



CEEn-2016CPST-008

Arterial Collector Design & Feasibility Study  
Sic Parvis Magna Engineering

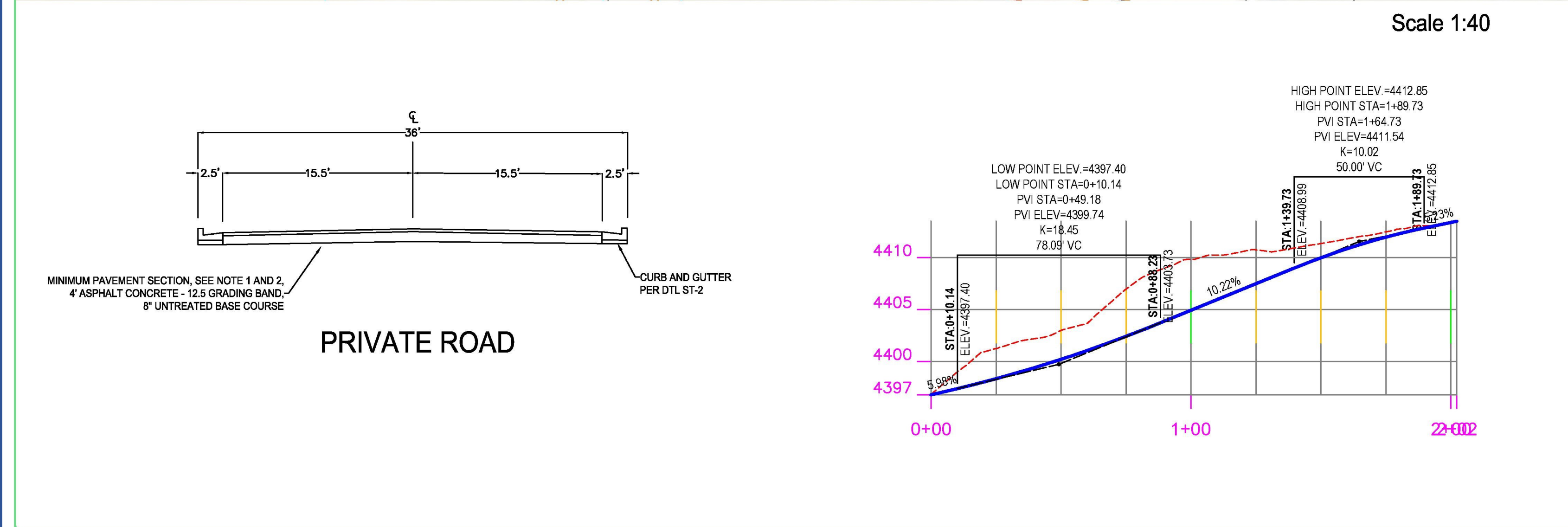
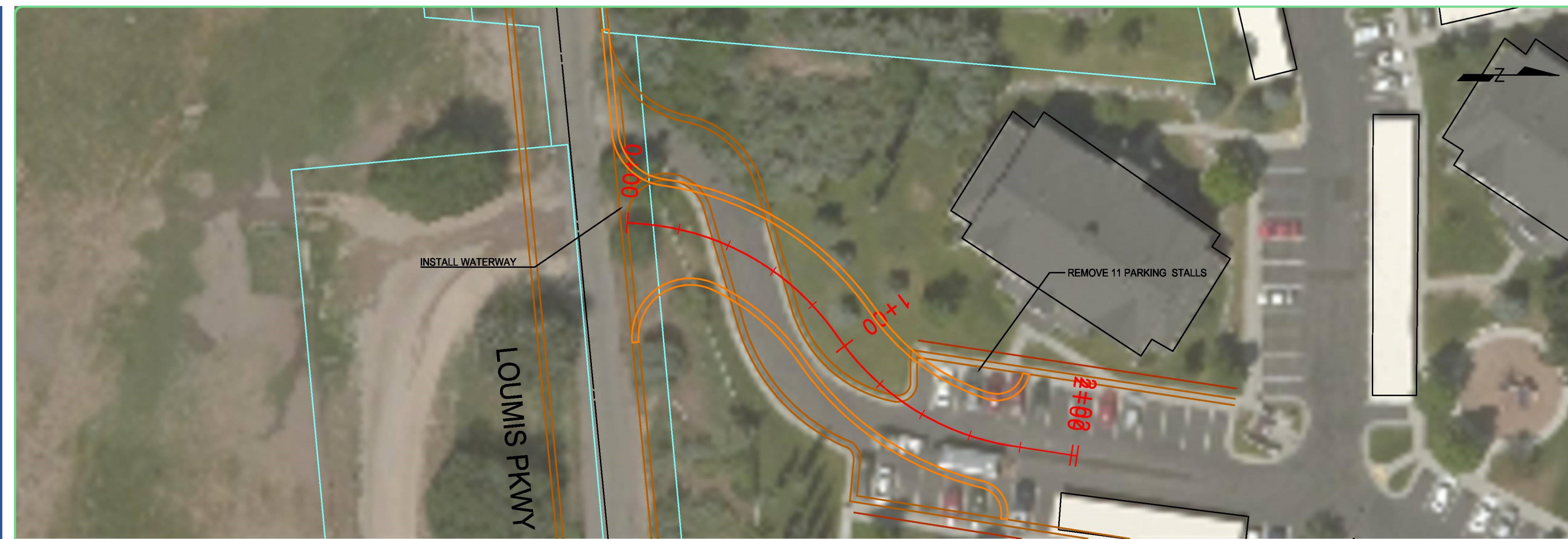
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**Introduction**

The City of Bluffdale has asked for a feasibility study and preliminary design for a roadway which is to be considered for connecting Loomis Parkway and The Bluffs Apartments. The current emergency roadway connecting the apartment complex to Loomis parkway has been the site of several accidents so the road has been gated to prevent access. This project has been commissioned to improve the safety of and provide convenient access to the residents of The Bluffs Apartments.

**Site Map**

Currently, there is an existing service road which acts as an emergency access on the south side of the Bluffs apartments. There is approximately 20' – 50' of elevation difference between Loomis Pkwy and the apartment complex. There are plans to construct a shopping center to the north. The land southwest of the apartment complex is open space, but construction of a city park is due in the coming months. The land between the apartments and Bangerter Hwy is a detention pond for runoff from the highway.



SIC PARVIS MAGNA CREATED FROM SMALL BEGINNINGS
REMARKS
LOOMIS PARKWAY Jan 2017
Private Road One
Engineering File Number:
Drawing: PP-2
Sheet: 1 of 1

**Cost Analysis**

The cost analysis uses 2016 unit prices reported to Provo City for the 2016 Road Rehab Project and Porter Rockwell Boulevard Segment 3 project. The cost analysis includes construction, property acquisition, safety, ease of access, and ease of maintenance. The costs for this option were significantly less than the other proposed designs. The proposed design is a private road which means that the city would not oversee the pavement maintenance and snow removal. Another aspect is the existing topography of the hillside requires significantly less excavation.

Proposed Roadway Design					
Item	Description	Unit	Quantity	Unit Price	Total
B-1	Traffic Control	Lump	1	\$29,000.00	\$29,000.00
B-2	Mobilization and Demobilization	Lump	1	\$29,000.00	\$29,000.00
B-3	Remove Concrete Curb and Gutter	LF	462	\$6.29	\$2,905.98
B-5	Bituminous Concrete Pavement, PG 64-28	SF	6025	\$2.80	\$16,870.00
B-7	Untreated Base Course - Grade 3/4	Ton	305	\$16.00	\$4,884.27
B-8	Roadway Excavation	CY	916	\$3.00	\$2,747.40
B-9	Granular Borrow (Required Need)	Ton	872	\$9.00	\$7,852.32
B-10	6" Waterway - 9" Thick	LF	80	\$43.00	\$3,440.00
B-11	Concrete Curb and Gutter, Type E	LF	425	\$24.00	\$10,200.00
B-12	Landscape	SF	425	\$2.25	\$956.25
B-13	12" Crosswalk & Stop Bar Marking Paint	Foot	16	\$1.05	\$16.28
B-14	Pavement Marking Paint - White	Gallon	3.0	\$21.00	\$63.00
B-15	Land Acquisition - Bluffs Apartment	AC	0.1	\$90,000.00	\$13,016.53
Total					\$120,952.02

**Analysis and Design**

- Analysis of the site includes an accident study, accident study, traffic control device study, cost analysis, and construction feasibility.
- The best option for a new roadway was determined to be a redesign of the existing service road to be a useable roadway.
- Proposed changes to the existing road consists of widening the pavement, increasing the curvature of the roadway, and reducing the steepness of the road.
- These improvements increase the line of sight along the main road and the proposed roadway and provide a second access to the apartment complex.
- The proposed roadway design had better constructability than the other designs because the existing topography of the hillside is suitable for a roadway. Other proposed locations had a difference in elevation of 40' or more, which requires a greater amount of work and materials needed.

**Recommendations**

Through the duration of the analysis and design process, it has been decided that the private road is the optimal design. Three reasons why this design is the optimal design are its low cost relative to other alignments, feasibility, and that it meets the needs of the residents. The request for this new roadway originated from the residents of the apartment complex, which is why this design has greater appeal as it provides a quick access point from Loomis Pkwy.

It is recommended that the private road design is used to minimize construction and maintenance costs. It is also recommended that an economic analysis be performed prior to construction by the City of Bluffdale.