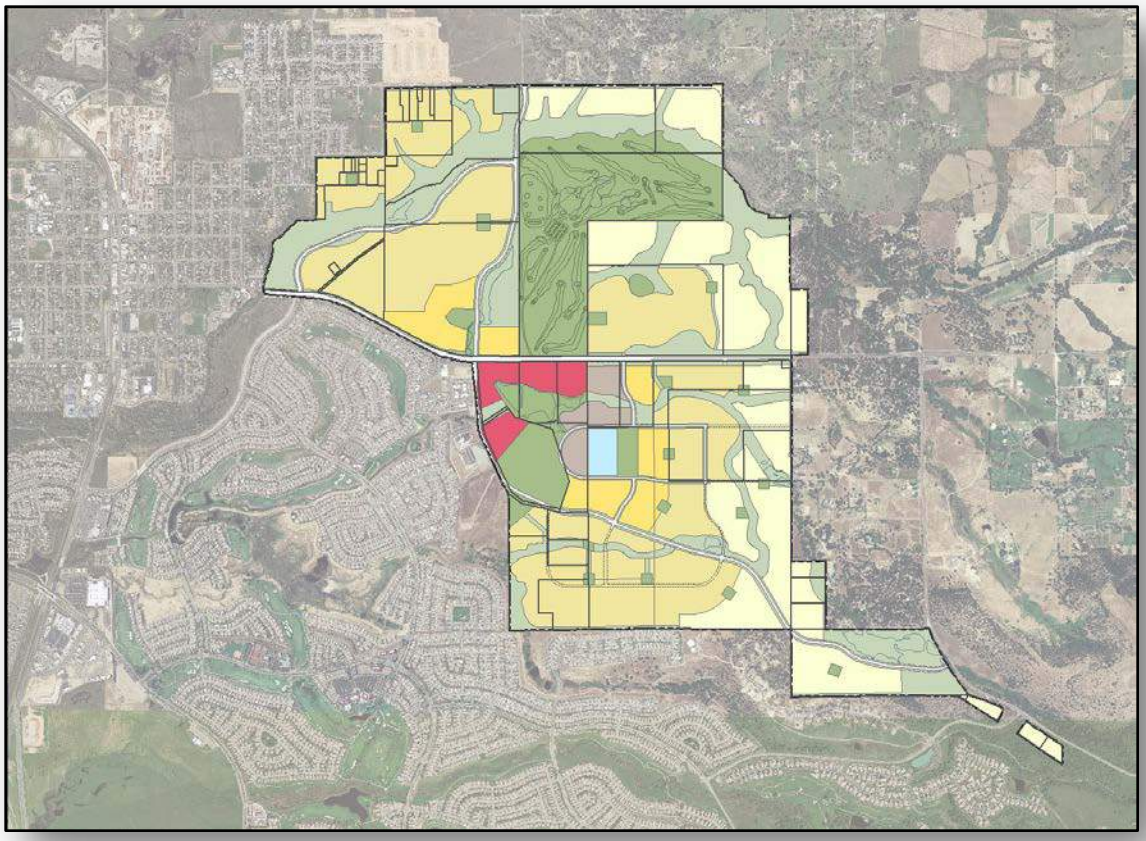
Village 1 Infrastructure and Public Facilities Financing Plan (Financing Plan)

Volume 2 - Infrastructure and Phasing Plan

City of Lincoln, California



August 9, 2016

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Village 1 Infrastructure and Public Facilities Financing Plan
Volume 2 - Infrastructure and Phasing Plan

To facilitate the infrastructure development of the Lincoln Village 1 Specific Plan (Village 1), the City of Lincoln and Village 1 parcel owners would substantially benefit from a cooperative development strategy. To this end, providing a comprehensive delineation of the major infrastructure elements identified in the Specific Plan offers a viable tool for implementing a development solution in a coordinated manner. Furthermore, this analysis provides for the infrastructure financing plan for Village 1, whether through the use of a Community Facilities District (CFD), developer financing, pooled financing, fees, or a combination of means. Through a single infrastructure finance plan, the City of Lincoln can maximize benefits and reduce costs and ensure that the infrastructure is constructed in a responsible and orderly manner, all in an environment that fosters mutual cooperation. This report presents an analysis of the costs associated with the construction of the Village infrastructure within the City of Lincoln Village 1. As a requirement of tentative map approval and development agreement, an infrastructure finance plan was developed to build Village 1 with an orderly progression of implementation. All development agreements within Village 1 will be subject to this finance plan.

1. Background

The Village 1 Specific Plan Area consists of 1,832.1 acres of land located in Placer County to the east of the City of Lincoln and within the Lincoln Sphere of Influence, as shown in Exhibit 1. The Village 1 area is primarily utilized at present for agricultural uses. As Exhibit 2 illustrates, property within the Specific Plan Area consists of 59 parcels of varying size with numerous registered owners. At present, approximately 1,712 acres are being annexed into the City of Lincoln, 1,366.5 acres of which have been considered active participants (those parcels that have been identified as likely to develop within the next 30 years) in the Village 1 Infrastructure Finance Plan. Exhibit 3 illustrates the owners and parcels which are being considered as part of the Finance Plan. If non-active participant land owners pursue development of their property then they will be added to the public facilities financing plan.

The Specific Plan for Village 1 identifies an integrated multi-faceted community area with a central core that gradually transitions to lower densities radially toward the rural interface. The proposed Land Use Plan is illustrated in Exhibit 4.

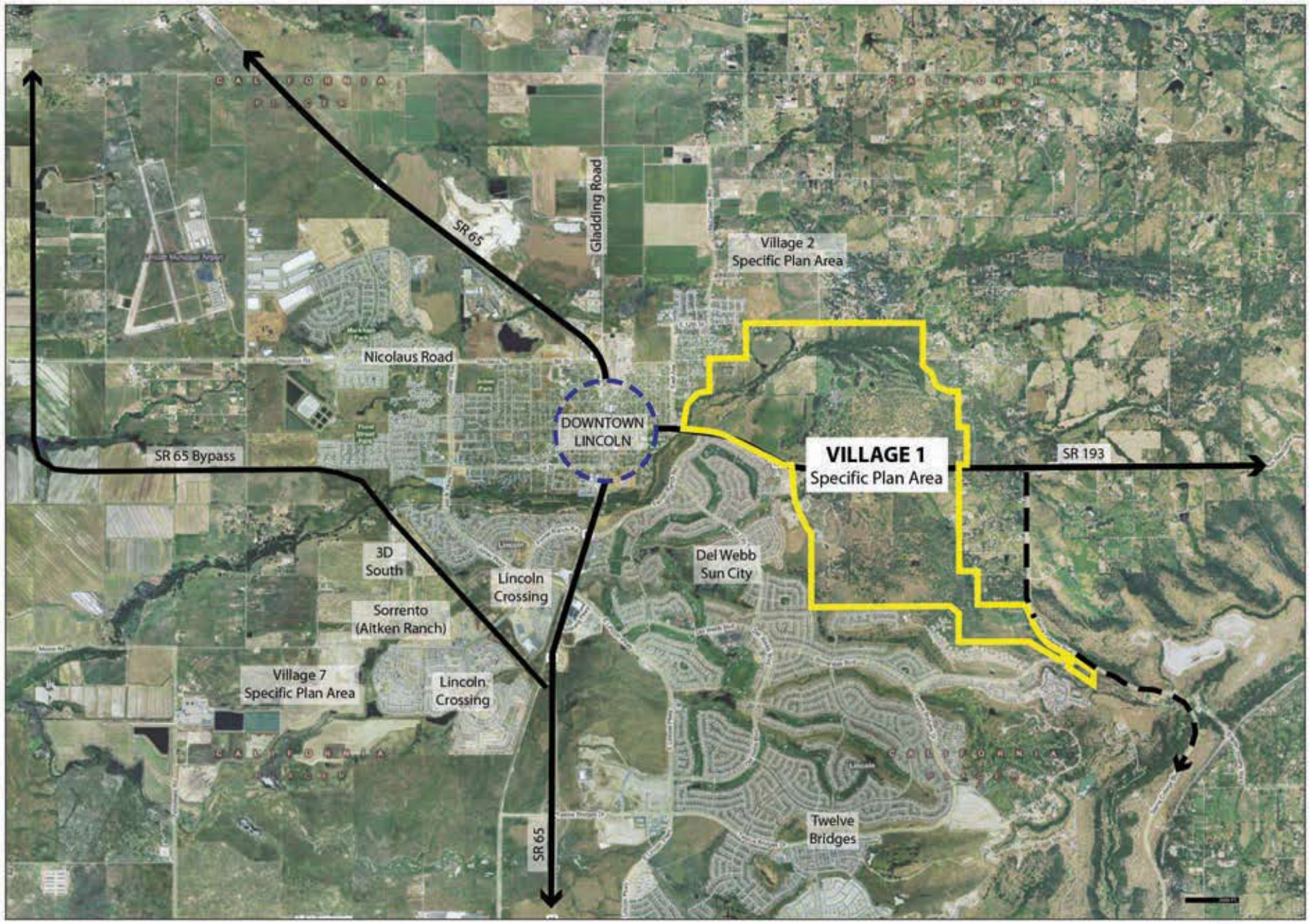

Exhibit 1: Specific Plan Vicinity Map

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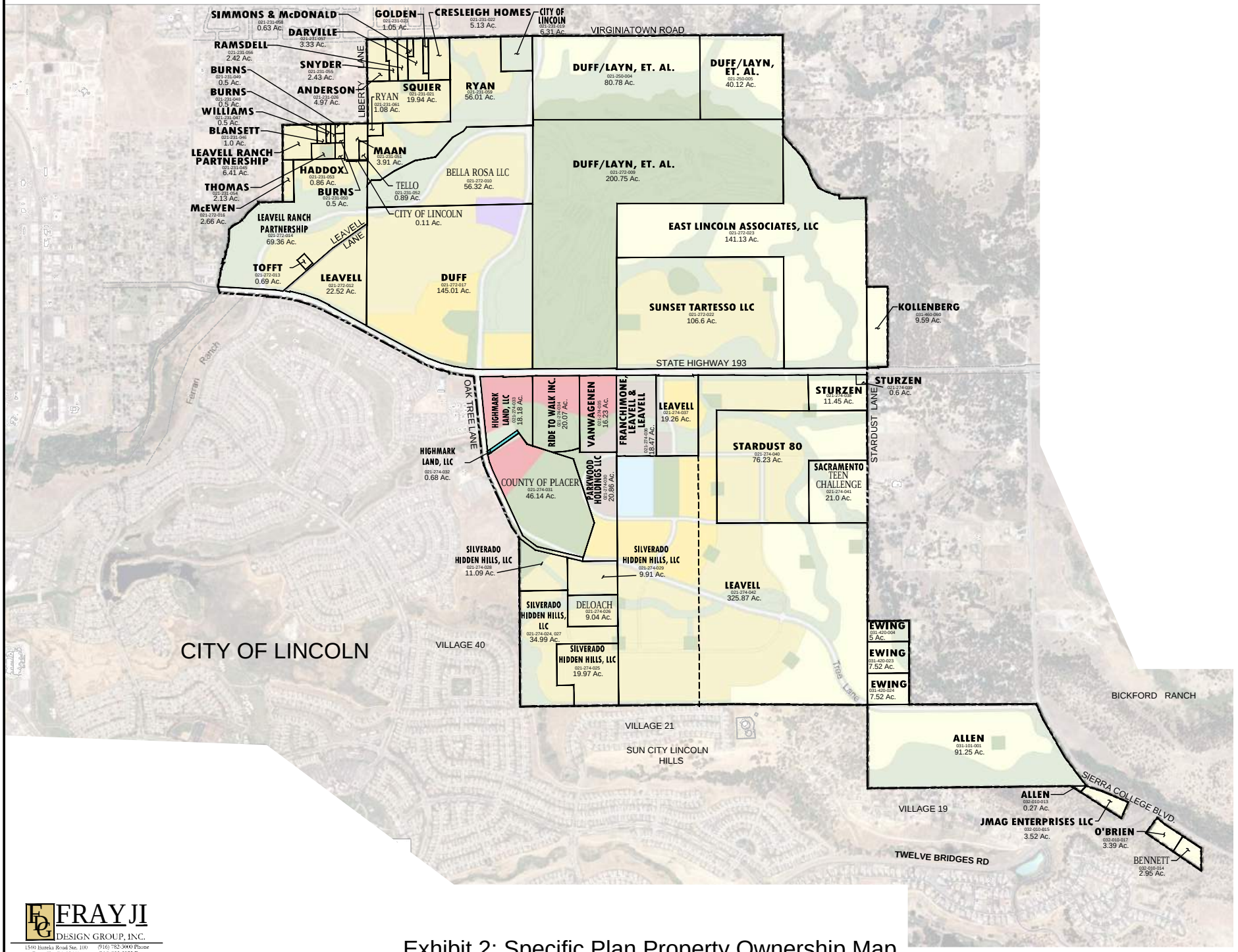

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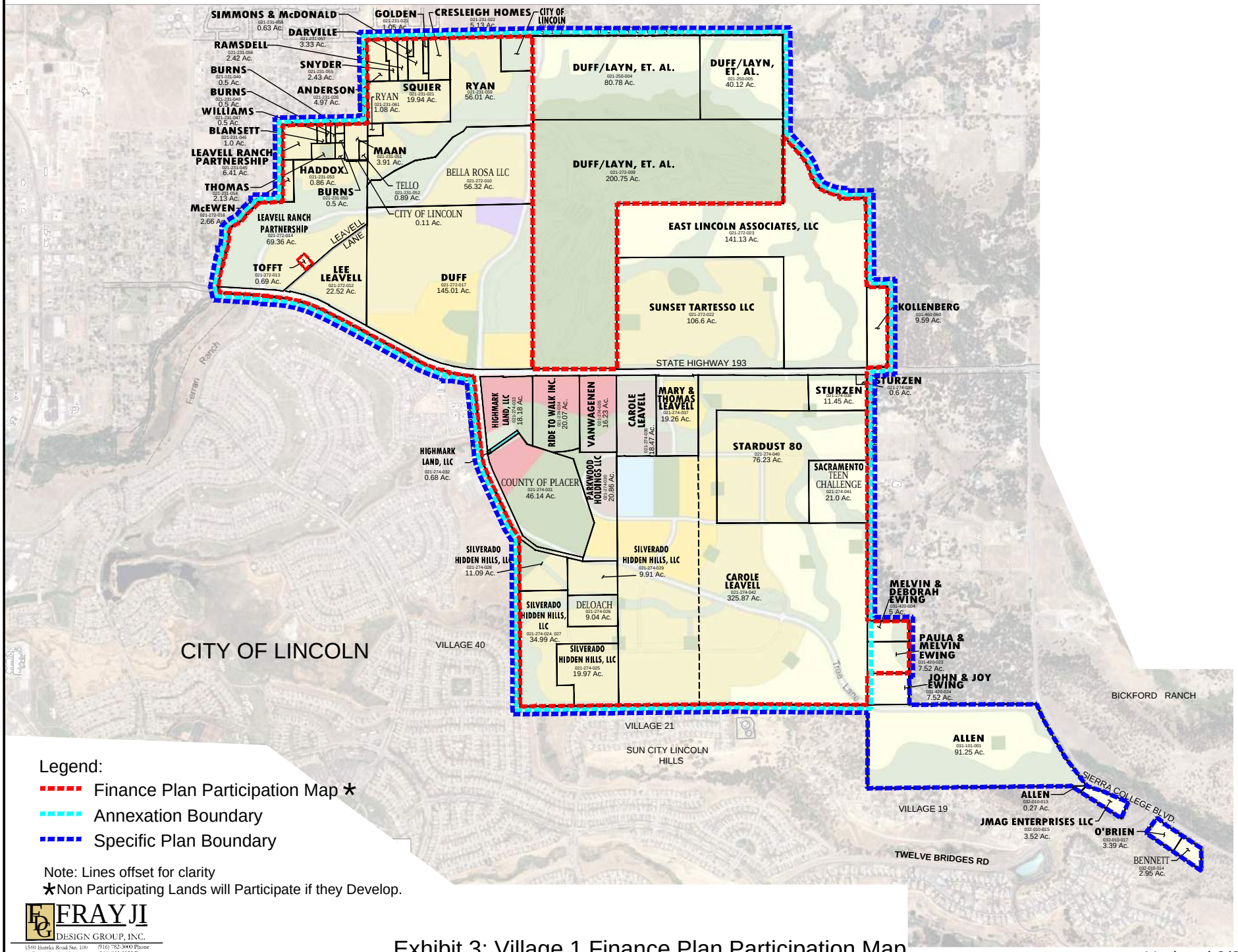
Exhibit 2: Specific Plan Property Ownership Map

Revised 8/9/2016



Legend:

- Finance Plan Participation Map *
- Annexation Boundary
- Specific Plan Boundary

Note: Lines offset for clarity

*Non Participating Lands will Participate if they Develop.

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Exhibit 3: Village 1 Finance Plan Participation Map

Updated 8/9/2016

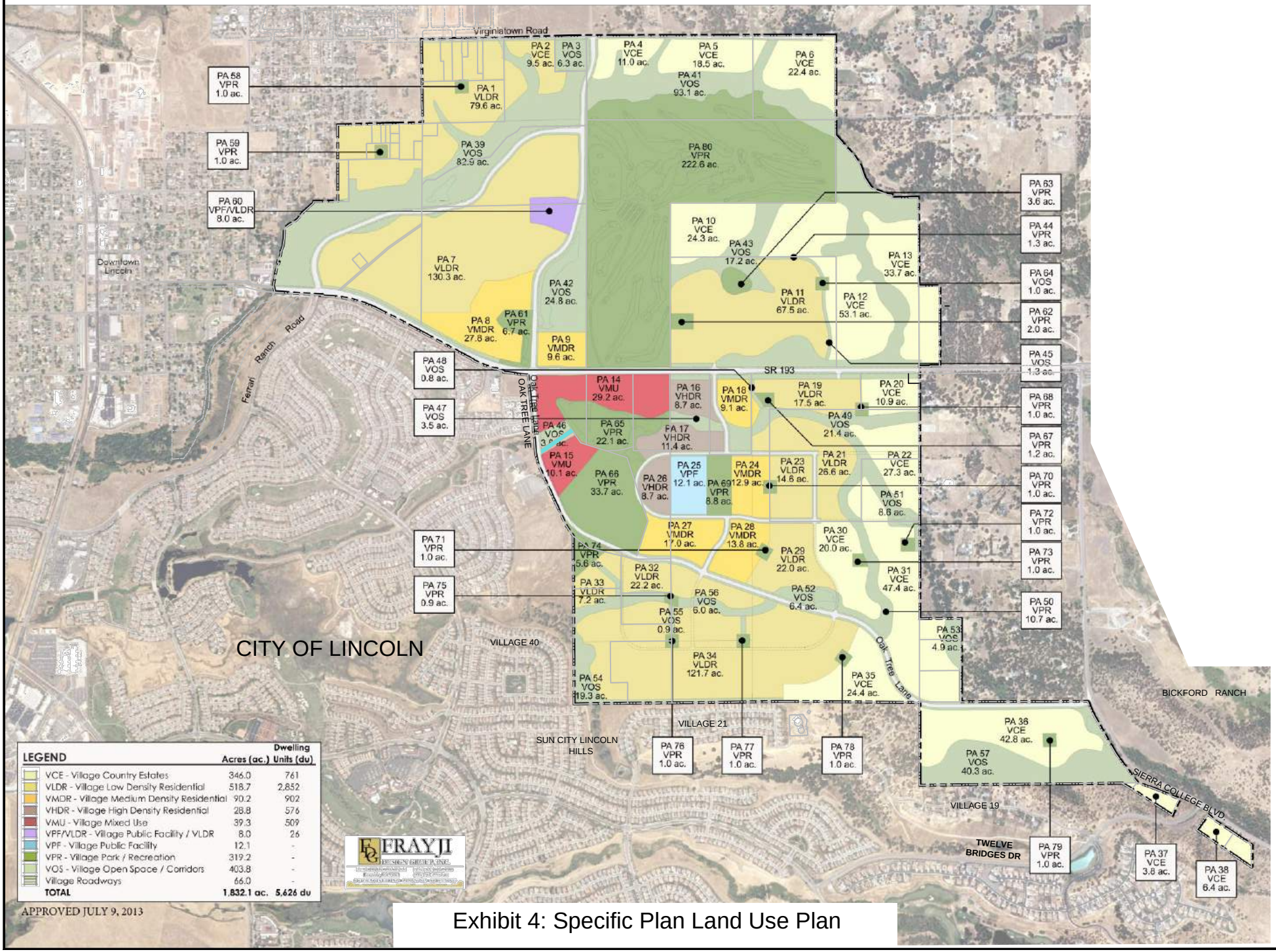


Exhibit 4: Specific Plan Land Use Plan

To facilitate a cohesive development, the Specific Plan outlines the location and size of all the backbone drainage, sewer, water and non-potable water networks. The Specific Plan also identifies the location and type of amenities, trails, streets and typical roadway street cross-sections. This information served as the backdrop for determining the costs associated with each of the major backbone elements.

Some of the infrastructure, within the Specific Plan area, is partially in place. McBean Park Drive / State Route 193 currently bisect the middle of the Village 1 Specific Plan from north and south. This major thoroughfare moves traffic in an east-west direction and will remain in place with additional improvements in both directions to meet the Specific Plan. Oak Tree Lane and Ferrari Ranch Road provide traffic movements in the north/south direction. Each of these streets will be extended and widened to their respective ultimate sections according to the Village 1 Specific Plan. The remaining existing streets found within the Specific Plan area, including Virginiatown Road and Stardust Lane, will include minimal improvements.

Village 1 Ownership Group and City of Lincoln Community Development Staff met several times in a cooperative effort to fine tune the Specific Plan Infrastructure to correspond with the already approved Tentative Maps and the anticipated forthcoming Development Agreement. The purposes of these meetings were to vet out the details of the project level design and determine inadequacies, if any, with the current Specific Plan Infrastructure design, to ensure that the Infrastructure Finance Plan is a comprehensive document.

An existing City of Lincoln water transmission pipe passes through Village 1. We identified that some of the water lines will need to be replaced and other segments that will require upgrades. Furthermore, water service to higher elevation areas of the Specific Plan area will require higher pressure service in portions of the community and connections to water tanks in the south.

The Regional Sewer is located centrally along McBean Park Drive / State Route 193 in the east-west direction.

Natural Drainage in Village 1 flows east to west through Auburn Ravine, Ingram Slough and their tributaries.

2. Infrastructure Finance Plan

This Infrastructure Finance Plan delineates the estimated costs associated for the entire backbone improvements as identified in the Specific Plan document. This document identifies seven primary areas for analysis:

- Water
- Drainage
- Wastewater
- Roadway System
- Trails
- Amenities (including non-potable water)
- Neighborhood Parks

3. Distribution Considerations and Participation

For the purposes of this finance plan, only participating owners and acreage identified as developable, per the Village 1 Specific Plan have been identified as obtaining benefit from the improvements to the village. Furthermore, as only those parcels that develop would pay the cost of constructing infrastructure elements or need to be reimbursed, only those parcels that have been identified as likely to develop within the next 30 years have been considered in the aggregate acreage totals. In the event that these parcels do develop, the net benefit will need to be recalculated and appropriately redistributed. If parcels that are excluded from the Infrastructure Finance Plan but are included in the Specific Plan advance development plans sooner than anticipated, then they will be subject to the Infrastructure Finance Plan and applicable fees. If the plan does not require the additional funding obtained from parcel electing to participate, then the Plan shall reimburse all everyone participating if the savings, if the savings is greater than 5% of the acreage assessment.

The following land owners within the Specific Plan have been excluded from the calculations as they are not anticipated to develop within the planning horizon of this Finance Plan:

Table 1: Non-Active Participant Land Owners

Assessor's Parcel Number	Owners Name
021-272-013	Tofft
021-272-009	Duff/Layn Et.Al (Turkey Creek Golf Course)
021-250-004	Duff/Layn Et.Al (Turkey Creek Golf Course)
021-250-005	Duff/Layn Et.Al (Turkey Creek Golf Course)
031-420-024	John & Joy Ewing
031-101-001	Allen
032-010-013	Allen
032-010-015	Jmag Enterprises, LLC
032-010-017	O'Brien
032-010-014	Bennett

Exhibit 3 provides a map showing the location of the non-participating land owners.

4. Distribution Methodology

In addition to considering the total infrastructure estimated cost, the distributed estimated cost to individual landowners has been considered. The Infrastructure Finance Plan sought to utilize a logical and fair formula that proportions costs to all owners in a manner that considers the underlying land uses and relative benefit from the infrastructure. Several factors complicate the matter, including densities associates with land use types, utilities usage based upon average home size, and costs tied to estimated population. Three distribution methods were examined for this report; Appendix 21 provides more detail of each method. The method selected and utilized in the Infrastructure Finance Plan utilizes factors consistent with the City of Lincoln PFE Structure Factors to provide fair distribution for the costs.

The City of Lincoln has an existing Public Facilities Element (PFE) Fee structure that incorporates weighting of fees based upon the type of zone. Units in Very Low Density Land Use areas pay a higher per unit fee than Low density, Medium Density and High Density, although the ratio varies by infrastructure component. The proportional ratio associated with

each component was applied as a weighing factor to those estimated costs when distributing the net assessment to each Land Use. The use of these weighting factors and the estimated costs identified should not be confused with the Impact PFE fees themselves, which will be assessed directly by the City apart from the infrastructure within the Village 1 area. The correlation of Village 1 Land Use designations with the equivalent City of Lincoln Public Facilities Element Fee structure land uses is provided for clarity.

Table 2: Equivalent Land Use Descriptions

Village 1 Land Use Description	Abbreviation	PFE Description
Village Country Estates	VCE	Very Low Density
Village Low Density Residential	VLDR	Low Density
Village Medium Density Residential	VMDR	Medium Density
Village High Density Residential	VHDR	High Density
Village Mixed Use	VMU	High Density

For each of the Village 1 Residential Land Use Designations, the corresponding weighing factor is shown in the following table:

Table 3: Distribution Weighting Factors

Infrastructure Element	PFE Category	VCE	VLDR	VMDR	VHDR	VMU
Water	Water	2.37	1.00	1.00	0.54	0.54
Non-Potable Water	Water	2.37	1.00	1.00	0.54	0.54
Drainage	Drainage	1.30	1.00	0.70	0.24	0.24
Wastewater	Wastewater	1.27	1.00	1.00	0.80	0.80
Circulation	Transportation	1.00	1.00	0.72	0.72	0.72
Walls and Landscaping	Transportation	1.00	1.00	0.72	0.72	0.72
Village Trails	Parks / Rec	1.00	1.00	1.00	0.72	0.72
Park	Parks / Rec	1.00	1.00	1.00	0.72	0.72

The summation of all of the subcomponent estimated costs was utilized to calculate the total fee. This method has the strength that it utilizes the rationale already adopted by the City of Lincoln for distributing estimated costs to various types of land uses based upon their actual impact. Appendix 21 provides comparison of the three evaluated methods. Distribution utilizing PFE Structure method was seen as the most logical, stable and fair method for the division of the total estimated cost.

The Infrastructure Cost Responsibility of a project will be based upon multiplying the per acre

Table 4: Land Use Dwelling Unit Factors

cost per applicable land use type, as established in this Infrastructure Finance Plan, and the

Land Use Category	Specific Plan Dwelling Unit Range	Specific Plan Dwelling Unit Target	Finance Plan Dwelling Units
Village Country Estate	1-3	2.2	2
Village Low Density Residential	3-6	5.5	4
Village Medium Density Residential	6-13	10	8
Village High Density Residential	13-25	20	18
Village Mixed Use	13-25	13	18

developable acreage of each land type included in the project, as depicted on the approved Tentative Subdivision Map.

From a developer / builder perspective, costs are often evaluated on a per unit basis. Since the costs established in this Infrastructure Finance Plan are a per acre basis, we have utilized incorporation of average density per land use type to provide a representative 'per unit' cost, if the average density was proposed for the project specific development. The unit count for the basis of this study was determined through review of preliminary site studies within the Village 1 Specific Plan area. The average density was determined based on a combination of averaging currently approved tentative maps for Phase 1 area of Village 1, Hidden Hills and Turkey Creek Estates, preliminary site layouts for APN: 021-274-042 (Leavell) along with an average density based on a range from the Village 1 Specific Plan. The table below shows the average density factors used for each land use category. The assumed dwelling units per acre used for Village Mixed Use was set arbitrarily high to offset the potential for Commercial Use.

The average density can be used to convert per acre estimated costs, to per unit estimated costs with the residential acreages for each land use determined by the “developable area” of the Specific Plan. See Exhibit B.1 Sub Planning Area Map of the Village 1 Specific Plan and Table 9 of the Amendment to the Lincoln – Village 1 Reimbursement Fee (**Resolution No. 2013-077**). The results of the distribution are provided in tabular summary form. Appendix 12 provides the CFD Infrastructure cost estimate summary of each Phase, Phase 1 through Phase 8. As Phases 1

and 2 include a significant infrastructure component to construct and allow development to proceed, the per acre cost for Phases 1 & 2 are greater than the Village 1 overall per acre responsibility. As such, the Phase 1 & 2 builders will be financing additional cost until there is funding available from subsequent phases to be reimbursed to be equitable to the overall Village 1 per acre responsibility. Builders within Phase 1 & 2 shall utilize the Phase 1 & 2 combined assessment. Reimbursement will be made from Others on a first submitted first reimbursed basis. The resulting overall Village 1 Specific Plan Per Acre effective estimated costs are as follows:

Table 5: Resulting Infrastructure Costs per Acre

	Phase 1 & 2 Combined Per Acre Assessment[1]	**Overall Village 1 Net Per Acre Assessment**
Village Country Estate	$74,066	$49,421
Village Low Density Residential	$117,592	$78,602
Village Medium Density Residential	N/A	$122,573
Village High Density Residential	N/A	$222,677
Village Mixed Use	N/A	$222,426

1: Excluding any PFE Credits

5. Administration of Per Acre Infrastructure Costs

While the estimated costs associated with the finance plan are distributed throughout the entire Village, some parcels, by virtue of geography, ownership, or development timing will have little to no direct construction costs. However, these parcels will still receive benefit from the Village 1 Infrastructure that has been constructed by others. To facilitate parity, a Village 1 Infrastructure Fund will be set up and administered by the City to reimburse individuals who have constructed infrastructure to serve the entire Village in excess of the particular obligation associated with that parcel.

For instance, if a site has 100 acres of developable Village Low Density Residential, then the equivalent infrastructure contribution of that site would be $7,860,200 (100 ac x $78,602/ac). If the developer actually constructed $7,000,000 in Village 1 Infrastructure Finance Plan identified improvements, then they would remit the remaining $860,200 to the fund. That money would be used to pay other developers who constructed other portions of the plan. If the developer instead had constructed $13,000,000 in improvements, the developer would be eligible for $5,139,800 in

reimbursements from the fund. Reimbursements would be made from a first submitted for reimbursement, first paid (first come first served) from the fund basis. If the fund has not received sufficient funds to reimburse for the cost of improvements completed, the developer will need to wait until the fund has collected monies for the reimbursement. Developers may build improvements from later phases in earlier phases, but will need to wait for reimbursement until all of the earlier phase improvements are funded. Priority of reimbursement shall be: 1) Developers who have constructed in-phase infrastructure greater than their Phase 1 & 2 Combined obligation shall be reimbursed to the Phase 1 & 2 Combined obligation; 2) Developers who have paid or constructed in-phase improvements at or below the Phase 1 & 2 Combined per acre assessment but above the overall Village 1 per acre assessment to be reimbursed to the overall Village 1 per acre assessment.

6. Implementation of Per Unit Costs

The actual per home assessment would vary across the Village depending upon the selected density at which the developer constructs. The fees assessed will be tied to the developable acreage of each land use corresponding to the landowner. If higher densities are selected, within the ranges of the zoning code, then the per unit estimated costs would be reduced since the per acre assessment is fixed. Conversely, lower density construction would result in proportionally higher per home assessments. For commercial development within the Village Mixed Use zone, the assessment rate of commercial and residential would be reflected in the single assessment cost.

The City of Lincoln will administer the Village 1 Fee Program with each project paying its fee prior to city council acceptance of Final Map and / or prior to obtaining on-site rough grading permit (excluding stockpile permits or any permitted temporary operations such as ground preparation or tree removal). The Infrastructure Cost applicable for each project is calculated on a per developable acre basis.

7. Cost Summary

The identified elements of the Infrastructure Finance Plan were summarized according to estimated quantities and priced accordingly to arrive at a total estimated cost. The overall cost summaries provided also include 17.00% for soft costs associated with the infrastructure design along with general 15% contingency based upon hard construction costs. A separate Infrastructure Finance Plan City Administration Fee of one and one-half percent (1.50%) has

been tabulated (included in Appendix 29) as a budgetary figure to account for the City's administering the Village 1 Finance Plan. This Fee has been distributed based upon an individual parcel developable acreage as a percentage of total developable acreage. This fee will be payable at city council acceptance of Final Map and/or prior to obtaining on-site rough grading permit (excluding stockpile permits or any permitted temporary operations such as ground preparation or tree removal), whichever occurs first. As all of the cost estimation has been based on preliminary information, the quantities and costs could significantly change if unforeseen conditions are found. The resultant costs are:

Table 6: Infrastructure Estimated Cost Summary

Infrastructure Element	Estimated Cost[1]		
	Non-PFE	PFE	Total
Water	$7.35 million	$1.74 million	$9.08 million
Drainage	$9.79 million	$1.44 million	$11.23 million
Wastewater	$3.83 million	$0.99 million	$4.82 million
Roadway and Bridges	$49.39 million	$22.22 million	$71.61million
Amenities	$5.90 million	$1.24 million	$7.13 million
Trails	$2.63million	-	$2.63 million
TOTAL	**$ 78.89 million**	**$ 27.63 million**	**$ 106.51 million**

1: Includes Contingency Based upon Hard Costs and Soft Cost contingency (15% and 17% respectively).

Overall Total estimated costs for Village 1 Infrastructure are provided in Appendix 1, for each corresponding Infrastructure Element. In each element the aggregate quantities, unit costs and amounts estimated are provided for the entire village. Appendix 2 provides the Overall Total Village 1 Infrastructure Costs per Land Use.

The Village 1 Finance Plan is based on the Specific Plan backbone infrastructure and subsequent studies provided by the City. The backbone infrastructure identified by the Specific Plan, as sized and modeled in the adopted supporting Village 1 Studies for Traffic, and Drainage are utilized. The City has recently completed water modeling in the Village 1 area and this modeling updates the Water study that was previously prepared for Village 1. These updated water pipe sizes are utilized in the Infrastructure Finance Plan. The City has also provided updated pipe sizes for the sanitary sewer system which updates the Sewer study that was previously prepared for Village 1. These updated sewer pipe sizes are utilized in the Infrastructure Finance Plan. All of the in-tract infrastructure including walls and landscape corridors fronting development by

Village 1, other than those limited items specifically identified in this report, are not included in the Infrastructure Finance Plan and are intended to be constructed with in-tract improvements.

8. External Items

There are additional costs to improve specific infrastructure outside of the Village 1 area, including improvements within the City of Lincoln and regional traffic improvements. Some of these items are already delineated in the City of Lincoln Public Facility Elements (PFE), which include:

- Ferrari Ranch Road south road widening, from existing bridge east of Lincoln Blvd. to intersection with McBean Park Drive.
- Sierra College Boulevard/Oak Tree Lane Intersection pavement widening and Traffic Signalization.

These costs are included in the Infrastructure Finance Plan as they will be paid for utilizing Public Facility Element fees collected from Village 1 building permits.

Other items are included in the South Placer Regional Transportation Authority (SPRTA) fees and include regional improvements to:

- Sierra College Boulevard
- Sierra College Boulevard/Twelve Bridges Drive Intersection and Signalization
- City of Rocklin - West Stanford Ranch/Wildcat Boulevard Intersection
- State Route 65

These costs are not included in the Infrastructure Finance Plan as they will be paid for by SPRTA. The above listed projects represent mitigation of off-site impacts.

Per the EIR mitigation measures, other specific improvements have been included in the Infrastructure Finance Plan that are outside of the Village 1 area, but are included in the estimated costs to construct Village 1 infrastructure as specified in the Village 1 Specific Plan. This includes:

- Frontage improvements along APN: 378-010-057 (Commercial Parcel)
- Frontage improvements along APN: 021-274-023 (Crocker Knoll Development)

The additional frontage improvements to these two parcels include:

- Half-section of roadway
- Grading
- Curb and gutter
- Sidewalk
- Pavement
- Median curb
- Median landscaping

8.1 3rd Party Reimbursement from Non-Village 1 Parcels

Assuming Village 1 development schedule requires these improvements, the cost for these improvements will be paid for by the plan and the City will coordinate third party reimbursement for these facilities from the developers, if and when they develop. Both APN: 378-010-057 and 021-274-023 will also be responsible for their respective fair share for the cost of the traffic signal at the intersection of McBean Park Drive and Oak Tree Lane, along with the associated pavement widening as a result of the new intersection by payment of PFE fees. The landscape corridors fronting the development are not included, as it will be the responsibility of the developer, if and when the property develops. If these parcels develop first, there will be no reimbursement from the plan.

9. Public Facilities Element (PFE)

The City of Lincoln has an existing PFE program which incorporates the larger citywide elements of infrastructure within Lincoln. Village 1 has a significant amount of infrastructure that will be completed through the PFE program. The City will collect impact fees from the development of Village 1 and use those funds to pay for those items that the City has identified as PFE eligible. These funds will be collected and used to fund PFE Items in Village 1. Once the Village 1 PFE items are completed, or fully funded, remaining PFE impact fees will go into the City's general PFE fund. PFE infrastructure identified in Phase 1 and 2 will need to be 100% financed in order for those elements to be constructed, since no building permits have been issued and subsequently no fees have been collected to offset the costs.

The City currently projects that approximately 300 building permits will be issued for single family dwellings per year in the next few years. Therefore, in year two of construction, it is anticipated that those 300 units (overall units 301 - 600) and the PFE component of the impact fee paid at building permit issuance would be used to reimburse Phase 1 for the financed PFE infrastructure already built. This will continue until owners constructing Phase 1 PFE have been

fully repaid. The credit generated from PFE infrastructure constructed in Phase 1 and 2 shall be applied toward building permit impact fees. The credit can be either spread-out over all associated building permits, or taken based upon the maximum allowable amount per building permit to accelerate application of the credit, at the builder's discretion. The remaining Phases will have PFE impact fees collected and therefore the City will be able to construct other PFE infrastructure with the fees collected.

As indicated in Section 8 above, some infrastructure elements that are already included in the PFE program will be required to be constructed with the development of Village 1. A list of PFE improvements and the PFE Maps are included in Appendix 10 and identify items that are part of the existing City PFE program or that need to be included in the City's PFE program. In all cases, an update to the City PFE will need to be processed in order to include Village 1 and reconsider the likely costs. Appendix 10 provides a summary of the projected PFE Costs. The Typical Signalize/Intersection Widening Diagram which identifies the lanes of traffic that have been included as part of the PFE for all of the traffic signal intersections found in Village 1, is included in Appendix 11.

The PFE Fees Per Dwelling Unit, based upon the respective Land Use, to be collected by the City are summarized in **Table 7** and **Table 8** and are based on City Impact Fees Dated: July 1st 2014.

Table 7: PFE Fees Per Dwelling Unit and Land Uses
(Excluding Critical Facilities and Administrative Fees)

Land Use	Sewer	Water	Transportation	Drainage	Total Fee*
Very Low Density (VCE)	$7,983.80	$13,427.49	$2,945.42	$327.86	$24,684.57
Low Density (VLDR)	$6,286.19	$5,665.45	$2,945.42	$252.04	$15,149.10
Medium Density (VMDR)	$6,286.19	$5,665.45	$2,120.96	$176.48	$14,249.08
High Density (VHDR or VMU)	$5,028.74	$3,058.90	$2,120.96	$60.42	$10,269.02

***Total Fee represents maximum amount available for reimbursement per Building Permit.**

Table 8: PFE Fees – Community Services (Park Construction Fee) Per Lands Use

Land Use	Park Construction	Remaining Community Service Fee	Total Fee
Very Low Density (VCE)	$4,182.04	$3,425.68	$7,607.72
Low Density (VLDR)	$4,182.04	$3,425.68	$7,607.72
Medium Density (VMDR)	$4,182.04	$3,425.68	$7,607.72
High Density (VHDR or VMU)	$3,010.74	$2,466.58	$5,477.32

Impact fees for sewer, water, transportation and drainage will be pooled to pay for the PFE eligible infrastructure being constructed by Village 1. Pooling of fees may be limited and is dependent upon the project needs of the critical infrastructure elements including water pipelines along Twelve Bridges Drive and storage tank, as well as, the wastewater treatment plant expansion project. The remaining impact fee is the Community Service Fee portion. From Table 8 the Park Construction portion of the current Community Service fee is $4,182.04 per unit of VCE, VLDR and VMDR and $3,010.74 per unit of VHDR/VMU. The neighborhood park construction impact fee portion of this fee will be available as a credit to the Village 1 owners for neighborhood park and trail construction. The neighborhood parks and trails costs make up approximately 37% of the total Park Construction Impact Fee. The remaining 63% will cover the rest of the Park Construction Impact Fee which consists of regional parks, community centers and aquatic facilities.

Oak Tree Lane, north of McBean Park Drive is proposed as a 2-lane road to being able to expand to a 4-lane road in the future. The additional 2 lanes are a PFE item. In the future when the initial two lanes are constructed north of Ferrari Ranch Road, the City will have the option of constructing the additional two lane (PFE funded) bridge on Oak Tree Lane, concurrently with the initial two lanes (non-PFE) to realize cost savings of PFE funds through economy of scale. If the additional two lane bridge is constructed at the same time as the initial two lane bridge, one single bridge may be constructed instead of two independent bridges, this could provide a significant potential savings.

10. Backbone Infrastructure

10.1 Water Element

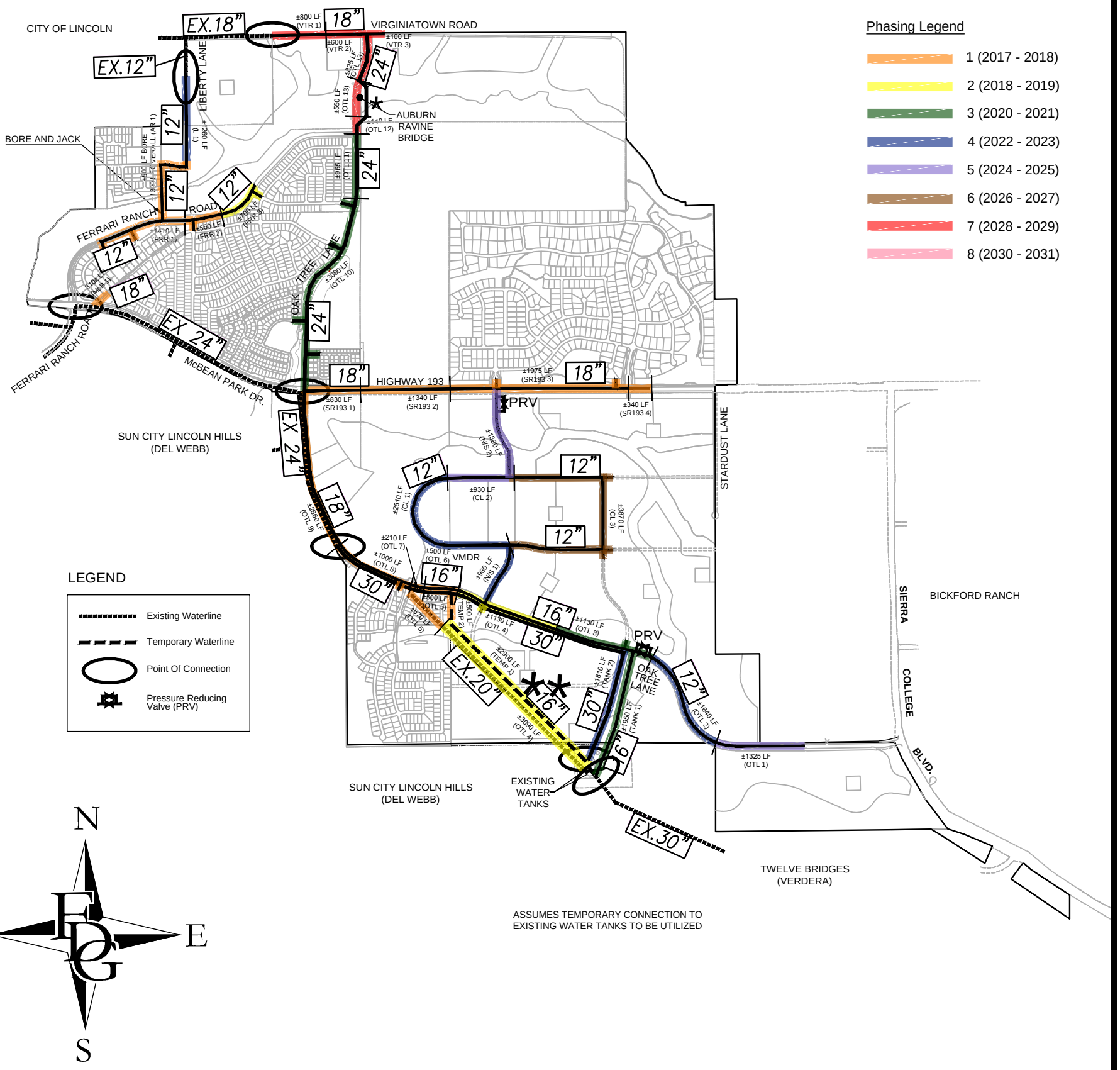
The backbone **Water** portion of the finance plan includes all of the backbone water system shown in the Village 1 Specific Plan as shown in Exhibit 5. Backbone water lines are comprised of both PFE and Village 1 infrastructure. Below is a list of the water items that are PFE:

- Water Transmission Pipe, 18" diameter and larger, for the cost over a 16" diameter pipe
- Water Valve, 18" diameter and larger, for the cost over a 16" valve

The water system pipe sizes included are based on the Village 1 Specific Plan and subsequent studies provided by City of Lincoln. Water pipes were sized using a combination of the Village 1 Potable Water Distribution Modeling Report prepared by Frayji Design Group for the City of Lincoln dated July 2011 and more recent modeling by the City of Lincoln.

Water system within individual subdivisions are excluded, except where a transmission main is specifically shown to traverse a parcel. Appendix 3 provides the cost estimates for the Potable Water Element. The water system costs include the following items:

- Water Main Pipe
- Water Valve
- Pressure Reducing Valve
- Air Release Valve
- Fire Hydrant & Appurtenances
- Bore and Jack (at Auburn Ravine) Between Epick 1&2 and Epick 3
- Transmission Main Interconnections
- Trenching & Backfill
- Water Line across Auburn Ravine Bridge
- Flex Joints on Auburn Ravine Bridge



ASSUMES TEMPORARY CONNECTION TO EXISTING WATER TANKS TO BE UTILIZED

* INSIDE OF PROPOSED BRIDGE

** TEMPORARY 16" MAIN IF ADDITIONAL CAPACITY IS REQUIRED.

NOTE:

1. NO INTERNAL VILLAGE SYSTEM, EXCEPT NORTHERLY CONNECTION AND SOUTHERLY CONNECTION TO TRUNK WATER.
2. DEVELOPMENT MAY PROCEED IN ANY SEQUENCE AND PER DIFFERENT PHASES AS LONG AS NEEDED INFRASTRUCTURE TO SUPPORT DEVELOPMENT IS IN PLACE.
3. IMPROVEMENTS SHOWN PER PHASE WILL REQUIRE COMPLETION PRIOR TO PULLING THE BUILDING PERMIT OF THE FINAL LOT SHOWN IN THE CUMULATIVE TOTAL.
4. ONLY AREAS COLORED ABOVE ARE INCLUDED IN THE INFRASTRUCTURE COSTS. OTHER IMPROVEMENTS ARE PROJECT OWNER COSTS.

Disclaimer:
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Exhibit 5: Backbone Water System Plan

Revised 8/9/2016

10.2 Drainage Element

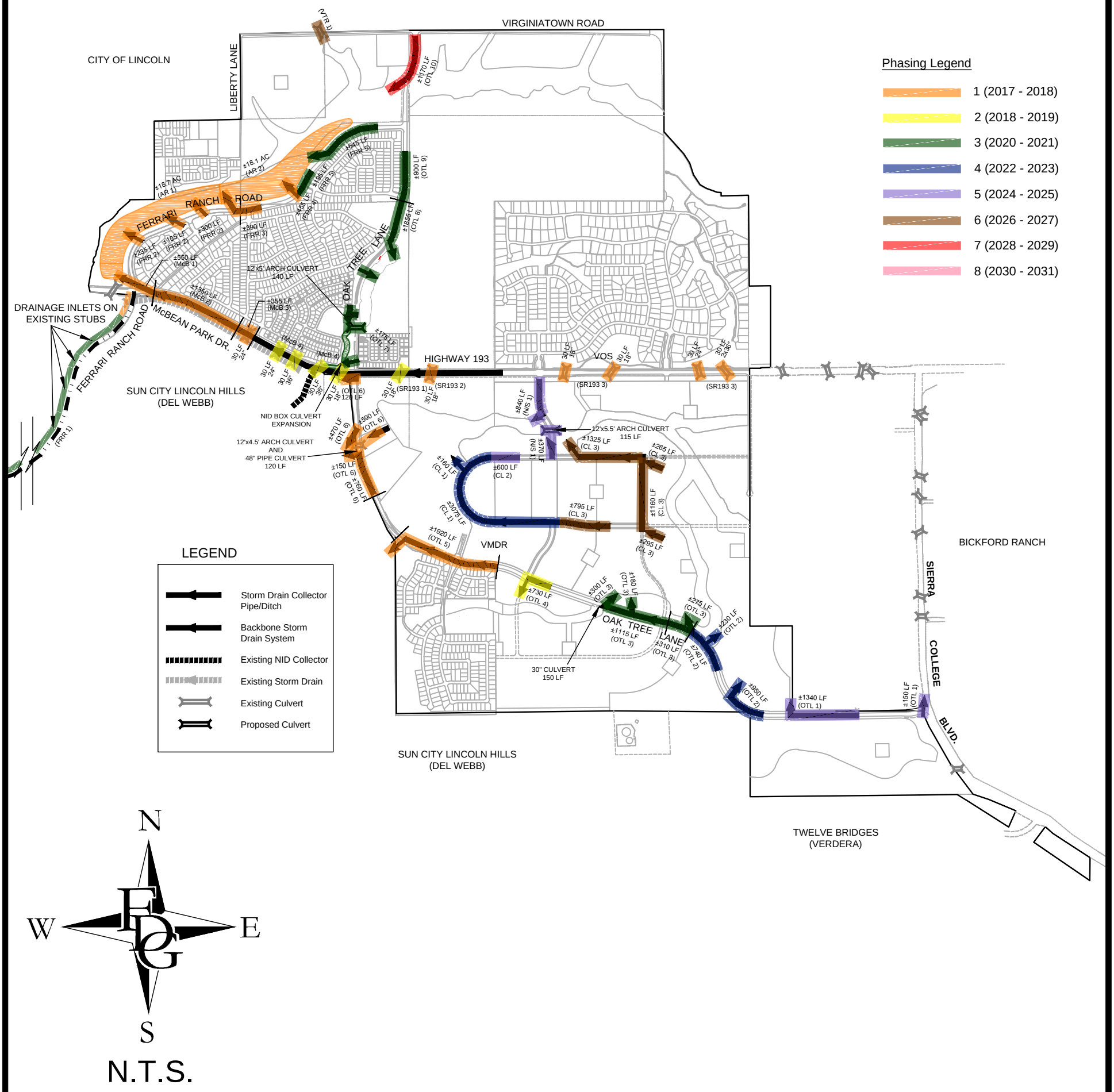
The backbone **Drainage** System portion of the finance plan considers primarily the drainage network needed to facilitate drainage of the major roads shown in the Village 1 Specific Plan. The backbone drainage network for Lincoln Village 1 is identified in Exhibit 6.

PFE Drainage items include:

- Retrofit Lake outlet and existing berm

The drainage sections also include several large additions to address flood detention and conveyance, including: grading within Auburn Ravine and rerouting of the Nevada Irrigation District canal. **Individual Subdivision drainage is excluded.** Appendix 4 provides the cost estimates for the Drainage Element. The drainage system costs include the following items:

- Storm Drain Pipes
- Storm Drain Manholes
- Culvert Extensions
- Headwall Retrofit
- Drainage Inlets
- Wetland Mitigation at Oak Tree Lane
- Retrofit Lake outlet and existing berm
- Storm Water Quality
- Outfalls
- Arch Culverts
- NID Box Culvert Expansion at McBean Park Drive
- CLOMR and LOMR - Auburn Ravine overbank improvement adjacent to Ferrari Ranch Road
- Auburn Ravine Grading & Bank Stabilization



NOTE:

1. AUBURN RAVINE IMPROVEMENTS MUST BE COMPLETED BEFORE CERTIFICATE OF OCCUPANCY WILL BE ISSUED.
2. DEVELOPMENT MAY PROCEED IN ANY SEQUENCE AND PER DIFFERENT PHASES AS LONG AS NEEDED INFRASTRUCTURE TO SUPPORT DEVELOPMENT IS IN PLACE.
3. IMPROVEMENTS SHOWN PER PHASE WILL REQUIRE COMPLETION PRIOR TO PULLING THE BUILDING PERMIT OF THE FINAL LOT SHOWN IN THE CUMULATIVE TOTAL.
4. ONLY AREAS COLORED ABOVE ARE INCLUDED IN THE INFRASTRUCTURE COSTS. OTHER IMPROVEMENTS ARE PROJECT OWNER COSTS.
5. SOME LENGTHS ABOVE MAY NOT MATCH DUE TO INLET LEADS AND CROSSINGS.

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Exhibit 6: Backbone Drainage System Plan

Revised 8/9/2016

10.3 Wastewater Element

The backbone **Wastewater** System portion of the finance plan includes all of the backbone sewer system shown in the Village 1 Specific Plan, as shown in Exhibit 7. Backbone wastewater lines are comprised of both PFE and NON-PFE infrastructure. Below is a list of the wastewater items that are PFE:

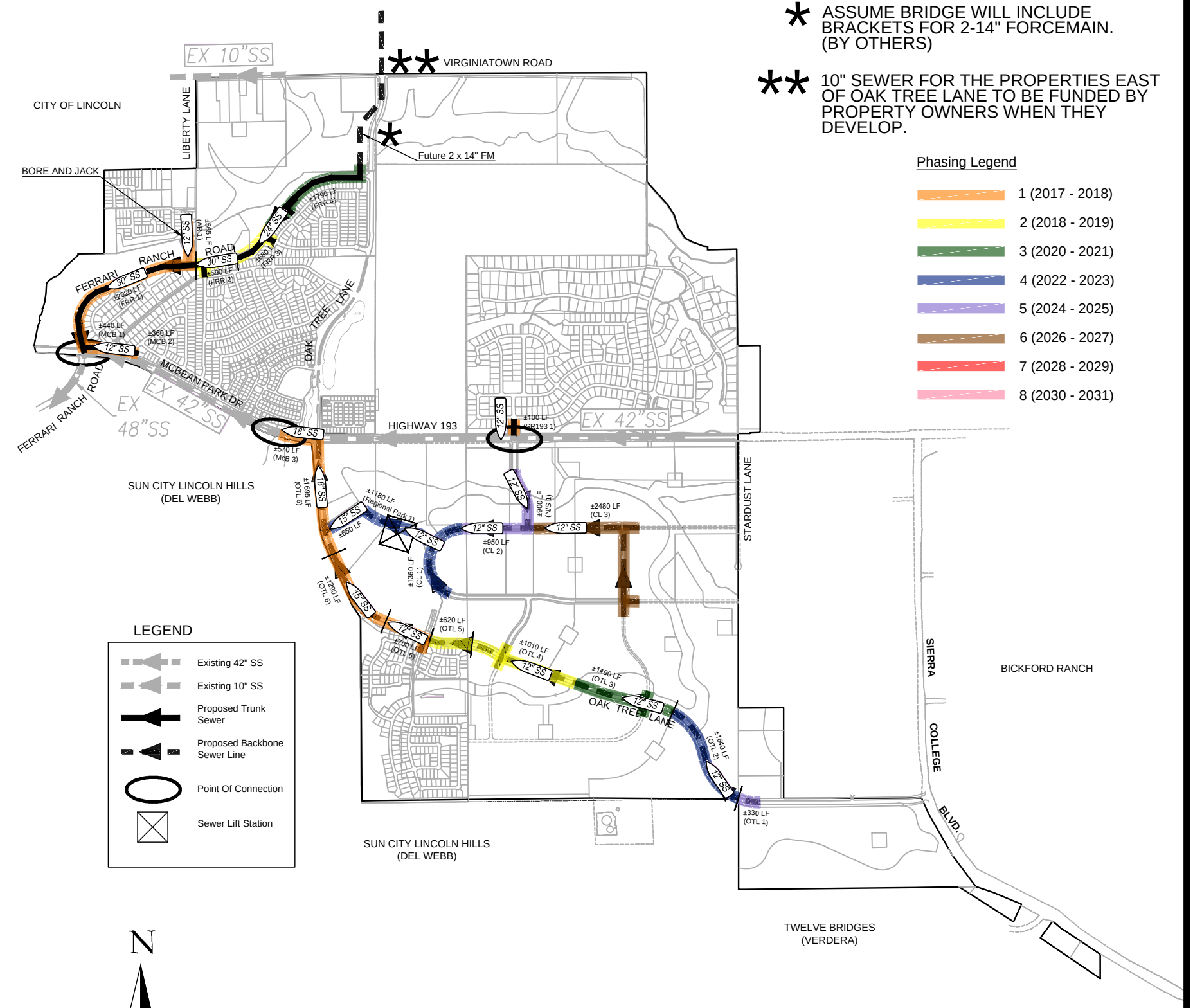
- Wastewater Pipe cost for upsizing above 10”
- Wastewater Pipe cost for upsizing above 12”
- Full cost of some 24” Wastewater Pipe

The wastewater pipe sizes included are based on the Village 1 Specific Plan and subsequent studies by City of Lincoln. The sewer system is sized using a combination of the Village 1 Sewer Collection Modeling Report prepared by Frayji Design Group for the City of Lincoln dated July 2011 and direction from the City of Lincoln. **Wastewater pipes within individual subdivisions were excluded**, except where a backbone sewer is specifically shown to traverse a parcel. The 30-inch to 24-inch Ferrari Ranch Road Option from the Modeling Report, designed to provide surplus capacity to Village 2, was utilized for the Infrastructure Finance Plan. Appendix 5 provides the cost estimates for the Wastewater Element. The wastewater system costs include the following items:

- Sanitary Sewer Pipe with trenching and backfill
- Sanitary Sewer Manholes
- Sanitary Sewer Lift Station
- Connection to Existing Transmission Main
- Bore and Jack (across Auburn Ravine) Between Epick 1&2 and Epick 3

10.4 Roadway System Element

The **Roadway System** portion of the finance plan includes all of the major delineated Roadways within Village 1, including the Auburn Ravine Bridge which is half funded by the Village 1 Finance Plan and half funded with money collected from PFE funds. Further discussion of this item is provided in Section 9 above.



* ASSUME BRIDGE WILL INCLUDE BRACKETS FOR 2-14" FORCEMAIN. (BY OTHERS)

** 10" SEWER FOR THE PROPERTIES EAST OF OAK TREE LANE TO BE FUNDED BY PROPERTY OWNERS WHEN THEY DEVELOP.

Phasing Legend

- 1 (2017 - 2018)
- 2 (2018 - 2019)
- 3 (2020 - 2021)
- 4 (2022 - 2023)
- 5 (2024 - 2025)
- 6 (2026 - 2027)
- 7 (2028 - 2029)
- 8 (2030 - 2031)

LEGEND

- Existing 42" SS
- Existing 10" SS
- Proposed Trunk Sewer
- Proposed Backbone Sewer Line
- Point Of Connection
- Sewer Lift Station

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NOTE:

1. ALL COLLECTOR STREET SEWER LINES TO BE INCLUDED AND TIE-IN FROM PARK TO TRUNK LINE.
2. DEVELOPMENT MAY PROCEED IN ANY SEQUENCE AND PER DIFFERENT PHASES AS LONG AS NEEDED INFRASTRUCTURE TO SUPPORT DEVELOPMENT IS IN PLACE.
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Exhibit 7: Backbone Wastewater System Plan

Revised 8/9/2016

For the Specific Plan roadways, the entire cost of the cross section is included between this element and the Trails and Amenities element. Where existing roads are present, only the additional pavement costs were considered and included. The exception being the existing Oak Tree Lane roadway where the proposed grades change significantly from existing and will necessitate the construction of new roadway.

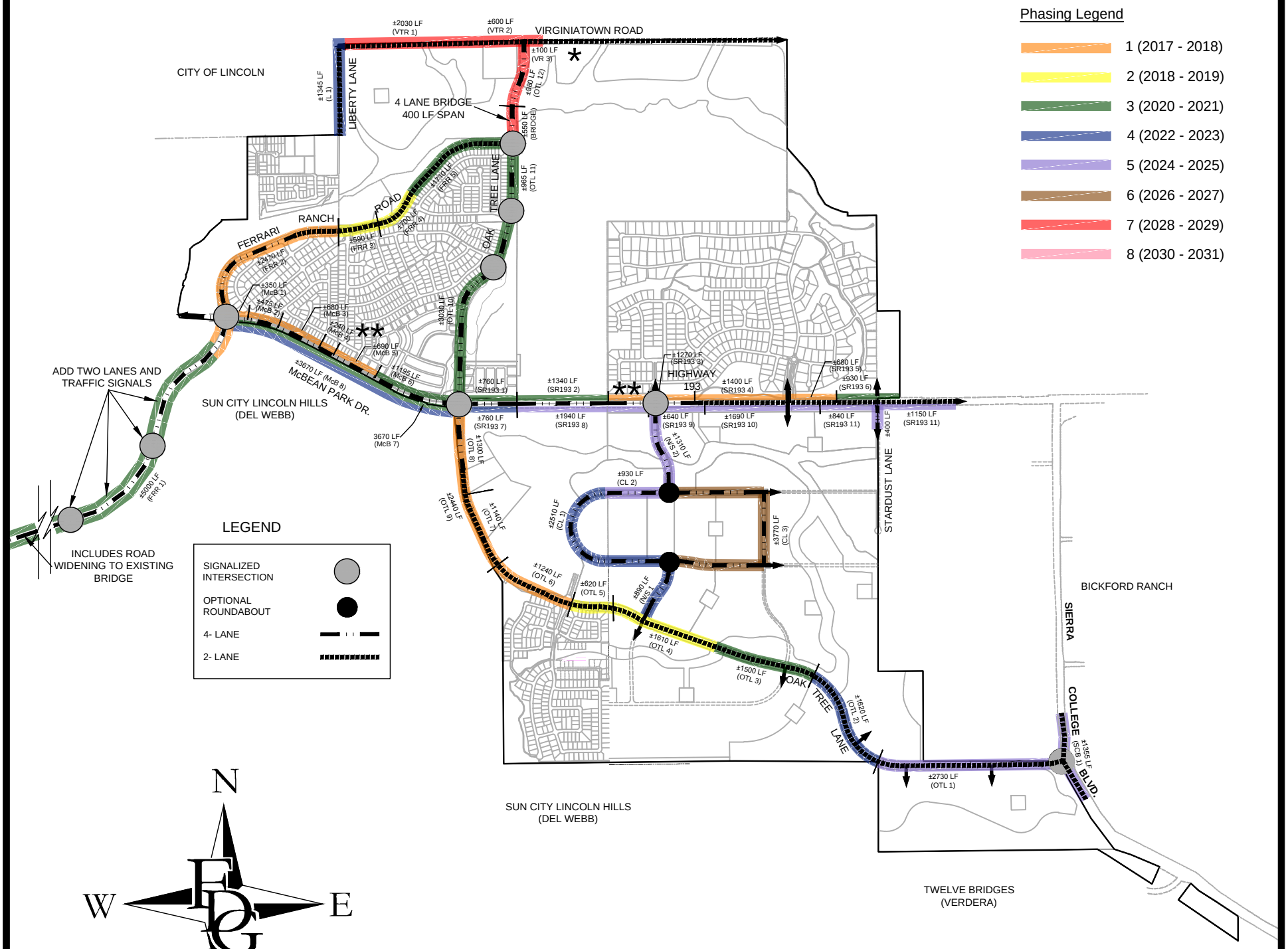
Below is a list of PFE items associated with the construction of the roadway system element:

- All traffic signals and appurtenances
- Pavement widening as a result of traffic signal intersections (right turn/left turn lanes, etc)
- 2 lanes on 4 lane roadways
- Drainage pipes/culverts under the 2 lanes

The following Village 1 improvements are also included in the PFE:

- Ferrari Ranch Road (south) widening – 2 west side lanes, 2 traffic signals and appurtenances
- Oak Tree Lane frontage along APN: 338-430 (existing condos parcel). This will include: 1 Lane curb, gutter and sidewalk, half of the median curb.
- Oak Tree Lane frontage along APN: 021-274-021 (existing church parcel). This will include: 1 Lane curb, gutter and sidewalk, half of the median curb.
- Oak Tree Lane/ Virginiatown Road frontage along APN: 021-231-019 (City of Lincoln Parcel). This will include: 1 Lane curb, gutter and sidewalk, half of the median curb.
- McBean Park Drive south frontage – from Ferrari Ranch Road to Oak Tree Lane. This will include: 1 Lane, half of the median curb and landscaping and the frontage landscaping.

Only major roads as identified in the Village 1 Specific Plan are considered in this estimate, subdivision in-tract roadways have been excluded. The Backbone Roadway System Plan from the Specific Plan is provided as Exhibit 8 with sections and associated dimensions given as part of the Roadway Sections in Appendix 22. While each major Roadway System improvement has been placed in a specific phase, the time at which specific roadways are to be comleted is dependent on the number of building permits issued and is summarized in the Circulation Phasing Table, found in Appendix 7. The Circulation Phasing shows the timing of design, bidding and completion of each major road. Appendix 6 provides the cost estimates for the Roadway System Element.



* REMAINDER OF VIRGINIATOWN ROAD TO VILLAGE 1 BOUNDARY ASSUMED TO DEVELOP WHEN ADJACENT UNITS ARE BUILT AS THESE PROPERTIES ARE NOT INCLUDED IN THE CURRENT SHARED COSTS.

** 3670 LF OF JOINT TRENCH ON McBEAN PARK DRIVE AND 4910 LF OF JOINT TRENCH ON SR193 IN PHASE 1.

NOTE:

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Exhibit 8: Backbone Roadway System Plan

Revised 8/9/2016

The roadway system costs include the following items:

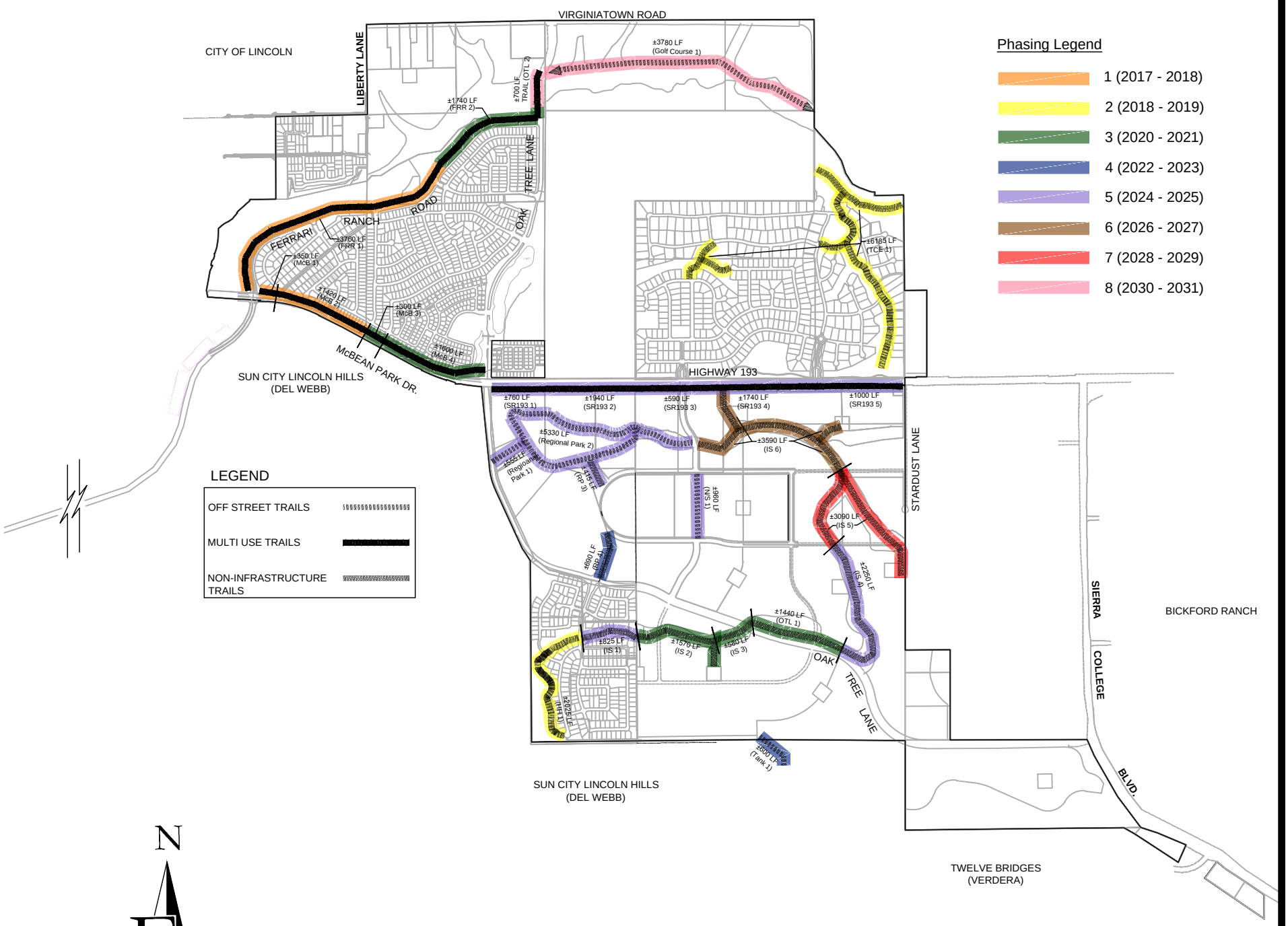
- Mobilization
- Excavation
- Aggregate Base
- Asphalt Concrete
- Subgrade Preparation
- Signing and Striping*
- Traffic Signals
- Concrete Sidewalk
- Roundabout
- Joint Trench
- Gas Line Extension
- Underground Existing Utilities
- Type 5 Curb Median
- Median Landscaping
- Signal Conduit & Wiring (for Future Signal)
- Concrete Curb and Gutter
- Asphalt Concrete Driveway
- Irrigation Sleeves
- Street Lights
- Sawcut and Pavement Removal
- Reconstruct Ditches
- Erosion Control
- ROW Acquisition (specified segments)**
- Grind and Remove Pavement
- Grind and Overlay
- Retrofit Utilities
- Dewatering
- Golf Course Fence and Netting
- Split Rail Fencing
- FRR Supplemental Topo + Aerial Topo
- Remediation Trench and Monitoring
- Traffic Control
- Bridge (at Auburn Ravine)

* Assumes per linear foot of roadway.

** Right-of-way acquisition includes: right-of-way mapping, potential wetland permitting, potential wetland mitigation and purchasing the required land.

10.5 Trails Element

The **Trails** element includes trails identified in the Village 1 Specific Plan and shown on Exhibit 9. There are two elements to the trails, Infrastructure Constructed (5.1 miles) and Non-Infrastructure Constructed (4.1 miles). The City has a trail requirement of 1.5 miles per 2,500 people. Based on the projected Village 1 population of 13,468 people, Village 1 requires 8.1 miles of trails. The Infrastructure Constructed and Non-Infrastructure Constructed trails make up 9.2 miles, which exceeds the City requirement. All trails built per the Specific Plan meet the PFE requirements. The finance plan has identified two types of trails. McBean Park Drive and State Route 193 Roadways will have 8' wide trails. The remaining trail network will be made up of 10' wide trails. Exhibit 9 shows those trails which are being built with the infrastructure and the remaining non-infrastructure constructed trails which will be built by the individual subdivisions but paid with funds collected by the finance plan. Appendix 8 provides the cost estimates for the Trails Element.



N.T.S.

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3. ONLY AREAS COLORED ABOVE ARE INCLUDED IN THE INFRASTRUCTURE COSTS. OTHER IMPROVEMENTS ARE PROJECT OWNER COSTS..
4. REQUIRED SIDEWALKS ARE INCLUDED AS A PART OF CIRCULATION.

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Exhibit 9: Trails

Revised 8/9/2016

The trails element cost includes the following items:

- Asphalt Trail
- Subgrade Preparation
- Signing and Striping

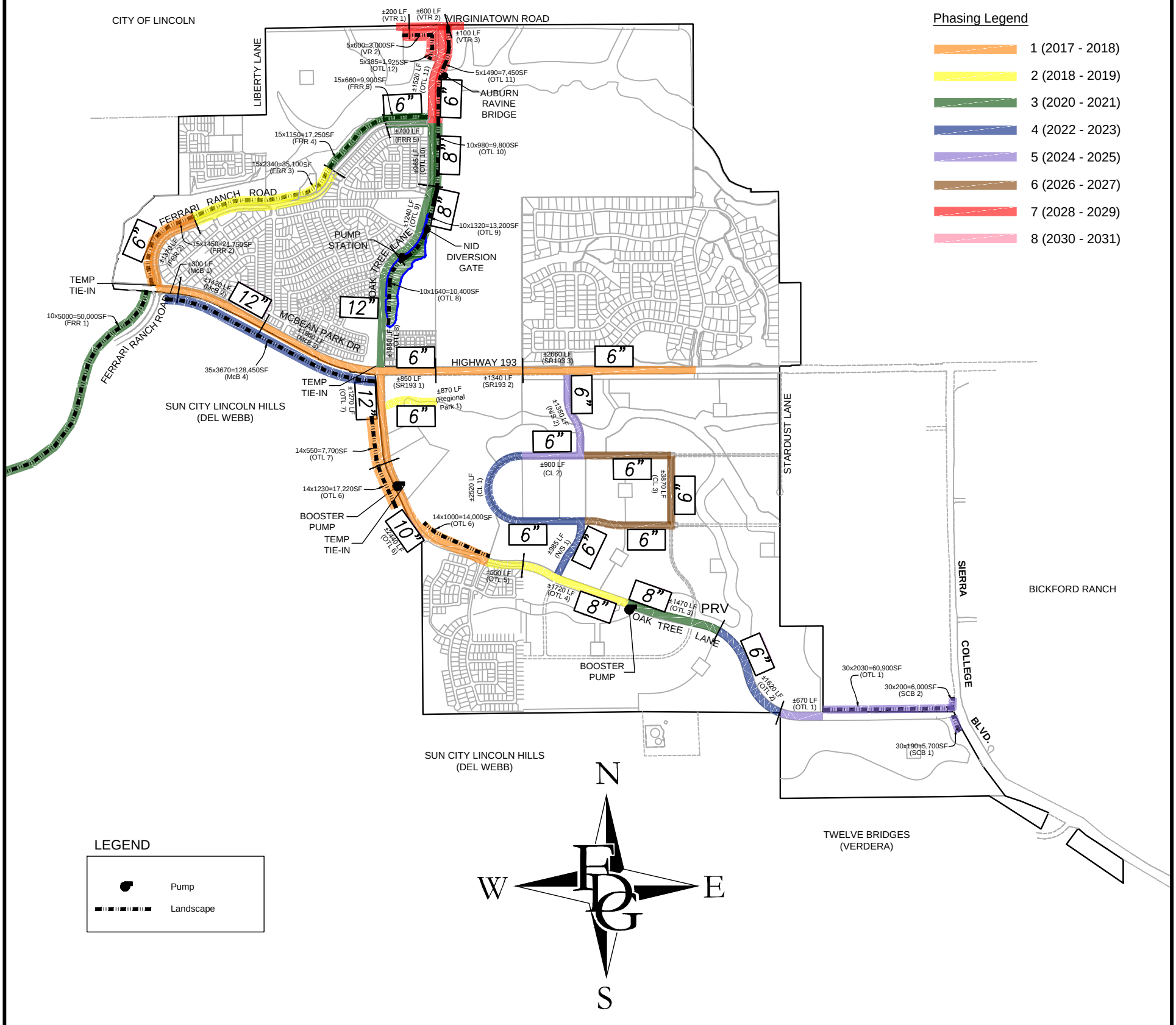
10.6 Amenities Element
(Includes Limited Frontage Landscaping, Regional Park Acquisition & Non-Potable Water)

The amenities element includes raw water, limited frontage landscaping (as further defined below) and the land acquisition for the Regional Park.

10.6.1 Non-Potable Water
The backbone **Non-Potable Water** System includes the grading and potential lining of a raw water lake along Oak Tree Lane on the Walkup Ranch parcel as shown in Exhibit 10. The Non-Potable Water System offsets the need to utilize potable water for major Village 1 landscaping, such as landscape corridors and parks, and also potentially to add fill water to the lake on North Ingram Slough when incorporated into the Regional Park. Some of the individual subdivisions in the early phases of build-out may connect to the domestic water line on a temporary basis, until the backbone raw water system is online. Appendix 9 provides the cost estimates for the Amenities Element.

10.6.2 Frontage Landscaping (Limited Locations)
Frontage Landscaping is also included in this section as the Non-Potable Water is used to irrigate the landscape corridors. The landscape corridors of the major backbone roads along open space areas are captured in the finance plan. This finance plan includes 6 frontage landscape areas that will receive PFE credit. Refer to Appendix 10 for the PFE Frontage Landscape Improvement Map, which identifies and shows the location of the aforementioned landscaped areas. Note that no landscaping is required along Turkey Creek Golf Course frontage and the Commercial parcel outside of the Village 1 Specific Plan (landscaping will be by the Developer). Below is a list of PFE items associated the Amenities Element:

- Frontage Landscaping (Limited Locations)



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4. ALONG VILLAGE 1 DEVELOPABLE FRONTAGES, LANDSCAPING WILL BE FUNDED BY FRONTING DEVELOPMENT.

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Exhibit 10: Backbone Amenities Plan

(Includes Non-Potable Water & Frontage Landscaping)

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Below is a list of the locations of frontage landscaping that will be built with collected Impact PFE funds, which can be seen on the PFE Frontage Landscape Improvement Map in Appendix 10:

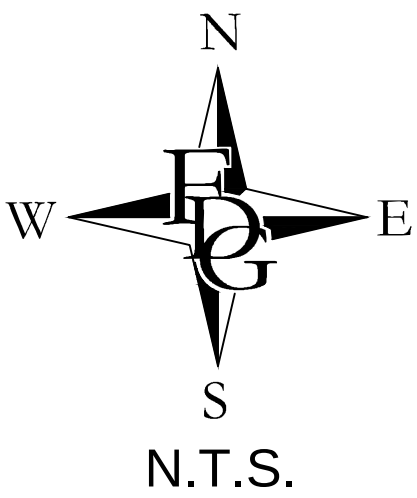
- Ferrari Ranch Road (south of McBean Park Drive)
- Oak Tree Lane frontage along APN: 338-430 (existing condos parcel).
- Oak Tree Lane frontage along APN: 021-274-021 (existing church parcel).
- Oak Tree Lane/ Virginiatown Road along APN: 021-231-019 (City of Lincoln Parcel).
- McBean Park Drive frontage (south side) – from Ferrari Ranch Road to Oak Tree Lane.

10.6.3 Park Land Acquisition

The last component that makes up the Amenities Element is the land acquisition of the Regional Park. The current County parcel is subdivided into three Parcels, a 10.1+/- acre Village Mixed Use parcel, a 28.4+/- acre Regional Park and a 4.1+/- acre parcel for the existing corporation yard. The Regional Park parcel will be purchased by Village 1 funds at a cost of $675,000. The park site will be acquired and constructed by the City. The Village 1 finance plan has allocated an additional $175,000 for the 4.1+/- acre corporation yard parcel should the County elect to relocate from this site at a later date. In the interim, the plan has included costs for landscaping the frontage along the corporation yard to screen the facilities from the street. The cost for acquisition of the Regional Park does not have any contingency added as they are fixed. **The cost of *improvement* to the regional park will be partially funded by Village 1 through the collection of PFE fees paid at time of obtaining building permits.** The Regional Park parcel, to be acquired in phase 3, will be improved based on the projected park programming prepared by Fuhrman Leamy Land Group and included in Appendix 27. A map showing the location of the regional park site within Village 1 is provided as Exhibit 11.

The amenities element costs include the following items:

- Non-Potable (Raw) Water Line
- Temporary Connection to Domestic
- Frontage Landscaping
- Water Valves
- Booster Pump
- Pumping Station / Filtration / Standpipe
- Flushing Hydrant (End of Line)
- Intake
- De-chlorination Station
- Lake Aeration - Oak Tree Lane (Walkup Ranch)
- NID Water Diversion Gate
- Lake Grading & Stabilization



N.T.S.

NOTES:

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2. ONLY AREAS COLORED ABOVE ARE INCLUDED IN THE INFRASTRUCTURE COSTS. OTHER IMPROVEMENTS ARE PROJECT OWNER COSTS.
3. REGIONAL PARK OUTSIDE OF COUNTY PARCEL WILL BE DEDICATED ONCE DEVELOPED.

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Exhibit 11: Regional Parks

Revised 8/9/2016

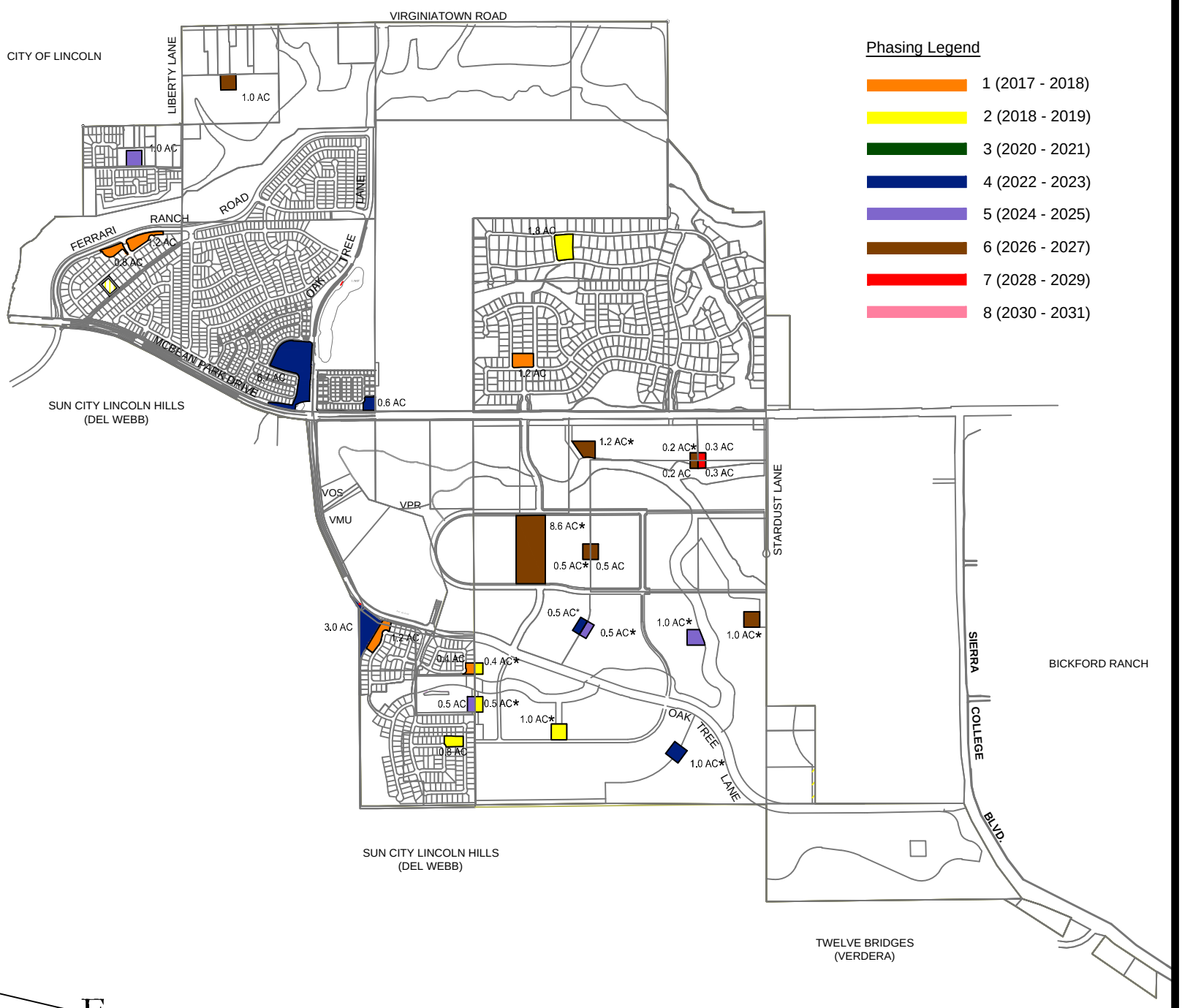
10.7 Neighborhood Parks (Local Parks) Element

The **Neighborhood Parks** are included as part of each development within the Village 1 Specific Plan and should be constructed in accordance with the respective project's Conditions of Approval and Development Agreement. Based on the specific plan designated land uses, developable areas, unit count as included in this Infrastructure Finance Plan, and utilizing 2.43 acres per 1,000 residents as utilized in the Specific Plan (this is further discussed in Appendix 26), the estimated population of 13,468 people requires that Neighborhood Parks comprise of a total of 32.74 acres of dedicated neighborhood park land. Based on the Village 1 Specific Plan and the available tentative maps, the projected Neighborhood Park land area available is estimated 32.74 acres. Note that based on current unit projections, APN: 021-274-042 would be required to dedicate 3.48 acres of Neighborhood Park land plus the amount of required park needed based on its projected population, as part of the 32.74 acres required for all of Village 1 and will receive land acquisition and construction costs as outlined in Appendix 26. Any remaining undevelopable land not dedicated as park will be dedicated as open space. See Exhibit 12 for a map of the conceptual neighborhood parks layout in Village 1. As discussed previously, final location and sizing of neighborhood parks will be determined on respective tentative subdivision map applications for properties.

The reduction from 3 acres per 1,000 residents includes consideration of available reduction from in-active open space park credit, as outlined in the Village 1 Specific Plan, and further discussed within Appendix 26. A detailed methodology for calculating the area of required park and the estimated cost for acquisition and construction associated with the creation of the Neighborhood Parks is contained in Appendix 26 and is not part of the Infrastructure Costs directly, but is a separate cost component calculated and included within this Infrastructure Finance Plan.

Each property owner will be responsible for calculating minimum required Neighborhood Parks by considering the proposed project land use types, densities and on-site creditable resources, such as open space, that may reduce their obligation based upon credits as identified in the Village 1 Specific Plan. Those property owners who are deficient in the amount of neighborhood park they are obligated to dedicate will be required to purchase park credits in-lieu of dedicating land. Alternatively, those property owners short of the necessary park requirement may elect to dedicate land in order to meet the minimum requirement.

The City is requiring newly dedicated mini and neighborhood parks will be constructed by the residential developers in conjunction with their projects.



Phasing Legend

- 1 (2017 - 2018)
- 2 (2018 - 2019)
- 3 (2020 - 2021)
- 4 (2022 - 2023)
- 5 (2024 - 2025)
- 6 (2026 - 2027)
- 7 (2028 - 2029)
- 8 (2030 - 2031)

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N.T.S.

NOTES:

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2. ONLY AREAS COLORED ABOVE ARE INCLUDED IN THE INFRASTRUCTURE COSTS. OTHER IMPROVEMENTS ARE PROJECT OWNER COSTS.
3. PARK AREAS BASED ON THE BEST AVAILABLE LOT COUNTS, SPECIFIC PLAN OR TENTATIVE MAP AS APPLICABLE.
4. BOTH PRIVATE & PUBLIC PARKS ARE SHOWN. IT IS ASSUMED THAT BOTH WILL BE ELIGIBLE TO RECEIVE PARK FEE CREDITS.

* PARK AREA AND LOCATION SHOWN ARE SUBJECT TO CHANGE. THE CUMULATIVE PARK AREA WILL 2.98 AC (REQUIRE TO BALANCE VILLAGE 1 NEED) PLUS THE AMOUNT OF PARK REQUIRED FOR THE PARCEL BASED ON THE PROJECTED POPULATION. REMAINDER WILL BE DESIGNATED AS OPEN SPACE.

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Exhibit 12: Village 1 Neighborhood Parks (Based on Approved Specific Plan)

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Revised 8/9/2016

Village 1 plans to have park construction and City maintenance responsibilities stipulated in the individual development agreements between the City and project developers.

Village 1 owners will receive neighborhood park fee credit to offset against construction of neighborhood parks. Table 9 below shows the City Park Impact Fee component of the community services impact fee.

Table 9: PFE Park Construction Fee

Land Use	Park Portion of Community Service Impact Fee
Very Low Density (VCE)	$4,182.04
Low Density (VLDR)	$4,182.04
Medium Density (VMDR)	$4,182.04
High Density (VHDR or VMU)	$3,010.74

The reimbursement for Village 1 land owners for neighborhood park construction is projected to be approximately 37% of the Park Impact Fee found in the table above, or $1,547 per dwelling unit for VCE, VLDR, VMDR and $1,114 per dwelling unit for VHDR or VMU. The remaining 63% of the Park Construction Impact Fee pays for community centers, regional parks and aquatic facilities.

11. Village 1 Key Infrastructure - Minimum to Construct

The Village 1 Specific Plan is a large area that requires a significant amount of improvements before the entire plan is developed. Due to the size of the Specific Plan Area there may be instances when properties are developed that do not need to complete all of the improvements found in that particular phase or prior phases before it is feasible to develop. The plan has outlined and identified all of the backbone elements by name and per phase. The Key Infrastructure Tables found in **Appendix 19**, has listed each of the major infrastructure by phase and indentified those items that are critical and must be completed in order for development to move forward. The Key Infrastructure Tables, along with the Backbone Phasing Exhibits found in **Appendix 24**, serve to assist in determining what key infrastructure elements will need to be constructed. Presenting the items in this manner does not alter or change the phasing of the improvements found in the Finance Plan; therefore improvements that are built out of phase would need to wait for reimbursement if more than the respective fair share obligation has been constructed. Specific elements that a Project is responsible to construct, or to be completed (if

being constructed by Others) shall be outlined in the project specific Development Agreement and shall reference segments as delineated in this Village 1 Infrastructure Finance Plan.

Developers, located within a particular geographic area, will not be required to construct improvements that have zero bearing on their respective project solely due to being in the same phase. If the necessary improvements to support their project have not been completed, those improvements would be constructed first. For example, a Phase 1 property located north of McBean Park Drive would not be required to construct improvements south of McBean Park Drive and vice versa, if the needed infrastructure to support that development area was already in place and the developer has met their infrastructure financial obligations. If once those needed infrastructure improvements have been completed and they have not yet met their respective phase obligation and/or Village 1 obligation (whichever is greater) they will be required to pay into the plan the difference. A proposed project shall be required to, at a minimum (exclusive of triggered threshold improvements or other improvements included in the Development Agreement), improve its frontage, extend joint trench, extend utilities to support development of the project, and if the project is located north of McBean Park Drive it shall require improvements to Auburn Ravine.

The Key Infrastructure Tables have no bearing on the Circulation Phasing of key roadways, as identified in **Appendix 7**. Once one of these circulation triggers has been hit based on the number of building permits issued, the respective developer will be required to construct those improvements indentified in **Appendix 7**, in addition to the critical infrastructure elements needed in order to developer their respective project. There are occurrences where key infrastructure elements found in the Key Infrastructure Tables are not classed as being critical, however, those items may be critical for another project to move forward and therefore would be required to be constructed. For example the sewer and water line bore and jack across Auburn Ravine. Those properties located south of Auburn Ravine have no need for these improvement since they are non-critical. However, for properties located immediately north of Auburn Ravine, the need for sewer and water bore and jack across Auburn Ravine is needed. This infrastructure item is needed in order for development to move forwarding, making it a critical infrastructure element.

There are instances where critical items are needed but full improvements would not be required to develop. For example, the gas and joint trench or undergrounding of the existing overhead utilities along McBean Park Drive. The cost to underground the overhead utilities is included as a line item in the Backbone Roadway Infrastructure Costs. However, in order to develop a project that does not front along McBean Park Drive, the only critical items need would be either

gas and/or joint trench. It is important to note the costs of any specific area to develop has not been quantified directly as this is only a framework for what improvements must be included for each section.

12. Finance Plan Preparation: 3rd Party Reimbursement Fee

The *Reimbursement Fee* is a mechanism that will enable the participating/private landowners (participating Village 1 Ownership Group) to recover the appropriate share of the costs advance-funded for other benefitting Village 1 landowners that did not participate in the original advance funding of the preparation of the Finance Plan. The *Reimbursement Fee* also includes allocation for initial Infrastructure Finance Plan Administration / Set-Up by the City of Lincoln. Ongoing administration costs have been included in the Plan by way of a 1.50% fee, further discussed in Section 7 of this report. This report describes the *Reimbursement Fee* calculations, explains the underlying methodology and assumptions, and serves as the basis for the City of Lincoln's (City) adoption of the *Reimbursement Fee*. Appendix 20 provides more detail regarding the Village 1 Infrastructure Finance Plan 3rd Party Reimbursement Fee, the methodology and assumptions used, as well as, how the fee was calculated, how the fee will be implemented and administered. The method selected and utilized in the Infrastructure Finance Plan utilizes factors associated with the City of Lincoln PFE Structure Weighting to provide fair weightings for the costs.

12.1 Background

Lake Development, on behalf of Elizabeth Layn and Jeanette Duff, the owners of Walkup Ranch and the Village 1 Ownership Group, which is comprised of:

- Silverado Hidden Hills LLC
- Leavell Ranch Partnership
- East Lincoln Associates, LLC
- Sunset Tartesso, LLC
- Bella Rosa LLC

funded the cost of preparing the *Finance Plan* for the Village Specific Plan area. The funding included all City Staff costs and City consultant costs incurred in the City's review and consideration of the *Plan*. The *Reimbursement Fee* includes eligible Finance Plan preparation costs that consist of the following: Engineering fees, Project Management, Legal fees, costs for

City review of project documents and exhibits, supporting studies, miscellaneous travel expenses, and indirect costs. Between 2015 to current, Lake Development and the Village 1 Ownership Group have contributed over $975,000 toward the preparation and approval of the Village 1 Infrastructure Finance Plan, which also includes $40,000 designated for the City of Lincoln for set-up funding of the Finance Plan and $25,000 for public services CFD formation.

12.2 Reimbursement Fee

The *Reimbursement Fee* for landowners in the Village 1 Finance Plan was calculated by identifying eligible costs for reimbursement and dividing those costs by the Village 1 total developable acreage within the Village 1 annexation boundary. The *Reimbursement Fee* is calculated to be $1,065 per developable acre, as shown in Appendix 20. This *Reimbursement Fee* is subject to change and will be reconciled upon adoption of the Finance Plan. A detailed methodology for calculating the Reimbursement *Fee* of is contained in Appendix 20 and is not part of the Infrastructure Costs directly. This fee shall be collected from land being developed and have submitted application to the City. The fee is to be collected upon initial Tentative Map application.

13.Implementation of Funding and Step-In Rights

13.1 Implementation of Funding

If Infrastructure Construction is Required for a Development:

For a Development that is responsible to construct Village 1 Specific Plan Infrastructure improvements, follow the applicable implementation of funding scenario.

- If a Development is to construct Infrastructure that is estimated to cost close to its obligation as set forth in the Infrastructure Finance Plan, then the Development shall post financial security for the full amount of Infrastructure obligation.
- If a Development is to construct Infrastructure that is estimated to cost below its obligation as set forth in the Infrastructure Finance Plan, then the Development shall post financial security for the full amount of Infrastructure obligation.
- If a Development is to construct Infrastructure that is estimated to cost above its obligation as set forth in the Infrastructure Finance Plan, then the Development shall post financial security for the full amount of the estimated Infrastructure elements Construction. If a Development constructs approved Infrastructure facilities (in-phase) in

excess of its Responsibility, the Development shall receive reimbursement of the cost in excess of Responsibility on a first-submitted first-reimbursed basis.

Each of the above scenarios shall post financial security prior to city council acceptance of Final Map and/or prior to obtaining on-site rough grading permit (excluding stockpile permits or any permitted temporary operations such as ground preparation or tree removal), whichever occurs first. Posting of the financial security (e.g., cash, letter of credit, performance bond, etc.) to cover the Developer's Infrastructure Cost Responsibility to facilitate a specific project shall be provided in one of the following forms:

- Depositing the cash equivalent of the full Infrastructure Cost Responsibility into a separate interest bearing escrow account with the City which may be drawn against by the Constructing Developer for contractor payment during performance of the Infrastructure Construction, or;
- Posting of a Performance Bond or Letter of Credit to cover the full Infrastructure Cost Responsibility estimated in the Infrastructure Finance Plan.

<u>If Infrastructure Construction is Not Required for a Development:</u>

- A Development that is not responsible to construct Village 1 Specific Plan Infrastructure improvements shall pay the City of Lincoln its full amount Infrastructure obligation prior to city council acceptance of Final Map and / or prior to obtaining on-site rough grading permit (excluding stockpile permits or any permitted temporary operations such as ground preparation or tree removal).

If there are no others moving forward and a Development's in-phase Infrastructure construction obligation exceeds the Phase 1 & 2 Combined per acre assessment the plan allows for future development by the same Developer to take credit for the over-sizing portion of the infrastructure obligation above the Phase 1 & 2 Combined per acre assessment. Reimbursement to the overall Village 1 net obligation shall be made as outlined below.

When a Development's in-phase Infrastructure obligation, in any phase, exceeds the overall Village 1 net obligation, the reimbursement will be received from future phases on a first-submitted first-reimbursed basis.

All facilities to be constructed by a certain Development shall be approved by City. The City shall verify that construction proposed is within the appropriate phase and that it follows appropriate priorities.

If a Development elects to construct facilities delineated in the Infrastructure Finance Plan in excess of the Infrastructure Cost Responsibility allocated to the Development, but such improvement is not included in the respective Phase identified in the Infrastructure Finance Plan, then the additional cost for the out-of-phase Improvements shall not be reimbursed until all of the prior in-phase Improvements of the Infrastructure Finance Plan have been constructed and reimbursed.

13.2 Step-In Rights

If a Development is constructing any Infrastructure improvement, as outlined within the Infrastructure Finance Plan, they shall use commercially reasonable efforts to diligently complete construction of such facility. If and when a certain Development does not use commercially reasonable efforts to diligently complete, the City shall have ability to step in to continue the work or authorize another Development to continue the work.

If a Development fails to diligently pursue completion of any Improvement, the Constructing Development acknowledges and agrees that the City shall suspend issuance of any remaining building permits for the non-performing Development's project until such time as the non-performing Constructing Development delivers written documentation that it has made adequate progress in completing the required Infrastructure Improvements and any conditions of non-performance have been corrected, and the City shall have the right, but not the obligation to complete, or transfer responsibility to complete such Improvements in accordance with the applicable improvement plans (the "Step-in Rights") in furtherance of the completion of the Improvements. In the event that the City elects to exercise its Step-in-Rights, the City or Development authorized to step in may draw on the applicable form of security posted by the original Constructing Development for purposes of covering the cost of the Full Infrastructure Cost Responsibility in completion of the improvement.

14. Amendments to Infrastructure Finance Plan & Reconciliation of Obligation

The Backbone Infrastructure utilized in the Specific Plan Documents and subsequent supplemental water and sewer information provided by the City has been employed for this finance plan. However, the plans originally derived are likely to be altered by developers through the course of time. These changes are likely to have an effect upon the total cost of implementing the plan and should be considered accordingly.

Some of the modifications to the plan will be minor alterations to the exact routing or configurations of the plan. These minor design modifications, with their associated cost impacts, should not require any update to the plan. Individual developers can internally alter their own development configurations as part of the normal entitlement process, so long as the change is acceptable to the City design standards. However, the costs associated with these changes should not affect the overall Finance Plan; the associated cost of those minor improvement modifications should be considered equivalent to the cost assumed in the original plan.

Developers may also wish to provide additional infrastructure elements for temporary use or increased performance. These improvements are not designed to replace an existing on-site element, but rather provide an enhancement of the development or provide for interim service. In that case, the costs associated with the change would be entirely borne by the individual developer.

In the event that a developer wishes to make a substantial change to the Specific Plan Infrastructure, such as fundamentally altering the adopted Specific Plan through a Specific Plan Amendment, the impact to the Infrastructure Estimated Cost would need to be evaluated. In the event that the estimated costs to the entire Specific Plan are increased by the change, the increase of cost from those costs identified in this Finance Plan should be borne by the individual developer making the proposed amendment, unless the amendment is required by the City. If the costs of the total Finance Plan are decreased based on the proposed amendment, then the costs to amend the Specific Plan, as incurred by the developer, will be reimbursed and only up to the amount of the savings made available based on the proposed change. In other words, if the costs to amend the Specific Plan exceed the amount saved, then only the available amount saved will be reimbursed. If the proposed change result in further cost reductions to the overall Finance Plan after costs for specific plan amendment and other applicable updates have been accounted for, then the resulting savings will be distributed to all participants under the Plan.

In the event that a major piece of infrastructure is modified at the City's initiative and discretion, such as upsizing or downsizing a major water line, the estimated cost identified in the Finance Plan should not be modified, and the credit associated with its construction should be considered equivalent to the base estimated cost assumed by the finance plan. In these cases, the cost differential would be revised through the City Public Facilities Element program.

The City of Lincoln may update the Village 1 Infrastructure Finance Plan from time to time to evaluate actual costs for implementation of the Plan in comparison of estimated costs for

implementation of the plan. If and when the Village 1 Specific Plan is amended, amendments that benefit the Village 1 Finance Plan, i.e. remove un-necessary items or revise items to adjust costs shall be completed using administrative approval. A City Administration Fee of 1.50% of the estimated construction cost has been created and is further discussed in Section 7 of this Plan.

Cost Updates and Adjustment to Infrastructure Finance Plan Per Acre Obligations:

- The Village 1 Infrastructure Finance Plan was developed utilizing the best available information at this time, however construction costs may change over time. A minimum of 3 construction bids shall be obtained for each proposed Infrastructure Construction contract. The City May elect to accept only 2 construction bids to award a scope of work if responsive bids are not received. The final cost for the construction contract is to be approved by the City through the bidding process.
- The costs associated with the Infrastructure Finance Plan can be re-evaluated at the end of Phase 2 (since Phase 1 and 2 have increased obligation, adjustments should be deferred until after those Phases are completed unless substantial cost savings are being observed based upon the bids), and at the end of each subsequent phase.
- If the city re-evaluates the Infrastructure Finance Plan at the completion of Phase 2, Phase 1 & Phase 2 Constructing Developers shall remain obligated to participate in either the increased or decreased obligation determined through the cost update evaluation.
- If the obligations to the Infrastructure Finance Plan are increased at the end of Phase 2, the Phase 1 & Phase 2 Constructing Developers pending reimbursement from the escalated Phase 1 & Phase 2 obligation rate reimbursement to the Overall Village 1 obligation rate shall be reduced by their incremental increase of cost responsibility. If the Constructing Developer had constructed improvements above the obligation and is awaiting reimbursement, the incremental increase can be deducted from the outstanding reimbursement amount.
- If the obligations to the Infrastructure Finance Plan are decreased at the end of Phase 2, the Phase 1 & Phase 2 Constructing Developers shall receive reimbursement, as funding is available, for the incremental decrease that is owed.
- Adjustments to per acreage obligations to the Infrastructure Finance Plan shall not be retroactive for any other phases other than Phase 1 & Phase 2 if evaluated at the completion of Phase 2, as described above. That is to say, if the costs were re-evaluated after Phase 3, and modifications made to per acre obligations, the new obligation rate shall be applied for Phases 4 and forward, until costs are re-evaluated and adjusted again. Obligation adjustments shall not be retro-active to prior phases.

Reconciliation of Obligation

- If the Development is in Phase 1 or Phase 2 and the Infrastructure Finance Plan obligation is being paid (no construction of Infrastructure facilities required) it shall be determined that the Development met obligation at the end of Phase 2, when that phase is reconciled and closed.
- If the Development is in Phases 3 through Phase 8 and the Infrastructure Finance Plan obligation is being paid (no construction of Infrastructure facilities required) it shall be determined that the Development met its obligation at the end of the respective Phase of which it is part of is reconciled and closed.
- If the Development is constructing Infrastructure facilities, then the overage or shortages shall be satisfied and deemed final at the end of the respective Phase of which it is part of is reconciled and closed.
- If the Development is constructing Infrastructure facilities and is to be reimbursed by future phases, it shall have priority of reimbursement from those phases and no adjustment to reimbursement based upon future phase reconciliation shall be made.
- All in-phase reimbursements shall be made on a first-submitted first-reimbursed basis and shall have priority to receive reimbursement prior to expending funds on infrastructure in other phases.
- If the Development elects to construct future phase Infrastructure improvements (at their own discretion), the Development shall await reimbursement until the appropriate phase for which the Infrastructure element was identified to be constructed.

15. Conclusions

The utilization of an overarching Finance Plan to construct the needed water, wastewater, drainage and roadway system within Village 1 appears to be a viable and reasonable prospect with all major infrastructure covered. Overall estimated costs of the infrastructure are derived from developable acres and assumed density factors, and have been distributed to account for variations in land use and otherwise disproportionate benefit. Final infrastructure costs are subject to change based on final improvement plans and market conditions. A minimum of three (3) construction bids shall be solicited prior to constructing a designed and permitted Infrastructure segment. These bids shall be utilized in order to determine an average unit cost for each infrastructure item included and being built and the basis for potential amendments to the Infrastructure Finance Plan.

APPENDIX 1
Lincoln Village 1 Specific Plan
Infrastructure Finance Plan
Overall Village 1 Cost Summary per Infrastructure Element

FRAYJI DESIGN GROUP, INC.

FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1
Summary - Final

Description	Roadway	Water	Amenities	Sewer	Drainage	Trails	Total
Infrastructure Costs							
Phase 1	$13,648,400	$2,475,200	$1,171,500	$1,737,800	$5,430,600	$282,200	$24,745,700
Phase 2	$3,135,500	$886,800	$342,600	$405,100	$333,700	$471,400	$5,575,100
Phase 3	$8,439,200	$1,391,600	$3,080,300	$180,300	$1,528,300	$377,400	$14,997,100
Phase 4	$6,111,500	$1,024,600	$390,700	$968,600	$831,500	$74,200	$9,401,100
Phase 5	$6,324,900	$530,000	$563,000	$243,900	$1,019,400	$800,500	$9,481,700
Phase 6	$2,701,600	$469,200	$164,400	$294,600	$462,600	$206,200	$4,298,600
Phase 7	$9,026,300	$570,000	$184,600	$0	$185,000	$177,600	$10,143,500
Phase 8	$0	$0	$0	$0	$0	$243,200	$243,200
Subtotal	**$49,387,400**	**$7,347,400**	**$5,897,100**	**$3,830,300**	**$9,791,100**	**$2,632,700**	**$78,886,000**
PFE Infrastructure Costs Financed by Builders							
Phase 1	$2,838,000	$468,100	$148,100	$362,000	$0	$0	$3,816,200
Phase 2	$0	$163,300	$0	$194,800	$0	$0	$358,100
Subtotal	**$2,838,000**	**$631,400**	**$148,100**	**$556,800**	**$0**	**$0**	**$4,174,300**
Total Financed Construction Costs							
	$52,225,400	**$7,978,800**	**$6,045,200**	**$4,387,100**	**$9,791,100**	**$2,632,700**	**$83,060,300**
PFE Credits From Village 1 Collected Impact Fees Reimbursed to Builders							
Phase 1	-$2,838,000	-$468,100	-$148,100	-$362,000	$0	$0	-$3,816,200
Phase 2	$0	-$163,300	$0	-$194,800	$0	$0	-$358,100
Subtotal	**-$2,838,000**	**-$631,400**	**-$148,100**	**-$556,800**	**$0**	**$0**	**-$4,174,300**
PFE Infrastructure Costs Paid by Village 1 Collected Impact Fees							
Phase 3	$6,561,300	$601,000	$297,100	$434,800	$118,800	$0	$8,013,000
Phase 4	$1,261,400	$273,100	$763,000	$0	$1,320,000	$0	$3,617,500
Phase 5	$2,581,100	$0	$0	$0	$0	$0	$2,581,100
Phase 6	$0	$0	$0	$0	$0	$0	$0
Phase 7	$8,981,400	$230,400	$29,300	$0	$0	$0	$9,241,100
Phase 8	$0	$0	$0	$0	$0	$0	$0
Subtotal	**$19,385,200**	**$1,104,500**	**$1,089,400**	**$434,800**	**$1,438,800**	**$0**	**$23,452,700**
Total Village 1Construction Costs							
Total	**$71,610,600**	**$9,083,300**	**$7,134,600**	**$4,821,900**	**$11,229,900**	**$2,632,700**	**$106,513,000**

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APPENDIX 2
Lincoln Village 1 Specific Plan
Infrastructure Finance Plan
Overall Village 1 Cost Summary per Land Use

FRAYJI DESIGN GROUP, INC.

FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1: Village 1 Overall - Infrastructure Costs
(Costs per Land Use Based on PFE Weighted Factor)

	VCE	VLDR	VMDR	VHDR	VMU	Total
Number of Units	469	2090	728	519	702	4508
Total Acres	234.2	522.5	91.0	28.8	39.0	915.5
Infrastructure Costs per Land Use for Village 1						
Water	$ 1,779,700	$ 3,346,400	$ 1,165,600	$ 448,700	$ 607,000	$ 7,347,400
Amenities	$ 1,428,400	$ 2,685,800	$ 935,500	$ 360,200	$ 487,200	$ 5,897,100
Roadway	$ 5,845,800	$ 26,050,600	$ 6,533,300	$ 4,657,700	$ 6,300,000	$ 49,387,400
Wastewater	$ 519,600	$ 1,823,400	$ 635,100	$ 362,200	$ 490,000	$ 3,830,300
Drainage	$ 1,704,500	$ 5,842,800	$ 1,424,600	$ 348,200	$ 471,000	$ 9,791,100
Trails, Landscaping and Parks	$ 296,400	$ 1,320,700	$ 460,000	$ 236,100	$ 319,400	$ 2,632,600
Subtotal for Village 1	$ 11,574,400	$ 41,069,700	$ 11,154,100	$ 6,413,100	$ 8,674,600	$ 78,885,900
Infrastructure Costs Per Land Use (Based on Developable Acres)						
Water	$ 7,599	$ 6,405	$ 12,809	$ 15,580	$ 15,564	
Amenities	$ 6,099	$ 5,140	$ 10,280	$ 12,507	$ 12,492	
Roadway	$ 24,961	$ 49,858	$ 71,795	$ 161,726	$ 161,538	
Wastewater	$ 2,219	$ 3,490	$ 6,979	$ 12,576	$ 12,564	
Drainage	$ 7,278	$ 11,182	$ 15,655	$ 12,090	$ 12,077	
Trails, Landscaping and Parks	$ 1,266	$ 2,528	$ 5,055	$ 8,198	$ 8,190	
Subtotal per Developable Acre for Village 1	**$ 49,421**	**$ 78,602**	**$ 122,573**	**$ 222,677**	**$ 222,426**	

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1: Village 1 Overall - Infrastructure Costs
(Costs per Land Use Based on PFE Weighted Factor)

	VCE	VLDR	VMDR	VHDR	VMU	Total
Number of Units	469	2090	728	519	702	4508
Total Acres	234.2	522.5	91.0	28.8	39.0	915.5
PFE Infrastructure Cost per Land Use						
Water	$ 420,500	$ 790,600	$ 275,400	$ 106,000	$ 143,400	$ 1,735,900
Amenities	$ 299,800	$ 563,600	$ 196,300	$ 75,600	$ 102,200	$ 1,237,500
Roadway	$ 2,630,500	$ 11,722,200	$ 2,939,900	$ 2,095,900	$ 2,834,900	$ 22,223,400
Wastewater	$ 134,500	$ 472,000	$ 164,400	$ 93,800	$ 126,800	$ 991,500
Drainage	$ 250,500	$ 858,600	$ 209,300	$ 51,200	$ 69,200	$ 1,438,800
Trails, Landscaping and Parks	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal for Village 1	**$ 3,735,800**	**$ 14,407,000**	**$ 3,785,300**	**$ 2,422,500**	**$ 3,276,500**	**$ 27,627,100**
PFE Infrastructure Costs per Land Use (Based on Developable Acres)						
Water	$ 1,795	$ 1,513	$ 3,026	$ 3,681	$ 3,677	
Amenities	$ 1,280	$ 1,079	$ 2,157	$ 2,625	$ 2,621	
Roadway	$ 11,232	$ 22,435	$ 32,307	$ 72,774	$ 72,690	
Wastewater	$ 574	$ 903	$ 1,807	$ 3,257	$ 3,251	
Drainage	$ 1,070	$ 1,643	$ 2,300	$ 1,778	$ 1,774	
Trails, Landscaping and Parks	$ -	$ -	$ -	$ -	$ -	
Subtotal per Developable Acre for Village 1	**$ 15,951**	**$ 27,573**	**$ 41,597**	**$ 84,115**	**$ 84,013**	

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APPENDIX 3
Lincoln Village 1 Specific Plan
Infrastructure Finance Plan
Potable Water
Element

FRAYJI
DESIGN GROUP, INC.

FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1
Water Summary by Phase

Description	Water
Infrastructure Costs	
Phase 1	$2,475,200
Phase 2	$886,800
Phase 3	$1,391,600
Phase 4	$1,024,600
Phase 5	$530,000
Phase 6	$469,200
Phase 7	$570,000
Phase 8	$0
Subtotal	**$7,347,400**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	19,345	$70	$1,354,200
2	16" Water Line	LF	27,765	$85	$2,360,000
3	18" Water Line	LF	410	$100	$41,000
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	550	$135	$74,300
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	48	$3,000	$144,000
9	16" Water Valve	EA	58	$6,500	$377,000
10	18" Water Valve	EA	1	$8,500	$8,500
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	2	$75,000	$150,000
14	Air Release Valve	EA	2	$3,000	$6,000
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	74	$6,000	$444,000
16	Bore and Jack (Across Auburn Ravine)**	EA	500	$700	$350,000
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	2	$34,000	$68,000
19	Demolish and Remove Existing 20" Water	LF	3,760	$20	$75,200
20	Transmission Main Tank Connection	LS	2	$22,000	$44,000
21	Transmission Main Connection	LS	7	$10,000	$70,000
Construction Total:					$5,566,200

Contingency Based upon Hard Costs (15%): $834,900
Soft Costs Contingency (17%): $946,300

TOTAL WATER SYSTEM **$7,347,400**

* Assumes that water will be completed in conjunction with the sewer bore and jack.
**Including restrained joints and brackets

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	3,560	$70	$249,200
2	16" Water Line	LF	10,165	$85	$864,000
3	18" Water Line	LF	310	$100	$31,000
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	10	$3,000	$30,000
9	16" Water Valve	EA	22	$6,500	$143,000
10	18" Water Valve	EA	1	$8,500	$8,500
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	2	$3,000	$6,000
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	25	$6,000	$150,000
16	Bore and Jack (Across Auburn Ravine)**	EA	500	$700	$350,000
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	670	$20	$13,400
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	3	$10,000	$30,000
	Construction Total:				$1,875,100

Contingency Based upon Hard Costs (15%): $281,300
Soft Costs Contingency (17%): $318,800

TOTAL WATER SYSTEM **$2,475,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.
**Including restrained joints and brackets

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Ferrari Ranch Road 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	1,440	$70	$100,800
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	4	$3,000	$12,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$6,000	$18,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$130,800

Contingency Based upon Hard Costs (15%): $19,600
Soft Costs Contingency (17%): $22,200

TOTAL WATER SYSTEM **$172,600**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Ferrari Ranch Road 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	620	$70	$43,400
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	2	$3,000	$6,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$61,400

Contingency Based upon Hard Costs (15%): $9,200
Soft Costs Contingency (17%): $10,400

TOTAL WATER SYSTEM **$81,000**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Auburn Ravine Crossing 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	1,300	$70	$91,000
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	3	$3,000	$9,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$6,000	$0
16	Bore and Jack (Across Auburn Ravine)**	LF	500	$700	$350,000
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$450,000

Contingency Based upon Hard Costs (15%): $67,500
Soft Costs Contingency (17%): $76,700

TOTAL WATER SYSTEM **$594,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Oak Tree Lane 5

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	500	$85	$42,500
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	1	$6,500	$6,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$6,000	$0
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	670	$20	$13,400
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$62,400

Contingency Based upon Hard Costs (15%): $9,400
Soft Costs Contingency (17%): $10,600

TOTAL WATER SYSTEM **$82,400**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Oak Tree Lane 6

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	500	$85	$42,500
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	1	$6,500	$6,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	1	$6,000	$6,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$55,000

Contingency Based upon Hard Costs (15%): $8,300
Soft Costs Contingency (17%): $9,400

TOTAL WATER SYSTEM **$72,700**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Oak Tree Lane 7

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	420	$85	$35,700
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	1	$6,500	$6,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	1	$6,000	$6,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	1	$10,000	$10,000
Construction Total:					$58,200

Contingency Based upon Hard Costs (15%): $8,700
Soft Costs Contingency (17%): $9,900

TOTAL WATER SYSTEM **$76,800**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Oak Tree Lane 8

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	1,100	$85	$93,500
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	3	$6,500	$19,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	2	$3,000	$6,000
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$131,000

Contingency Based upon Hard Costs (15%): $19,700
Soft Costs Contingency (17%): $22,300

TOTAL WATER SYSTEM **$173,000**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Oak Tree Lane 9

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	2,660	$85	$226,000
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	5	$6,500	$32,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	5	$6,000	$30,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	1	$10,000	$10,000
Construction Total:					$298,500

Contingency Based upon Hard Costs (15%): $44,800
Soft Costs Contingency (17%): $50,700

TOTAL WATER SYSTEM **$394,000**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 Temporary Water 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	500	$85	$42,500
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	1	$6,500	$6,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$6,000	$0
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$49,000

Contingency Based upon Hard Costs (15%): $7,400
Soft Costs Contingency (17%): $8,300

TOTAL WATER SYSTEM **$64,700**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 McBean Park Drive 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	310	$100	$31,000
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	1	$8,500	$8,500
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	1	$6,000	$6,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	1	$10,000	$10,000
Construction Total:					$55,500

Contingency Based upon Hard Costs (15%): $8,300
Soft Costs Contingency (17%): $9,400

TOTAL WATER SYSTEM **$73,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 State Route 193 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	830	$85	$70,600
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	2	$6,500	$13,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$95,600

Contingency Based upon Hard Costs (15%): $14,300
Soft Costs Contingency (17%): $16,300

TOTAL WATER SYSTEM **$126,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 State Route 193 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	1,340	$85	$113,900
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	3	$6,500	$19,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$6,000	$18,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$151,400

Contingency Based upon Hard Costs (15%): $22,700
Soft Costs Contingency (17%): $25,700

TOTAL WATER SYSTEM **$199,800**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 1 State Route 193 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	200	$70	$14,000
2	16" Water Line	LF	1,975	$85	$167,900
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	1	$3,000	$3,000
9	16" Water Valve	EA	4	$6,500	$26,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	4	$6,000	$24,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$234,900

Contingency Based upon Hard Costs (15%): $35,200
Soft Costs Contingency (17%): $39,900

TOTAL WATER SYSTEM **$310,000**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Village 1 - Backbone Water
Phase 1 State Route 193 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	340	$85	$28,900
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	1	$6,500	$6,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	1	$6,000	$6,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$41,400

Contingency Based upon Hard Costs (15%): $6,200
Soft Costs Contingency (17%): $7,000

TOTAL WATER SYSTEM **$54,600**

* Assumes that water will be completed in conjunction with the sewer bore and jack.
**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 2 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	820	$70	$57,400
2	16" Water Line	LF	5,160	$85	$438,600
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	3	$3,000	$9,000
9	16" Water Valve	EA	10	$6,500	$65,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$6,000	$18,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	3,090	$20	$61,800
20	Transmission Main Tank Connection	LS	1	$22,000	$22,000
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$671,800

Contingency Based upon Hard Costs (15%): $100,800
Soft Costs Contingency (17%): $114,200

TOTAL WATER SYSTEM **$886,800**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 2 Ferrari Ranch Road 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	760	$70	$53,200
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	3	$3,000	$9,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	1	$6,000	$6,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$68,200

Contingency Based upon Hard Costs (15%): $10,200
Soft Costs Contingency (17%): $11,600

TOTAL WATER SYSTEM **$90,000**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 2 Oak Tree Lane 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	60	$70	$4,200
2	16" Water Line	LF	2,260	$85	$192,100
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	4	$6,500	$26,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	3,090	$20	$61,800
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$296,100

Contingency Based upon Hard Costs (15%): $44,400
Soft Costs Contingency (17%): $50,300

TOTAL WATER SYSTEM **$390,800**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 2 Temp 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	2,900	$85	$246,500
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	6	$6,500	$39,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$6,000	$0
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	1	$22,000	$22,000
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$307,500

Contingency Based upon Hard Costs (15%): $46,200
Soft Costs Contingency (17%): $52,300

TOTAL WATER SYSTEM **$406,000**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 3 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	890	$70	$62,300
2	16" Water Line	LF	8,265	$85	$702,500
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	6	$3,000	$18,000
9	16" Water Valve	EA	17	$6,500	$110,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	1	$75,000	$75,000
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	11	$6,000	$66,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	2	$10,000	$20,000
Construction Total:					$1,054,300

Contingency Based upon Hard Costs (15%): $158,100
Soft Costs Contingency (17%): $179,200

TOTAL WATER SYSTEM **$1,391,600**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 3 Oak Tree Lane 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	510	$70	$35,700
2	16" Water Line	LF	2,260	$85	$192,100
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	1	$3,000	$3,000
9	16" Water Valve	EA	5	$6,500	$32,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	1	$75,000	$75,000
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$6,000	$18,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$356,300

Contingency Based upon Hard Costs (15%): $53,400
Soft Costs Contingency (17%): $60,600

TOTAL WATER SYSTEM **$470,300**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 3 Oak Tree Lane 10

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	320	$70	$22,400
2	16" Water Line	LF	3,090	$85	$262,600
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	4	$3,000	$12,000
9	16" Water Valve	EA	6	$6,500	$39,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	6	$6,000	$36,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	1	$10,000	$10,000
Construction Total:					$382,000

Contingency Based upon Hard Costs (15%): $57,300
Soft Costs Contingency (17%): $64,900

TOTAL WATER SYSTEM **$504,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 3 Oak Tree Lane 11

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	60	$70	$4,200
2	16" Water Line	LF	965	$85	$82,000
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	1	$3,000	$3,000
9	16" Water Valve	EA	2	$6,500	$13,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$114,200

Contingency Based upon Hard Costs (15%): $17,100
Soft Costs Contingency (17%): $19,400

TOTAL WATER SYSTEM **$150,700**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 3 Oak Tree Lane to Existing 30" (Tank 1)

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	1,950	$85	$165,800
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	4	$6,500	$26,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$6,000	$0
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	1	$10,000	$10,000
Construction Total:					$201,800

Contingency Based upon Hard Costs (15%): $30,300
Soft Costs Contingency (17%): $34,300

TOTAL WATER SYSTEM **$266,400**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 4 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	6,390	$70	$447,300
2	16" Water Line	LF	1,810	$85	$153,900
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	13	$3,000	$39,000
9	16" Water Valve	EA	4	$6,500	$26,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	13	$6,000	$78,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	1	$22,000	$22,000
21	Transmission Main Connection	LS	1	$10,000	$10,000
Construction Total:					$776,200

Contingency Based upon Hard Costs (15%): $116,400
Soft Costs Contingency (17%): $132,000

TOTAL WATER SYSTEM **$1,024,600**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 4 Oak Tree Lane 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	1,640	$70	$114,800
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	3	$3,000	$9,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$6,000	$18,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$141,800

Contingency Based upon Hard Costs (15%): $21,300
Soft Costs Contingency (17%): $24,100

TOTAL WATER SYSTEM **$187,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 4 Oak Tree Lane to Water Tank 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	1,810	$85	$153,900
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	4	$6,500	$26,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$6,000	$0
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	1	$22,000	$22,000
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$201,900

Contingency Based upon Hard Costs (15%): $30,300
Soft Costs Contingency (17%): $34,300

TOTAL WATER SYSTEM **$266,500**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 4 North South Collector 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	980	$70	$68,600
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	2	$3,000	$6,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$86,600

Contingency Based upon Hard Costs (15%): $13,000
Soft Costs Contingency (17%): $14,700

TOTAL WATER SYSTEM **$114,300**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 4 Collector Loop 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	2,510	$70	$175,700
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	5	$3,000	$15,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	5	$6,000	$30,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$220,700

Contingency Based upon Hard Costs (15%): $33,000
Soft Costs Contingency (17%): $37,600

TOTAL WATER SYSTEM **$291,300**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 4 Liberty Lane 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	1,260	$70	$88,200
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	3	$3,000	$9,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$6,000	$18,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	1	$10,000	$10,000
Construction Total:					$125,200

Contingency Based upon Hard Costs (15%): $18,800
Soft Costs Contingency (17%): $21,300

TOTAL WATER SYSTEM **$165,300**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 5 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	3,635	$70	$254,500
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	8	$3,000	$24,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	1	$75,000	$75,000
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	8	$6,000	$48,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$401,500

Contingency Based upon Hard Costs (15%): $60,200
Soft Costs Contingency (17%): $68,300

TOTAL WATER SYSTEM **$530,000**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 5 Oak Tree Lane 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	1,325	$70	$92,800
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	3	$3,000	$9,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$6,000	$18,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$119,800

Contingency Based upon Hard Costs (15%): $18,000
Soft Costs Contingency (17%): $20,400

TOTAL WATER SYSTEM **$158,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 5 North South Collector 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	1,380	$70	$96,600
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	3	$3,000	$9,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	1	$75,000	$75,000
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$6,000	$18,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$198,600

Contingency Based upon Hard Costs (15%): $29,700
Soft Costs Contingency (17%): $33,800

TOTAL WATER SYSTEM **$262,100**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 5 Collector Loop 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	930	$70	$65,100
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	2	$3,000	$6,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$83,100

Contingency Based upon Hard Costs (15%): $12,500
Soft Costs Contingency (17%): $14,100

TOTAL WATER SYSTEM **$109,700**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 6 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	4,050	$70	$283,500
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	8	$3,000	$24,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	8	$6,000	$48,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$355,500

Contingency Based upon Hard Costs (15%): $53,300
Soft Costs Contingency (17%): $60,400

TOTAL WATER SYSTEM **$469,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 6 Collector Loop 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	4,050	$70	$283,500
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	8	$3,000	$24,000
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	8	$6,000	$48,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$355,500

Contingency Based upon Hard Costs (15%): $53,300
Soft Costs Contingency (17%): $60,400

TOTAL WATER SYSTEM **$469,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 7 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	2,365	$85	$201,000
3	18" Water Line	LF	100	$100	$10,000
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	550	$135	$74,300
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	5	$6,500	$32,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	6	$6,000	$36,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	2	$34,000	$68,000
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	1	$10,000	$10,000
Construction Total:					$431,800

Contingency Based upon Hard Costs (15%): $64,800
Soft Costs Contingency (17%): $73,400

TOTAL WATER SYSTEM **$570,000**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 7 Oak Tree Lane 12

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	140	$85	$11,900
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$6,000	$0
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$11,900

Contingency Based upon Hard Costs (15%): $1,800
Soft Costs Contingency (17%): $2,000

TOTAL WATER SYSTEM **$15,700**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 7 Oak Tree Lane 13

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	825	$85	$70,100
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	550	$135	$74,300
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	2	$6,500	$13,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	2	$34,000	$68,000
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$237,400

Contingency Based upon Hard Costs (15%): $35,600
Soft Costs Contingency (17%): $40,400

TOTAL WATER SYSTEM **$313,400**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 7 Virginiatown Road 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	800	$85	$68,000
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	2	$6,500	$13,000
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	1	$10,000	$10,000
Construction Total:					$103,000

Contingency Based upon Hard Costs (15%): $15,500
Soft Costs Contingency (17%): $17,500

TOTAL WATER SYSTEM **$136,000**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 7 Virginiatown Road 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	600	$85	$51,000
3	18" Water Line	LF	0	$100	$0
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	1	$6,500	$6,500
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$6,000	$12,000
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$69,500

Contingency Based upon Hard Costs (15%): $10,400
Soft Costs Contingency (17%): $11,800

TOTAL WATER SYSTEM **$91,700**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Water
Phase 7 Virginiatown Road 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Water System					
1	12" Water Line	LF	0	$70	$0
2	16" Water Line	LF	0	$85	$0
3	18" Water Line	LF	100	$100	$10,000
4	24" Water Line across Auburn Ravine Bridge*	LF	0	$200	$0
5	16" Water Line across Auburn Ravine Bridge*	LF	0	$135	$0
6	24" Water Line	LF	0	$150	$0
7	30" Water Line	LF	0	$175	$0
8	12" Water Valve	EA	0	$3,000	$0
9	16" Water Valve	EA	0	$6,500	$0
10	18" Water Valve	EA	0	$8,500	$0
11	24" Water Valve	EA	0	$30,000	$0
12	30" Water Valve	EA	0	$35,000	$0
13	Pressure Reducing Valve	EA	0	$75,000	$0
14	Air Release Valve	EA	0	$3,000	$0
15	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$6,000	$0
16	Bore and Jack (Across Auburn Ravine)**	EA	0	$700	$0
17	Flex Joints on Auburn Ravine Bridge (24" Water)	EA	0	$50,000	$0
18	Flex Joints on Auburn Ravine Bridge (16" Water)	EA	0	$34,000	$0
19	Demolish and Remove Existing 20" Water	LF	0	$20	$0
20	Transmission Main Tank Connection	LS	0	$22,000	$0
21	Transmission Main Connection	LS	0	$10,000	$0
Construction Total:					$10,000

Contingency Based upon Hard Costs (15%): $1,500
Soft Costs Contingency (17%): $1,700

TOTAL WATER SYSTEM **$13,200**

* Assumes that water will be completed in conjunction with the sewer bore and jack.

**Including restrained joints and brackets

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APPENDIX 4
Lincoln Village 1 Specific Plan
Infrastructure Finance Plan
Drainage
Element

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Engineer's Opinion of Costs
Village 1
Drainage Summary by Phase

Description	Drainage
Infrastructure Costs	
Phase 1	$5,430,600
Phase 2	$333,700
Phase 3	$1,528,300
Phase 4	$831,500
Phase 5	$1,019,400
Phase 6	$462,600
Phase 7	$185,000
Phase 8	$0
Subtotal	**$9,791,100**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	12525	$50	$626,300
2	15" SD Line	LF	2730	$60	$163,800
3	18" SD Line	LF	5010	$75	$375,900
4	24" SD Line	LF	2230	$85	$189,600
5	30" SD Line	LF	1740	$110	$191,400
6	36" SD Line	LF	1180	$125	$147,500
7	42" SD Line	LF	300	$150	$45,000
8	48" SD Line	LF	200	$180	$36,000
9	60" SD Line	LF	2200	$190	$418,000
10	Standard 48" SDMH (MH/400')	EA	65	$4,250	$276,400
11	Trunk 60" SDMH (MH/400')	EA	9	$8,500	$76,500
12	18" Culvert Extension	LF	150	$125	$18,800
13	24" Culvert Extension	LF	90	$150	$13,500
14	36" Culvert Extension	LF	120	$225	$27,000
15	Headwall Retrofit	EA	12	$12,500	$150,000
16	Drainage Inlet	EA	114	$2,650	$302,200
17	Drainage Inlet and Retrofit Pipe	EA	13	$5,000	$65,000
18	Grassy Swale	EA	19	$5,000	$95,000
19	Stormwater Quality Basin	EA	6	$25,000	$150,000
20	Outfall	LS	32	$9,000	$288,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	1	$450,000	$360,000
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	1	$525,000	$525,000
23	NID Box Culvert Expansion	EA	1	$75,000	$75,000
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	1	$400,000	$400,000
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	1	$100,000	$100,000
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	1	$300,000	$300,000
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	1	$80,000	$80,000
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	300098	$4	$1,200,400
30	Auburn Ravine Bank Stabilization	SF	86200	$1	$43,100
31	Auburn Ravine Hydroseed	SF	1472173	$0	$220,800
32	Auburn Ravine Armoring	SF	23819	$15	$357,300
33	Auburn Ravine Tree Planting	EA	1000	$100	$100,000
	Construction Total:				$7,417,500

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$1,112,600
Soft Costs Contingency (17%):	$1,261,000
TOTAL DRAINAGE	**$9,791,100**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	2230	$50	$111,500
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	590	$75	$44,300
4	24" SD Line	LF	1230	$85	$104,600
5	30" SD Line	LF	740	$110	$81,400
6	36" SD Line	LF	180	$125	$22,500
7	42" SD Line	LF	300	$150	$45,000
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	2200	$190	$418,000
10	Standard 48" SDMH (MH/400')	EA	15	$4,250	$63,800
11	Trunk 60" SDMH (MH/400')	EA	9	$8,500	$76,500
12	18" Culvert Extension	LF	90	$125	$11,300
13	24" Culvert Extension	LF	60	$150	$9,000
14	36" Culvert Extension	LF	60	$225	$13,500
15	Headwall Retrofit	EA	7	$12,500	$87,500
16	Drainage Inlet	EA	31	$2,650	$82,200
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	4	$5,000	$20,000
19	Stormwater Quality Basin	EA	3	$25,000	$75,000
20	Outfall	LS	10	$9,000	$90,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	1	$525,000	$525,000
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	1	$300,000	$300,000
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	1	$80,000	$80,000
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	282944	$4	$1,131,800
30	Auburn Ravine Bank Stabilization	SF	86200	$1	$43,100
31	Auburn Ravine Hydroseed	SF	1472173	$0	$220,800
32	Auburn Ravine Armoring	SF	23819	$15	$357,300
33	Auburn Ravine Tree Planting	EA	1000	$100	$100,000
	Construction Total:				$4,114,100

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$617,100
Soft Costs Contingency (17%):	$699,400
TOTAL DRAINAGE	**$5,430,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 Ferrari Ranch Road 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	320	$50	$16,000
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	160	$85	$13,600
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	2	$4,250	$8,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	8	$2,650	$21,200
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	4	$5,000	$20,000
19	Stormwater Quality Basin	EA	1	$25,000	$25,000
20	Outfall	LS	4	$9,000	$36,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	1	$80,000	$80,000
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	190484	$4	$762,000
30	Auburn Ravine Bank Stabilization	SF	80000	$1	$40,000
31	Auburn Ravine Hydroseed	SF	824467	$0	$123,700
32	Auburn Ravine Armoring	SF	12369	$15	$185,500
33	Auburn Ravine Tree Planting	EA	500	$100	$50,000
	Construction Total:				$1,381,500

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$207,100
Soft Costs Contingency (17%):	$234,800
TOTAL DRAINAGE	**$1,823,400**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 Ferrari Ranch Road 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	280	$50	$14,000
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	110	$125	$13,700
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	2	$4,250	$8,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	2	$2,650	$5,300
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	17154	$4	$68,600
30	Auburn Ravine Bank Stabilization	SF	1800	$1	$900
31	Auburn Ravine Hydroseed	SF	5400	$0	$800
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$111,800

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$16,800
Soft Costs Contingency (17%):	$19,000
TOTAL DRAINAGE	**$147,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 Ferrari Ranch Road 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	85	$50	$4,300
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	70	$125	$8,800
7	42" SD Line	LF	300	$150	$45,000
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	2	$8,500	$17,000
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	2	$2,650	$5,300
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	75306	$4	$301,200
30	Auburn Ravine Bank Stabilization	SF	4400	$1	$2,200
31	Auburn Ravine Hydroseed	SF	642306	$0	$96,300
32	Auburn Ravine Armoring	SF	11450	$15	$171,800
33	Auburn Ravine Tree Planting	EA	500	$100	$50,000
	Construction Total:				$701,900

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$105,300
Soft Costs Contingency (17%):	$119,300
TOTAL DRAINAGE	**$926,500**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 McBean Park Drive 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	0	$50	$0
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	550	$190	$104,500
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	2	$8,500	$17,000
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	2	$2,650	$5,300
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$126,800

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$19,000
Soft Costs Contingency (17%):	$21,600
TOTAL DRAINAGE	**$167,400**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 McBean Park Drive 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	0	$50	$0
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	1350	$190	$256,500
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	4	$8,500	$34,000
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	0	$2,650	$0
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$290,500

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$43,600
Soft Costs Contingency (17%):	$49,400
TOTAL DRAINAGE	**$383,500**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 McBean Park Drive 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	55	$50	$2,800
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	300	$190	$57,000
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	1	$8,500	$8,500
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	30	$150	$4,500
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	1	$12,500	$12,500
16	Drainage Inlet	EA	2	$2,650	$5,300
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$90,600

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$13,600
Soft Costs Contingency (17%):	$15,400
TOTAL DRAINAGE	**$119,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 State Route 193 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	0	$50	$0
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	30	$125	$3,800
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	1	$12,500	$12,500
16	Drainage Inlet	EA	0	$2,650	$0
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	1	$9,000	$9,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$25,300

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$3,800
Soft Costs Contingency (17%):	$4,300
TOTAL DRAINAGE	**$33,400**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 State Route 193 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	0	$50	$0
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	60	$125	$7,500
13	24" Culvert Extension	LF	30	$150	$4,500
14	36" Culvert Extension	LF	60	$225	$13,500
15	Headwall Retrofit	EA	5	$12,500	$62,500
16	Drainage Inlet	EA	0	$2,650	$0
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	3	$9,000	$27,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$115,000

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$17,300
Soft Costs Contingency (17%):	$19,600
TOTAL DRAINAGE	**$151,900**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 Oak Tree Lane 5

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	820	$50	$40,900
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	470	$75	$35,300
4	24" SD Line	LF	470	$85	$40,000
5	30" SD Line	LF	160	$110	$17,600
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	4	$4,250	$17,000
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	5	$2,650	$13,300
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	1	$25,000	$25,000
20	Outfall	LS	1	$9,000	$9,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$198,100

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$29,700
Soft Costs Contingency (17%):	$33,700
TOTAL DRAINAGE	**$261,500**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 1 Oak Tree Lane 6

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	670	$50	$33,500
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	120	$75	$9,000
4	24" SD Line	LF	600	$85	$51,000
5	30" SD Line	LF	580	$110	$63,800
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	7	$4,250	$29,800
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	10	$2,650	$26,500
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	1	$25,000	$25,000
20	Outfall	LS	1	$9,000	$9,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	1	$525,000	$525,000
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	1	$300,000	$300,000
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$1,072,600

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$160,900
Soft Costs Contingency (17%):	$182,300
TOTAL DRAINAGE	**$1,415,800**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 2 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	110	$50	$5,500
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	620	$75	$46,500
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	2	$4,250	$8,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	60	$125	$7,500
13	24" Culvert Extension	LF	30	$150	$4,500
14	36" Culvert Extension	LF	60	$225	$13,500
15	Headwall Retrofit	EA	5	$12,500	$62,500
16	Drainage Inlet	EA	2	$2,650	$5,300
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	3	$5,000	$15,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	1	$9,000	$9,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	1	$75,000	$75,000
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$252,800

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$37,900
Soft Costs Contingency (17%):	$43,000
TOTAL DRAINAGE	**$333,700**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 2 McBean Park Drive 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	0	$50	$0
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	30	$125	$3,700
13	24" Culvert Extension	LF	30	$150	$4,500
14	36" Culvert Extension	LF	60	$225	$13,500
15	Headwall Retrofit	EA	4	$12,500	$50,000
16	Drainage Inlet	EA	0	$2,650	$0
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	1	$75,000	$75,000
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$146,700

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$22,000
Soft Costs Contingency (17%):	$24,900
TOTAL DRAINAGE	**$193,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 2 South of State Route 193 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	0	$50	$0
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	30	$125	$3,800
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	1	$12,500	$12,500
16	Drainage Inlet	EA	0	$2,650	$0
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	2	$5,000	$10,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$26,300

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$3,900
Soft Costs Contingency (17%):	$4,500
TOTAL DRAINAGE	**$34,700**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 2 Oak Tree Lane 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	110	$50	$5,500
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	620	$75	$46,500
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	2	$4,250	$8,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	2	$2,650	$5,300
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	1	$5,000	$5,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	1	$9,000	$9,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$79,800

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$12,000
Soft Costs Contingency (17%):	$13,600
TOTAL DRAINAGE	**$105,400**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 3 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	2995	$50	$149,800
2	15" SD Line	LF	1130	$60	$67,800
3	18" SD Line	LF	1025	$75	$76,900
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	18	$4,250	$76,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	31	$2,650	$82,200
17	Drainage Inlet and Retrofit Pipe	EA	13	$5,000	$65,000
18	Grassy Swale	EA	6	$5,000	$30,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	9	$9,000	$81,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	1	$450,000	$360,000
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	1	$100,000	$100,000
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	17154	$4	$68,600
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$1,157,800

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$173,700
Soft Costs Contingency (17%):	$196,800
TOTAL DRAINAGE	**$1,528,300**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 3 Ferrari Ranch Road 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	0	$50	$0
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	0	$2,650	$0
17	Drainage Inlet and Retrofit Pipe	EA	13	$5,000	$65,000
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$65,000

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$9,800
Soft Costs Contingency (17%):	$11,100
TOTAL DRAINAGE	**$85,900**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 3 Ferrari Ranch Road 5

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	265	$50	$13,300
2	15" SD Line	LF	450	$60	$27,000
3	18" SD Line	LF	125	$75	$9,400
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	2	$4,250	$8,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	6	$2,650	$15,900
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	1	$5,000	$5,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$79,100

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$11,900
Soft Costs Contingency (17%):	$13,400
TOTAL DRAINAGE	**$104,400**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 3 Oak Tree Lane 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	1480	$50	$74,000
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	900	$75	$67,500
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	11	$4,250	$46,700
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	8	$2,650	$21,200
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	5	$5,000	$25,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	5	$9,000	$45,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	1	$100,000	$100,000
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$379,400

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$56,900
Soft Costs Contingency (17%):	$64,500
TOTAL DRAINAGE	**$500,800**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 3 Oak Tree Lane 7

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	0	$50	$0
2	15" SD Line	LF	175	$60	$10,500
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	4	$2,650	$10,600
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	1	$9,000	$9,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0.8	$450,000	$360,000
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	17154	$4	$68,600
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$458,700

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$68,800
Soft Costs Contingency (17%):	$78,000
TOTAL DRAINAGE	**$605,500**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 3 Oak Tree Lane 8

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	580	$50	$29,000
2	15" SD Line	LF	275	$60	$16,500
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	2	$4,250	$8,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	9	$2,650	$23,900
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	3	$9,000	$27,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$104,900

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$15,700
Soft Costs Contingency (17%):	$17,800
TOTAL DRAINAGE	**$138,400**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 3 Oak Tree Lane 9

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	670	$50	$33,500
2	15" SD Line	LF	230	$60	$13,800
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	3	$4,250	$12,800
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	4	$2,650	$10,600
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$70,700

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$10,600
Soft Costs Contingency (17%):	$12,000
TOTAL DRAINAGE	**$93,300**

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Engineer's Opinion of Costs
Village 1 - Drainage
Phase 4 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	1700	$50	$85,000
2	15" SD Line	LF	300	$60	$18,000
3	18" SD Line	LF	1355	$75	$101,600
4	24" SD Line	LF	1000	$85	$85,000
5	30" SD Line	LF	1000	$110	$110,000
6	36" SD Line	LF	1000	$125	$125,000
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	11	$4,250	$46,800
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	10	$2,650	$26,500
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	1	$5,000	$5,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	3	$9,000	$27,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$629,900

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$94,500
Soft Costs Contingency (17%):	$107,100
TOTAL DRAINAGE	**$831,500**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 4 Oak Tree Lane 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	950	$50	$47,500
2	15" SD Line	LF	300	$60	$18,000
3	18" SD Line	LF	870	$75	$65,200
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	3	$4,250	$12,800
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	4	$2,650	$10,600
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	1	$5,000	$5,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	1	$9,000	$9,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$168,100

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$25,200
Soft Costs Contingency (17%):	$28,600
TOTAL DRAINAGE	**$221,900**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 4 Collector Loop 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	750	$50	$37,500
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	485	$75	$36,400
4	24" SD Line	LF	1000	$85	$85,000
5	30" SD Line	LF	1000	$110	$110,000
6	36" SD Line	LF	1000	$125	$125,000
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	8	$4,250	$34,000
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	6	$2,650	$15,900
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	2	$9,000	$18,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$461,800

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$69,300
Soft Costs Contingency (17%):	$78,500
TOTAL DRAINAGE	**$609,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 5 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	2650	$50	$132,500
2	15" SD Line	LF	200	$60	$12,000
3	18" SD Line	LF	450	$75	$33,800
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	5	$4,250	$21,300
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	18	$2,650	$47,700
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	1	$5,000	$5,000
19	Stormwater Quality Basin	EA	3	$25,000	$75,000
20	Outfall	LS	5	$9,000	$45,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	1	$400,000	$400,000
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$772,300

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$115,800
Soft Costs Contingency (17%):	$131,300
TOTAL DRAINAGE	**$1,019,400**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 5 Oak Tree Lane 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	1340	$50	$67,000
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	150	$75	$11,300
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	3	$4,250	$12,800
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	6	$2,650	$15,900
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	1	$5,000	$5,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	2	$9,000	$18,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$130,000

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$19,500
Soft Costs Contingency (17%):	$22,100
TOTAL DRAINAGE	**$171,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 5 North South Collector 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	710	$50	$35,500
2	15" SD Line	LF	200	$60	$12,000
3	18" SD Line	LF	300	$75	$22,500
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	8	$2,650	$21,200
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	3	$25,000	$75,000
20	Outfall	LS	3	$9,000	$27,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	1	$400,000	$400,000
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$593,200

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$88,900
Soft Costs Contingency (17%):	$100,900
TOTAL DRAINAGE	**$783,000**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 5 Collector Loop 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	600	$50	$30,000
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	2	$4,250	$8,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	4	$2,650	$10,600
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	0	$5,000	$0
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	0	$9,000	$0
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$49,100

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$7,400
Soft Costs Contingency (17%):	$8,300
TOTAL DRAINAGE	**$64,800**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 6 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	2140	$50	$107,000
2	15" SD Line	LF	1000	$60	$60,000
3	18" SD Line	LF	700	$75	$52,500
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	100	$180	$18,000
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	10	$4,250	$42,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	16	$2,650	$42,400
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	2	$5,000	$10,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	2	$9,000	$18,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$350,400

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$52,600
Soft Costs Contingency (17%):	$59,600
TOTAL DRAINAGE	**$462,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 6 Virginiatown Road 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	0	$50	$0
2	15" SD Line	LF	0	$60	$0
3	18" SD Line	LF	0	$75	$0
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	100	$180	$18,000
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	0	$4,250	$0
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	0	$2,650	$0
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	1	$5,000	$5,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	1	$9,000	$9,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$32,000

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$4,800
Soft Costs Contingency (17%):	$5,400
TOTAL DRAINAGE	**$42,200**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 6 Collector Loop 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	2140	$50	$107,000
2	15" SD Line	LF	1000	$60	$60,000
3	18" SD Line	LF	700	$75	$52,500
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	0	$180	$0
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	10	$4,250	$42,500
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	16	$2,650	$42,400
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	1	$5,000	$5,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	1	$9,000	$9,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$318,400

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$47,800
Soft Costs Contingency (17%):	$54,200
TOTAL DRAINAGE	**$420,400**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 7 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	700	$50	$35,000
2	15" SD Line	LF	100	$60	$6,000
3	18" SD Line	LF	270	$75	$20,300
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	100	$180	$18,000
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	4	$4,250	$17,000
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	6	$2,650	$15,900
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	2	$5,000	$10,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	2	$9,000	$18,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$140,200

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$21,000
Soft Costs Contingency (17%):	$23,800
TOTAL DRAINAGE	**$185,000**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Drainage
Phase 7 Oak Tree Lane 10

Item #	Description	Unit	Quantity	Unit Price	Amount
Storm Drainage System					
Village 1					
1	12" SD Line	LF	700	$50	$35,000
2	15" SD Line	LF	100	$60	$6,000
3	18" SD Line	LF	270	$75	$20,300
4	24" SD Line	LF	0	$85	$0
5	30" SD Line	LF	0	$110	$0
6	36" SD Line	LF	0	$125	$0
7	42" SD Line	LF	0	$150	$0
8	48" SD Line	LF	100	$180	$18,000
9	60" SD Line	LF	0	$190	$0
10	Standard 48" SDMH (MH/400')	EA	4	$4,250	$17,000
11	Trunk 60" SDMH (MH/400')	EA	0	$8,500	$0
12	18" Culvert Extension	LF	0	$125	$0
13	24" Culvert Extension	LF	0	$150	$0
14	36" Culvert Extension	LF	0	$225	$0
15	Headwall Retrofit	EA	0	$12,500	$0
16	Drainage Inlet	EA	6	$2,650	$15,900
17	Drainage Inlet and Retrofit Pipe	EA	0	$5,000	$0
18	Grassy Swale	EA	2	$5,000	$10,000
19	Stormwater Quality Basin	EA	0	$25,000	$0
20	Outfall	LS	2	$9,000	$18,000
21	Culvert - 12'x5' Arch Culvert - Oak Tree near new Lake	EA	0	$450,000	$0
22	Culvert - 12'x5' Arch Culvert and 48" Culvert - Oak Tree near Regional Park *	EA	0	$525,000	$0
23	NID Box Culvert Expansion	EA	0	$75,000	$0
24	Culvert - 12'x5.5' Arch Culvert - North South Collector near State Route 193	EA	0	$400,000	$0
25	Culvert - 30" Culvert - Oak Tree Lane and South Ingram Slough East of No. So. Collector	EA	0	$100,000	$0
26	Wetland Mitigation - Oak Tree Lane Overcrossing **	EA	0	$300,000	$0
27	CLOMR and LOMR - Auburn Ravine next to Ferrari Ranch Road	JOB	0	$80,000	$0
28	Retrofit Lake outlet and berm***	EA	0	$1,000,000	$0
29	Grading	CY	0	$4	$0
30	Auburn Ravine Bank Stabilization	SF	0	$1	$0
31	Auburn Ravine Hydroseed	SF	0	$0	$0
32	Auburn Ravine Armoring	SF	0	$15	$0
33	Auburn Ravine Tree Planting	EA	0	$100	$0
	Construction Total:				$140,200

* Includes traffic control and demolition of existing culverts.

** Estimated costs, actual cost will be developed in conjunction with environmental consultant.

*** Further consultation will be required with geotechnical and environmental consultants to determine actual cost to retrofit lake outfall, berm and wetland permit.

Contingency Based upon Hard Costs (15%):	$21,000
Soft Costs Contingency (17%):	$23,800
TOTAL DRAINAGE	**$185,000**

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APPENDIX 5
Lincoln Village 1 Specific Plan
Infrastructure Finance Plan
Wastewater
Element

FRAYJI
DESIGN GROUP, INC.

FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1
Sewer Summary by Phase

Description	Sewer
Infrastructure Costs	
Phase 1	$1,737,800
Phase 2	$405,100
Phase 3	$180,300
Phase 4	$968,600
Phase 5	$243,900
Phase 6	$294,600
Phase 7	$0
Phase 8	$0
Subtotal	**$3,830,300**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	600	$65	$39,000
2	12" SS Backbone Line	LF	18540	$75	$1,390,600
3	15" SS Backbone Line	LF	1350	$100	$135,000
4	18" SS Backbone Line	LF	2265	$120	$271,800
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	53	$4,250	$225,400
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	1	$300,000	$300,000
10	Connection to Existing Transmission Main	EA	4	$22,500	$90,000
11	Bore and Jack (Across Auburn Ravine)	LF	500	$900	$450,000
	Construction Total:				$2,901,800

Contingency Based upon Hard Costs (15%): $435,300
Soft Costs Contingency (17%): $493,200

TOTAL SANITARY SEWER **$3,830,300**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 1 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	60	$65	$3,900
2	12" SS Backbone Line	LF	4780	$75	$358,500
3	15" SS Backbone Line	LF	700	$100	$70,000
4	18" SS Backbone Line	LF	2265	$120	$271,800
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	17	$4,250	$72,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	4	$22,500	$90,000
11	Bore and Jack (Across Auburn Ravine)	LF	500	$900	$450,000
	Construction Total:				$1,316,500

Contingency Based upon Hard Costs (15%): $197,500
Soft Costs Contingency (17%): $223,800

TOTAL SANITARY SEWER **$1,737,800**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 1 Ferrari Ranch Road - 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	2025	$75	$151,800
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	5	$4,250	$21,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	1	$22,500	$22,500
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$195,600

Contingency Based upon Hard Costs (15%): $29,300
Soft Costs Contingency (17%): $33,300

TOTAL SANITARY SEWER **$258,200**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 1 Auburn Ravine Crossing 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	565	$75	$42,400
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	0	$4,250	$0
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	500	$900	$450,000
	Construction Total:				$492,400

Contingency Based upon Hard Costs (15%): $73,900
Soft Costs Contingency (17%): $83,600

TOTAL SANITARY SEWER **$649,900**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 1 Strate Route 193 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	100	$75	$7,500
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	0	$4,250	$0
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	1	$22,500	$22,500
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$30,000

Contingency Based upon Hard Costs (15%): $4,500
Soft Costs Contingency (17%): $5,100

TOTAL SANITARY SEWER **$39,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 1 McBean Park Drive 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	440	$75	$33,000
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	1	$4,250	$4,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	1	$22,500	$22,500
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$59,800

Contingency Based upon Hard Costs (15%): $9,000
Soft Costs Contingency (17%): $10,200

TOTAL SANITARY SEWER **$79,000**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 1 McBean Park Drive 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	360	$75	$27,000
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	1	$4,250	$4,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$31,300

Contingency Based upon Hard Costs (15%): $4,700
Soft Costs Contingency (17%): $5,300

TOTAL SANITARY SEWER **$41,300**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 1 McBean Park Drive 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	0	$75	$0
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	570	$120	$68,400
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	1	$4,250	$4,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	1	$22,500	$22,500
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$95,200

Contingency Based upon Hard Costs (15%): $14,300
Soft Costs Contingency (17%): $16,200

TOTAL SANITARY SEWER **$125,700**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 1 Oak Tree Lane 6

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	60	$65	$3,900
2	12" SS Backbone Line	LF	1290	$75	$96,800
3	15" SS Backbone Line	LF	700	$100	$70,000
4	18" SS Backbone Line	LF	1695	$120	$203,400
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	9	$4,250	$38,100
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$412,200

Contingency Based upon Hard Costs (15%): $61,800
Soft Costs Contingency (17%): $70,100

TOTAL SANITARY SEWER **$544,100**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 2 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	240	$65	$15,600
2	12" SS Backbone Line	LF	3430	$75	$257,300
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	8	$4,250	$34,000
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$306,900

Contingency Based upon Hard Costs (15%): $46,000
Soft Costs Contingency (17%): $52,200

TOTAL SANITARY SEWER **$405,100**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 2 Ferrari Ranch Road - 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	60	$65	$3,900
2	12" SS Backbone Line	LF	590	$75	$44,300
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	1	$4,250	$4,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$52,500

Contingency Based upon Hard Costs (15%): $7,900
Soft Costs Contingency (17%): $8,900

TOTAL SANITARY SEWER **$69,300**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 2 Ferrari Ranch Road 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	60	$65	$3,900
2	12" SS Backbone Line	LF	680	$75	$51,000
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	2	$4,250	$8,500
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$63,400

Contingency Based upon Hard Costs (15%):	$9,500
Soft Costs Contingency (17%):	$10,800
TOTAL SANITARY SEWER	**$83,700**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 2 Oak Tree Lane 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	120	$65	$7,800
2	12" SS Backbone Line	LF	1610	$75	$120,700
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	4	$4,250	$16,900
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$145,400

Contingency Based upon Hard Costs (15%): $21,800
Soft Costs Contingency (17%): $24,700

TOTAL SANITARY SEWER **$191,900**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 2 Oak Tree Lane 5

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	550	$75	$41,300
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	1	$4,250	$4,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$45,600

Contingency Based upon Hard Costs (15%): $6,800
Soft Costs Contingency (17%): $7,800

TOTAL SANITARY SEWER **$60,200**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 3 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	120	$65	$7,800
2	12" SS Backbone Line	LF	1490	$75	$111,800
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	4	$4,250	$17,000
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$136,600

Contingency Based upon Hard Costs (15%): $20,500
Soft Costs Contingency (17%): $23,200

TOTAL SANITARY SEWER **$180,300**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 3 Oak Tree Lane 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	120	$65	$7,800
2	12" SS Backbone Line	LF	1490	$75	$111,800
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	4	$4,250	$17,000
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$136,600

Contingency Based upon Hard Costs (15%): $20,500
Soft Costs Contingency (17%): $23,200

TOTAL SANITARY SEWER **$180,300**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 4 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	4180	$75	$313,500
3	15" SS Backbone Line	LF	650	$100	$65,000
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	13	$4,250	$55,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	1	$300,000	$300,000
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$733,800

Contingency Based upon Hard Costs (15%): $110,100
Soft Costs Contingency (17%): $124,700

TOTAL SANITARY SEWER **$968,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 4 Oak Tree Lane 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	1640	$75	$123,000
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	4	$4,250	$17,000
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$140,000

Contingency Based upon Hard Costs (15%): $21,000
Soft Costs Contingency (17%): $23,800

TOTAL SANITARY SEWER **$184,800**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 4 Collector Loop 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	1360	$75	$102,000
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	4	$4,250	$17,000
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$119,000

Contingency Based upon Hard Costs (15%): $17,900
Soft Costs Contingency (17%): $20,200

TOTAL SANITARY SEWER **$157,100**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 4 Regional Park 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	1180	$75	$88,500
3	15" SS Backbone Line	LF	650	$100	$65,000
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	5	$4,250	$21,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	1	$300,000	$300,000
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$474,800

Contingency Based upon Hard Costs (15%): $71,200
Soft Costs Contingency (17%): $80,700

TOTAL SANITARY SEWER **$626,700**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 5 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	2180	$75	$163,500
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	5	$4,250	$21,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$184,800

Contingency Based upon Hard Costs (15%): $27,700
Soft Costs Contingency (17%): $31,400

TOTAL SANITARY SEWER **$243,900**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 5 Oak Tree Lane 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	330	$75	$24,800
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	1	$4,250	$4,300
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$29,100

Contingency Based upon Hard Costs (15%): $4,400
Soft Costs Contingency (17%): $4,900

TOTAL SANITARY SEWER **$38,400**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 5 North South Collector 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	900	$75	$67,400
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	2	$4,250	$8,500
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$75,900

Contingency Based upon Hard Costs (15%): $11,400
Soft Costs Contingency (17%): $12,900

TOTAL SANITARY SEWER **$100,200**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 5 Collector Loop 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	0	$65	$0
2	12" SS Backbone Line	LF	950	$75	$71,300
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	2	$4,250	$8,500
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$79,800

Contingency Based upon Hard Costs (15%): $11,900
Soft Costs Contingency (17%): $13,600

TOTAL SANITARY SEWER **$105,300**

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Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 6 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	180	$65	$11,700
2	12" SS Backbone Line	LF	2480	$75	$186,000
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	6	$4,250	$25,500
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$223,200

Contingency Based upon Hard Costs (15%):	$33,500
Soft Costs Contingency (17%):	$37,900
TOTAL SANITARY SEWER	**$294,600**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Sanitary Sewer
Phase 6 Collector Loop 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Sanitary Sewer System					
Village 1					
1	10" SS Backbone Line	LF	180	$65	$11,700
2	12" SS Backbone Line	LF	2480	$75	$186,000
3	15" SS Backbone Line	LF	0	$100	$0
4	18" SS Backbone Line	LF	0	$120	$0
5	24" SS Trunk Line	LF	0	$165	$0
6	30" SS Trunk Line	LF	0	$200	$0
7	Standard SSMH (MH/400')	EA	6	$4,250	$25,500
8	Trunk SSMH (MH/400')	EA	0	$8,500	$0
9	Sanitary Sewer Lift Station	EA	0	$300,000	$0
10	Connection to Existing Transmission Main	EA	0	$22,500	$0
11	Bore and Jack (Across Auburn Ravine)	LF	0	$900	$0
	Construction Total:				$223,200

Contingency Based upon Hard Costs (15%): $33,500
Soft Costs Contingency (17%): $37,900

TOTAL SANITARY SEWER **$294,600**

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APPENDIX 6
Lincoln Village 1 Specific Plan
Infrastructure Finance Plan
Roadway System
Element

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Engineer's Opinion of Costs
Village 1
Roadway Summary by Phase

Description	Roadway
Infrastructure Costs	
Phase 1	$13,648,400
Phase 2	$3,135,500
Phase 3	$8,439,200
Phase 4	$6,111,500
Phase 5	$6,324,900
Phase 6	$2,701,600
Phase 7	$9,026,300
Phase 8	$0
Subtotal	**$49,387,400**

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Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	26	$50,000.00	$1,300,000
2	Excavation	CY	77134	$7.00	$539,900
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	439040	$1.80	$790,400
4	16" AB (assumes a Traffic Index of 9)	SF	1142647	$2.25	$2,571,000
5	5" AC (assumes a Traffic Index of 9)	SF	1142647	$2.70	$3,085,200
6	18" AB (assumes a Traffic Index of 11)	SF	132845	$2.50	$332,100
7	7" AC (assumes a Traffic Index of 11)	SF	132845	$4.00	$531,400
8	Decomposed Granite Trail (4' width, 4" thick)	SF	10760	$1.80	$19,400
9	4" AB Shoulder (2' width)	SF	41400	$1.20	$49,600
10	Subgrade Street Prep (Street)	SF	1275492	$0.25	$318,800
11	Subgrade Prep (Curb & Gutter)	SF	498260	$0.30	$149,500
12	Subgrade Prep (AB Shoulder)	SF	38800	$0.30	$11,700
13	Subgrade Prep (DG Trail)	SF	10760	$0.30	$3,200
14	Signing and Striping (36' ROW)*	LF	45180	$15.00	$677,800
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	306020	$6.00	$1,836,100
19	Roundabout	EA	2	$100,000.00	$200,000
20	Joint Trench	LF	30420	$115.00	$3,498,400
21	Underground Existing Utilities in Joint Trench	LF	10010	$360.00	$3,603,600
22	Type 5 Curb Median	LF	47585	$12.00	$571,100
23	Median Landscaping	SF	312885	$4.50	$1,408,100
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	2	$75,000.00	$150,000
26	Curb and Gutter	LF	64020	$27.00	$1,728,700
27	AC Driveway (Per Approx. 12' wide)	EA	9	$960.00	$8,700
28	Irrigation Sleeves	LF	370	$15.00	$5,600
29	Street Lights (every 150 LF)	EA	356	$6,000.00	$2,136,000
30	Sawcut and Pavement Removal Median	LF	3855	$20.00	$77,100
31	Sawcut and Pavement Removal	LF	25685	$3.00	$77,100
32	Reconstruct Ditches	LF	19170	$3.00	$57,600
33	Erosion Control	LF	58205	$25.00	$1,455,300
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	1	$50,000.00	$50,000
37	Grind and Remove Pavement	SF	88630	$3.00	$265,900
38	Grind and Overlay	SF	514565	$2.00	$1,029,200
39	Retrofit Utilities	EA	4	$3,000.00	$12,000
40	Dewatering - Ferrari Ranch Road	EA	3	$25,000.00	$75,000
41	Dewatering - Oak Tree near So. Ingram Slough	EA	1	$50,000.00	$50,000
42	Dewatering - Oak Tree near new lake	EA	1	$75,000.00	$75,000
43	Golf Course Fence and Netting	LF	1400	$133.00	$186,300
44	Split Rail Fencing	LF	13950	$45.00	$627,900
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	1	$1,000,000.00	$1,000,000
47	Traffic Control	JOB	11	$100,000.00	$1,100,000
48	Traffic Control Oak Tree Lane	JOB	1	$250,000.00	$250,000
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	1	$5,500,000.00	$5,500,000
	Construction Total:				$37,414,700

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land, potential wetland permitting, and potential wetland mitigation.

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$5,612,200
Soft Costs Contingency (17%):	$6,360,500
TOTAL CIRCULATION	**$49,387,400**

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Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	4	$50,000.00	$200,000
2	Excavation	CY	68268	$7.00	$477,900
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	79140	$1.80	$142,500
4	16" AB (assumes a Traffic Index of 9)	SF	194137	$2.25	$436,800
5	5" AC (assumes a Traffic Index of 9)	SF	194137	$2.70	$524,200
6	18" AB (assumes a Traffic Index of 11)	SF	69508	$2.50	$173,800
7	7" AC (assumes a Traffic Index of 11)	SF	69508	$4.00	$278,000
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	11570	$1.20	$13,900
10	Subgrade Street Prep (Street)	SF	263645	$0.25	$65,900
11	Subgrade Prep (Curb & Gutter)	SF	79140	$0.30	$23,700
12	Subgrade Prep (AB Shoulder)	SF	11570	$0.30	$3,500
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	9328	$15.00	$139,900
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	47820	$6.00	$286,900
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	5220	$115.00	$600,300
21	Underground Existing Utilities in Joint Trench	LF	9080	$360.00	$3,268,800
22	Type 5 Curb Median	LF	10440	$12.00	$125,300
23	Median Landscaping	SF	65110	$4.50	$293,000
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	1	$75,000.00	$75,000
26	Curb and Gutter	LF	11940	$27.00	$322,400
27	AC Driveway (Per Approx. 12' wide)	EA	3	$960.00	$2,900
28	Irrigation Sleeves	LF	170	$15.00	$2,600
29	Street Lights (every 150 LF)	EA	76	$6,000.00	$456,000
30	Sawcut and Pavement Removal Median	LF	500	$20.00	$10,000
31	Sawcut and Pavement Removal	LF	6805	$3.00	$20,400
32	Reconstruct Ditches	LF	5785	$3.00	$17,400
33	Erosion Control	LF	12515	$25.00	$312,900
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	1	$50,000.00	$50,000
37	Grind and Remove Pavement	SF	88630	$3.00	$265,900
38	Grind and Overlay	SF	41045	$2.00	$82,100
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	1	$25,000.00	$25,000
41	Dewatering - Oak Tree near So. Ingram Slough	EA	1	$50,000.00	$50,000
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	3170	$45.00	$142,700
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	1	$1,000,000.00	$1,000,000
47	Traffic Control	JOB	2	$100,000.00	$200,000
48	Traffic Control Oak Tree Lane	JOB	1	$250,000.00	$250,000
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$10,339,700

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land, potential wetland permitting, and potential wetland mitigation.

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$1,551,000
Soft Costs Contingency (17%):	$1,757,700
TOTAL CIRCULATION	**$13,648,400**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 Ferrari Ranch Road 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone	**Circulation System**				
1	Mobilization	JOB	1	$50,000.00	$49,900
2	Excavation	CY	8119	$7.00	$56,800
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	29640	$1.80	$53,300
4	16" AB (assumes a Traffic Index of 9)	SF	95137	$2.25	$214,000
5	5" AC (assumes a Traffic Index of 9)	SF	95137	$2.70	$256,900
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	95137	$0.25	$23,700
11	Subgrade Prep (Curb & Gutter)	SF	29640	$0.30	$8,800
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	2470	$15.00	$36,800
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	14820	$6.00	$88,900
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	2470	$115.00	$283,900
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	4940	$12.00	$59,200
23	Median Landscaping	SF	32110	$4.50	$144,400
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	4940	$27.00	$133,300
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	90	$15.00	$1,300
29	Street Lights (every 150 LF)	EA	16	$6,000.00	$96,000
30	Sawcut and Pavement Removal Median	LF	500	$20.00	$10,000
31	Sawcut and Pavement Removal	LF	1020	$3.00	$3,100
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	2470	$25.00	$61,800
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	1	$25,000.00	$25,000
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	2470	$45.00	$111,100
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$1,718,200

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$257,700
Soft Costs Contingency (17%):	$292,100
TOTAL CIRCULATION	**$2,268,000**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 McBean Park Drive 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.2	$50,000.00	$10,000
2	Excavation	CY	49	$7.00	$300
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	664	$2.50	$1,700
7	7" AC (assumes a Traffic Index of 11)	SF	664	$4.00	$2,700
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	700	$1.20	$800
10	Subgrade Street Prep (Street)	SF	664	$0.25	$200
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	700	$0.30	$200
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	350	$15.00	$5,300
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	350	$360.00	$126,000
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	360	$27.00	$9,700
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	2	$6,000.00	$12,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	350	$3.00	$1,100
32	Reconstruct Ditches	LF	350	$3.00	$1,100
33	Erosion Control	LF	350	$25.00	$8,800
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	1750	$2.00	$3,500
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.2	$100,000.00	$20,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$203,400

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$30,500
Soft Costs Contingency (17%):	$34,600
TOTAL CIRCULATION	**$268,500**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 McBean Park Drive 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.2	$50,000.00	$10,000
2	Excavation	CY	129	$7.00	$900
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	1744	$2.50	$4,400
7	7" AC (assumes a Traffic Index of 11)	SF	1744	$4.00	$7,000
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	950	$1.20	$1,100
10	Subgrade Street Prep (Street)	SF	1744	$0.25	$400
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	950	$0.30	$300
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	238	$15.00	$3,600
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	475	$360.00	$171,000
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	30	$15.00	$500
29	Street Lights (every 150 LF)	EA	3	$6,000.00	$18,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	475	$3.00	$1,400
32	Reconstruct Ditches	LF	475	$3.00	$1,400
33	Erosion Control	LF	475	$25.00	$11,900
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	2375	$2.00	$4,800
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.2	$100,000.00	$20,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$256,700

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$38,500
Soft Costs Contingency (17%):	$43,600
TOTAL CIRCULATION	**$338,800**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 McBean Park Drive 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.2	$50,000.00	$10,000
2	Excavation	CY	545	$7.00	$3,800
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	7360	$2.50	$18,400
7	7" AC (assumes a Traffic Index of 11)	SF	7360	$4.00	$29,400
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	1360	$1.20	$1,600
10	Subgrade Street Prep (Street)	SF	7360	$0.25	$1,800
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	1360	$0.30	$400
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	340	$15.00	$5,100
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	680	$360.00	$244,800
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	5	$6,000.00	$30,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	680	$3.00	$2,000
32	Reconstruct Ditches	LF	680	$3.00	$2,000
33	Erosion Control	LF	680	$25.00	$17,000
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	3400	$2.00	$6,800
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.2	$100,000.00	$20,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$393,100

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$59,000
Soft Costs Contingency (17%):	$66,800
TOTAL CIRCULATION	**$518,900**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 McBean Park Drive 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.2	$50,000.00	$10,000
2	Excavation	CY	6	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	77	$2.50	$200
7	7" AC (assumes a Traffic Index of 11)	SF	77	$4.00	$300
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	480	$1.20	$600
10	Subgrade Street Prep (Street)	SF	77	$0.25	$0
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	480	$0.30	$100
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	120	$15.00	$1,800
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	240	$360.00	$86,400
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	30	$15.00	$500
29	Street Lights (every 150 LF)	EA	5	$6,000.00	$30,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	240	$3.00	$700
32	Reconstruct Ditches	LF	240	$3.00	$700
33	Erosion Control	LF	240	$25.00	$6,000
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	1200	$2.00	$2,400
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.2	$100,000.00	$20,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$159,700

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$24,000
Soft Costs Contingency (17%):	$27,100
TOTAL CIRCULATION	**$210,800**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 McBean Park Drive 5

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.2	$50,000.00	$10,000
2	Excavation	CY	464	$7.00	$3,200
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	6262	$2.50	$15,700
7	7" AC (assumes a Traffic Index of 11)	SF	6262	$4.00	$25,000
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	1380	$1.20	$1,700
10	Subgrade Street Prep (Street)	SF	6262	$0.25	$1,600
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	1380	$0.30	$400
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	345	$15.00	$5,200
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	1885	$360.00	$678,600
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	5	$6,000.00	$30,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	690	$3.00	$2,100
32	Reconstruct Ditches	LF	690	$3.00	$2,100
33	Erosion Control	LF	690	$25.00	$17,300
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	5520	$2.00	$11,000
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.2	$100,000.00	$20,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$823,900

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$123,600
Soft Costs Contingency (17%):	$140,100
TOTAL CIRCULATION	**$1,087,600**

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Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 State Route 193 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.33	$50,000.00	$16,700
2	Excavation	CY	232	$7.00	$1,600
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	3134	$2.50	$7,800
7	7" AC (assumes a Traffic Index of 11)	SF	3134	$4.00	$12,500
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	2540	$1.20	$3,000
10	Subgrade Street Prep (Street)	SF	3134	$0.25	$800
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	2540	$0.30	$800
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	635	$15.00	$9,500
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	3370	$360.00	$1,213,200
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	1	$75,000.00	$75,000
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	8	$6,000.00	$48,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	1270	$3.00	$3,800
32	Reconstruct Ditches	LF	1270	$3.00	$3,900
33	Erosion Control	LF	1270	$25.00	$31,600
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	10160	$2.00	$20,300
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.33	$100,000.00	$33,300
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$1,481,800

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$222,300
Soft Costs Contingency (17%):	$251,900
TOTAL CIRCULATION	**$1,956,000**

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Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 State Route 193 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.33	$50,000.00	$16,700
2	Excavation	CY	2329	$7.00	$16,300
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	31446	$2.50	$78,600
7	7" AC (assumes a Traffic Index of 11)	SF	31446	$4.00	$125,800
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	2800	$1.20	$3,500
10	Subgrade Street Prep (Street)	SF	31446	$0.25	$7,900
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	2800	$0.30	$900
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	1400	$15.00	$21,000
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	1400	$360.00	$504,000
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	3	$960.00	$2,900
28	Irrigation Sleeves	LF	20	$15.00	$300
29	Street Lights (every 150 LF)	EA	9	$6,000.00	$54,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	1400	$3.00	$4,200
32	Reconstruct Ditches	LF	1400	$3.00	$4,200
33	Erosion Control	LF	1400	$25.00	$35,000
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	11200	$2.00	$22,400
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.33	$100,000.00	$33,300
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$931,000

* Cost per linear foot of roadway.
** ROW Acquisition includes mapping, purchasing the land,
*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$139,700
Soft Costs Contingency (17%):	$158,300
TOTAL CIRCULATION	**$1,229,000**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 State Route 193 5

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.33	$50,000.00	$16,700
2	Excavation	CY	1394	$7.00	$9,800
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	18821	$2.50	$47,000
7	7" AC (assumes a Traffic Index of 11)	SF	18821	$4.00	$75,300
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	1360	$1.20	$1,600
10	Subgrade Street Prep (Street)	SF	18821	$0.25	$4,700
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	1360	$0.30	$400
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	680	$15.00	$10,200
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	680	$360.00	$244,800
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	5	$6,000.00	$30,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	680	$3.00	$2,000
32	Reconstruct Ditches	LF	680	$3.00	$2,000
33	Erosion Control	LF	680	$25.00	$17,000
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	5440	$2.00	$10,900
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.33	$100,000.00	$33,400
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$505,800

* Cost per linear foot of roadway.
** ROW Acquisition includes mapping, purchasing the land,
*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$75,900
Soft Costs Contingency (17%):	$86,000
TOTAL CIRCULATION	**$667,700**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 Oak Tree Lane 6

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.25	$50,000.00	$12,500
2	Excavation	CY	18500	$7.00	$129,500
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	22320	$1.80	$40,200
4	16" AB (assumes a Traffic Index of 9)	SF	44640	$2.25	$100,400
5	5" AC (assumes a Traffic Index of 9)	SF	44640	$2.70	$120,500
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	44640	$0.25	$11,200
11	Subgrade Prep (Curb & Gutter)	SF	22320	$0.30	$6,700
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	1240	$15.00	$18,600
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	14880	$6.00	$89,300
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	1240	$115.00	$142,600
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	2480	$12.00	$29,800
23	Median Landscaping	SF	14880	$4.50	$67,000
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	2480	$27.00	$67,000
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	8	$6,000.00	$48,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	1240	$25.00	$31,000
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	1	$50,000.00	$50,000
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	1	$1,000,000.00	$1,000,000
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0.25	$250,000.00	$62,500
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$2,026,800

* Cost per linear foot of roadway.
** ROW Acquisition includes mapping, purchasing the land,
*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$303,800
Soft Costs Contingency (17%):	$344,500
TOTAL CIRCULATION	**$2,675,100**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 Oak Tree Lane 7

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.25	$50,000.00	$12,500
2	Excavation	CY	8800	$7.00	$61,600
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	10260	$1.80	$18,500
4	16" AB (assumes a Traffic Index of 9)	SF	20520	$2.25	$46,200
5	5" AC (assumes a Traffic Index of 9)	SF	20520	$2.70	$55,400
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	20520	$0.25	$5,100
11	Subgrade Prep (Curb & Gutter)	SF	10260	$0.30	$3,100
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	570	$15.00	$8,600
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	6840	$6.00	$41,000
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	570	$115.00	$65,600
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	1140	$12.00	$13,700
23	Median Landscaping	SF	6840	$4.50	$30,800
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	2280	$27.00	$61,600
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	4	$6,000.00	$24,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	1140	$25.00	$28,500
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	43540	$3.00	$130,600
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	350	$45.00	$15,800
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0.25	$250,000.00	$62,500
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$685,100

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$102,800
Soft Costs Contingency (17%):	$116,500
TOTAL CIRCULATION	**$904,400**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 Oak Tree Lane 8

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.25	$50,000.00	$12,500
2	Excavation	CY	9450	$7.00	$66,200
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	11700	$1.80	$21,100
4	16" AB (assumes a Traffic Index of 9)	SF	23400	$2.25	$52,700
5	5" AC (assumes a Traffic Index of 9)	SF	23400	$2.70	$63,200
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	23400	$0.25	$5,900
11	Subgrade Prep (Curb & Gutter)	SF	11700	$0.30	$3,500
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	650	$15.00	$9,800
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	7800	$6.00	$46,800
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	650	$115.00	$74,800
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	1300	$12.00	$15,600
23	Median Landscaping	SF	7800	$4.50	$35,100
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	1300	$27.00	$35,100
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	4	$6,000.00	$24,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	1300	$25.00	$32,500
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	45090	$3.00	$135,300
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	1	$50,000.00	$50,000
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	350	$45.00	$15,800
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0.25	$250,000.00	$62,500
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$762,400

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$114,400
Soft Costs Contingency (17%):	$129,600
TOTAL CIRCULATION	**$1,006,400**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 1 Oak Tree Lane 9

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.25	$50,000.00	$12,500
2	Excavation	CY	18250	$7.00	$127,900
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	5220	$1.80	$9,400
4	16" AB (assumes a Traffic Index of 9)	SF	10440	$2.25	$23,500
5	5" AC (assumes a Traffic Index of 9)	SF	10440	$2.70	$28,200
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	10440	$0.25	$2,600
11	Subgrade Prep (Curb & Gutter)	SF	5220	$0.30	$1,600
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	290	$15.00	$4,400
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	3480	$6.00	$20,900
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	290	$115.00	$33,400
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	580	$12.00	$7,000
23	Median Landscaping	SF	3480	$4.50	$15,700
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	580	$27.00	$15,700
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	2	$6,000.00	$12,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	580	$25.00	$14,500
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0.25	$250,000.00	$62,500
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$391,800

* Cost per linear foot of roadway.
** ROW Acquisition includes mapping, purchasing the land,
*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$58,800
Soft Costs Contingency (17%):	$66,600
TOTAL CIRCULATION	**$517,200**

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Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 2 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	2	$50,000.00	$100,000
2	Excavation	CY	3500	$7.00	$24,500
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	55620	$1.80	$100,100
4	16" AB (assumes a Traffic Index of 9)	SF	126720	$2.25	$285,100
5	5" AC (assumes a Traffic Index of 9)	SF	126720	$2.70	$342,100
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	126720	$0.25	$31,700
11	Subgrade Prep (Curb & Gutter)	SF	55620	$0.30	$16,700
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	3520	$15.00	$52,800
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	34500	$6.00	$207,000
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	3520	$115.00	$404,800
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	7040	$12.00	$84,500
23	Median Landscaping	SF	43530	$4.50	$195,900
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	7040	$27.00	$190,100
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	24	$6,000.00	$144,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	3520	$25.00	$88,000
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	2	$25,000.00	$50,000
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	1290	$45.00	$58,100
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$2,375,400

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$356,300
Soft Costs Contingency (17%):	$403,800
TOTAL CIRCULATION	**$3,135,500**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 2 Ferrari Ranch Road 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.5	$50,000.00	$25,000
2	Excavation	CY	1600	$7.00	$11,200
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	7080	$1.80	$12,700
4	16" AB (assumes a Traffic Index of 9)	SF	21240	$2.25	$47,800
5	5" AC (assumes a Traffic Index of 9)	SF	21240	$2.70	$57,300
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	21240	$0.25	$5,300
11	Subgrade Prep (Curb & Gutter)	SF	7080	$0.30	$2,100
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	590	$15.00	$8,900
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	3540	$6.00	$21,200
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	590	$115.00	$67,900
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	1180	$12.00	$14,200
23	Median Landscaping	SF	7670	$4.50	$34,500
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	1180	$27.00	$31,900
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	4	$6,000.00	$24,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	590	$25.00	$14,800
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	1.0	$25,000.00	$25,000
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	590	$45.00	$26,600
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$430,400

* Cost per linear foot of roadway.
** ROW Acquisition includes mapping, purchasing the land,
*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$64,600
Soft Costs Contingency (17%):	$73,200
TOTAL CIRCULATION	**$568,200**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 2 Ferrari Ranch Road 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.5	$50,000.00	$25,000
2	Excavation	CY	1900	$7.00	$13,300
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	8400	$1.80	$15,100
4	16" AB (assumes a Traffic Index of 9)	SF	25200	$2.25	$56,700
5	5" AC (assumes a Traffic Index of 9)	SF	25200	$2.70	$68,000
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	25200	$0.25	$6,300
11	Subgrade Prep (Curb & Gutter)	SF	8400	$0.30	$2,500
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	700	$15.00	$10,500
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	4200	$6.00	$25,200
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	700	$115.00	$80,500
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	1400	$12.00	$16,800
23	Median Landscaping	SF	9100	$4.50	$41,000
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	1400	$27.00	$37,800
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	5	$6,000.00	$30,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	700	$25.00	$17,500
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	1	$25,000.00	$25,000
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	700	$45.00	$31,500
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$502,700

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$75,400
Soft Costs Contingency (17%):	$85,500
TOTAL CIRCULATION	**$663,600**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 2 Oak Tree Lane 4

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.5	$50,000.00	$25,000
2	Excavation	CY	0	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	28980	$1.80	$52,200
4	16" AB (assumes a Traffic Index of 9)	SF	57960	$2.25	$130,400
5	5" AC (assumes a Traffic Index of 9)	SF	57960	$2.70	$156,500
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	57960	$0.25	$14,500
11	Subgrade Prep (Curb & Gutter)	SF	28980	$0.30	$8,800
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	1610	$15.00	$24,100
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	19320	$6.00	$116,000
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	1610	$115.00	$185,100
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	3220	$12.00	$38,600
23	Median Landscaping	SF	19320	$4.50	$86,900
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	3220	$27.00	$86,900
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	11	$6,000.00	$66,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	1610	$25.00	$40,200
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:		$0.00		$1,031,200

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$154,600
Soft Costs Contingency (17%):	$175,200
TOTAL CIRCULATION	**$1,361,000**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 2 Oak Tree Lane 5

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.5	$50,000.00	$25,000
2	Excavation	CY	0	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	11160	$1.80	$20,100
4	16" AB (assumes a Traffic Index of 9)	SF	22320	$2.25	$50,200
5	5" AC (assumes a Traffic Index of 9)	SF	22320	$2.70	$60,300
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	22320	$0.25	$5,600
11	Subgrade Prep (Curb & Gutter)	SF	11160	$0.30	$3,300
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	620	$15.00	$9,300
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	7440	$6.00	$44,600
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	620	$115.00	$71,300
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	1240	$12.00	$14,900
23	Median Landscaping	SF	7440	$4.50	$33,500
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	1240	$27.00	$33,500
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	4	$6,000.00	$24,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	620	$25.00	$15,500
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$411,100

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$61,700
Soft Costs Contingency (17%):	$69,900
TOTAL CIRCULATION	**$542,700**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	7	$50,000.00	$350,000
2	Excavation	CY	2106	$7.00	$14,700
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	60210	$1.80	$108,400
4	16" AB (assumes a Traffic Index of 9)	SF	251390	$2.25	$565,600
5	5" AC (assumes a Traffic Index of 9)	SF	251390	$2.70	$678,800
6	18" AB (assumes a Traffic Index of 11)	SF	28258	$2.50	$70,600
7	7" AC (assumes a Traffic Index of 11)	SF	28258	$4.00	$113,000
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	15790	$1.20	$18,900
10	Subgrade Street Prep (Street)	SF	279648	$0.25	$69,900
11	Subgrade Prep (Curb & Gutter)	SF	119430	$0.30	$35,800
12	Subgrade Prep (AB Shoulder)	SF	14270	$0.30	$4,300
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	11153	$15.00	$167,300
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	71520	$6.00	$429,100
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	5495	$115.00	$631,900
21	Underground Existing Utilities in Joint Trench	LF	930	$360.00	$334,800
22	Type 5 Curb Median	LF	14410	$12.00	$172,900
23	Median Landscaping	SF	79260	$4.50	$356,700
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	1	$75,000.00	$75,000
26	Curb and Gutter	LF	14410	$27.00	$389,100
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	200	$15.00	$3,000
29	Street Lights (every 150 LF)	EA	87	$6,000.00	$522,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	7895	$3.00	$23,700
32	Reconstruct Ditches	LF	7895	$3.00	$23,700
33	Erosion Control	LF	15100	$25.00	$377,500
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	63160	$2.00	$126,300
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	1	$75,000.00	$75,000
43	Golf Course Fence and Netting	LF	850	$133.00	$113,100
44	Split Rail Fencing	LF	3160	$45.00	$142,200
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	4	$100,000.00	$400,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$6,393,300

* Cost per linear foot of roadway.
** ROW Acquisition includes mapping, purchasing the land,
*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$959,000
Soft Costs Contingency (17%):	$1,086,900
TOTAL CIRCULATION	**$8,439,200**

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Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 Ferrari Ranch Road 5

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	1	$50,000.00	$50,000
2	Excavation	CY	0	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	20520	$1.80	$36,900
4	16" AB (assumes a Traffic Index of 9)	SF	61560	$2.25	$138,500
5	5" AC (assumes a Traffic Index of 9)	SF	61560	$2.70	$166,200
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	61560	$0.25	$15,400
11	Subgrade Prep (Curb & Gutter)	SF	20520	$0.30	$6,200
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	1710	$15.00	$25,700
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	10260	$6.00	$61,600
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	3420	$12.00	$41,000
23	Median Landscaping	SF	20520	$4.50	$92,300
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	3420	$27.00	$92,300
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	11	$6,000.00	$66,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	1710	$25.00	$42,800
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	1690	$45.00	$76,000
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$910,900

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$136,600
Soft Costs Contingency (17%):	$154,900
TOTAL CIRCULATION	**$1,202,400**

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Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 McBean Park Drive 6

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	1	$50,000.00	$50,000
2	Excavation	CY	0	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	2390	$1.20	$2,900
10	Subgrade Street Prep (Street)	SF	0	$0.25	$0
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	2390	$0.30	$700
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	598	$15.00	$9,000
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	45	$15.00	$700
29	Street Lights (every 150 LF)	EA	8	$6,000.00	$48,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	1195	$3.00	$3,600
32	Reconstruct Ditches	LF	1195	$3.00	$3,600
33	Erosion Control	LF	1195	$25.00	$29,900
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	9560	$2.00	$19,100
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	1	$100,000.00	$100,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$267,500

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$40,100
Soft Costs Contingency (17%):	$45,500
TOTAL CIRCULATION	**$353,100**

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Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 McBean Park Drive 7

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	1	$50,000.00	$50,000
2	Excavation	CY	0	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	7340	$1.20	$8,800
10	Subgrade Street Prep (Street)	SF	0	$0.25	$0
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	7340	$0.30	$2,200
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	1835	$15.00	$27,500
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	12	$6,000.00	$72,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	3670	$3.00	$11,000
32	Reconstruct Ditches	LF	3670	$3.00	$11,000
33	Erosion Control	LF	3670	$25.00	$91,800
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	29360	$2.00	$58,700
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	1	$100,000.00	$100,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$433,000

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$65,000
Soft Costs Contingency (17%):	$73,600
TOTAL CIRCULATION	**$571,600**

FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 State Route 193 1

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.5	$50,000.00	$25,000
2	Excavation	CY	80	$7.00	$600
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	1083	$2.50	$2,700
7	7" AC (assumes a Traffic Index of 11)	SF	1083	$4.00	$4,300
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	1520	$1.20	$1,800
10	Subgrade Street Prep (Street)	SF	1083	$0.25	$300
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	380	$15.00	$5,700
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	75	$15.00	$1,100
29	Street Lights (every 150 LF)	EA	5	$6,000.00	$30,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	760	$3.00	$2,300
32	Reconstruct Ditches	LF	760	$3.00	$2,300
33	Erosion Control	LF	760	$25.00	$19,000
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	6080	$2.00	$12,200
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.5	$100,000.00	$50,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$157,300

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$23,600
Soft Costs Contingency (17%):	$26,700
TOTAL CIRCULATION	**$207,600**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 State Route 193 2

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.5	$50,000.00	$25,000
2	Excavation	CY	625	$7.00	$4,400
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	8444	$2.50	$21,100
7	7" AC (assumes a Traffic Index of 11)	SF	8444	$4.00	$33,800
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	2680	$1.20	$3,200
10	Subgrade Street Prep (Street)	SF	8444	$0.25	$2,100
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	2680	$0.30	$800
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	670	$15.00	$10,100
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	20	$15.00	$300
29	Street Lights (every 150 LF)	EA	9	$6,000.00	$54,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	1340	$3.00	$4,000
32	Reconstruct Ditches	LF	1340	$3.00	$4,000
33	Erosion Control	LF	1340	$25.00	$33,500
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	10720	$2.00	$21,400
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0.5	$100,000.00	$50,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$267,700

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$40,200
Soft Costs Contingency (17%):	$45,500
TOTAL CIRCULATION	**$353,400**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 State Route 193 6

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	1	$50,000.00	$50,000
2	Excavation	CY	1400	$7.00	$9,700
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	18731	$2.50	$46,800
7	7" AC (assumes a Traffic Index of 11)	SF	18731	$4.00	$74,900
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	1860	$1.20	$2,200
10	Subgrade Street Prep (Street)	SF	18731	$0.25	$4,700
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	1860	$0.30	$600
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	465	$15.00	$7,000
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	930	$360.00	$334,800
22	Type 5 Curb Median	LF	0	$12.00	$0
23	Median Landscaping	SF	0	$4.50	$0
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	60	$15.00	$900
29	Street Lights (every 150 LF)	EA	6	$6,000.00	$36,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	930	$3.00	$2,800
32	Reconstruct Ditches	LF	930	$3.00	$2,800
33	Erosion Control	LF	930	$25.00	$23,300
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	7440	$2.00	$14,900
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	1	$100,000.00	$100,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$711,400

* Cost per linear foot of roadway.
** ROW Acquisition includes mapping, purchasing the land,
*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$106,700
Soft Costs Contingency (17%):	$120,900
TOTAL CIRCULATION	**$939,000**

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Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 Oak Tree Lane 3

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	1	$50,000.00	$50,000
2	Excavation	CY	0	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	22320	$1.80	$40,200
4	16" AB (assumes a Traffic Index of 9)	SF	54000	$2.25	$121,500
5	5" AC (assumes a Traffic Index of 9)	SF	54000	$2.70	$145,800
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	54000	$0.25	$13,500
11	Subgrade Prep (Curb & Gutter)	SF	27000	$0.30	$8,100
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	1500	$15.00	$22,500
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	13320	$6.00	$79,900
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	1500	$115.00	$172,500
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	3000	$12.00	$36,000
23	Median Landscaping	SF	18000	$4.50	$81,000
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	3000	$27.00	$81,000
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	10	$6,000.00	$60,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	1500	$25.00	$37,500
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$949,500

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$142,400
Soft Costs Contingency (17%):	$161,400
TOTAL CIRCULATION	**$1,253,300**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 Oak Tree Lane 10

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.5	$50,000.00	$25,000
2	Excavation	CY	0	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	103020	$2.25	$231,800
5	5" AC (assumes a Traffic Index of 9)	SF	103020	$2.70	$278,200
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	103020	$0.25	$25,700
11	Subgrade Prep (Curb & Gutter)	SF	54540	$0.30	$16,300
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	3030	$15.00	$45,300
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	36360	$6.00	$218,100
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	3030	$115.00	$348,400
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	6060	$12.00	$72,700
23	Median Landscaping	SF	29160	$4.50	$131,300
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	6060	$27.00	$163,700
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	20	$6,000.00	$120,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	3030	$25.00	$75,600
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	1	$75,000.00	$75,000
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	1470	$45.00	$66,200
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$1,893,300

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$284,000
Soft Costs Contingency (17%):	$321,900
TOTAL CIRCULATION	**$2,499,200**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 3 Oak Tree Lane 11

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	0.5	$50,000.00	$25,000
2	Excavation	CY	0	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	17370	$1.80	$31,300
4	16" AB (assumes a Traffic Index of 9)	SF	32810	$2.25	$73,800
5	5" AC (assumes a Traffic Index of 9)	SF	32810	$2.70	$88,600
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	32810	$0.25	$8,200
11	Subgrade Prep (Curb & Gutter)	SF	17370	$0.30	$5,200
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	965	$15.00	$14,500
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	11580	$6.00	$69,500
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	965	$115.00	$111,000
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	1930	$12.00	$23,200
23	Median Landscaping	SF	11580	$4.50	$52,100
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	1	$75,000.00	$75,000
26	Curb and Gutter	LF	1930	$27.00	$52,100
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	6	$6,000.00	$36,000
30	Sawcut and Pavement Removal Median	LF	0	$20.00	$0
31	Sawcut and Pavement Removal	LF	0	$3.00	$0
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	965	$25.00	$24,100
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	0	$2.00	$0
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	850	$133.00	$113,100
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	0	$100,000.00	$0
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$802,700

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$120,400
Soft Costs Contingency (17%):	$136,500
TOTAL CIRCULATION	**$1,059,600**

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Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 4 Summary

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	6	$50,000.00	$300,000
2	Excavation	CY	1100	$7.00	$7,700
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	83560	$1.80	$150,400
4	16" AB (assumes a Traffic Index of 9)	SF	213000	$2.25	$479,300
5	5" AC (assumes a Traffic Index of 9)	SF	213000	$2.70	$575,100
6	18" AB (assumes a Traffic Index of 11)	SF	5916	$2.50	$14,800
7	7" AC (assumes a Traffic Index of 11)	SF	5916	$4.00	$23,700
8	Decomposed Granite Trail (4' width, 4" thick)	SF	10760	$1.80	$19,400
9	4" AB Shoulder (2' width)	SF	1520	$1.20	$1,800
10	Subgrade Street Prep (Street)	SF	218916	$0.25	$54,700
11	Subgrade Prep (Curb & Gutter)	SF	83560	$0.30	$25,100
12	Subgrade Prep (AB Shoulder)	SF	1520	$0.30	$500
13	Subgrade Prep (DG Trail)	SF	10760	$0.30	$3,200
14	Signing and Striping (36' ROW)*	LF	5780	$15.00	$86,700
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	53440	$6.00	$320,600
19	Roundabout	EA	1	$100,000.00	$100,000
20	Joint Trench	LF	6365	$115.00	$732,000
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	7615	$12.00	$91,400
23	Median Landscaping	SF	58535	$4.50	$263,400
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	10040	$27.00	$271,100
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	48	$6,000.00	$288,000
30	Sawcut and Pavement Removal Median	LF	3355	$20.00	$67,100
31	Sawcut and Pavement Removal	LF	2595	$3.00	$7,800
32	Reconstruct Ditches	LF	760	$3.00	$2,300
33	Erosion Control	LF	8960	$25.00	$224,000
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	109880	$2.00	$219,800
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	3	$100,000.00	$300,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$4,629,900

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$694,500
Soft Costs Contingency (17%):	$787,100
TOTAL CIRCULATION	**$6,111,500**

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FRAYJI DESIGN GROUP

Date: 8/9/2016

Engineer's Opinion of Costs
Village 1 - Backbone Roadway System
Phase 4 McBean Park Drive 8

Item #	Description	Unit	Quantity	Unit Price	Amount
Backbone Roadway System					
1	Mobilization	JOB	1	$50,000.00	$50,000
2	Excavation	CY	0	$7.00	$0
3	4" AB (Under Curb & Gutter and Sidewalk)	SF	0	$1.80	$0
4	16" AB (assumes a Traffic Index of 9)	SF	0	$2.25	$0
5	5" AC (assumes a Traffic Index of 9)	SF	0	$2.70	$0
6	18" AB (assumes a Traffic Index of 11)	SF	0	$2.50	$0
7	7" AC (assumes a Traffic Index of 11)	SF	0	$4.00	$0
8	Decomposed Granite Trail (4' width, 4" thick)	SF	0	$1.80	$0
9	4" AB Shoulder (2' width)	SF	0	$1.20	$0
10	Subgrade Street Prep (Street)	SF	0	$0.25	$0
11	Subgrade Prep (Curb & Gutter)	SF	0	$0.30	$0
12	Subgrade Prep (AB Shoulder)	SF	0	$0.30	$0
13	Subgrade Prep (DG Trail)	SF	0	$0.30	$0
14	Signing and Striping (36' ROW)*	LF	0	$15.00	$0
15	Traffic Signals	EA	0	$320,000.00	$0
16	Future Traffic Signal	EA	0	$275,000.00	$0
17	Signalized Intersection	EA	0	$900,000.00	$0
18	Sidewalk, Concrete	SF	0	$6.00	$0
19	Roundabout	EA	0	$100,000.00	$0
20	Joint Trench	LF	0	$115.00	$0
21	Underground Existing Utilities in Joint Trench	LF	0	$360.00	$0
22	Type 5 Curb Median	LF	1835	$12.00	$22,000
23	Median Landscaping	SF	23855	$4.50	$107,300
24	Frontage Landscaping	SF	0	$4.50	$0
25	Signal Conduit and Wiring	EA	0	$75,000.00	$0
26	Curb and Gutter	LF	0	$27.00	$0
27	AC Driveway (Per Approx. 12' wide)	EA	0	$960.00	$0
28	Irrigation Sleeves	LF	0	$15.00	$0
29	Street Lights (every 150 LF)	EA	0	$6,000.00	$0
30	Sawcut and Pavement Removal Median	LF	1835	$20.00	$36,700
31	Sawcut and Pavement Removal	LF	1835	$3.00	$5,500
32	Reconstruct Ditches	LF	0	$3.00	$0
33	Erosion Control	LF	1835	$25.00	$45,900
34	ROW Acquisition (Ferrari Ranch Road) **	LS	0	$100,000.00	$0
35	ROW Acquisition (Oak Tree Lane - North) **	LS	0	$500,000.00	$0
36	ROW Acquisition (Oak Tree Lane - South) ***	LS	0	$50,000.00	$0
37	Grind and Remove Pavement	SF	0	$3.00	$0
38	Grind and Overlay	SF	73400	$2.00	$146,800
39	Retrofit Utilities	EA	0	$3,000.00	$0
40	Dewatering - Ferrari Ranch Road	EA	0	$25,000.00	$0
41	Dewatering - Oak Tree near So. Ingram Slough	EA	0	$50,000.00	$0
42	Dewatering - Oak Tree near new lake	EA	0	$75,000.00	$0
43	Golf Course Fence and Netting	LF	0	$133.00	$0
44	Split Rail Fencing	LF	0	$45.00	$0
45	FRR Supplemental Topo + Aerial Topo	JOB	0	$12,500.00	$0
46	Remediation Trench and Monitoring	JOB	0	$1,000,000.00	$0
47	Traffic Control	JOB	1	$100,000.00	$100,000
48	Traffic Control Oak Tree Lane	JOB	0	$250,000.00	$0
49	Bridge (at Auburn Ravine on Oak Tree Lane)	EA	0	$5,500,000.00	$0
	Construction Total:				$514,200

* Cost per linear foot of roadway.

** ROW Acquisition includes mapping, purchasing the land,

*** ROW Acquisition includes mapping.

Contingency Based upon Hard Costs (15%):	$77,100
Soft Costs Contingency (17%):	$87,400
TOTAL CIRCULATION	**$678,700**

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