATION	
APN	22-200-66	
Parcel Area (Gross)	14.6 Acres	
Nevada County Zoning	RA-1.5	
City Land Use Designation	BP (Business Park)	
Existing Site Condition	Undeveloped	

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~96%	
Other Site Constraints	Unknown	
Developable Area (Net)	0.58 acres	

- 1. Commercial development on the site unlikely due to steep slopes. Opportunity exists to combine acreage with adjacent SPI properties.
- 2. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan). Max. Building Coverage reduced due to site constraints.
- 3. Site unbuildable due to steep slopes, however density could be transferred to adjacent SPI properties.

SUMMARY:	
Existing Land Use	Vacant
Additional Developement Potential	Low (1)
Existing Building Coverage	None
Max. Building Coverage (Grass Valley)	6,400 sf (1)
Estimated Density (County)	9 units (3)



SITE INFOR	MATION	
APN	22-150-23, 22-150-30, & 29-350-12	
Parcel Area (Gross)	19.5 Acres	
Nevada County Zoning	M-1 (Industrial)	
City Land Use Designation	BP (Business Park)	
Existing Site Condition	Undeveloped	

Slopes in excess of 30%	~30%
Other Site Constraints	Unknown
Developable Area (Net)	~ 13.5 acres

- 1. Maximum Building Coverage = 25%, per Table 3-2 (2020 General Plan)
- Maximum Building Coverage is based on a maximum impervious surface of 85% for Industrial land use per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Vacant High
Existing Building Coverage Max Building Coverage (Grass Valley)	None 146 000 sf (1)
Max. Building Coverage (County)	170,000 sf (2)



SITE INFOR	MATION	
APN 22-140-41		
Parcel Area (Gross)	2.5 Acres	
Nevada County Zoning	BP (Business Park)	
City Land Use Designation	C (Commercial)	
Existing Site Condition	Automotive (Kilroys)	

Slopes in excess of 30%	~5%
Other Site Constraints	Mostly Developed
Developable Area (Net)	~2.3 acres

- 1. Existing development on the site unlikely to change.
- 2. Maximum Building Coverage (Commercial) = 50%, per Table 3-2 (Grass Valley 2020 General Plan).
- 3. Maximum Building Coverage (Business Park) is based on a maximum impervious surface of 50% for per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Industrial
Additional Development Potential	Low (1)
Existing Building Coverage	5,760 sf
Max. Building Coverage (Grass Valley)	51,700 sf (2)
Max. Building Coverage (County)	20,000 sf (3)


SITE INFORMATION	
APN 22-140-43	
Parcel Area (Gross)	2.6 Acres
Nevada County Zoning BP (Business Park)	
City Land Use Designation C (Commercial)	
Existing Site Condition Industrial (Rare Earth)	

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~ 20%
Other Site Constraints	Mostly Developed
Developable Area (Net)	~2.1 acres

- <u>Notes:</u> 1. Existing development on the site unlikely to change.
- 2. Maximum Building Coverage (Commercial) = 50%, per Table 3-2 (Grass Valley 2020 General Plan).
- 3. Maximum Building Coverage (Business Park) is based on a maximum impervious surface of 50% for per Policy 1.23 (Nevada County General Plan).

SUMMARY:	11/2
Existing Land Use Additional Development Potential	Industrial Low (1)
Existing Building Coverage	Temporary 45 300 sf (2)
Max. Building Coverage (County)	20,000 sf (3)

## PARCEL REPORT #26 APN 22-150-26



SITE INFORMATION		
APN 22-150-26		
Parcel Area (Gross)	arcel Area (Gross) 0.4 Acres	
Nevada County Zoning	C2 (Community Comm)	
City Land Use Designation C (Commercial)		
Existing Site Condition	Single family residence	

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~20%
Other Site Constraints	Existing Home
Developable Area (Net)	0.32 Acres

- 1. Existing development on the site unlikely to change.
- 2. Maximum Building Coverage (Commercial) = 50%, per Table 3-2 (Grass Valley 2020 General Plan).
- Maximum Building Coverage (Community Commercial) is based on a maximum impervious surface of 85% for per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Residential
Additional Development Potential	Low (1)
Existing Building Coverage	1,386 sf
Max. Building Coverage (Grass Valley)	7,000 sf (2)
Max. Building Coverage (County)	7,000 sf (3)



SITE INFORMATION		
APN 22-150-27		
Parcel Area (Gross)	0.5 Acres	
Nevada County Zoning	Zoning C2 (Community Comm)	
City Land Use Designation	City Land Use Designation C (Commercial)	
Existing Site Condition	Single family residence	

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~30%
Other Site Constraints	Existing Home
Developable Area (Net)	0.35 acres

- 1. Existing development on the site unlikely to change.
- 2. Maximum Building Coverage (Commercial) = 50%, per Table 3-2 (Grass Valley 2020 General Plan).
- Maximum Building Coverage (Community Commercial) is based on a maximum impervious surface of 85% for per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Residential
Additional Development Potential	Low (1)
Existing Building Coverage	857 sf
Max. Building Coverage (Grass Valley)	7,600 sf (2)
Max. Building Coverage (County)	8,500 sf (3)

### PARCEL REPORT #28 APN 22-150-29



SITE INFORMATION		
APN	22-150-29	
Parcel Area (Gross)	0.4 Acres	
Nevada County Zoning C2 (Community Com		
City Land Use Designation	tion C (Commercial)	
Existing Site Condition	Single family residence	

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~30%	
Other Site Constraints	Existing Home	
Developable Area (Net)	0.28 acres	

- Existing development on the site unlikely to change.
  Maximum Building Coverage (Commercial) = 50%, per Table 3-2 (Grass Valley) 2020 General Plan).
- 3. Maximum Building Coverage (Community Commercial) is based on a maximum impervious surface of 85% for per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Residential
Additional Development Potential	Low (1)
Existing Building Coverage	1,152 sf
Max. Building Coverage (Grass Valley)	6,100 sf (2)
Max. Building Coverage (County)	5,600 sf (3)

### PARCEL REPORT #29 APN's 22-160-04, 22-160-06 & 22-160-33



SITE INFORMATION				
APN	22-160-04, 22-160-06 & 22-160-33			
Parcel Area (Gross)	45.1 Acres			
Nevada County Zoning	BP (Business Park)			
City Land Use Designation	SDA (Special Dev Area)			
Existing Site Condition	Undeveloped			

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~15%
Other Site Constraints	Wetlands & Pond
Developable Area (Net)	~ 26 acres

- 1. Environmental Review previously conducted under "Southhill Village" project.
- Assume 50% business park & 50% industrial development potential. Maximum Building Coverage (Business Park & Commercial) = 37.5% (average), per Table 3-2 (Grass Valley 2020 General Plan).
- 3. Maximum Building Coverage (Business Park) is based on a maximum impervious surface of 50% for per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Vacant
Additional Development Potential	High (1)
Existing Building Coverage	None
Max. Building Coverage (Grass Valley)	416,000 sf (2)
Max. Building Coverage (County)	325,000 sf (3)

## PARCEL REPORT #30 APN's 22-331-05, 22-331-06, 22-331-07, 22-331-09 & 22-331-12



SITE INFORMATION					
APN 22-331-05, 22-331-06, 22-331-07, 22-331-09, & 22-331-12					
Parcel Area (Gross)	39.2 Acres				
Nevada County Zoning	BP (Business Park)				
City Land Use Designation	SDA (except 22-331-12)				
Existing Site Condition Undeveloped					

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	~ 15%
Other Site Constraints	Unknown
Developable Area (Net)	~ 27 acres

### Notes:

1. Environmental Review previously conducted under "Southhill Village" project.

- 2. Assume 50% business park & 50% industrial development potential. Maximum Building Coverage (Business Park & Commercial) = 37.5% (average), per Table 3-2 (Grass Valley 2020 General Plan).
- Maximum Building Coverage (Business Park) is based on a maximum impervious surface of 50% for per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Vacant
Additional Development Potential	High
Existing Building Coverage	None
Max. Building Coverage (Grass Valley)	443,000 sf (2)
Max. Building Coverage (County)	350,000 sf (3)

PARCEL REPORT #31 APN 22-331-08



SITE INFORI	MATION
APN	22-331-08
Parcel Area (Gross)	0.5 Acres
Nevada County Zoning	BP (Business Park)
City Land Use Designation	SDA (Special Dev Area)
Existing Site Condition	Single family residence

### SITE CONSTRAINTS & DEVELOPABILITY

Slopes in excess of 30%	None
Other Site Constraints	Existing Home
Developable Area (Net)	~ 0.3 acres

- 1. Existing single family residence.
- 2. Assume 50% commercial & 50% industrial development potential. Maximum Building Coverage (Commercial & Industrial) = 50%, per Table 3-2 (Grass Valley 2020 General Plan).
- 3. Maximum Building Coverage (Business Park) is based on a maximum impervious surface of 50% for per Policy 1.23 (Nevada County General Plan).

SUMMARY:	
Existing Land Use	Vacant
Additional Development Potential	Low (1)
Existing Building Coverage	1,564 sf
Max. Building Coverage (Grass Valley)	6,500 sf (2)
Max. Building Coverage (County)	4,500 sf (3)

# APPENDIX B WASTEWATER CALCULATIONS

Wastewater Feasibility Analysis - La Barr Meadows Road and Taylorville Road City of Grass Valley

### WASTEWATER FLOW CALCULATIONS FOR: MAXIMUM BUILDOUT BASED ON CITY GENERAL PLAN

Land Use	TOTAL AVERA	AGE GPD	AVERAGE DRY WEATHER FLOW		FACTORED	PEAK	TOTAL PE	AK FLOW
Designation	Land Use Description	Units	(gpd/unit)	GPD	FLOW	FACTOR	GPD	MGD
					(ADWF x 2.0)	(City Std. Fig. 1)		
UED	Residential Single Family	136 ea	191	25,976	51,952	4.8	249,370	0.25
BP	Business Park	83.4 ac	850	70,890	141,780	4.1	581,298	0.58
С	Commercial	6.4 ac	850	5,440	10,880	5.1	55,488	0.06
SDA	Special Development Area	84.8 ac	850	72,080	144,160	4.1	591,056	0.59
				174,386	348,772	3.4	1,185,825	1.19

Note: Based on City Design Standard, wastewater generation factor is 191 gpd per unit for Residential and 850 gpd per acre for Commercial and Industrial land use.

## WASTEWATER FLOW CALCULATIONS FOR: ANTICIPATED BUILDOUT BASED ON CITY GENERAL PLAN

Land Use	TOTAL AVERA	AL AVERAGE GPD AVERAGE DRY		<b>WEATHER FLOW</b>	FACTORED	PEAK	TOTAL PE	AK FLOW
Designation	Land Use Description	Units	(gpd/unit)	GPD	FLOW	FACTOR	GPD	MGD
					(ADWF x 2.0)	(City Std. Fig. 1)		
UED	Residential Single Family	68 ea	191	12,988	25,976	5.1	132,478	0.13
BP	Business Park	201,527 sf	0.125	25,191	50,382	4.8	241,832	0.24
С	Commercial	12,359 sf	0.125	1,545	3,090	5.1	15,758	0.02
SDA	Special Development Area	115,499 sf	0.125	14,437	28,875	5.1	147,261	0.15
				54,161	108,322	4.2	454,953	0.45

Note:

For purposes of this estimate, wastewater discharge is estimated at 125 gpd per 1000 sf of "anticipated bldg coverage". This is based on fixture counts from existing/ comparable developed projects.

Wastewater Feasibility Analysis - La Barr Meadows Road and Taylorville Road City of Grass Valley

### WASTEWATER FLOW CALCULATIONS FOR: **EXISTING DEVELOPED PROPERTIES**

Land Use	TOTAL AVERA	AGE GPD	AVERAGE DRY V	VEATHER FLOW	FACTORED	PEAK	TOTAL PE	AK FLOW
Designation	Land Use Description	Units	(gpd/unit)	GPD	FLOW	FACTOR	GPD	MGD
					(ADWF x 2.0)	(City Std. Fig. 1)		
varies	Residential Single Family	12 ea	191	2,292	4,584	5.1	23,378	0.02
varies	Commercial/ Industrial	64,164 sf	0.125	8,021	16,041	5.1	81,809	0.08
				10,313	20,625	5.1	105,188	0.11

Note:

For purposes of this estimate, wastewater discharge is estimated at 125 gpd per 1000 sf of "existing bldg coverage". This is based on fixture counts from existing/ comparable developed projects.

## WASTEWATER FLOW CALCULATIONS FOR: MAXIMUM BUILDOUT BASED ON EXISTING COUNTY ZONING

Land Use	TOTAL AVERA	AGE GPD	AVERAGE DRY V	<b>VEATHER FLOW</b>	FACTORED	PEAK	TOTAL PE	AK FLOW
Designation	Land Use Description	Units	(gpd/unit)	GPD	FLOW	FACTOR	GPD	MGD
					(ADWF x 2.0)	(City Std. Fig. 1)		
RA	<b>Residential Single Family</b>	101 ea	191	19,291	38,582	5.1	196,768	0.20
C-2, M-1, BP	Commercial / Industrial	160.1 ac	850	136,085	272,170	3.6	979,812	0.98
				155,376	310,752	3.4	1,056,557	1.06

Note:

Based on City Design Standard, wastewater generation factor is 191 gpd per unit for Residential and 850 gpd per acre for Commercial and Industrial land use.

Wastewater Feasibility Analysis - La Barr Meadows Road and Taylorville Road City of Grass Valley

### WASTEWATER FLOW CALCULATIONS FOR: MAXIMUM BUILDOUT BASED ON RECOMMENDED ZONING

Land Use	TOTAL AVERAGE GPD		AVERAGE DRY V	VEATHER FLOW	FACTORED PEAK		TOTAL PEAK FLOW		
Designation	Land Use Description	Units	(gpd/unit)	GPD	FLOW	FACTOR	GPD	MGD	
					(ADWF x 2.0)	(City Std. Fig. 1)			
R-1, RE	Residential Single Family	241 ea	191	46,031	92,062	4.4	405,073	0.41	
C, M, BP, P	Commercial / Industrial	250.5 ac	850	212,925	425,850	3.2	1,362,720	1.36	
				258,956	517,912	3.1	1,605,527	1.61	

Note: Based on City Design Standard, wastewater generation factor is 191 gpd per unit for Residential and 850 gpd per acre for Commercial and Industrial land use.

## WASTEWATER FLOW CALCULATIONS FOR: ANTICIPATED BUILDOUT BASED ON RECOMMENDED ZONING

Land Use	TOTAL AVERAGE GPD		AVERAGE DRY V	<b>WEATHER FLOW</b>	FACTORED PEAK		TOTAL PEAK FLOW		
Designation	Land Use Description	Units	(gpd/unit)	GPD	FLOW	FACTOR	GPD	MGD	
					(ADWF x 2.0)	(City Std. Fig. 1)			
R-1, RE	Residential Single Family	121 ea	191	23,111	46,222	4.9	226,488	0.23	
C, M, BP, P	Commercial / Industrial	345,082 sf	0.125	43,135	86,271	4.4	379,590	0.38	
				66,246	132,493	4.1	543,219	0.54	

Note:

For purposes of this estimate, wastewater discharge is estimated at 125 gpd per 1000 sf of "anticipated bldg coverage". This is based on fixture counts from existing/ comparable developed projects.

## WASTEWATER DEMAND RATIOS

### (BASED ON CITY'S GENERAL PLAN LAND USE DESIGNATIONS)

	MAXIMUM BUILDOUT											ANTICIPATED E	BUILDOU	Г
APN	CITY LAND USE	TOTAL ACRES (1)	EXISTING LAND USE	EXISTING BLDG COVERAGE (sf) (1)	30%+ Slopes (Estimated)	BUILDABLE AREA (ac) (2)	MAX DENSITY (# of Units)	DEMAND RATIO (3)	CITY'S IMPACT FEE (per meter)	IMPACT FEE (8)	DEVELOPMEN POTENTIAL (4	T ANTICIPATED ) DENSITY (# of Units)	DEMAND RATIO (3)	IMPACT FEE (9)
09-620-12	UED	19.1	Vacant	0	25%	14.3	19	19	\$9,624	\$182,856	Medium	10	10	\$91,428
22-140-35	UED	36.6	Vacant	0	50%	18.3	36	36	\$9,624	\$346,464	Medium	18	18	\$173,232
22-160-05	UED	10.0	Vacant	0	40%	6.0	10	10	\$9,624	\$96,240	Medium	5	5	\$48,120
22-230-10	UED	0.2	Vacant	0	90%	0.0	0	0	\$9,624	\$0	Medium	0	0	\$0
22-230-52	UED	42.9	Vacant	0	75%	10.7	43	43	\$9,624	\$413,832	Medium	22	22	\$206,916
22-230-53	UED	5.7	Vacant	0	90%	0.6	6	6	\$9,624	\$57,744	Medium	3	3	\$28,872
22-200-36	UED	14.6	Vacant	0	70%	4.4	15	15	\$9,624	\$144,360	Medium	8	8	\$72,180
22-200-37	UED	7.3	Vacant	0	95%	0.4	7	7	\$9,624	\$67,368	Medium	4	4	\$33,684
		136.4		0		54.7	136	136	. ,	\$1.308.864		68	68	\$654.432
										+-,,				<i>+ • • • • • • • •</i>
APN	CITY LAND USE	TOTAL ACRES (1)	EXISTING LAND USE	EXISTING BLDG COVERAGE (sf) (1)	30%+ Slopes (Estimated)	BUILDABLE AREA (ac) (2)	MAXIMUM BLDG COVERAGE (sf)(7)	DEMAND RATIO (5)	CITY'S IMPACT FEE (6)	IMPACT FEE (8)	DEVELOPMEN POTENTIAL (4	T ANTICIPATED BLDG ) COVERAGE (sf) (9)	DEMAND RATIO (10)	IMPACT FEE (9)
22-140-05	BP	1.5	Grange Hall	3,200	10%	1.35	14,702	12.8	\$4,810	\$61,328	Low	3,200	4.0	\$19,240
22-140-08	BP	5.4	Industrial	8,880	50%	2.70	29,403	45.9	\$4,810	\$220,779	Low	8,880	11.1	\$53,391
22-140-10	BP	10.1	Vacant	0	70%	3.03	32,997	85.9	\$4,810	\$412,939	Low	6,599	8.2	\$39,679
22-140-11	Bb	1.5	Vacant	0	80%	0.30	3,267	12.8	\$4,810	\$61,328	Low	653	0.8	\$3,929
22-140-12	BP	1.0	Industrial	6,804	0%	1.00	10,890	8.5	\$4,810	\$40,885	Low	6,804	8.5	\$40,909
22-140-21	BP	2.8	Vacant	0	50%	1.40	15,246	23.8	\$4,810	\$114,478	Low	3,049	3.8	\$18,333
22-140-22	BP	6.9	Vacant	0	20%	5.52	60,113	58.7	\$4,810	\$282,107	Low	12,023	15.0	\$72,286
22-140-25	BP	3.0	Vacant	0	20%	2.42	26,397	25.8	\$4,810	\$123,882	Low	5,279	6.6	\$31,743
22-140-36	BP	2.8	Industrial	8,540	30%	1.40	15,246	23.8	\$4,810	\$114,478	Low	8,540	10.7	\$51,347
22-140-38	BP	2.2	Office	3,440	30%	1.20	13,068	18.7	\$4,810	\$89,947	Low	3,440	4.3	\$20,683
22-140-47	BP	0.7	Industrial	0	20%	0.56	6,098	6.0	\$4,810	\$28,620	Medium	3,049	3.8	\$18,333
22-140-48	BP	1.3	Retail Sales	3,626	30%	0.91	9,910	11.1	\$4,810	\$53,151	Medium	4,955	6.2	\$29,792
22-140-50	BP	2.2	Office	8,398	40%	1.32	14,375	18.7	\$4,810	\$89,947	Low	8,398	10.5	\$50,493
22-150-03	BP	0.2	Vacant	0	0%	0.20	2,178	1.7	\$4,810	\$8,177	High	2,178	2.7	\$13,095
22-150-04	BP	0.3	Residential	1,344	0%	0.25	2,723	2.6	\$4,810	\$12,266	Medium	1,361	1.7	\$8,185
22-150-08	BP	0.02	Government	0	50%	0.01	0	0.2	\$4,810	\$818	None	0	0.0	\$0
22-150-09	BP	0.1	Automotive	735	0%	0.10	1,089	0.9	\$4,810	\$4,089	Low	735	0.9	\$4,419
22-150-10	BP	0.5	Residential	930	15%	0.43	4,628	4.3	\$4,810	\$20,443	Medium	2,314	2.9	\$13,914
22-150-11	BP	0.1	Vacant	0	10%	0.05	0	0.4	\$4,810	\$2,044	None	0	0.0	\$0
22-150-15	BP	0.7	Automotive	1,650	10%	0.63	6,861	6.0	\$4,810	\$28,620	Low	1,650	2.1	\$9,921
22-150-16	BP	0.3	Residential	1,050	0%	0.30	3,267	2.6	\$4,810	\$12,266	Medium	1,634	2.0	\$9,821
22-150-17	BP	0.4	Industrial	0	10%	0.32	3,528	3.1	\$4,810	\$14,719	High	3,528	4.4	\$21,214
22-150-18	BP	0.4	Residential	936	0%	0.36	3,920	3.1	\$4,810	\$14,719	Medium	1,960	2.5	\$11,786
22-150-21	BP	1.2	Residential	1,128	20%	0.96	10,454	10.2	\$4,810	\$49,062	Medium	5,227	6.5	\$31,429
22-150-22	BP	3.0	Residential	992	75%	0.75	8,168	25.5	\$4,810	\$122,655	Medium	4,084	5.1	\$24,554
22-150-23	BP	0.3	Vacant	0	90%	0.03	0	2.6	\$4,810	\$12,266	None	0	0.0	\$0
22-150-28	BP	0.3	Residential	628	10%	0.27	2,940	2.6	\$4,810	\$12,266	Medium	1,470	1.8	\$8,839
22-150-30	BP	7.8	Vacant	0	40%	4.68	50,965	66.3	\$4,810	\$318,903	High	50,965	63.7	\$306,428
22-150-32	BP	0.5	Residential	1,164	25%	0.38	4,084	4.3	\$4,810	\$20,443	Medium	2,042	2.6	\$12,277
22-150-33	BP	0.03	Miscellaneous	0	0%	0.03	0	0.2	\$4,810	\$1,063	None	0	0.0	\$0
22-200-66	BP	14.6	Vacant	0	97%	0.44	4,770	124.1	\$4,810	\$596,921	Low	954	1.2	\$5,736
29-350-12	BP	11.4	Vacant	0	25%	8.55	93,110	96.9	\$4,810	\$466,089	Medium	46,555	58.2	\$279,910
		83.4		53,445		41.8	454,396	709.3		\$3,411,690		201,527	251.9	\$1,211,684

## WASTEWATER DEMAND RATIOS (BASED ON CITY'S GENERAL PLAN LAND USE DESIGNATIONS)

				MAX	IMUM BU	IILDOUT						ANTICIPATED B	UILDOUT	-
APN	CITY LAND USE	TOTAL ACRES (1)	EXISTING LAND USE	EXISTING BLDG COVERAGE (sf) (1)	30%+ Slopes (Estimated)	BUILDABLE AREA (ac) (2)	MAXIMUM BLDG COVERAGE (sf)(7)	DEMAND RATIO (5)	CITY'S IMPACT FEE (6)	IMPACT FEE (8)	DEVELOPMENT POTENTIAL (4)	ANTICIPATED BLDG COVERAGE (sf) (9)	DEMAND RATIO (10)	IMPACT FEE (9)
22-140-41	C	2.5	Automotive	5,760	5%	2.38	51,728	21.3	\$4,810	\$102,213	Low	5,760	7.2	\$34,632
22-140-43	C	2.6	Industrial	0	20%	2.08	45,302	22.1	\$4,810	\$106,301	Low	4,530	5.7	\$27,238
22-150-26	С	0.4	Residential	1,386	20%	0.32	6,970	3.4	\$4,810	\$16,354	Low	697	0.9	\$4,190
22-150-27	С	0.5	Residential	857	30%	0.35	7,623	4.3	\$4,810	\$20,443	Low	762	1.0	\$4,583
22-150-29	С	0.4	Residential	1,152	30%	0.28	6,098	3.4	\$4,810	\$16,354	Low	610	0.8	\$3,667
		6.4		9,155		5.4	117,721	54.4		\$261,664		12,359	15.4	\$74,311
22-160-04	SDA	11.3	Vacant	0	10%	8.00	130,680	96.1	\$4,810	\$462,001	Low	17,424	21.8	\$104,762
22-160-06	SDA	25.5	Vacant	0	15%	10.00	163,350	216.8	\$4,810	\$1,042,568	Low	21,780	27.2	\$130,952
22-160-33	SDA	8.3	Vacant	0	0%	7.50	122,513	70.6	\$4,810	\$339,346	Low	16,335	20.4	\$98,214
22-331-05	SDA	11.6	Vacant	0	5%	8.00	130,680	98.6	\$4,810	\$474,266	Low	17,424	21.8	\$104,762
22-331-06	SDA	2.1	Vacant	0	5%	1.50	24,503	17.9	\$4,810	\$85,859	Low	3,267	4.1	\$19,643
22-331-07	SDA	0.6	Vacant	0	0%	0.40	6,534	5.1	\$4,810	\$24,531	Low	871	1.1	\$5,238
22-331-08	SDA	0.5	Residential	1,564	0%	0.40	6,534	4.3	\$4,810	\$20,443	Low	871	1.1	\$5,238
22-331-09	SDA	6.0	Vacant	0	10%	4.00	65,340	51.0	\$4,810	\$245,310	Low	8,712	10.9	\$52,381
22-331-12	Not in SOI	18.9	Vacant	0	30%	13.23	216,112	160.7	\$4,810	\$772,727	Low	28,815	36.0	\$173,250
		84.8		1,564		53.0	866,245	720.8		\$3,467,048		115,499	144.4	\$694,440
то	TAL	311.1		64,164		155.0	1,438,362	1620.5		\$8,449,266		329,386	479.7	\$2,634,866
(1) Based on Count	y GIS data.													

(2) Estimated buildable land area - EXCLUDING known site constraints such as 30%+ slopes, ponds, creeks, wetlands, etc.

(3) Demand ratio is based on City's Fee Schedule. Residential fee of \$9,624 is based on a demand ratio of 1.00 (for residential development up to and including 3/4" water meter size).

(4) "High" = Max. Bldg Coverage (per Table 3-2 of City's 2020 General Plan) X Buildable Area; "Medium" = 50% of Max. Bldg Coverage X Buildable Area; "Low" = 20% of Max. Bldg Coverage X Buildable Area (or "existing bldg coverage", whichever is greater)

(5) Based on City Design Standard, wastewater generation factor is 850 gpd per acre for Commercial and Industrial land use. Demand ratio is 100 gpd for the purposes of fee calculation.

(6) Non-residential impact fee of \$4810 is based on 100 gpd of estimated wastewater discharge.

(7) Maximum Building Coverage is based on Table 3-2 of City's 2020 General Plan and multiplied by the "buildable area".

(8) Based on Maximum Density or Maximum Building Coverage.

(9) "Anticipated Building Coverage" is based on the anticipated future land use, considering factors such as site constraints & existing land uses (See Note 4)

(10) For purposes of this estimate, wastewater discharge is estimated at 125 gpd per 1000 sf of "max bldg coverage" OR "anticipated bldg coverage". This is based on fixture counts from existing/ comparable developed projects.

# WASTEWATER DEMAND RATIOS

(BASED ON COUNTY ZONING DESIGNATIONS)

	MAXIMUM BUILDOUT								ANTICIPATED BUILDOUT			-		
APN	COUNTY ZONING	TOTAL ACRES (1)	EXISTING LAND USE	EXISTING BLDG COVERAGE (sf) (1)	30%+ Slopes (Estimated)	BUILDABLE AREA (ac) (2)	MAX DENSITY (# of Units)	DEMAND RATIO (3)	CITY'S IMPACT FEE (per meter)	IMPACT FEE (8)	DEVELOPMEN POTENTIAL (4)	ANTICIPATED DENSITY (# of Units)	DEMAND RATIO (3)	IMPACT FEE (9)
09-620-12	RA-1.5	19.1	Vacant	0	25%	14.3	13	13	\$9,624	\$122,546	Medium	6	6	\$61,273
22-140-35	RA-1.5	36.6	Vacant	0	50%	18.3	24	24	\$9,624	\$234,826	Medium	12	12	\$117,413
22-160-05	RA-1.5	10.0	Vacant	0	40%	6.0	7	7	\$9,624	\$64,160	Medium	3	3	\$32,080
22-230-10	RA-1.5	0.2	Vacant	0	90%	0.0	0	0	\$9,624	\$0	Medium	0	0	\$0
22-230-52	RA-1.5	42.9	Vacant	0	75%	10.7	29	29	\$9,624	\$275,246	Medium	14	14	\$137,623
22-230-53	RA-1.5	5.7	Vacant	0	90%	0.6	4	4	\$9,624	\$36,571	Medium	2	2	\$18,286
22-200-36	RA-1.5	14.6	Vacant	0	70%	4.4	10	10	\$9,624	\$93,674	Medium	5	5	\$46,837
22-200-37	RA-1.5	7.3	Vacant	0	95%	0.4	5	5	\$9,624	\$46,837	Medium	2	2	\$23,418
22-200-66	RA-1.5	14.6	Vacant	0	97%	0.44	10	10	\$9,624	\$93,674	Medium	5	5	\$46,837
		151.0		0		55.1	101	101		\$967,533		50	50	\$483,766
	COUNTY	τοται		EXISTING BLDG	20% + Slopos				CITY'S					
APN				COVERAGE (sf)	(Estimated)				IMPACT FEE	IMPACT FEE (8)				IMPACT FEE (9)
	ZONING	ACRES (1)	USL	(1)	(LStilluteu)	ANLA (ac) (2)		KATIO (5)	(6)		POTEINTIAL (4)		KATIO (10)	
22-140-05	M1	1.5	Grange Hall	3,200	10%	1.35	26,000	12.8	\$4,810	\$61,328	Low	5,200	6.5	\$31,265
22-140-08	M1	5.4	Industrial	8,880	50%	2.70	58,000	45.9	\$4,810	\$220,779	Low	11,600	14.5	\$69,745
22-140-10	M1	10.1	Vacant	0	70%	3.03	107,000	85.9	\$4,810	\$412,939	Low	21,400	26.8	\$128,668
22-140-11	M1	1.5	Vacant	0	80%	0.30	16,000	12.8	\$4,810	\$61,328	Low	3,200	4.0	\$19,240
22-140-12	M1	1.0	Industrial	6,804	0%	1.00	11,000	8.5	\$4,810	\$40,885	Low	6,804	8.5	\$40,909
22-140-21	M1	2.8	Vacant	0	50%	1.40	30,000	23.8	\$4,810	\$114,478	Low	6,000	7.5	\$36,075
22-140-22	M1	6.9	Vacant	0	20%	5.52	74,000	58.7	\$4,810	\$282,107	Low	14,800	18.5	\$88,985
22-140-25	M1	3.0	Vacant	0	20%	2.42	32,000	25.8	\$4,810	\$123,882	Low	6,400	8.0	\$38,480
22-140-36	M1	2.8	Industrial	8,540	30%	1.40	22,000	23.8	\$4,810	\$114,478	Low	4,400	5.5	\$26,455
22-140-38	M1	2.2	Office	3,440	30%	1.20	24,000	18.7	\$4,810	\$89,947	Low	4,800	6.0	\$28,860
22-140-47	M1	0.7	Industrial	0	20%	0.56	9,900	6.0	\$4,810	\$28,620	Medium	4,950	6.2	\$29,762
22-140-48	M1	1.3	Retail Sales	3,626	30%	0.91	16,100	11.1	\$4,810	\$53,151	Medium	8,050	10.1	\$48,401
22-140-50	M1	2.2	Office	8,398	40%	1.32	26,000	18.7	\$4,810	\$89,947	Low	8,398	10.5	\$50,493
22-150-03	M1	0.2	Vacant	0	0%	0.20	4,000	1.7	\$4,810	\$8,177	High	4,000	5.0	\$24,050
22-150-04	M1	0.3	Residential	1,344	0%	0.25	3,800	2.2	\$4,810	\$10,630	Medium	1,900	2.4	\$11,424
22-150-08	M1	0.02	Government	0	50%	0.01	0	0.2	\$4,810	\$818	None	0	0.0	\$0
22-150-09	M1	0.1	Automotive	735	0%	0.10	2,000	0.9	\$4,810	\$4,089	Low	400	0.5	\$2,405
22-150-10	M1	0.5	Residential	930	15%	0.43	7,600	4.3	\$4,810	\$20,443	Medium	3,800	4.8	\$22,848
22-150-11	M1	0.1	Vacant	0	10%	0.05	0	0.4	\$4,810	\$2,044	None	0	0.0	\$0
22-150-15	M1	0.7	Automotive	1,650	10%	0.63	13,000	6.0	\$4,810	\$28,620	Low	2,600	3.3	\$15,633
22-150-16	M1	0.3	Residential	1,050	0%	0.30	6,000	2.6	\$4,810	\$12,266	Medium	3,000	3.8	\$18,038
22-150-17	M1	0.4	Industrial	0	10%	0.36	7,000	3.4	\$4,810	\$16,354	High	7,000	8.8	\$42,088
22-150-18	M1	0.4	Residential	936	0%	0.40	7,800	3.4	\$4,810	\$16,354	Medium	3,900	4.9	\$23,449
22-150-21	M1	1.2	Residential	1,128	20%	0.96	18,000	10.2	\$4,810	\$49,062	Medium	9,000	11.3	\$54,113
22-150-22	M1	3.0	Residential	992	75%	0.75	13,000	25.5	\$4,810	\$122,655	Medium	6,500	8.1	\$39,081
22-150-23	M1	0.3	Vacant	0	90%	0.03	0	2.6	\$4,810	\$12,266	None	0	0.0	\$0
22-150-28	M1	0.3	Residential	628	10%	0.27	5,000	2.6	\$4,810	\$12,266	Medium	2,500	3.1	\$15,031
22-150-30	M1	7.8	Vacant	0	40%	4.68	80,000	66.3	\$4,810	\$318,903	High	80,000	100.0	\$481,000
22-150-32	M1	0.5	Residential	1,164	25%	0.38	7,000	4.3	\$4,810	\$20,443	Medium	3,500	4.4	\$21,044
22-150-33	M1	0.03	Miscellaneous	0	0%	0.03	0	0.3	\$4,810	\$1,227	None	0	0.0	\$0
		57.5		53,445		32.9	626,200	488.7		\$2,350,479		234,102	292.6	\$1,407,538

# (BASED ON COUNTY ZONING DESIGNATIONS)

MAXIMUM BUILDOUT												
APN	COUNTY ZONING	TOTAL ACRES (1)	EXISTING LAND USE	EXISTING BLDG COVERAGE (sf) (1)	30%+ Slopes (Estimated)	BUILDABLE AREA (ac) (2)	MAXIMUM BLDG COVERAGE (sf)(7)	DEMAND RATIO (5)	CITY'S IMPACT FEE (6)	IMPACT FEE (8)		DEVELOPMENT POTENTIAL (4)
											]	
22-150-26	C2	0.4	Residential	1,386	20%	0.32	7,000	3.4	\$4,810	\$16,354		Low
22-150-27	C2	0.5	Residential	857	30%	0.35	8,500	4.3	\$4,810	\$20,443		Low
22-150-29	C2	0.4	Residential	1,152	30%	0.28	5,600	3.4	\$4,810	\$16,354		Low
		1.3		3,395		0.95	21,100	11.1		\$53,151	]	
											]	
22-140-41	BP	2.5	Automotive	5,760	5%	2.38	20,000	21.3	\$4,810	\$102,213	Ţ	Low
22-140-43	BP	2.6	Industrial	0	20%	2.08	20,000	22.1	\$4,810	\$106,301	]	Low
22-160-04	BP	11.3	Vacant	0	10%	8.00	90,000	96.1	\$4,810	\$462,001	]	Low
22-160-06	BP	25.5	Vacant	0	15%	10.00	135,000	216.8	\$4,810	\$1,042,568	Ţ	Low
22-160-33	BP	8.3	Vacant	0	0%	7.50	85,000	70.6	\$4,810	\$339,346	]	Low
22-331-05	BP	11.6	Vacant	0	5%	8.00	90,000	98.6	\$4,810	\$474,266	]	Low
22-331-06	BP	2.1	Vacant	0	5%	1.50	20,000	17.9	\$4,810	\$85,859	]	Low
22-331-07	BP	0.6	Vacant	0	0%	0.40	5,000	5.1	\$4,810	\$24,531	Ţ	Low
22-331-08	BP	0.5	Residential	1,564	0%	0.40	5,000	4.3	\$4,810	\$20,443	T	Low
22-331-09	BP	6.0	Vacant	0	10%	4.00	50,000	51.0	\$4,810	\$245,310	Ţ	Low
22-331-12	BP	18.9	Vacant	0	30%	13.23	140,000	160.7	\$4,810	\$772,727	T	Low
29-350-12	BP	11.4	Vacant	0	25%	8.55	90,000	96.9	\$4,810	\$466,089	1	Medium
		101.3		7,324		66.0	750,000	861.1		\$4,141,651	]	
тот	AL	311.1		64,164		155.0	1,397,300	1461.3		\$7,512,812		

(1) Based on County GIS data.

(2) Estimated buildable land area - EXCLUDING known site constraints such as 30%+ slopes, ponds, creeks, wetlands, etc.

(3) Demand ratio is based on City's Fee Schedule. Residential fee of \$9,624 is based on a demand ratio of 1.00 (for residential development up to and including 3/4" water meter size).

(4) "High" = Max. Bldg Coverage (per Table 3-2 of City's 2020 General Plan) X Buildable Area; "Medium" = 50% of Max. Bldg Coverage X Buildable Area; "Low" = 20% of Max. Bldg Coverage X Buildable Area (or "existing bldg coverage", whichever is greater)

(5) Based on City Design Standard, wastewater generation factor is 850 gpd per acre for Commercial and Industrial land use. Demand ratio is 100 gpd for the purposes of fee calculation.

(6) Non-residential impact fee of \$4810 is based on 100 gpd of estimated wastewater discharge.

(7) Maximum Building Coverage is based on Table 3-2 of City's 2020 General Plan and multiplied by the "buildable area".

(8) Based on Maximum Density or Maximum Building Coverage.

(9) "Anticipated Building Coverage" is based on the anticipated future land use, considering factors such as site constraints & existing land uses (See Note 4)

(10) For purposes of this estimate, wastewater discharge is estimated at 125 gpd per 1000 sf of "max bldg coverage" OR "anticipated bldg coverage". This is based on fixture counts from existing/ comparable developed projects.

ANTICIPATED BUILDOUT									
ANTICIPATED BLDG COVERAGE (sf) (9)	DEMAND RATIO (10)	IMPACT FEE (9)							
1,400	1.8	\$8,418							
1,700	2.1	\$10,221							
1,120	1.4	\$6,734							
4,220	5.3	\$25,373							
4,000	5.0	\$24,050							
4,000	5.0	\$24,050							
18,000	22.5	\$108,225							
27,000	33.8	\$162,338							
17,000	21.3	\$102,213							
18,000	22.5	\$108,225							
4,000	5.0	\$24,050							
1,000	1.3	\$6,013							
1,000	1.3	\$6,013							
10,000	12.5	\$60,125							
28,000	35.0	\$168,350							
45,000	56.3	\$270,563							
177,000	221.3	\$1,064,213							
415,322	569.4	\$2,980,890							

# WASTEWATER DEMAND RATIO

(BASED ON RECOMMENDED ZONING ALTERNATIVES)

			MAXIMUN	1 BUILDOUT					ANTICIPATED BUILDOUT				
RECOMMENDED ZONING	TOTAL ACRES (1)	30%+ Slopes & Site Constraints (Estimated)	BUILDABLE AREA (ac) (2)	MAX DENSITY (# of Units)	DEMAND RATIO (3)	CITY'S IMPACT FEE (per meter)	IMPACT FEE (8)	DEVELOPMENT POTENTIAL (4)	ANTICIPATED DENSITY (# of Units)	DEMAND RATIO (3)	IMPACT FEE (9)		
R-2	60.1	10%	54.1	240	240	\$9,624	\$2,313,610	Medium	120	120	\$1,156,805		
						40.00.1	40.00.0						
RE	0.5	0%	0.5	1	1	\$9,624	\$9,624	Medium	1	1	\$9,624		
	60.6		54.6	241	241		\$2,323,234		121	121	\$1,166,429		
RECOMMENDED ZONING	TOTAL ACRES (1)	30%+ Slopes (Estimated)	BUILDABLE AREA (ac) (2)	MAXIMUM BLDG COVERAGE (sf)(7)	DEMAND RATIO (5)	CITY'S IMPACT FEE (6)	IMPACT FEE (8)	DEVELOPMENT POTENTIAL (4)	ANTICIPATED BLDG COVERAGE (sf) (9)	DEMAND RATIO (10)	IMPACT FEE (9)		
C-1	15.4	20%	12.3	268,330	130.9	\$4,810	\$629,629	Low	53,666	67.1	\$322,666		
M-1	49.4	50%	24.7	537,966	419.9	\$4,810	\$2,019,719	Low	107,593	134.5	\$646,904		
		-00/											
M-2	41.2	50%	20.6	448,668	350.2	\$4,810	\$1,684,462	Low	89,734	112.2	\$539,523		
СВР	19.7	20%	15.8	171,626	167.5	\$4,810	\$805,435	Low	34,325	42.9	\$206,381		
Р	39.2	30%	27.4	298,822	333.2	\$4,810	\$1,602,692	Low	59,764	74.7	\$359,333		
OS	85.6	90%	0.0	0	0.0	\$0	\$0	None	0	0.0	\$0		
	250.5		100.8	1,725,412	1401.7		\$6,741,937		345,082	431.4	\$2,074,807		
OVERALL TOTAL	311.1		155.4	1,725,412	1643.1		\$9,065,170		345,082	552.6	\$3,241,236		

(1) Based on County GIS data.

(2) Estimated buildable land area - EXCLUDING known site constraints such as 30%+ slopes, ponds, creeks, wetlands, etc.

(3) Demand ratio is based on City's Fee Schedule. Residential fee of \$9,624 is based on a demand ratio of 1.00 (for residential development up to and including 3/4" water meter size).

(4) "High" = Max. Bldg Coverage (per Table 3-2 of City's 2020 General Plan) X Buildable Area; "Medium" = 50% of Max. Bldg Coverage X Buildable Area; "Low" = 20% of Max. Bldg Coverage X Buildable Area

(5) Based on City Design Standard, wastewater generation factor is 850 gpd per acre for Commercial and Industrial land use. Demand ratio is 100 gpd for the purposes of fee calculation.

(6) Non-residential impact fee of \$4810 is based on 100 gpd of estimated wastewater discharge.

(7) Maximum Building Coverage is based on Table 3-2 of City's 2020 General Plan and multiplied by the "buildable area".

(8) Based on Maximum Density or Maximum Building Coverage.

(9) "Anticipated Building Coverage" is based on the anticipated future land use, considering factors such as site constraints & existing land uses (See Note 4)

(10) For purposes of this estimate, wastewater discharge is estimated at 125 gpd per 1000 sf of "max bldg coverage" OR "anticipated bldg coverage". This is based on fixture counts from existing/ comparable developed projects.

# APPENDIX C COST ESTIMATES

140 Litton Drive, Suite 240 Grass Valley, CA 95945 T (530) 272-5841 / F (530) 272-5880 Date Created: September 17, 2012 Revised: Revised: Revised:

### WASTEWATER FEASIBILITY ANALYSIS ESTIMATE OF SEWER INFRASTRUCTURE

Alternative #2

				ITEM	TOTAL
ITEM	ITEM DESCRIPTION	QTY.	UNIT	PRICE	PRICE
LA BA	RR MEADOWS ROAD				
1.	LA BARR MEADOWS ROAD - LOW POINT AREA				
a.	Sewer - 6" SDR-35	1,040	lf	\$60.00	\$62,400.00
b.	48" Sewer Manhole	3	ea	\$5,000.00	\$15,000.00
с.	Lift Station (small package plant)	1	ls	\$180,000.00	\$180,000.00
d.	4" Force Main	1,600	lf	\$45.00	\$72,000.00
e.	Trench Resurfacing	8,000	sf	\$6.00	\$48,000.00
					\$377,400.00
2.	LA BARR MEADOWS ROAD - MAINLINE				
-• a.	Sewer - 6" SDR-35	2.340	lf	\$60.00	\$140,400.00
h	Sewer - 8" SDR-35	3,600	lf	\$70.00	\$252,000,00
c.	48" Sewer Manhole	22	ea	\$5,000,00	\$110,000,00
d.	6" Force Main	3,220	lf	\$50.00	\$161,000,00
ц. е	Sewer Lift Station Facility (Complete w/ bldg & Gen_backup)	3,220	ls	\$800,000,00	\$800,000,00
c. f	Trench Resurfacing	27 980	sf	\$6.00	\$167,880,00
		27,900	51	φ0.00	\$1,631,280.00
3	ROAD TO SEWER LIFT STATION #1				
з. я.	Clear, Grub and Stump Removal	1	ac	\$3,000,00	\$3,000,00
h.	Excavation and Embankment	3.000	cv	\$5.00	\$15,000.00
c.	Fine Grading	18,000	sf	\$0.50	\$9,000.00
d.	Paved Road Section (3" AC on 8" Class 2 A B.)	14,000	sf	\$3.50	\$49,000.00
e.	Hydroseed	10.000	sf	\$0.10	\$1,000.00
f.	Drainage 18" HDPE	60	lf	\$50.00	\$3.000.00
g.	Drainage 36" Drop Inlets	1	ea	\$3.000.00	\$3,000.00
р. h.	Drainage "V" Ditch	600	lf	\$7.00	\$4,200.00
i.	Bio-Swale / Retention / Infiltration	1.200	cf	\$10.00	\$12,000.00
i.	Water - 8" PVC C900 CL200	600	lf	\$60.00	\$36,000.00
k.	Fire Hydrant Assembly	2	ea	\$4,500.00	\$9,000.00
1.	Joint Utility Trench	600	lf	\$80.00	\$48,000.00
					\$192,200.00
JOYCE	 E DRIVE / SOUTH AUBURN				
4.	LIFT STATION REHABILITATION			<b>#5</b> 00,000,000	<b>#7</b> 00,000,000
a.	Sewer Lift Station Facility (Complete w/ bldg. & Gen. backup)	1	ls	\$500,000.00	\$500,000.00
					\$500,000.00
5.	REPLACE PIPE AND MANHOLES				
a.	Sewer - 10" SDR-35	2,410	lf	\$85.00	\$204,850.00
b.	48" Sewer Manhole	10	ea	\$5,000.00	\$50,000.00
с.	Trench Resurfacing	14,460	sf	\$6.00	\$86,760.00
					\$341,610.00

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### WASTEWATER FEASIBILITY ANALYSIS ESTIMATE OF SEWER INFRASTRUCTURE

### Alternative #2

				ITEM	TOTAL
ITEM	ITEM DESCRIPTION	QTY.	UNIT	PRICE	PRICE
TAYL( 6. a. b. c.	<b>PRVILLE ROAD</b> Sewer - 10" SDR-35 48" Sewer Manhole Trench Resurfacing	500 3 2,500	lf ea sf	\$85.00 \$5,000.00 \$6.00	\$42,500.00 \$15,000.00 \$15,000.00
a.	Eisster Pumps (from 2 commercial lots)	1	15	\$300,000.00	\$300,000.00
					\$402,500.00
	Subtotal	I - All Infrast	tructure I	mprovements:	\$3,444,990.00
		15% Omiss	ions and	Contingencies:	\$516,748.50
	PROFESSIONAL SERVICES	l otal Proba	idie Consi	ruction Costs:	\$3,961,738.50
	Engineering and Design (6%)				\$237,704.31
	Construction Management (3%)				\$118,852.16
	Construction Surveying (2%)				\$79,234.77
	Testing and Inspection (2%)				\$79,234.77
					\$515,026.01
	Total Probable C	 Construction 	n & Prof	essional Costs	\$4,476,764.51

140 Litton Drive, Suite 240 Grass Valley, CA 95945 T (530) 272-5841 / F (530) 272-5880 Date Created: September 17, 2012 Revised: Revised: Revised:

### WASTEWATER FEASIBILITY ANALYSIS ESTIMATE OF SEWER INFRASTRUCTURE

Alternative #3

				ITEM	TOTAL
ITEM	ITEM DESCRIPTION	QTY.	UNIT	PRICE	PRICE
LA BA	RR MEADOWS ROAD				
1.	LA BARR MEADOWS ROAD - LOW POINT AREA				
a.	Sewer - 6" SDR-35	1,040	lf	\$60.00	\$62,400.00
b.	48" Sewer Manhole	3	ea	\$5,000.00	\$15,000.00
c.	Lift Station (small package plant)	1	ls	\$180,000.00	\$180,000.00
d.	4" Force Main	440	lf	\$45.00	\$19,800.00
e.	Trench Resurfacing	7,400	sf	\$6.00	\$44,400.00
		,			\$321,600.00
2.	LA BARR MEADOWS ROAD - MAINLINE				
a.	Sewer - 6" SDR-35	2,340	lf	\$60.00	\$140,400.00
b.	Sewer - 8" SDR-35	3,600	lf	\$70.00	\$252,000.00
c.	48" Sewer Manhole	22	ea	\$5,000.00	\$110,000.00
d.	6" Force Main	3,220	lf	\$50.00	\$161,000.00
e.	Sewer Lift Station Facility (Complete w/ bldg. & Gen. backup)	1	ls	\$800,000.00	\$800,000.00
f.	Trench Resurfacing	27,980	sf	\$6.00	\$167,880.00
g.	Jack/Bore Casing across Highway 49	180	lf	\$1,000.00	\$180,000.00
6					\$1,811,280.00
3.	ROAD TO SEWER LIFT STATION #1				
a.	Clear, Grub and Stump Removal	1	ac	\$3,000.00	\$3,000.00
b.	Excavation and Embankment	3,000	cy	\$5.00	\$15,000.00
c.	Fine Grading	18,000	sf	\$0.50	\$9,000.00
d.	Paved Road Section (3" AC on 8" Class 2 A.B.)	14,000	sf	\$3.50	\$49,000.00
e.	Hydroseed	10,000	sf	\$0.10	\$1,000.00
f.	Drainage 18" HDPE	60	lf	\$50.00	\$3,000.00
g.	Drainage 36" Drop Inlets	1	ea	\$3,000.00	\$3,000.00
ь. h.	Drainage "V" Ditch	600	lf	\$7.00	\$4,200.00
i.	Bio-Swale / Retention / Infiltration	1,200	cf	\$10.00	\$12,000.00
j.	Water - 8" PVC C900 CL200	600	lf	\$60.00	\$36,000.00
k.	Fire Hydrant Assembly	2	ea	\$4,500.00	\$9,000.00
1.	Joint Utility Trench	600	lf	\$80.00	\$48,000.00
					\$192,200.00
TAYLO	PRVILLE ROAD				
4.					
a.	6" Force Main	4,138	lf	\$50.00	\$206,900.00
b.	Bypass Port	130	lf	\$1,000.00	\$130,000.00
с.	Connect to existing sewer manhole	1	ea	\$2,000.00	\$2,000.00
d.	Jet/Vac clean existing sewer trunk main	1	ls	\$15,000.00	\$15,000.00
e.	Trench Resurfacing	20,690	sf	\$4.00	\$82,760.00
f.	Upgrade Existing Taylorville Road Lift Station	1	ls	\$300,000.00	\$300,000.00
g.	Ejector Pumps (from 3 commercial lots)	3	ea	\$10,000.00	\$30,000.00
					\$766,660.00

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### WASTEWATER FEASIBILITY ANALYSIS ESTIMATE OF SEWER INFRASTRUCTURE

Alternative #3

ITEM	ITEM DESCRIPTION	QTY.	UNIT	ITEM PRICE	TOTAL PRICE

140 Litton Drive, Suite 240 Grass Valley, CA 95945 T (530) 272-5841 / F (530) 272-5880 Date Created: September 17, 2012 Revised: Revised: Revised:

## WASTEWATER FEASIBILITY ANALYSIS ESTIMATE OF SEWER INFRASTRUCTURE

### Alternative #3

					ITEM	TOTAL
ITEM	ITEM	DESCRIPTION	QTY.	UNIT	PRICE	PRICE
		\$3,091,740.00				
		\$463,761.00				
			<b>Total Proba</b>	\$3,555,501.00		
	PROFESSIONAL SERVICE	2 <u>S</u>				
	Engineering and Design	(6%)				\$213,330.06
	Construction Management	(3%)				\$106,665.03
	Construction Surveying	(2%)				\$71,110.02
	Testing and Inspection	(2%)				\$71,110.02
						\$462,215.13
		Total Probable (	 Construction 	n & Prof	essional Costs	\$4,017,716.13

140 Litton Drive, Suite 240 Grass Valley, CA 95945 T (530) 272-5841 / F (530) 272-5880 Date Created: September 17, 2012 Revised: Revised: Revised:

### WASTEWATER FEASIBILITY ANALYSIS ESTIMATE OF SEWER INFRASTRUCTURE COSTS

### Alternative #4

				ITEM	TOTAL
ITEM	ITEM DESCRIPTION	QTY.	UNIT	PRICE	PRICE
TADA					
LA BA	KK MEADOWS KOAD 				
1.	LA BARR MEADOWS ROAD - LOW POINT AREA				
a.	Sewer - 6" SDR-35	200	lf	\$60.00	\$12,000.00
b.	48" Sewer Manhole	2	ea	\$5,000.00	\$10,000.00
c.	Jack/Bore Casing across Highway 49	160	lf	\$1,000.00	\$160,000.00
d.	Trench Resurfacing	300	sf	\$6.00	\$1,800.00
					\$183,800.00
2	LA BARR MEADOWS ROAD - MAINLINE				
 a.	Sewer - 6" SDR-35	2.675	lf	\$60.00	\$160.500.00
ь.	Sewer - 8" SDR-35	3,600	lf	\$70.00	\$252,000.00
c.	48" Sewer Manhole	22	ea	\$5,000.00	\$110,000.00
d.	Jack/Bore Casing across Highway 49	160	lf	\$1,000.00	\$160,000.00
e.	Trench Resurfacing	37,700	sf	\$6.00	\$226,200.00
					\$908,700.00
CDEST					
CKESI					
3.	CRESTVIEW (From La Barr to Proposed Lift Station)				
a.	Sewer - 8" SDR-35	3,185	lf	\$70.00	\$222,950.00
b.	48" Sewer Manhole	10	ea	\$5,000.00	\$50,000.00
с.	Trench Resurfacing	4,500	sf	\$6.00	\$27,000.00
					\$299,950.00
TAYLO	 ORVILLE ROAD				
4.	GRAVITY SEWER (Incl. Abandonment of Taylorville Lift Stati	 ion)			
 а.	Sewer - 6" SDR-35	3,200	lf	\$60.00	\$192,000.00
b.	Sewer - 8" SDR-35	350	lf	\$70.00	\$24,500.00
с.	48" Sewer Manhole	12	ea	\$5,000.00	\$60,000.00
d.	Abandon Existing Lift Station	1	ls	\$20,000.00	\$20,000.00
e.	Trench Resurfacing	8,700	sf	\$6.00	\$52,200.00
					\$348,700.00
5	SEWER LIFT STATION AND FORCE MAIN				
с. а.	Sewer Lift Station Facility (Complete w/ bldg, & Gen, backup)	1	ea	\$800.000.00	\$800.000.00
b.	6" Force Main	5,830	lf	\$50.00	\$291,500.00
c.	Bypass Port	130	lf	\$1,000.00	\$130,000.00
d.	Connect to existing sewer manhole	1	ea	\$2,000.00	\$2,000.00
e.	Jet/Vac clean existing sewer trunk main	1	1s	\$15,000.00	\$15,000.00
f.	Trench Resurfacing	20,800	sf	\$4.00	\$83,200.00
					\$1,321,700.00

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### WASTEWATER FEASIBILITY ANALYSIS ESTIMATE OF SEWER INFRASTRUCTURE COSTS

### Alternative #4

ITEM      ITEM DESCRIPTION      QTY.      UNIT      PRICE      PRICE        6.      ROAD TO SEWER LIFT STATION a. Clear, Grub and Stump Removal      1      ac      \$3,000.00      \$3,000        b.      Excavation and Embankment      8,000      cy      \$5.00      \$40,000        c.      Fine Grading      45,000      sf      \$0.50      \$22,500        d.      Paved Road Section (3" AC on 8" Class 2 A.B.)      38,000      sf      \$0.10      \$33,300        e.      Hydroseed      120      If      \$50.00      \$6,000        g.      Drainage 18" HDPE      120      If      \$50.00      \$6,000        g.      Drainage 36" Drop Inlets      2      ea      \$3,000.00      \$6,000        h.      Drainage 7V" Ditch      1,200      If      \$7.00      \$8,400        i.      Bio-Swale / Retention / Infiltration      2,600      cf      \$10.00      \$22,000        j.      Water - 8" PVC C900 CL200      1,650      If      \$80.00      \$132,000        k.      Fire Hydrant Assembly      4      ea      \$4,500.00 <th></th> <th></th> <th></th> <th></th> <th>ITEM</th> <th>TOTAL</th>					ITEM	TOTAL
6.      ROAD TO SEWER LIFT STATION        a.      Clear, Grub and Stump Removal      1      ac      \$3,000      \$3,000        b.      Excavation and Embankment      8,000      cy      \$5.00      \$40,000        c.      Fine Grading      45,000      sf      \$0.50      \$22,500        d.      Paved Road Section (3" AC on 8" Class 2 A.B.)      38,000      sf      \$33,000      sf      \$313,000        e.      Hydroseed      33,000      sf      \$0.10      \$33,300        g.      Drainage 18" HDPE      120      lf      \$50,00      \$6,000        g.      Drainage 36" Drop Inlets      2      ea      \$3,000,00      \$6,000        h.      Drainage "V" Ditch      1,200      lf      \$7,00      \$8,400        i.      Bio-Swale / Retention / Infiltration      2,600      cf      \$10,00      \$26,000        j.      Water - 8" PVC C900 CL200      1,650      lf      \$80,00      \$132,000        k.      Fire Hydrant Assembly      4      ea      \$4,500,00      \$132,000        l.      Joint Uti	ITEM	ITEM DESCRIPTION	QTY.	UNIT	PRICE	PRICE
6.    ROAD TO SEWER LIFT STATION    1    ac    \$3,000.00      a.    Clear, Grub and Stump Removal    1    ac    \$3,000.00    \$33,000      b.    Excavation and Embankment    8,000    cy    \$5.00    \$40,000      c.    Fine Grading    45,000    sf    \$0.50    \$22,500      d.    Paved Road Section (3" AC on 8" Class 2 A.B.)    38,000    sf    \$33,50    \$133,000      e.    Hydroseed    33,000    sf    \$0.10    \$33,000      f.    Drainage 18" HDPE    120    If    \$50,000    \$66,000      g.    Drainage 36" Drop Inlets    2    ea    \$3,000,00    \$66,000      h.    Drainage "V" Ditch    1,200    If    \$7.00    \$84,000      i.    Bio-Swale / Retention / Infiltration    2,600    cf    \$10.00    \$26,000      j.    Water - 8" PVC C900 CL200    1,650    If    \$60,000    \$99,000      k.    Fire Hydrant Assembly    4    ea    \$4,500,00    \$18,000      l.    Joint Utility Trench    1,650    If    \$80,000						
a.    Clear, Grub and Stump Removal    1    ac    \$3,000.00    \$33,000      b.    Excavation and Embankment    8,000    cy    \$5.00    \$40,000      c.    Fine Grading    45,000    sf    \$0.50    \$22,500      d.    Paved Road Section (3" AC on 8" Class 2 A.B.)    38,000    sf    \$33,000    sf    \$33,000      e.    Hydroseed    33,000    sf    \$0.10    \$33,000      f.    Drainage 18" HDPE    120    lf    \$50.00    \$6,000      g.    Drainage 36" Drop Inlets    2    ea    \$3,000.00    \$66,000      h.    Drainage 36" Drop Inlets    2,600    cf    \$10.00    \$26,000      h.    Drainage 7V" Ditch    1,200    lf    \$60.00    \$99,000      k.    Fire Hydrant Assembly    4    ea    \$4,500.00    \$18,000      j.    Water - 8" PVC C900 CL200    1,650    lf    \$80.000    \$132,000      k.    Fire Hydrant Assembly    4    ea    \$4,500.00    \$132,000      l.    Joint Utility Trench    15% Omissions and Contingencies:	6.	ROAD TO SEWER LIFT STATION				
b.      Excavation and Embankment      8,000      cy      \$5.00      \$40,000        c.      Fine Grading      45,000      sf      \$0.50      \$22,500        d.      Paved Road Section (3" AC on 8" Class 2 A.B.)      38,000      sf      \$33,500      \$sf      \$33,500        e.      Hydroseed      33,000      sf      \$50,00      \$\$6,000        g.      Drainage 18" HDPE      120      If      \$50,00      \$\$6,000        g.      Drainage 36" Drop Inlets      2      ea      \$\$3,000,00      \$\$6,000        h.      Drainage 36" Drop Inlets      2      ea      \$\$3,000,00      \$\$6,000        h.      Drainage "V" Ditch      1,200      If      \$\$7.00      \$\$8,400        i.      Bio-Swale / Retention / Infiltration      2,600      cf      \$\$10,00      \$\$26,000        j.      Water - 8" PVC C900 CL200      1,650      If      \$\$60,000      \$\$18,000        k.      Fire Hydrant Assembly      4      ea      \$\$4,500,00      \$\$132,000        l.      Joint Utility Trench      If      \$\$80,000	a.	Clear, Grub and Stump Removal	1	ac	\$3,000.00	\$3,000.00
c.    Fine Grading    45,000    sf    \$0.50    \$22,500      d.    Paved Road Section (3" AC on 8" Class 2 A.B.)    38,000    sf    \$3.50    \$133,000      e.    Hydroseed    33,000    sf    \$0.10    \$3,300      f.    Drainage 18" HDPE    120    lf    \$50,000    \$6,000      g.    Drainage 36" Drop Inlets    2    ea    \$3,000,00    \$6,000      h.    Drainage 70" Ditch    1,200    lf    \$7.00    \$8,400      i.    Bio-Swale / Retention / Infiltration    2,600    cf    \$10.00    \$26,000      j.    Water - 8" PVC C900 CL200    1,650    lf    \$60.00    \$99,000      k.    Fire Hydrant Assembly    4    ea    \$4,500.00    \$18,000      l.    Joint Utility Trench    1,650    lf    \$80.00    \$132,000      state    Subtotal - All Infrastructure Improvements: 15% Omissions and Contingencies: \$534,007    \$33,007    \$34,094,057      protetession AL SERVICES    PROFESSION AL SERVICES	b.	Excavation and Embankment	8,000	cy	\$5.00	\$40,000.00
d.    Paved Road Section (3" AC on 8" Class 2 A.B.)    38,000    sf    \$3.50    \$133,000      e.    Hydroseed    33,000    sf    \$0.10    \$3,300      f.    Drainage 18" HDPE    120    lf    \$50,000    \$6,000      g.    Drainage 36" Drop Inlets    2    ea    \$3,000,00    \$6,000      h.    Drainage 7V" Ditch    1,200    lf    \$7,000    \$8,400      i.    Bio-Swale / Retention / Infiltration    2,600    cf    \$10,000    \$26,000      j.    Water - 8" PVC C900 CL200    1,650    lf    \$60,000    \$99,000      k.    Fire Hydrant Assembly    4    ea    \$44,500,000    \$18,000      l.    Joint Utility Trench    1,650    lf    \$80,000    \$132,000      states of the state o	c.	Fine Grading	45,000	sf	\$0.50	\$22,500.00
e.    Hydroseed    33,000    sf    \$0.10    \$3,300      f.    Drainage 18" HDPE    120    lf    \$50,000    \$6,000      g.    Drainage 36" Drop Inlets    2    ea    \$3,000,00    \$6,000      h.    Drainage "V" Ditch    1,200    lf    \$7,00    \$8,400      i.    Bio-Swale / Retention / Infiltration    2,600    cf    \$10.00    \$26,000      j.    Water - 8" PVC C900 CL200    1,650    lf    \$60.00    \$99,000      k.    Fire Hydrant Assembly    4    ea    \$4,500,00    \$118,000      l.    Joint Utility Trench    1,650    lf    \$80.00    \$132,000      Subtotal - All Infrastructure Improvements:    \$3,560,050    \$497,200      Total Probable Construction Costs:    \$4,094,057      PROFESSIONAL SERVICES    Image: Signal of the second of th	d.	Paved Road Section (3" AC on 8" Class 2 A.B.)	38,000	sf	\$3.50	\$133,000.00
f.Drainage 18" HDPE120If\$50.00\$6,000g.Drainage 36" Drop Inlets2ea\$3,000.00\$6,000h.Drainage "V" Ditch1,200If\$7.00\$8,400i.Bio-Swale / Retention / Infiltration2,600cf\$10.00\$26,000j.Water - 8" PVC C900 CL2001,650If\$60.00\$99,000k.Fire Hydrant Assembly4ea\$4,500.00\$18,000l.Joint Utility Trench1,650If\$80.00\$132,000Subtotal - All Infrastructure Improvements: 15% Omissions and Contingencies: \$534,007Total Probable Construction Costs:\$4,094,057	e.	Hydroseed	33,000	sf	\$0.10	\$3,300.00
g.    Drainage 36" Drop Inlets    2    ea    \$3,000.00    \$6,000      h.    Drainage "V" Ditch    1,200    If    \$7.00    \$8,400      i.    Bio-Swale / Retention / Infiltration    2,600    cf    \$10.00    \$26,000      j.    Water - 8" PVC C900 CL200    1,650    If    \$60.00    \$99,000      k.    Fire Hydrant Assembly    4    ea    \$4,500.00    \$18,000      l.    Joint Utility Trench    1,650    If    \$80.00    \$132,000      Subtotal - All Infrastructure Improvements: 15% Omissions and Contingencies: Total Probable Construction Costs:    \$3,560,054      PROFESSIONAL SERVICES    PROFESSIONAL SERVICES    PROFESSIONAL SERVICES    PROFESSIONAL SERVICES    Subtotal - All Infrastructure Improvements: \$4,094,057	f.	Drainage 18" HDPE	120	lf	\$50.00	\$6,000.00
h.    Drainage "V" Ditch    1,200    If    \$7.00    \$8,400      i.    Bio-Swale / Retention / Infiltration    2,600    cf    \$10.00    \$26,000      j.    Water - 8" PVC C900 CL200    1,650    If    \$60.00    \$99,000      k.    Fire Hydrant Assembly    4    ea    \$4,500.00    \$18,000      l.    Joint Utility Trench    1,650    If    \$80.00    \$132,000      Subtotal - All Infrastructure Improvements: 15% Omissions and Contingencies: \$534,007    \$3,560,050    \$534,007      PROFESSIONAL SERVICES    Image: Construction Costs:    \$4,094,057	g.	Drainage 36" Drop Inlets	2	ea	\$3,000.00	\$6,000.00
i.    Bio-Swale / Retention / Infiltration    2,600    cf    \$10.00    \$26,000      j.    Water - 8" PVC C900 CL200    1,650    lf    \$60.00    \$99,000      k.    Fire Hydrant Assembly    4    ea    \$4,500.00    \$18,000      l.    Joint Utility Trench    1,650    lf    \$80.00    \$132,000      Subtotal - All Infrastructure Improvements:    \$3,560,050    \$497,200      Total Probable Construction Costs:    \$4,094,057      PROFESSIONAL SERVICES    Image: Construction Costs:    \$4,094,057	h.	Drainage "V" Ditch	1,200	lf	\$7.00	\$8,400.00
j.    Water - 8" PVC C900 CL200    1,650    If    \$60.00    \$99,000      k.    Fire Hydrant Assembly    4    ea    \$4,500.00    \$18,000      l.    Joint Utility Trench    1,650    If    \$80.00    \$132,000      Subtotal - All Infrastructure Improvements:    \$3,560,050    \$33,560,050    \$534,007      Total Probable Construction Costs:    \$4,094,057	i.	Bio-Swale / Retention / Infiltration	2,600	cf	\$10.00	\$26,000.00
k.    Fire Hydrant Assembly    4    ea    \$4,500.00    \$18,000      l.    Joint Utility Trench    1,650    lf    \$80.00    \$132,000      Subtotal - All Infrastructure Improvements:    \$3,560,050    \$33,560,050    \$33,560,050      15% Omissions and Contingencies:    \$534,007      Total Probable Construction Costs:    \$4,094,057	j.	Water - 8" PVC C900 CL200	1,650	lf	\$60.00	\$99,000.00
I.    Joint Utility Trench    1,650    If    \$80.00    \$132,000      Subtotal - All Infrastructure Improvements:    \$3,560,05    \$33,560,05    \$534,007      Total Probable Construction Costs:    \$4,094,057      PROFESSIONAL SERVICES    \$4,094,057	k.	Fire Hydrant Assembly	4	ea	\$4,500.00	\$18,000.00
Subtotal - All Infrastructure Improvements: \$3,560,05 15% Omissions and Contingencies: \$534,007 Total Probable Construction Costs: \$4,094,057	l.	Joint Utility Trench	1,650	lf	\$80.00	\$132,000.00
Subtotal - All Infrastructure Improvements: \$3,560,05 15% Omissions and Contingencies: \$534,007 Total Probable Construction Costs: \$4,094,057						\$497,200.00
Subtotal - All Infrastructure Improvements:    \$3,560,05      15% Omissions and Contingencies:    \$534,007      Total Probable Construction Costs:    \$4,094,057						
15% Omissions and Contingencies:    \$534,007      Total Probable Construction Costs:    \$4,094,057      PROFESSIONAL SERVICES    \$4,094,057		Subtotal - All Infrastructure Improvements:				\$3,560,050.00
Total Probable Construction Costs: \$4,094,057			\$534,007.50			
PROFESSIONAL SERVICES			<b>Total Proba</b>	\$4,094,057.50		
PROFESSIONAL SERVICES						
I NOTEDSTOTAL SERVICES		PROFESSIONAL SERVICES				
Engineering and Design (6%) \$245,643		Engineering and Design (6%)				\$245,643.45
Construction Management (3%) \$122,82		Construction Management (3%)				\$122,821.73
Construction Surveying (2%) \$81,88		Construction Surveying (2%)				\$81,881.15
Testing and Inspection (2%) \$81,88		Testing and Inspection (2%)				\$81,881.15
\$532,22						\$532,227.48
Total Probable Construction & Professional Costs \$4,626,284		Total Probable C	\$4,626,284.98			
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# APPENDIX D PRELIMINARY PLAN & PROFILES









