March 3, 2021

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Proposal sent via email to: jchin@losgatosca.gov

Proposal for On-Call Civil Engineering Services – TLG #20-811-0008 Shannon Road Repair

Dear Ms. Chin and Members of the Selection Committee:

INTRODUCTION

NCE is pleased to provide the Town of Los Gatos (Town) our proposal to provide civil engineering services for the Shannon Road Repair Project (Project). As we lead the completion of the Geotechnical Alternatives Report (GAR) for this project we appreciate the opportunity to continue our work with the Town towards completing construction documents for stabilizing the embankment and roadway.

Based on our previous work at the site, the Shannon Roadway embankment has been experiencing ongoing slope creep and movement resulting in pavement cracking and localized failures requiring ongoing maintenance by Santa Clara County (County) and now the Town. This is mainly the result of colluvial and fill soils that are susceptible to slope creep and movement from an over steepened roadway embankment in combination with original fill materials used to construct the roadway likely not be compacted, keyed, and benched properly to current standards.

Given the severity of recent cracking and how quickly cracking occurred after prior maintenance, completing construction of this roadway repair is critical to prevent additional roadway damage and additional repairs and maintenance the current two stabilization alternatives presented in our Report to the Town include a (i) MSE wall in combination with soldier pile and lagging wall and (ii) soldier pile and lagging wall. Each of them addresses the site's unique geological conditions, site access, and general site constraints.

As an unplanned project receiving resources from the Town's capital improvement program, embankment stabilization also diverts resources from projects which are already planned. Furthermore, as a central thoroughfare for motorists and bicyclists in the eastern part of the community, Shannon Road provides access to a significant portion of the Town's residents. If the ongoing instability persists, it threatens the connection of this part of the Town with the rest of the community.

NCE has hand selected the right team to assist the Town with delivering the Shannon Road Repair Project as we have direct knowledge and experience with project site; excellent working relationship with the Town backed by the repeated ability to deliver; infrastructure, roadway, and pavement engineering design expertise; and a talented multidisciplinary team with innovative ideas for solving the challenges of this site. NCE's strength on this project is a carefully integrated and coordinated team with inhouse skillsets including civil engineering and pavement design that we supplement with long-time trusted teaming partners like **Cal Engineering & Geology** (geotechnical/structural), **Fehr & Peers** (traffic control), and **Mountain Pacific Surveys** (surveying).

Additionally, the NCE team will be led by proposed Project Manager, **Lee Taubeneck, PE,** who will be responsible for day-to-day project management. Lee brings extensive experience working on road widening projects in planning, design, QA/QC, ROW, utility, RFA and programming phases. Lee will be supported by **Ryan Shafer, PE, GE,** Principal of NCE's Richmond office. Ryan will serve as Client Sponsor and will provide project oversight. Ryan has a solid integrated civil and geotechnical background and is knowledgeable and experience with the Town's infrastructure. In short, by selecting NCE, the Town will benefit from existing working knowledge of the site our ability to start and complete the design of this project quickly, ability to introduce cost saving designs (e.g., recycling roadway materials in-place and avoiding utility relocation/conflicts with wall design and planned excavation depths), and decades of diverse and considerable engineering experience delivering these types of projects.

FIRM QUALIFICATIONS

NCE is a client-focused professional consulting firm integrating the disciplines of engineering, science, and planning to address the infrastructure and resources challenges facing our communities today and in the future. NCE has grown significantly in expertise and capabilities beyond its origin as a transportation research and pavement management firm working with the Federal Highway Administration (FHWA). NCE delivered civil engineering and pavement design services for scores of California municipalities. NCE is adept in delivering comprehensive civil engineering and pavement design projects. The NCE team provides the following benefits and distinguishing features:

- Familiarity with local regulations and working with the Town on capital improvement projects including the **Shannon Road Embankment Stabilization.**
- Knowledge and demonstrated pavement rehabilitation design expertise from designing thousands of local streets and roadways throughout California, Nevada and the West Coast.
- Highly qualified interdisciplinary team of professionals that have worked together on multiple projects involving conception, regulatory compliance and permitting, environmental documents, through design and construction monitoring.
- Technical resources with an in-depth understanding of sustainability, safety, community needs, and environmental constraints.
- Tailored approach with cost-effective strategies and practical solutions that promote cost savings, reduced construction disruptions/impacts, constructability, and that can be readily implemented.
- Responsive staff with proven experience in all facets of engineering, including applicable state and federal standards.

PROJECT OFFICE LOCATION

The NCE team is capable of seamlessly conducting the Town's scope of work for this contract. Our project manager has the demonstrated ability to manage multiple complex assignments and are supported by a highly qualified group of key personnel that have successfully worked together on multiple projects. NCE has successfully delivered work products for the Town on previous contracts with the majority of the services provided out of our Richmond office.

This contract will be managed and primarily conducted from our Richmond office. Additionally, NCE has over 100 employees available on an as-needed basis depending on service disciplines required from our multiple California and Nevada offices. **Table 1** provides the number of professional and non-professional

Table 1. NCE Personnel

	Type	No.
Firm	Professionals	97
	Non-professionals	11

personnel employed by NCE. **Table 2** provides the number of professional and non-professional personnel employed by NCE in our Richmond office. We can respond and be at the Town's offices or project site within hours if required.

Table 2. NCE Personnel

	Type	No.
Richmond	Professionals	24
	Non-professionals	3

RELEVANT EXPERIENCE

This NCE team has delivered numerous roadway stabilization/shoring projects to address landslides, slope creep, and movement within municipal roadways. These types of projects blend our skillset and expertise with pavement and civil design for the maintenance and rehabilitation of roadways as well as ability to complete environmental documents and permitting for improvements extending into sensitive habitat along with CE&G's specialization in developing geo-structural wall solutions and embankment repairs. NCE and CE&G have partnered on numerous projects together over the last decade including several recent similar projects with the City of Richmond and Walnut Creek.

Rifle Range Road Landslide, "Project of the Year", City of Richmond, CA. The City of Richmond retained NCE to respond to a landslide that damaged half the width of Rifle Range Road and the portions of an adjacent private property.

On an emergency basis, NCE responded to this landslide by providing initial consulting regarding stabilization of the site and public safety. Within a week of the occurrence of the landslide, NCE initiated a topographic survey and geotechnical investigations construction was completed by. The construction was completed by December 2018 and received the 2019 APWA Norcal Project of the Year award.

The scope of work included landslide and geological mapping, geotechnical investigation, topographic surveying, retaining wall design and roadway reconstruction.

The retaining wall was designed 15-20-foot soldier pile and lagging wall that is anchored back into the subsurface by means of tie-backs. Soldier pile and lagging and required tie-back anchors angle and length had to be designed and placed so that the tie-back anchor could be set within the available right of way and avoid easements with private property owners. Design and construction had to consider the close proximity to underground utilities (i.e., sewer force main and water line), adjacent private homes, connection of the proposed new wall into an existing retaining wall installed downslope to repair a previous landslide, and maintaining access for the community given that the roadway is the only way in and out to various private homes and apartment complexes.

Road Repair and Retaining Wall at 134 Rudgear Drive Project for the City of Walnut Creek, CA. NCE was contracted by the City of Walnut Creek to prepare construction documents for the road repair within Rudgear Drive. The City originally constructed a pier supported retaining wall to stabilize a shallow slide. The retaining wall had deflected outwards likely the result of several factors including inadequate pier embedment, erosion from the roadway, and/or stormwater run-off. The repair included a pier supported grade beam in front of the existing wall to address slope creep and minor ground movement within the road section. The design offered a cost saving approach that shored and stabilized the City roadway but did not require costly excavation and removal of the existing retaining wall.

Via Verdi Slope Stabilization Project for the City of Richmond, CA. The City of Richmond retained NCE to respond to a significant landslide at Via Verdi. It had immediate and potentially serious impacts to public access, utilities, street infrastructure, and the conveyance of creek waters and upstream dam releases. The landslide was large and deep and had impacts to the entire Via Verdi roadway. The ongoing movement was of concern to the City for maintaining safe access for the local community (Via Verdi served as the only point of access), frequent maintenance and monitoring by City crews, and disruption to sewer, gas, water, telecom, and electrical utilities.

NCE quickly deployed field investigations with land surveying and geotechnical exploratory work within days to evaluate slide mass characteristics and monitor ongoing movement. With this information NCE expedited plan delivery to allow for design and construction of an emergency access road at Via Verdi allowing full closure of Via Verdi within approximately a week and with careful coordination with affected utilities allowing bypass of utilities within and along the new emergency access road. The strong partnering and collaboration with the City on this project resulted in expedited delivery and turnaround on design documents allowing for construction of necessary repairs and temporary measures to minimize impacts to the local community.

NCE has maintained a quickened pace on Via Verdi and completed alternatives analysis, permitting, and nearing completion of construction and environmental documents. To stabilize the landslide, the project will construct a 350-linear-foot concrete box culvert within San Pablo Creek below the landslide area. The culvert will be quite large, 17.5 feet high and 24 feet wide, to convey San Pablo Creek and release waters from the upstream San Pablo Dam Reservoir. Once the concrete structure is constructed, approximately 18,000 to 20,000 cubic yards of engineered fill (rock/soil) would be placed around and over the culvert to buttress the landslide. When the culvert is in place 650 feet of affected roadway and utilities will be reconstructed. Creek slopes including areas above the culvert will be revegetated and steeper slopes will receive bioengineered slope protection that may include brush mattress and rip rap and pole plantings.

NCE has prepared the CEQA document (mitigated negative declaration and noticing) and has submitted permits, including the San Francisco Regional Water Quality Control Board 401 Permit, U.S. Army Corps of Engineers 404 Individual Permit (including an alternatives analysis), California Department of Fish and Wildlife Streambed Alteration Agreement, U.S. Fish and Wildlife Service Section 7 Consultation, and local agency permits. A NEPA document is currently under development.

Additional supplemental tasks that NCE advised the City on included designing best management practices (BMPs) and erosion control measures to winterize the project area to protect the site and local habitat in the upcoming winters. NCE completed the necessary stormwater pollution prevention plan (SWPPP) to be in compliance with the construction general permit and establish measures for additional protection of water resources. NCE is continuing to complete ongoing movement monitoring, assess potential additional landslide movement, and is continuing to develop construction documents, facilitate permit review, and complete environmental documents.

The subconsultants we have included below for this project have worked on numerous projects with NCE over the last 10 years and have been deliberately selected based on their relevant experience, ability to successfully deliver projects, and for their experience working with the Town.

CE&G Pragmatic Expertise™

Cal Engineering & Geology (CE&G) will provide geotechnical and structural engineering services for design of the retaining wall. Cal Engineering & Geology (CE&G) provides geologic, geotechnical, and related civil engineering consulting, design, testing, and inspection services to both public and private sector clients. CE&G was founded in 1993 in Walnut Creek and has since expanded to include an office in San José, and a lab/office in Oakland with an AMRL (AASHTO) accredited soils and materials testing laboratory. Our clients include numerous counties, cities, water and flood control districts, special districts, and schools throughout the East Bay and the greater Bay Area. CE&G employs 23 fulltime equivalents including five registered geotechnical engineers, three professional engineers, three certified engineering geologists, and four special inspectors, as well as CADD/GIS specialists, and lab and field technicians. Most of CE&G's project managers have been with the company for over 10 years. The company has delivered scores of slope stabilization projects throughout Northern California. A project example of CE&G's relevant experience include:

- **Foothill Road Stabilization, Sunol, CA.** CE&G was retained by Alameda County Public Works Agency for an emergency repair of Foothill Road; a major commuter bypass between State Route 84 and I-680 in Sunol. The downslope lane was closed after Arroyo de la Laguna eroded the toe of the roadway embankment as a result of the wettest winter in California history. The road was stabilized for emergency opening using cast-in-drilled-hole concrete piles connected together at the top with a concrete grade beam. Existing aerial utilities similar to those located along Shannon Road in Los Gatos required that a low-overhead clearance drill rig be utilized and, in some locations, by over excavating the roadway embankment. One-way traffic control was provided throughout the duration of the project using temporary signals. The permanent restoration is currently being designed which will include the construction of a concrete waler with ground anchors and shotcrete facing. Construction is scheduled for summer 2021. CE&G's experience with designing projects to accommodate low-overhead clearance and limited construction footprints with one-lane closures will benefit this project, the Town of Los Gatos, and the residents that utilize Shannon Road.

FEHR PEERS

Fehr & Peers (F&P) will provide traffic engineering services for traffic handling and detours if required. F&P specializing in providing transportation planning and traffic engineering services to public and private sector clients and emphasizes the development of creative,

cost-effective, and results-oriented solutions to planning and design problems associated with all modes of transportation. F&P bring national expertise in pedestrian safety, innovative bicycle planning, transit planning, and best practices in complete streets implementation. Through their transportation planning and traffic engineering design work on state highway improvement projects, they are well-versed with Caltrans's analysis procedures, both for project approval/environmental documents and for engineering plans, specifications, and estimates. A project example of F&P's relevant experience include:

- **Pathline Park Off-Site Improvements, Sunnyvale, CA.** F&P developed signing & striping, detour and traffic control plans for the Irvine Company's Pathline Park office development and off-site improvements of providing parking protected bike lanes along Mary Avenue in Sunnyvale, California. Detour and traffic control plans were developed for the utility and median work being done along Mary Avenue, Almanor Avenue, Palomar Avenue, and Pastoria Avenue. F&P coordinated with the civil engineer and construction contractor on developing work zones and traffic control staging for the two phases of the project. Detailed traffic control staging was provided along Mary Avenue to accommodate access to adjacent office uses while still maintaining an effective work schedule and accommodating the City of Sunnyvale's Temporary Traffic Control requirements. Bicyclists were accommodated as part of the traffic control, and pedestrians were accommodated using detours.

Mountain Pacific Surveys (MPS) will provide surveying services. MPS is a professional survey services firm providing boundary surveying and mapping, design surveys, right-of-way engineering, construction surveys, environmental surveys, monitor surveys, and photogrammetric engineering services to the public and private sector. The firm is a member in good standing with Operating Engineers Local 3 and Bay Counties Association, as well as active members of many professional organizations, including the California Land Surveyor's Association (CLSA) and American Society for Photogrammetry and Remote Sensing (ASPRS), to name a few. MPS offers our Clients state of the art field equipment (e.g., robotic total stations, digital levels, static and R.T.K. g.p.s. equipment) and office facilities (including the latest versions of all relevant software) for the successful completion of each project. To this end, they have fully automated their work processes to provide seamless integration from initial fieldwork through final product delivery. MPS continually update their methodologies as well as provide ongoing training to all of our personnel so as to ensure, a quality product. NCE has worked with MPS on dozens of projects for over 15 years. A project example of MPS's relevant experience include:

- **Via Verdi Slope Stabilization Project, Richmond, CA**. Mr. Weakley served as Project Manager for aerial mapping, supplemental conventional topographic and utility surveying, right of way determination, and settlement monitoring surveys in support of the City's emergency response to the Via Verdi Landslide, design of a temporary emergency access road, as well as design of the ultimate slope stabilization solution with a toe buttress and culvert within San Pablo Creek.
- **Almond Gove District Street Reconstruction Project, Los Gatos, CA**. Mr. Weakley served as Project Manager for all surveys related to improvement of concrete streets within the historic Almond Grove District.
- **City of Berkeley Street/Pavement Repair Project, Berkeley, CA.** Mr. Weakley serves as Project Manager for all surveys related tasks to a multi-year street and pavement repair project throughout the City.

NCE TEAM ORGANIZATION

We are pleased to have Mr. Lee Taubeneck as our proposed Project Manager for this project. Lee brings more than 35 years of industry experience with expertise in local streets and roads. His relevant experience includes serving as the Caltrans Deputy Director for Caltrans District 4 Division of Transportation Planning and Local Assistance. Most recently Lee assisted the Town of Los Gatos with the initial investigation phase for this project. The geotechnical investigation provided enabled the Town to advance to the project's second phase, namely the development of contract-ready bid documents to stabilize the hillside and the roadway. He also currently managing the City of Oakley's rehabilitation of Laurel Road to upgrade to the City's main truck route pavement section, while correcting side-street sight distance issues, adding buffered class 2 bike lanes, and design of pedestrian crossing improvements.

We have also assembled a team of professionals to support Lee with demonstrated experience providing services for similar types of projects. Mr. Ryan Shafer will be the Client Sponsor providing key oversight and review similar to past projects with the Town and technical expertise with geotechnical, civil, and pavement engineering. NCE's Chief Engineering Officer Mr. Franz Haidinger will be the QA/QC Manager and Dr. James Signore will serve as the lead on pavement design, also both having worked with the Town on past roadway projects. James' research background with pavements at UC Berkeley, active on-call for pavement engineering and materials testing with Caltrans, and as practitioner designing roadways throughout the Bay Area and California region will allow him to bring cost saving alternative pavement treatment alternatives, which we will discuss further in our approach to the project below. . In addition, our key team members include a variety of technical professionals including engineers, CADD designers, as well as in-house administrative support staff. NCE has also included Cal Engineering & Geology (CE&G) on the team to provide geotechnical services and structural engineering, Fehr & Peers for traffic handling and detours, and Mountain Pacific Surveys for surveying services. We will also engage one of our utility location subconsultants that we have worked with on many past projects to locate underground utilities, in particular the water main.

The Town can count on our team to provide superior, responsive service on this project. All team members, including subconsultants, will be managed as an extension of NCE. **The NCE team is committed to the project for its duration; personnel will not be substituted without prior approval from the Town.**

ORGANIZATIONAL CHART

Figure 1 below illustrates the structure and team we propose for this project, the roles and responsibilities of each team member as well as the communication/reporting relationships of the key staff in relation to the Town for this project. Qualifications summaries for key personnel are provided below and their focused resumes are included in Attachment A.

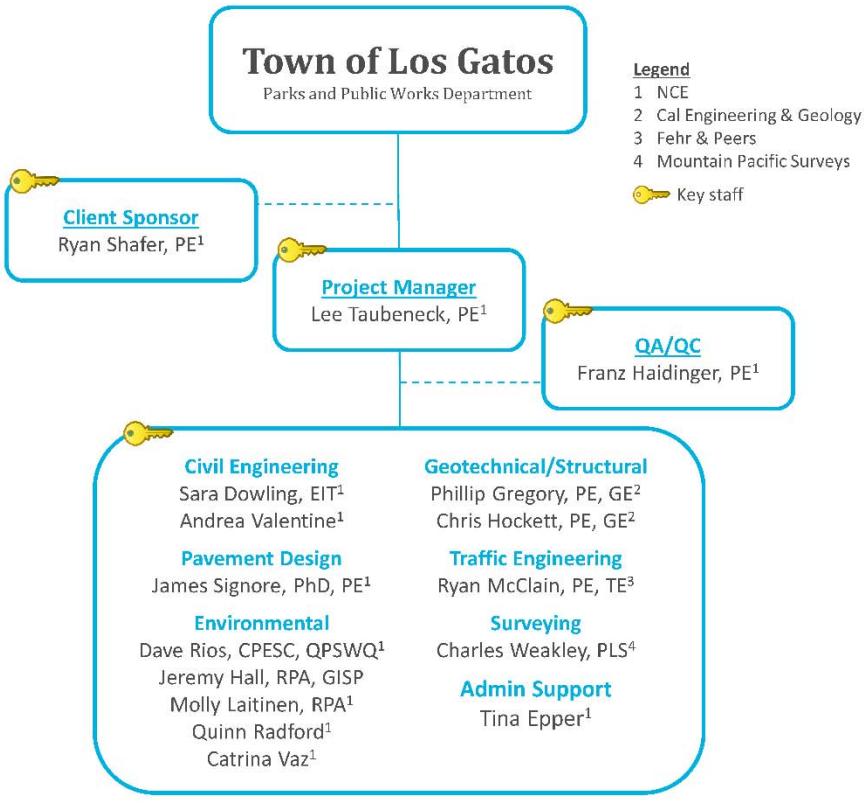


Figure 1. NCE Team Organization

KEY PERSONNEL

Qualifications summaries for each key team member are provided below and their focused resumes are provided in Attachment A.

Mr. Ryan Shafer, PE, GE, Client Sponsor. In this role, Ryan will be responsible for communicating with the Town and champion of allocating of resources. Ryan is an experienced Principal and Project Manager that is highly skilled in managing interdisciplinary teams of engineers, scientists, and planners for complex projects requiring civil engineering, geotechnical engineering, pavement engineering, structural engineering, transportation and traffic engineering, hydrology and hydraulics, coastal engineering, regulatory permits, technical studies and resource assessments, and environmental documents. In addition, he has managed and provided civil and geotechnical engineering on a wide range of public and private projects, including vertical development, municipal roads, trails, drainage infrastructure, landfills, public transit, recreation areas and parks, industrial facilities including refineries, and waterfront structures giving him an understanding of how to work with diverse project types. His clients provide feedback that NCE is an effective partner and steward, understanding what is important to each community. He is a registered civil engineer and geotechnical engineer with more than 22 years of professional experience.

Mr. Lee Taubeneck, PE, Project Manager. The NCE team will be led by Lee, who will be responsible for day-to-day project management and will also be a point of contact for the Town. Lee is a transportation professional with extensive experience in the development of expressways, freeways, roads, transit systems, multi-use paths, trails, sidewalks, streets, and

highways. He has worked with public, private, and non-profit clients throughout California at both the local, regional, and State levels. He is an expert in transportation planning and design. He is a registered civil engineer with more than 37 years of professional experience.

Mr. Franz Haidinger PE, QA/QC Manager. Franz will be responsible for quality assurance and quality control on the deliverables developed by NCE. Franz brings a wealth of experience and expertise in civil and environmental engineering. He has lead engineering efforts in projects with civil design components such as pavement design for parking lots, curb and gutter layout, storm drain design, LID features like overland flow, bioswales, and small detention basins, grading, design of water services for irrigation and domestic water supply, and design of a sewer connections for future projects. The depth of his experience also includes the preparation of Drinking Water Source Assessments, SWPPPs, contaminated soil remediation, underground storage tank removals, permitting, operation and maintenance of groundwater treatment facilities and soil vapor extraction systems, and construction quality assurance. He is a registered civil engineer with 24 years of professional experience and currently serves as NCE's Chief Engineer.

Mr. James Signore, PhD, PE, Pavement Design Lead. James specializes in pavement design and evaluation, rehabilitation and maintenance, materials assessment, and training. He has experience in designing pavements for many local agencies, Caltrans, and for heavy vehicle loading applications for highways, airfields and ports. He has spent years researching pavement materials, having directed a state-of-the-art AMRL certified and Superpave mix design equipped research laboratory, and is well versed in state and local pavement practices and specifications. He has taught NHI's and ASCE's "Techniques for Pavement Rehabilitation" (including best practices for utility cuts and patches) seminars to practicing engineers for 20 years. He has also taught graduate courses in pavement engineering at San Jose State University and many of his former students are civil engineers at local agencies. Additionally, James is a Member of the Transportation Research Board Committee AFD70, Pavement Rehabilitation, AFD70-1, Pavement Interlayer Systems and the FAA Airport Pavement Technical Working Group. He is a registered civil engineer with 25 years of professional experience and holds a PhD in Civil Engineering.

Ms. Sara Dowling, EIT, Project Engineer/Pavement Design. Sara has been involved in design projects that include new intersection roadway, high-rise building foundation, airport taxiway pavement structure, spatial data analysis, and a green wastewater treatment plant. She was the fundraising chair for the Institute of Transportation Engineers and is currently a member of ASCE and Young Professionals in Transportation. Sara has experience in AutoCAD 3D, ArcGIS, MS Project, Technical Writing, Literature Review, EverFE, and C++.

Andrea J. Valentine, CADD Design. Andrea is a CADD drafter with nearly 40 years of experience providing layout and drawing of civil and structural plans, control lines, profiles, sections, and details based on engineers' sketches and markups. She works with engineers to provide lot line adjustment boundaries; develops, implements, and updates CADD standards; and sets up and maintains drafting records and documentation. Her program experience includes AutoCAD, Bentley Micro-station, and Microsoft Word and Excel. In addition to obtaining her BA, Andrea and has taken various drafting, graphic arts, solar design, technical math, cartography, natural sciences, and computer training courses at various San Francisco Bay Area colleges.

NCE Administrative Staff. NCE also has a team of administrative professionals that will support the strategic engagement task by developing graphics, and content for presentations or collateral material.

SUBCONSULTANT KEY PERSONNEL

Mr. Phillip Gregory, PE, GE, Geotechnical Engineer. Phillip is an experienced geotechnical engineer and manager who has completed more than 150 transportation and water infrastructure improvement projects for public agencies over the past 20+ years. Phil's expertise is in the analysis and design of earth embankments and slope stabilization measures including geosynthetic reinforced slopes, and embankments, CIDH pile structures, segmental block retaining soldier pile and lagging walls, soil nail retaining structures, light weight fill, and slope dewatering systems. Phillip is an experienced Caltrans-based specification writer and estimator of earth construction costs. Phillip managed the majority of the federally-funded storm damage repair projects that were completed by CE&G in 1993, 1998, and 2006. He is a registered civil engineer and geotechnical engineer with 33 years of professional experience.

Mr. Chris Hockett, PE, GE, Structures Design. Chris has expertise in managing geo-civil-structural design projects that involve the preparation of plans, specifications, and engineer's estimates, (PS&E) for roadway stabilization projects. Chris has designed stitch piers, retaining walls founded on deep and shallow foundations, mechanically reinforced embankments, segmental retaining walls systems, and tieback retaining walls on roadways for Cities and Counties throughout the Bay Area. Some of his recent roadway stabilization experience includes the structural design of a 300 foot long stitch pier system along Foothill Boulevard in Sunol and a 200 foot long soldier pile and wood lagging retaining wall with tieback anchors along Rifle Range Road in Richmond, and the geotechnical design of over 1,000 linear feet of stitch piers, and soldier pile and lagging debris walls and retaining walls along the award winning 1.7 mile long George Miller Regional Trail between Martinez and Port Costa. He is a registered civil engineer and geotechnical engineer with 13 years of professional experience.

Mr. Ryan McClain, PE, TE, Traffic Handling & Detours. Ryan has worked in the transportation planning and engineering field since 2001. Focusing on multi-modal transportation design and analysis, Ryan provides alternatives development and assessment and transportation engineering design for complete streets projects ranging in size from single intersections to complex multi-jurisdictional corridors and master plans. Ryan works closely with agency staff, stakeholders, and the community to develop engineering solutions that work for all users. Ryan leads Fehr & Peers' companywide Complete Streets Design group is the vice chair of the international ITE Complete Streets Council. He frequently teaches courses on complete streets design, including recent classes for MTC throughout the Bay Area and lectures at UC Berkeley for the pedestrian/bicycle graduate class. In addition to his project roles, Ryan serves as the Office Leader for Fehr & Peers' Walnut Creek office, where he is responsible for overall office strategy and client relations. He is a registered civil engineer and traffic engineer with more than 20 years of professional experience.

Mr. Charles Weakley, PLS, Surveying. Charles is the President and manager in charge of all land survey work undertaken by Mountain Pacific Surveys and our aerial mapping company, Aerometric Surveys. His experience in land surveying includes photogrammetric control, precision as-built surveys, G.P.S. and cadastral surveys, boundary determinations and right-of-way calculations, topographic mapping, aerial photogrammetry, and construction layout of hundreds of subdivisions, roadway, commercial, and utility projects. Charles is responsible for all aspects of project administration, including contract negotiations. He is a professional land surveyor with 27 years of professional experience.

PROJECT UNDERSTANDING AND PREVIOUS WORK

Having been called upon by the Town along with our geotechnical partners CE&G for the initial investigations of Shannon Road distress, NCE has extensive knowledge and understanding of the project. In early 2020, as downhill creep began to accelerate, we were called by the Town. The team completed extensive field research, reconnaissance, field borings, and laboratory analyses to enable site characterization. The *Revised Geotechnical Alternatives Report (*RGAR, CE&G, December 2020*)* was the culmination of these investigations and prepared two feasible alternatives and cost estimates.

Two probable landslides were identified by our investigations along the Road segment **(Figure 2)** composed of quaternary colluvium. The observed colluvium fills more gently sloped swales that have been mapped as probable landslides of uncertain age by the CGS and the Town. The colluvium swales are interpreted to be dormant landslides. The colluvium is composed of sandy lean clay with and without gravel, and silt/ lean clay with sand. The colluvium was found beneath the Road prism and above the bedrock (siltstone). The Report correlates the two dormant slides with the thicker portions of the fill/ colluvium above the bedrock, or roughly between stations 6+35 to 7+48, and stations 3+00 to 4+25.

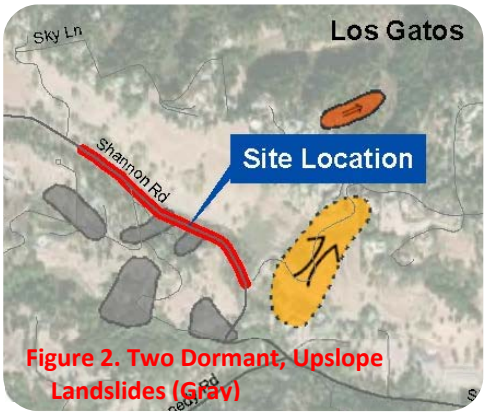


Figure 2. Two Dormant, Upslope Landslides (Gray)

The Town acquired title to the Road in 2017, in what at the time was determined to be a State of Good Repair. The outboard side of the Road segment is composed mostly of artificial fill. Given the vintage of the Road, it is likely that the embankment was not compacted to current standards, leading to settlement of the fill.

The former owner had been addressing settlement and cracking for several decades. Routine maintenance of the roadway consisted of HMA overlays to relevel the driving surface. The result was a thick structural section of AC pavement on the westbound or downhill side. The added mass of repeated overlays on the outside lane of the Road may have exacerbated the distress and failures over time.

The final overlay of the roadway prior to ownership transfer included polyurethane foam injection within the area of historic cracking and settlement, along with a 2.5-inch to 3-inch pavement overlay. Post-ownership transfer, settlement has not only continued, but accelerated. The steepened embankment of fill and overlying colluvium and likely lack of proper compaction, keying, and benching of fill materials appear to be involved in long term creep of the Road embankment. The RGAR concludes that sliding of the Road segment is locally incipient based on the increased rate of movement within the last few years, especially for the outboard (downhill) portion of the Road prism. Although minimal groundwater was encountered during the field investigations, soil saturation from precipitation could also be contributing to sustained creep downslope.

The RGAR completed by the NCE Team presents two viable alternatives and cost estimates for stabilizing the Road embankment. Either alternative establishes a structure outside the westbound (downhill) portion of the Road prism connecting them through the Road prism to help buttress the Road. One alternative proposes the use of tie-backs (soldier pile with lagging) to apply compressive forces against the Road prism, and the other uses geogrid fabric (MSE wall). During preliminary engineering the preferred alternative will be selected and confirmed with the Town based on available ROW, costs, traffic impacts, and environmental constraints. The current recommendation is the solder pile and lagging wall

system that is less costly and disruptive allowing for one lane of traffic to remain open during construction depending on final design and construction means and methods.

KEY ISSUES AND OPPORTUNITIES

NCE has identified several key issues and opportunities based on extensive knowledge of the site conditions, investigations, and alternatives report. The NCE team experience delivering similar projects for other public agencies affords the Town confidence that we can meet whatever challenges present themselves for the Shannon Road project. A photo of one of our successful projects is shown in **Figure 3.**

Figure 3. Soldier Beam and Lagging Retaining Wall, Bailey Road, Pittsburg

CONSTRUCTION COST

As the downslope creep and repair of the Road was unexpected and not included in the Town's capital improvement plan, managing capital costs for construction must be considered a major issue and opportunity for reducing costs. Under planned circumstances the Town could entertain addressing Road conditions with a sufficient budget. Instead, it must consider using reserve funds and postponing other needed improvements to stabilize the incipient slope movement.

The NCE team as part of this proposal and our design approach has identified the following approach to managing and reducing construction costs below the current preliminary cost estimate that we developed:

- The inner lane exhibits less distress and is fair to good condition and suitable for use of conventional mill and overlay treatments to reduce current preliminary pavement reconstruction costs from $100/sy to $20 to $25/sy.
- To prevent pavement distresses in the thickened asphalt section in the outer lanes from reflecting back up through the new pavement section and to allow the existing valuable asphalt to be recycled in-place, based on our experience and speaking further with a pavement recycling contractor, we recommend pre-milling at least the top 4- to 6-inches of the roadway to allow a Full Depth Reclamation (FDR) reclaimer to penetrate through the bottom of the very thick AC. Then the reclaimer can pulverize the existing roadway materials and recompact in-place, and then place a new 4- to 6-inch HMA wearing course. This approach will reduce the current preliminary reconstruction cost by 40 to 50% with a cost of $50 to $60/sy.

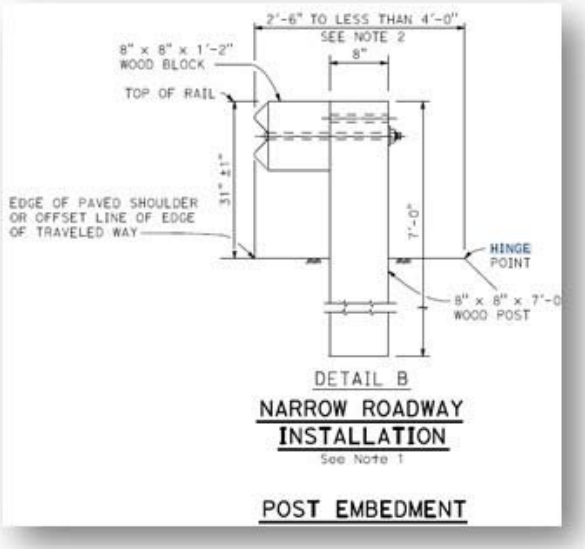


Figure 4. Narrow Roadway Guardrail Installation

- Working around existing utility poles is another example of accomplishing the work for less cost not to mention less time to coordinate with PG&E and telecom utilities. While there are advantages to clearing utility poles from the face of the embankment to maintain consistent earth

pressures against the slope, earth pressures can still be maintained with a gap in the wall by bridging the gap with a grade or cantilever beam.

- Maintaining the existing roadway width, drainage patterns, and elevations to the extent possible will reduced the need for roadway cuts into the hillside, maintaining work within ROW, and less construction and materials costs.
- Another potential cost savings will be to place guard rail as close to the inside of the soldier piles as possible again to maintain the existing road prism as much as possible and within existing ROW. **Figure 4** reflects just such an installation with a narrow roadway installation.

TRAFFIC HANDLING

Either as a detour or with one-way traffic control, maintaining eastbound and westbound traffic around or through the construction site will require careful coordination. Connections for power supply to traffic signals are often a constraint in working these situations. Our solution builds off our successful engagements with Fehr & Peers in the past on stabilization projects such as Via Verdi in Richmond. For the soldier pile and lagging alternative, the installation of 2 temporary traffic signals and a protective barrier will allow travelers to pass east or west with minimal queuing or delay. The power supply will be provided either by solar or conventional, low-noise generators. On the east, the temporary signal will be established at the intersection with Santa Rosa Drive. On the west, the temporary signal will be established at Diduca Way. Advance warning signs will be used to notify approaching vehicles of charges well in advance. A protective barrier in the form of either k-rail, sand barrels or water filled segmental barriers will be established on the outboard side of the centerline to inhibit the incursion of vehicles into the active work zone (cf. **Figure 5**).

Figure 5. One Way Traffic Control, Rifle Range Road

The soldier pile and MSE wall alternative will require the complete closure of the Road segment to allow for placement of the geogrid fabric. The solution here is a traffic detour either be set up along Kennedy Drive or along the combination of Hicks Road and Blossom Hill Road. As this out-of-direction travel will on average increase travel time by 10 minutes, more extensive public outreach will be needed in comparison with the soldier pile and lagging alternative to encourage public cooperation.

RIGHT OF WAY

The current vertical drop-off on the downhill side of the Road ranges from 3 to approximately 20 feet with a slope of 1.5 (V) to 1 (H). In its current condition, the downhill slope is steep and a potential hazard for motorists. While channelizers and signs reflect the nature of the hazard, the risk has been present for several years. Consequently, the installation of guardrail is recommended for consideration. This will increase the width of the Road prism, add a bid item to the engineers estimate, and may have ROW implications. Also, the limits of public and private property lines in the RGAR were placed using parcel maps provided by the Town (cf. **Figure 6**). Several indicate that the current road may extend into private property, which would

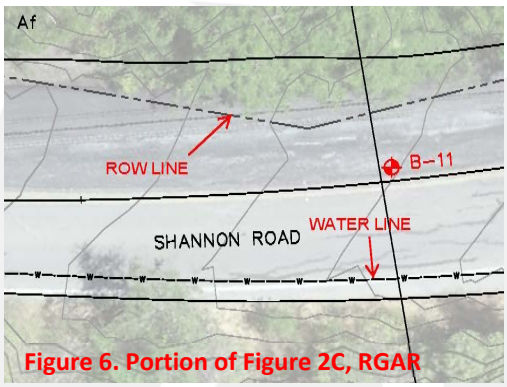


Figure 6. Portion of Figure 2C, RGAR

be unusual for a public roadway and will be further confirmed by ROW mapping during completion of topographic surveys. This will be important to confirm as work outside Town ROW can be time consuming to coordinate with outside stakeholders/property owners, particularly if ROW acquisition is required.

Our solutions for these ROW challenges are varied and multiple. First, we will refine the parcel maps provided by the Town with a topographic survey. For this reason, the topographic survey is included in the proposed schedule as one of the first items of work.

Next, we will complete a review of available Town data regarding collision records or accidents within this section of roadway. Perhaps, if little to no accidents or collisions have occurred, it may be possible to use a combination of reflectors, signs, and delineation to provide sufficient warnings that can avoid guardrail placement.

Finally, it is possible to erect the guardrail as a vertical extension of the MSE or soldier pile wall. If we find that ROW is indeed constrained, we can use this to shorten the horizontal dimensions of the project.

UTILITIES

A water line is known to exist along the inside, eastbound travel lane. Our current assumption and approach to scoping this project is that this water line can be sufficiently located and roadway rehabilitation and repair methods can be completed to avoid conflict, lowering, or relocation of this waterline to reduce design and construction costs and additional coordination with the San Jose Water Company. If conflict cannot be avoided additional scope for utility coordination and design consideration will be required.

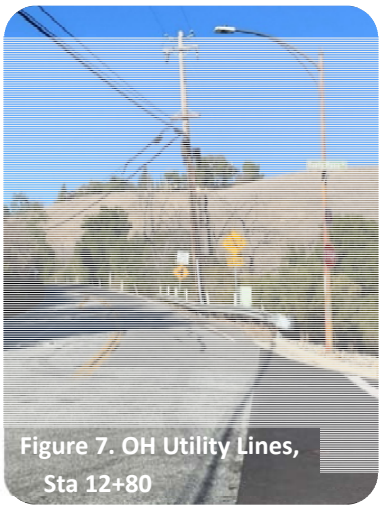


Figure 7. OH Utility Lines, Sta 12+80

Overhead electric and telecommunication lines as shown in **Figure 7** are also apparent above the Road, which will require consideration during development of construction documents and during construction as to the types of equipment and coordination needed by contractor working next to these facilities.

Utility locations will be developed based on utility as-builts and record maps as well as use of ground penetrating radar (GPR) for improved accuracy on the depth of the water line below ground surface. Also, if required we will specify the use of low-overhead construction equipment working next to overhead lines.

CONSTRUCTION SCHEDULE

The current estimated number of working days for construction, excluding bid award, negotiation, and mobilization, is likely greater than 60 days. With an notice to proceed for design in March and design not be completed until late Summer this places construction in the fall and early winter months. We will discuss the project schedule with the Town at the Kickoff meeting and discuss which tasks can be processed in parallel during preliminary engineering and design to enable earlier PS&E delivery and subsequently earlier advertisement and mobilization dates. We will also evaluate the potential to complete the project during the rainy season depending regulatory, construction, and other site constraints.

KEY ASSUMPTIONS

In order to deliver the most cost-effective design strategy for this project, we have formulated the following key assumptions:

TOWN'S RESPONSIBILITIES

NCE has assumed that the Town will be able to provide the following to the extent available:

1. Provide information regarding Town-owned utilities (i.e., sanitary sewer and storm drain).
2. Provide project requirements, including design schedule, budget, constraints, and criteria.
3. Provide review and approval of exceptions to geometric roadway design standards when appropriately documented with collision records, cautionary signage and delineation, and guardrail placement.

TOPOGRAPHIC SURVEYING, BASE MAPS, AND RIGHT-OF-WAY

1. A topographic survey will be completed along the subject section of Shannon Road to establish a base map sufficient for developing civil design plans. This will also include record data location of the existing right-of-way for the mapping corridor.
2. It is assumed that all improvements will be completed within existing Town ROW. If based on title report review and ROW mapping the private parcel adjacent to the proposed project improvements is found to encroach into the roadway we have included additional ROW engineering services as part of optional Task 5B.

UTILITY COORDINATION AND LOCATION

1. Assumes that utility poles on the uphill side of the alignment will not be impacted or relocated by the project. Further, it assumes that poles on the downhill side of the alignment can be bridged around by either the MSE Wall or Soldier Pile and Lagging Wall.
2. NCE will prepare and distribute utility notification letters to collect facility maps and as-builts, confirm utility planned work, and notify utilities of the Town's proposed slope stabilization project. NCE will prepare and distribute a second round of letters including utility location information based on ground penetrating radar (GPR) that is provided for the subject street section to solicit feedback and need for utility relocation or adjustments.
3. Low hanging overhead utility lines will be considered in construction documents as needed.
4. Regarding the water line beneath the eastbound lane within the project limits, beyond obtaining as-built records from the San Jose Water Company, NCE will conduct a ground penetrating radar survey to determine water line depths below grade. Traffic control for completing GPR to be provided by the NCE. In the event the MSE and Soldier Pile Combination Wall is selected as the preferred alternative, we assume that temporary supports during excavation for the geogrid fabric will enable continued operation of the water line in-situ.
5. No known utility covers or manholes are present along the alignment within the project limits.
6. For the purposes of this scope of work it is assumed that utility relocation or lowering is not required.

PAVEMENT TESTING AND DESIGN

1. Pavement design will be based on Caltrans Standards with a combination of supplemental coring, laboratory testing of subgrade, and pavement condition surveys.
2. Pavement coring will be performed with spacing criteria and bulk samples as follows:

a. Up to two pavement cores will be obtained approximately every 750 feet within the eastbound lane (inner lane) to estimate the pavement section thickness, as previous geotechnical exploratory borings were located within westbound (outer lane) only.
b. Up to two bulk samples of subgrade for laboratory testing will be obtained.

3. Base repairs will be measured in length and width for the eastbound lane only to advise for the case if the soldier piles with lagging alternative is selected. It is the intent that base repair quantities will be for bidding quantity purposes only and that actual locations will be marked by NCE with the Town's inspectors prior to construction.
4. A no-fee encroachment permit will be pulled with the Town for all pavement testing if required.
5. A half-day of traffic control for pavement coring will be provided by NCE.

TRAFFIC STRIPING

1. Final traffic signing and striping is assumed to match existing striping, any revisions will be reviewed with the Town.
2. A review of SWITRS data including the most recent available 3-year continuous record of accidents within the project limits is included as part of this scope.

TRAFFIC HANDLING PLANS

1. In the case of selecting the combined MSE wall and soldier pile wall with lagging, traffic handling plans in the form of detour plans will be prepared assuming full Road closure. In the case of selecting the soldier pile with lagging wall alternative, the traffic handling plans will assume one-way traffic control with temporary traffic signals. In either case draft traffic handling plans will be submitted as part of preliminary engineering to the Town traffic engineering group for review and comment.

DRAINAGE

1. No major drainage improvements are assumed for this project requiring significant stormwater drain and pipe alteration and/or reconstruction.
2. The project will, to the extent possible, and within the context of proposed stabilization address visible drainage issues including structural backfill. However, it should be noted that no existing drop inlets or paved ditches exist within the Road segment.

ENCROACHMENT PERMIT

1. NCE will apply for no-fee Town encroachment permits for all field work, including pavement coring work, if required.

BID PACKAGE

1. NCE has assumed for the purposes of developing bid packages the following:
   Shannon Road Embankment Stabilization Project – Bid Fall 2021

CEQA DOCUMENT

1. The documentation required for CEQA is assumed and judged based on current information and planned roadway repair project to be a Categorical Exemption.

2. If for any reason the project does not qualify for a Categorical Exemption or new information arises indicating the presence of critical habitat or historical/tribal resources within or adjacent to the project, NCE can prepare and provide support for CEQA compliance, additional technical studies, and/or regulatory permits for additional scope and fee.

SCOPE OF WORK

TASK 1 – PROJECT MANAGEMENT

This task will include an initial kick-off meeting and progress meetings to update the Town with the results of studies and the development of contract documents. Regular meetings afford direction and feedback from the owner which are invaluable in navigating the multitude of decisions needed for successful project selection and implementation. Microsoft TEAMS software will be used to allow the seamless sharing of information and for virtual meetings . Agendas will be provided in advance of the meetings. A summary of meeting notes and action items will be provided after each meeting along with decisions reached and schedule updates. In keeping with the Town's *Agreement for Consultant Services*, progress reports and invoices will be submitted monthly.

NCE's Project Manager will arrange a Kick-Off Meeting with the Town to initiate work on the project. The objectives of the Kick-Off Meeting will be:

- Review of the Scope of Work
- Establish Lines of Communication
- Confirm Deadlines
- Establish Project Schedule and Milestones
- Define Design and Operation Criteria.

Whether a simple preventive maintenance project or a complex reconstruction project, it is critical to establish effective lines of communication with, and coordination amongst, the various stakeholders from the start to ensure the delivery a high-quality project within budget and on schedule.

In addition to Town staff (Engineering, Maintenance, etc.), NCE will research and coordinate, as-needed, with other agencies such as PG&E, AT&T, Verizon, Comcast, San Jose Water Company, etc., to identify any potential conflicts, requirements, or design issues early to help minimize delays (and costs) later in the design process or during construction. At the Kick-Off Meeting, key deliverables for each Task and the Project Schedule would be reviewed and adjusted accordingly to meet Town needs.

NCE is very sensitive to construction costs, particularly the volatile price of materials, which have affected the scope of many similar projects. In order to keep the Town aware of overall project costs, NCE will begin developing Preliminary Engineering Cost Estimates as soon as we have developed our engineering design recommendations to closely monitor any potential funding issues, which may develop.

Throughout the project, NCE staff will be available to attend regularly scheduled progress meetings with the Town, to maintain good communications, to offer up efficiency and reduce the number of design review and coordination meetings. Therefore, we have assumed up to three (3) meetings. The purpose of the progress meetings will be to identify and resolve any design or funding issues that may surface in a timely manner, present design alternatives and recommendations to Town staff, and continue coordination with project stakeholders as necessary.

NCE will also prepare exhibits for Town outreach and Council meetings. Up to two outreach meetings and 2 Council meetings are included in our scope with up to 2 exhibits for each meeting. If attendance at additional exhibits or meetings is necessary, they can be added to the scope for an additional fee.

Deliverables:

- Project schedule
- Meeting agendas and summaries

- Monthly progress reports and invoices
- Project schedule update
- Exhibits for public outreach and Council meetings.

TASK 2 – PRELIMINARY ENGINEERING

Preliminary engineering gathers data needed to prepare roadway and structural designs and develop construction documents including design data gathering, topographic surveys and ROW information, seismic survey and geotechnical design, utility location and coordination, pavement design, and environmental.

TASK 2A – DESIGN DATA GATHERING

NCE will review relevant available data and records from the Town, public and private utility providers, and other sources that may be appropriate to support the preparation of project contract documents. These may include, but are not limited to, the Town drainage structure inventory maps, aerial photographs of the Town; as-built Road improvement and infrastructure plans, striping and markings, as-built plans from utility providers, including any preliminary plans for future work that may conflict with this project. Along with the maps previously used with the phase 1 investigation, the gathered information will be compiled and included in the base map used for design. Based on our review we will identify any data gaps or missing information and provide this information to the Town for review and discussion. NCE will also confirm with adjacent County of Santa Clara property if encroachment permits are required to conduct proposed work.

Subsurface moisture beneath roadways is known to reduce the useful life of the pavement placed above. Currently, there are no known culverts for this segment of Shannon Road. Consequently, drainage occurs by sheet flow based on road superelevation and crown. While it is possible to insert a culvert through both the lagging of a soldier pile and an MSE wall without compromising wall integrity, a less expensive option is the employment of a roadside ditch or vee channel.

A brief review of existing drainage conditions will be reviewed with the Town and if drainage improvements are required beyond existing drainage facilities will be incorporated into the design.

Deliverables:

- Drainage technical memo.

TASK 2B – TOPOGRAPHIC SURVEY & ROW

NCE's Project Surveyor will complete monument/control recovery, field investigation and field surveys sufficient to prepare a design level topographic mapping product for the portion of Shannon Road beginning approximately 100 feet westerly of Diduca Way and extending to approximately 100 feet southerly of Santa Rosa Road. The mapping corridor will begin at a point approximately 5' from the edge of pavement on the southerly (upslope) side and extend to approximately 30 feet northerly of the northerly (downslope) edge of pavement.

The final topographic base sheet shall be compiled at 20 scale with a 1' contour interval and include cross sections/spot elevations at an approximate 50' interval. The topographic data to be collected is more specifically defined as:

- Cross-sections at 50' intervals, along with additional spot elevations as required to define the road alignment and grade, as well as the slope/bank. Typically, the cross section will include top or toe of banks, ditches, edge and centerline of pavement, and grade breaks.

- Surveyed locations for significant surface features, such as pavement or concrete, driveways, striping, fences, surface utilities, trees (over 4-6" in diameter on tree survey requirements), signs, utility poles, and streetlights will be included. Sanitary and storm drain structures will include rim elevations, invert elevations, pipe size & direction for all accessible structures within the mapping limit.
- Location of all recovered street monumentation within the mapping corridor (for preservation and Record ROW purposes).
- Location of underground utility locator markings.
- Provide a finish drafted topographic survey in AutoCAD Civil3D, including a dtm surface.

Based upon a combination of record data and any monuments collected during topographic surveying, NCE's surveyor will calculate and show the record data location of the existing ROW for the length of the mapping corridor. Additionally, our surveyor will calculate and show the location of each adjoining parcel lot line from record data (assessor's parcel data, record mapping and apparent lines of occupation).

Horizontal and vertical datums shall be based upon the Town of Los Gatos survey network control.

Note: This scope does not include the preparation of legal descriptions for any easements that may be necessary to facilitate construction of the work. If work extends beyond existing Town ROW, our surveyor can provide this for additional scope and fee.

Before the survey can be made, an encroachment permit will be completed with the Town if required for traffic control, which is assumed to be provided by the Town as previously done for cost savings.

Deliverables:

- Topographic survey file
- Tree location survey file (> or = 4-6")

TASK 2C – SEISMIC SURVEY AND GEOTECHNICAL DESIGN

An essential component of accurate retaining wall design includes depths-to-bedrock. The depth to competent material directly impacts the design height and corresponding cost of the retaining wall. Exploratory borings are widely spaced and located several feet from the edge of the embankment where the retaining wall will be located. The result is a depth to bedrock profile that is interpolated both laterally and longitudinally. Assumptions based on the interpolation may result in a retaining wall that is over-designed or subject to potential changed conditions claims.

A geophysical seismic refraction survey **(Figure 8)** could be effectively used to more clearly identify the depth to bedrock along the downslope edge of the roadway. This additional information will fill in the gaps between the geotechnical borings and provide a continuous geologic profile showing the ground surface and the depth to competent material.

This study will allow accurate development of the *Geotechnical Design Report*. This report will include all the calculations and dimensions needed to complete the structure design of either the combination MSE and soldier pile wall or the soldier pile and lagging wall.

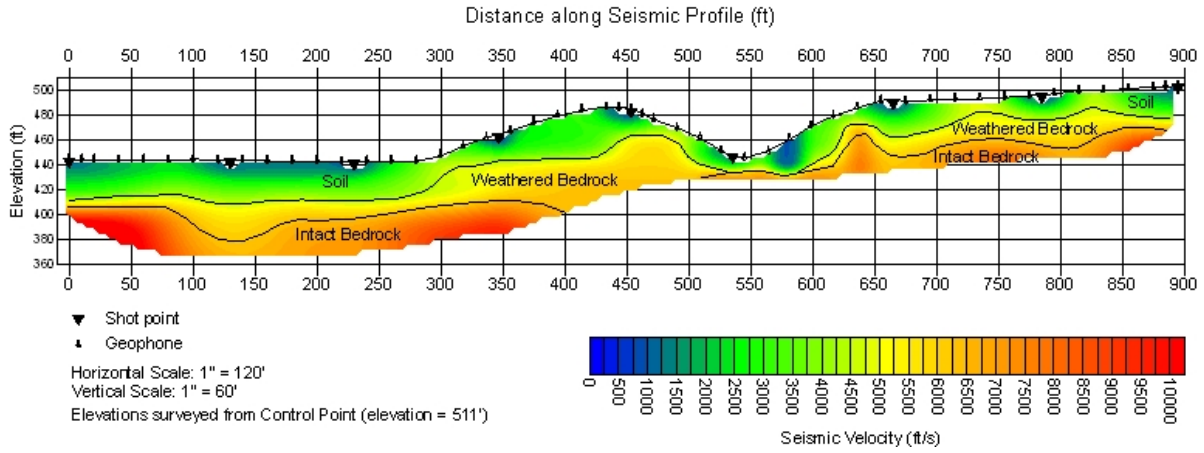


Figure 8. Determining Depth-to-Bedrock Using Seismic Velocity Contours, Bailey Rd, City of Pittsburg

Deliverables:

- Seismic Refraction Survey – including seismic velocity tables and contour drawings
- Geotechnical Design Report – including structure calculations.

TASK 2D – UTILITY LOCATION AND COORDINATION

NCE will coordinate with utility agencies early in the design process to help avoid potential construction delays and unnecessary disruptions to public services. Known utilities along this stretch of Shannon Road include both San Jose Water Company and PG&E. At least one telecommunications company is also present along the poles located on the uphill (eastbound) side of the Road. Initial contact with PG&E will enable identification of which telecom provider(s) occupy space on the PG&E poles.

Utility coordination will be a critical item to keep utility providers informed about the project and schedule. One of the first and earliest items that NCE will complete is reaching out to our contacts with PG&E and San Jose Water Company by telephone. This will be followed up by sending notification letters to applicable utility providers along with a preliminary project schedule for design and construction. We will also request utility as-builts and record drawings. This will allow utility providers to plan maintenance on their facilities prior to a moratorium during construction.

NCE will also carefully document all utility coordination notifications, emails, conversations, and meetings with utility contacts and information in a matrix format with dates of contacts and mailing detailed in this matrix. Follow-up calls will be made for each of the above notifications to confirm receipt. NCE will also keep the Town informed of any project delays related to utilities.

While the overhead utility poles themselves are located off the traveled way, lines strung between the poles cross over the Road prism itself. Consequently, drilling and excavation equipment associated with construction will need to be cognizant of these low overhead-lines and protect against line strikes.

The RGAR reflects the location of a water main along the inside (eastbound) travel way for the entire length of the Road segment. Although San Jose Water Company may have as-built information about this

water line, our scope includes a ground penetrating radar (GPR) survey to enable improved location accuracy below existing grade.

Using GPR, NCE's utility locator will field locate utility alignments and depths for utility mains and laterals to the extent that GPR methods can detect utilities. If GPR cannot establish utility alignments and or depths, potholing may need to be completed for additional scope and fee. GPR along utility mains will be marked at various locations along the subject street section, and the accuracy for the electronic depths will depend on the soil conditions and utility material. Traffic control will s be provided by NCE's utility locator.

Neither milling and overlay of HMA nor drilling of tie-backs are expected to come close to contacting the water line, however selection of the MSE alternative plus soldier pile wall alternative could expose the water line as a result of geogrid placement.

Deliverables:

- Utility notification letters
- Utility contact matrix
- Marked utility depths and alignments and data.

TASK 2E – PAVEMENT DESIGN

NCE will perform a pavement condition survey of the travel lanes based on visible distresses. Pavement condition surveys serve the purpose of further refining the appropriate rehabilitation/reconstruction strategy in relation to the distress caused by downhill creep of the Road prism and traveled way.

This condition survey will generally note the presence of load related and environmental distresses, such as alligator cracking, longitudinal and transverse cracking, rutting, patches and utility cuts, distortions and depressions as they pertain to developing appropriate pavement treatments. In addition, potential base repairs will be identified in the condition survey. Base repairs will be marked in the field on the pavement in white paint, numbered, and verified prior to construction.

NCE will collect up to four (4) pavement section core samples (4" – 8" diameter cores) in the eastbound lane (inner lane). These will supplement the 13 borings already sampled in the westbound lane. For each core sample, NCE will measure and record the thickness and material type of each layer encountered in the pavement structural section, including the presence of any pavement reinforcing fabric. A half-day of traffic control by NCE is provided in our cost estimate for this subtask.

Bulk samples of subgrade will be obtained in support of structural section design. We will collect bulk samples of subgrade materials at the core locations for laboratory testing such as R-value, moisture content and Atterberg Limits (plasticity index) determinations. Our current fees assume 2 bulk samples will be obtained for testing. The thickness of aggregate base (AB) will be measured at all core locations.

Using the data obtained from the 4 supplemental corings, the laboratory test results from these samples, the 13 original borings and their laboratory data, NCE will perform pavement analysis and design services, and develop pavement rehabilitation and reconstruction recommendations for both the westbound and eastbound traveled lanes and shoulders. NCE will perform its analysis in accordance with the Caltrans Highway Design Manual.

NCE will develop pavement structural section recommendations expressed in the form of a Traffic Index (TI) that will be provided by the Town. NCE will develop recommendations including, but not limited to, the following:

- Reconstruction
  - Hot Mix Asphalt (HMA) over AB
  - Full Depth HMA
  - FDR
- Conventional Hot Mix Asphalt (HMA)
- Rubberized Hot Mix Asphalt (RHMA)
- Alternative rehabilitation methods if feasible (in-place recycling, mill & fill treatments, etc.)
- Locations and treatments of failed pavement sections (base repairs)
- Full-width milling and wedge grinding requirements.

NCE will then summarize its recommendations in a pavement design memorandum to the Town that, at a minimum, will include the following:

- Results of pavement condition surveys, coring, and laboratory testing
- Description of testing procedures and analysis performed for the project
- Recommended alternatives for rehabilitation and reconstruction.

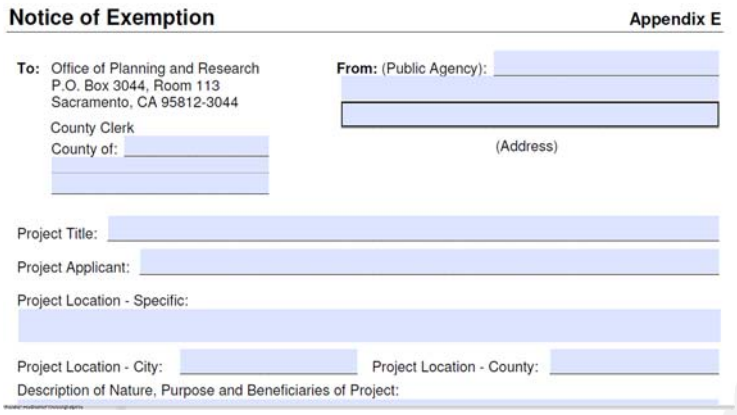
NCE will submit two (2) copies of its draft technical memorandum to the Town for initial review. Upon receipt of any comments from the Town, NCE will then prepare its final technical memorandum, which will be signed and stamped by NCE's Pavement Engineer. Two (2) copies of the final technical memorandum will then be provided to the Town reflecting any comments on the draft technical memorandum. NCE will also develop an encroachment permit application for the coring work.

Deliverables:

- Encroachment permit application – traffic control provided by Town for pavement coring
- Draft and Final pavement Technical Memorandums.

TASK 2F – ENVIRONMENTAL (CEQA CATEGORICAL EXEMPTION)

Projects that are subject to the discretionary approval of a government agency must comply with California Environmental Quality Act (CEQA) regulations and procedures. Based on our experience fulfilling CEQA requirements for roadway repair projects of similar nature, this project will likely qualify for a Categorical Exemption as described at California Code of Regulations in Article 19, Section 15301 – Existing Facilities or Article 19, Section 15302 – Replacement or Reconstruction.


Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk
County of:

From: (Public Agency):

(Address)

Project Title:

Project Applicant:

Project Location - Specific:

Project Location - City:

Project Location - County:

Description of Nature, Purpose and Beneficiaries of Project:

Figure 9. California's OPR's Notice of Exemption Form

A visual assessment of the project area will be conducted, databases will be reviewed, and the project area will be assessed for exceptions to the CEQA exemptions per CEQA Guidelines Section 15300.2. Factors related to the potential for exceptions to be documented in the administrative record include biological resources, historic resources, hazardous waste lists, State scenic highways, flood hazard areas, and fault zones. NCE will prepare an administrative record supporting the determination for the Town's files. NCE will then prepare a Notice of Exemption (NOE) form **(Figure 9)** for the Town to review, sign and file with the County Clerk. Whereas the project is

not of regional significance and there are no State responsible entities, there is no need to file with the State Clearinghouse.

The Categorical Exemption will be supported by an administrative record that includes brief biological and cultural resource technical memoranda. Based on preliminary database research, the project area contains no critical habitat for federally listed special status plant or animal species. However, three special status plant species have current ranges that overlap the project area, according to the US Fish and Wildlife Service. While we believe the potential is low for these plants to occur within and adjacent to the roadway, our proposed reconnaissance-level survey will confirm this assumption, and our findings will be presented in a tech memo and described below.

The biological resources technical memorandum will include a database review and a reconnaissance-level field survey. Additionally, in support of a potential tree removal permit application and during the reconnaissance-level field survey, NCE will also identify tree species greater than 4 inches in diameter (as collected by our surveyor during topographic surveys) that may require trimming or removal. The results of the field survey, relevant field observations, and findings will be presented in a biological resources technical memorandum.

NCE assumes the tree trimming and removal can be completed per Section 26.10.063 of the Town's municipal code for removal required for Capital Improvement Project, repair of a geologic hazard, and/or interferes use of pavements. A tree removal permit application will be completed and submitted to the Town for review.

The cultural resources technical memorandum will present the findings of a record search request from the Northwest Information Center and a brief pedestrian survey. Given NCE's experience with small road rehabilitation projects and the location of the present project on steep slopes, away from perennial water sources, the probability of encountering historical resources (as defined by CEQA) is judged to be low. For this project, NCE assumes no cultural resources will be identified. In addition, because an NOE is assumed for this project, AB52 Native American consultation is not required. If historical resources (which can also be tribal resources) are identified as a result of the records search, as part of the pedestrian survey, or as provided by the Town, NCE can initiate Native American consultation on behalf of the Town for a separate scope and fee.

Deliverables:

- CEQA Notice of Exemption
- CEQA Administrative Record
- Biological resources technical memorandum
- Cultural resources technical memorandum
- Tree removal permit application

TASK 3 – PLANS, SPECIFICATIONS, & ESTIMATES (PS&E)

TASK 3A – 35% PS&E

Upon completion of preliminary engineering, the project team will prepare a 35% Plans, Specifications, and Estimate of Probable Construction Cost (PS&E) for the project. The 35% plans will depict the basic roadway repair plans and outline of details, required tie-in into existing features, new paving of associated roadway, drainage flow lines, traffic handling, draft profile-and-plan views, retaining wall and either tie-back or geogrid systems, structural and roadway detailing, and construction limits. The plans will be accompanied by and outline of draft technical specifications and an engineer's estimate. The combined plans, specification, and estimate (PS&E) will be reviewed for quality assurance and edits incorporated prior to delivery to the Town. Upon completion of the Town's review a Review meeting will be held to discuss the 35% PS&E package. The following plan sheets are anticipated:

Name	No. of Sheets
Title Sheet	1
Notes, Legend and Abbreviations	1
Survey Control	1
Traffic Handling	1 (Alt 1)/ 5 (Alt 2)
Excavation/ Demolition	2
Plan and Profile	3
Retaining Wall Plan and Profile	6
Pavement, Guardrail and Drainage Details	3
Retaining Wall Details	3
Water Pollution Control	2
Signing and Striping	3
	26/ 30

As part of the 35% design, CE&G will finalize the retaining wall design. Calculations made during development of the Geotechnical Design Report will be verified and included with a structures design.

The Engineer's Cost Estimate will be prepared in MS Excel format and will be based on the most recent construction cost data available to NCE for projects of this type. Because of NCE's involvement in the design and construction of numerous similar projects throughout California, we are confident in our ability to estimate the construction cost of the Town's project. This initial estimate will then be updated and refined as the design effort progresses. It is assumed that the Town will require a 10-day review/comment period once the 35% PS&E package is submitted.

Deliverables:

- 35% Plans (electronic - pdf)
- Outline of Technical Specifications
- Engineer's Estimate of Probable Construction Cost.

TASK 3B – 65% PS&E

Upon completion of 35% PS&E review meeting, the NCE team will begin resolving comments and incorporating edits from the 35% review meeting into the 65% PS&E set of contract documents. The team will also conduct a constructability review prior to submittal to the Town to ensure anticipated means and methods by any contractors for completing the work in the field. NCE will provide a response to each comment that is included in a comment table provided by the Town. The 65% PS&E will include additional design information and details typically expected at this stage of completion. The 65% PS&E package will then be packaged and submitted similar to the 35% PS&E unless directed otherwise.

The contract documents (proposal, special provisions, and technical specifications) will be developed for the project to fit the anticipated work items. The Contract documents will be prepared in MS Word and according to the Town's format. For the purposes of this proposal NCE assumes that standard front end and specific provisions templates will be provided by the Town. The special provisions will follow both the Town's and Caltrans' standard formatting conventions.

NCE also believes that an efficient yet thorough Quality Control/Quality Assurance program is essential for getting the maximum value out of every dollar spent on construction. Projects designed by NCE therefore, contain technical specifications that attempt to optimize the balance between using rigid, but time-tested, specifications and meeting local agency needs, with the goal of obtaining the very best value for its clients.

NCE recognizes the value of incorporating Caltrans Standard Specifications in projects such as these, both because these specifications have been developed by an agency that designs and builds a vast amount of highway work, and because most contractors performing public works construction in Northern California are familiar with them. Caltrans, however, has the resources to administer projects quite differently than most local agencies, so NCE advocates modifying the Caltrans Standard Specifications to better fit the abilities, needs, and budgets of municipal agencies.

The Engineer's cost estimate will also be updated to reflect the revised quantities of work depicted on the plans. It is assumed that the Town will require a 10-day review/comment period once the 65% PS&E package is submitted.

Deliverables:

- Tabulated response-to-comments at 35% PS&E Review meeting
- 35% Plans (electronic - pdf)
- Technical Specifications
- Engineer's Estimate of Probable Construction Cost.

TASK 3C – 100% PS&E

The 100% PS&E will be revised to incorporate comments received from the Town. NCE will again meet with the Town to review these comments, from which the final (Bid Set) PS&E will be prepared. Similar to 100% PS&E, NCE will provide a response to each comment that is included in a comment table provided by the Town. The final (Bid Set) PS&E will include all notes and details necessary for construction. One reproducible copy of the final (Bid Set) PS&E will then be packaged and submitted similar to the 100% PS&E unless directed otherwise. Upon receipt of the Town's final review comments, the project documents will be finalized for bidding purposes.

A final quantity calculation will be tabulated, and this will be entered into the final Engineer's cost estimate for the project. All final documents will be reviewed, stamped, and signed by NCE's registered civil engineer, and the final PS&E will be delivered to the Town in both hard copy and electronic formats.

Deliverables:

- One wet-signed and one electronic file of the final plans, technical specifications, and engineer's estimate. The electronic files for the final construction plans, specifications, and engineer's estimate will be in AutoCAD 2018 or later version, Microsoft Word, and Microsoft Excel, respectively.

TASK 4 – CONSTRUCTION ADMINISTRATION

TASK 4A – BIDDING SUPPORT SERVICES

Services during advertisement and bidding include assistance during the pre-bid conference, responding to questions received about the project design, and preparation of any addenda and/ or clarifications to the PS&E that are deemed necessary. NCE can also assist the Town in determining the responsiveness of bids received, with checking and tabulating bid results, and with developing recommendations for award of a construction contract to the Town Council.

Deliverables:

- Attend pre-bid meetings
- Prepare responses to questions received regarding project design
- Prepare bid addenda as necessary
- Provide assistance with bid responsiveness (as needed).

TASK 4B – CONSTRUCTION SUPPORT SERVICES

NCE will provide support services to the Town during the construction phase of the project. At a minimum, these services are anticipated to include attendance at the pre-Construction Conference, reviewing Contractor submittals and responding to Contractor requests for information, field marking and verifying measurement of base repair (digout) areas, providing recommendations for any necessary construction changes due to unforeseen field conditions, assisting with the review of Contract Change Orders, participate in the final inspection and assistance with identifying punch list items, and preparation of Record Drawings from marked as-built plans supplied by the Town's Contractor. The Record Drawings will be furnished to the Town in both printed and electronic formats.

Deliverables:

- Attend pre-construction conference
- Assist with the review of contractor submittals and RFIs as necessary
- Provide recommendations for any necessary construction changes due to unforeseen conditions
- Assist with review of contract change orders
- Upon receipt from the contractor of redlines, record drawings in full-size hardcopy (1 copy, 22" x 34"), pdf, and CAD format.

TASK 5 – OPTIONAL ADDITIONAL SERVICES

The Town has requested clarification on issues that have the potential to arise during design and for one or both of the alternatives under consideration. The following supplements our original proposal to improve expectations should unforeseen circumstances arise. Two general areas of concern are environmental resource determinations and right-of-way engineering. These are outlined below.

TASK 5A-ENVIRONMENTAL SERVICES

At the discretion of the Town, NCE can conduct up to three (3) pre-construction nesting bird surveys as additional service and is included as an additional cost in our fee estimate. While these surveys are not

required, if there is the potential to impact nesting migratory birds in the project area, the Town should consider completing these surveys to minimize the risk of a nesting migratory bird take, a potential violation of federal and state laws protecting migratory birds. The intent of the pre-construction surveys is to verify no nesting migratory birds will be impacted by construction activities (e.g., tree removal, vegetation trimming or removal, or ground disturbance). Following each nesting bird survey or once all pre-construction surveys have been completed, NCE will prepare a brief letter report detailing the findings from the pre-construction survey. NCE assumes no nesting birds will be found.

We judge based on the type of roadway repair work to be completed we have developed the appropriate scope of environmental document services and in the less likely event additional cultural and biological resources and/or permitting are required beyond our current assumptions these services can be provided for additional scope and fee not currently estimated herein.

Deliverables:

- Nesting bird survey letter report.

TASK 5B-ROW ENGINEERING SERVICES

The Geotechnical Alternatives Report identified two parcels encroaching into the operating right-of-way of the roadway. Our surveyor has identified the APNs for these parcels. While one of the parcels is owned by the Town, the other is identified as a private party. If necessary, a title reports will be obtained by our surveyor. In the unlikely event that the private party encroachment cannot be resolved by the topographic survey, ROW mapping, and title reports ROW services will be completed.

Depending on project needs and discussions with the private property owner, to secure the rights necessary for the project a permanent easement, temporary construction easement, and or partial fee acquisition may be required. For properties less than $10,000 a valuation can be used in-lieu of appraisal. Should the property be over this threshold then an appraisal would be conducted. Services included for ROW would include the following for any rights needed:

1. Initial research and review of all parcel conditions including title review for potential encumbrances that would impact any acquisition.
2. An initial valuation estimate to determine if an appraisal is necessary for the rights seeking to be acquired.
3. Initial meeting with the property owner at the property to review the plans for the project, the impact to their property, discuss their concerns, and collect information germane to the valuation and negotiations.
4. Engage in information exchange and negotiations with the property owner necessary to secure agreements for rights needed.
5. Coordinate any appraisals needed with the owner and appraiser. Or prepare a valuation in-lieu of appraisal.
6. Prepare offer package including all documents needed to acquire and close any acquisitions.
7. Negotiate in good faith with the owner.
8. Participate in meetings with the Town's legal counsel and any study sessions with the Town Council needed.

9. Open and coordinate escrows including and reconveyances.

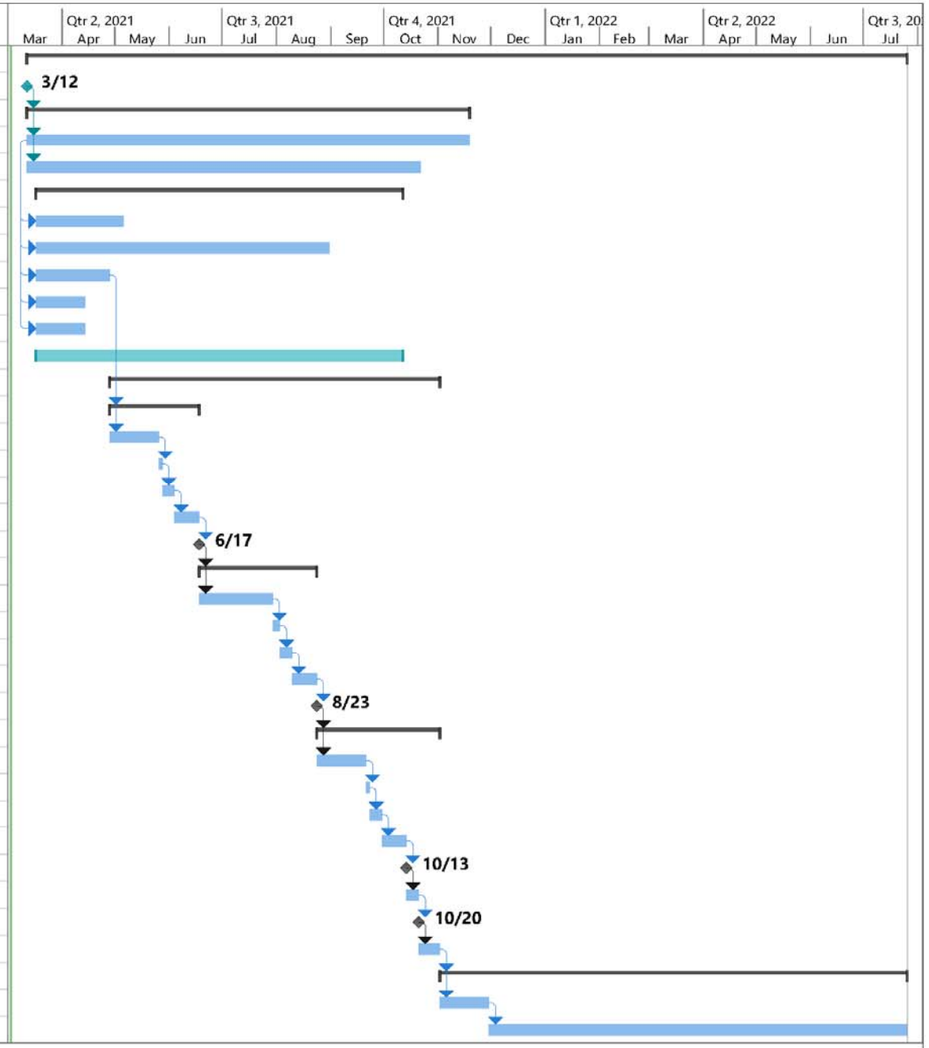
\ In support of any necessary acquisition or easement our surveyor would prepare legal descriptions for the deed and plats. In the unlikely event of an issue developing with the parcel owned by the Town or annexed roadway area from the County our right-of-way consultant can also assist in attending meetings, performing negotiations with the County, release of rights or abandonments, and reconveyances.

- Property Valuation and/or Appraisal
- Title Report(s)
- Legal Descriptions and Plats
- Meetings and Negotiations
- Land Rights Acquisition for Permanent Easement, Temporary Easement and/or Partial Fee Acquisition

PROJECT SCHEDULE

The intent of this design schedule is to complete construction documents within 5 to 6 months for late summer bidding or earlier if possible and desired by the Town, which can be discussed further and confirmed with project objectives during project kick-off. Fall and Winter bidding will allow the Town to secure more competitive bidding but places construction in winter months and may require delay of construction to spring months depending on weather, construction, regulatory, and other site constraints.

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Los Gatos Shannon Road Design and Construction Schedule**	**357 days**	**Fri 3/12/21**	**Mon 7/25/22**	
2		NTP	0 days	Fri 3/12/21	Fri 3/12/21	
3		**Task 1 - Project Management**	**180 days**	**Fri 3/12/21**	**Thu 11/18/21**	**2**
4		Project Kick-off Meeting/Progress Meetings	9 mons	Fri 3/12/21	Thu 11/18/21	2
5		Exhibits for Public Outreach Meetings	8 mons	Fri 3/12/21	Thu 10/21/21	2
6		**Task 2 - Preliminary Engineering**	**149 days**	**Wed 3/17/21**	**Mon 10/11/21**	
7		**2A) Design Data Gahering**	**36 days**	**Wed 3/17/21**	**Wed 5/5/21**	**4SS+3 days**
8		**2B) Topographic Survey & ROW**	**119 days**	**Wed 3/17/21**	**Mon 8/30/21**	**4SS+3 days**
9		**2C) Seismic Survey and Geotechnical Design**	**30 days**	**Wed 3/17/21**	**Tue 4/27/21**	**4SS+3 days**
10		**2D) Utility Location and Coordination**	**20 days**	**Wed 3/17/21**	**Tue 4/13/21**	**4SS+3 days**
11		**2E) Pavement Design**	**20 days**	**Wed 3/17/21**	**Tue 4/13/21**	**4SS+3 days**
12		2F) Environmental (CEQA Categorical Exmptn)	149 days	**Wed 3/17/21**	Mon 10/11/2	
13		**Task 3 - Plans, Specifications, and Estimate**	**134 days**	**Wed 4/28/21**	**Mon 11/1/21**	
14		**3A) 35% Plans & Estimate**	**37 days**	**Wed 4/28/21**	**Thu 6/17/21**	**9**
15		Prepare 35% Plans and Estimate	20 days	Wed 4/28/21	Tue 5/25/21	9
16		QA/QC Review	2 days	Wed 5/26/21	Thu 5/27/21	15
17		Finalize and Submit 35% Plans and Estimate	5 days	Fri 5/28/21	Thu 6/3/21	16
18		Town Review 35% Plans and Estimate	10 days	Fri 6/4/21	Thu 6/17/21	17
19		35% Plans and Estimate Review Meeting	0 days	Thu 6/17/21	Thu 6/17/21	18
20		**3B) 65% PS&E**	**47 days**	**Fri 6/18/21**	**Mon 8/23/21**	**19**
21		Prepare 65% PS&E	30 days	Fri 6/18/21	Thu 7/29/21	19
22		QA/QC Review	2 days	Fri 7/30/21	Mon 8/2/21	21
23		Finalize and Submit 65% PS&E	5 days	Tue 8/3/21	Mon 8/9/21	22
24		Town Review 65% PS&E	10 days	Tue 8/10/21	Mon 8/23/21	23
25		65% PS&E Review Meeting	0 days	Mon 8/23/21	Mon 8/23/21	24
26		**3D) 100% Final (Bid Set) PS&E**	**50 days**	**Tue 8/24/21**	**Mon 11/1/21**	**25**
27		Prepare 100% PS&E	20 days	Tue 8/24/21	Mon 9/20/21	25
28		QA/QC Review	2 days	Tue 9/21/21	Wed 9/22/21	27
29		Finalize and Submit 100% PS&E	5 days	Thu 9/23/21	Wed 9/29/21	28
30		Town Review 100% PS&E	10 days	Thu 9/30/21	Wed 10/13/21	29
31		100% PS&E Review Meeting	0 days	Wed 10/13/21	Wed 10/13/21	30
32		Prepare Bid Documents	5 days	Thu 10/14/21	Wed 10/20/21	31
33		Submit Bid Documents	0 days	Wed 10/20/21	Wed 10/20/21	32
34		Town Council Approval	8 days	Thu 10/21/21	Mon 11/1/21	33
35		**Task 4 - Construction Administration**	**190 days**	**Tue 11/2/21**	**Mon 7/25/22**	**34**
36		4A) Bidding Support Services	20 days	Tue 11/2/21	Mon 11/29/21	34
37		4B) Construction Support Services	170 days	Tue 11/30/21	Mon 7/25/22	36



Project: Shannon Road Design
Date: Wed 3/3/21

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

COST PROPOSAL

The following represent hourly rates for NCE and our team members:

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SCHEDULE OF CHARGES 2020

PROFESSIONAL SERVICES

Principal	$265/hour
Associate	$215/hour
Senior	$185/hour
Project	$160/hour
Staff	$140/hour

TECHNICAL SERVICES

Senior Construction Manager*	$140/($165-PW)/hour
Senior Designer	$150/hour
CADD Designer	$130/hour
Senior Technician*	$125/($150-PW)/hour
Construction Inspector*	$125/($150-PW)/hour
CAD Technician	$115/hour
Senior Field Scientist	$120/hour
Field Scientist	$100/hour
Project Administrator	$105/hour
Field/Engineering Technician*	$100/($125-PW)hour
Technical Editor	$95/hour
Clerical	$85/hour

CONTRACT LABOR

From time to time, NCE retains outside professional and technical labor on a temporary basis to meet peak workload demands. Such contract labor will be charged at regular Schedule charges.

LITIGATION SUPPORT

Engineer/Scientist	$300/hour
Court Appearances & Depositions	$500/hour

EQUIPMENT

Plotter Usage	(separate fee schedule)
Truck	$100/day
Automobile	IRS Standard Mileage Rate+15%
Falling Weight Deflectometer Testing	$3,500/Day
Coring	$4,500/Day
Environmental Equipment	(separate fee schedule)

OUTSIDE SERVICES

Rental of equipment not ordinarily furnished by NCE and all other costs such as special printing, photographic work, travel by common carrier, subsistence, subcontractors, etc. ..... cost + 15%

COMMUNICATION/ REPRODUCTION

In-house costs for long-distance telephone, faxing, postage, printing and copying ..... project labor charges x 5%

TERMS

Billings are payable upon presentation and are past due 30 days from invoice date. A finance charge of 1.5% per month, or the maximum amount allowable by law, will be charged on past-due accounts. NCE makes no warranty, either expressed or implied, as to its findings, recommendations, specifications, or professional advice except that they are prepared and issued in accordance with generally accepted professional practice.

*A surcharge of $25/hour applied for technicians and construction inspectors to comply with Prevailing Wage (PW) per requirements of California Department of Industrial Relations.

Engineering & Environmental Services www.ncenet.com

Richmond, CA
501 Canal Blvd., Suite I
Richmond, CA 94804
(510) 215-3620

FEHR PEERS

2020-2021

(July 2020 through June 2021)

Hourly Billing Rates

Classification	Hourly Rate
Principal	$180.00 - $350.00
Senior Associate	$185.00 - $340.00
Associate	$170.00 - $245.00
Senior Engineer/Planner	$135.00 - $215.00
Engineer/Planner	$115.00 - $165.00
Senior Engineering Technician	$145.00 - $195.00
Senior Project Accountant	$160.00 - $165.00
Senior Project Coordinator	$120.00 - $165.00
Project Coordinator	$85.00 - $150.00
Technician	$115.00 - $160.00
Intern	$90.00 - $115.00

- *Other Direct Costs / Reimbursable expenses are invoiced at cost plus 10% for handling.*
- *Personal auto mileage is reimbursed at the then current IRS approved rate (56 cents per mile as of Jan 2021).*
- *Voice & Data Communications (Telephone, fax, computer, e-mail, etc.) are invoiced at cost as a percentage of project labor.*

MOUNTAIN PACIFIC SURVEYS

Land Surveying • Mapping • Planning

FEE SCHEDULE
Effective January, 2021

Principal Land Surveyor	$180.00 per hour
Project Manager	$155.00 per hour
Survey Technician	$140.00 per hour
Clerical	$ 70.00 per hour
1-Man Crew (including robotic equipment)	$195.00 per hour
2-Man Crew (including conventional equipment)	$290.00 per hour
2-Man GPS Crew (including up to 4 receivers)	$300.00 per hour

OTHER SERVICES

Consultants, Special Equipment, Reproductions, Materials, and other outside charges	Cost + 10%
Mileage	$0.54 per mile

CE&G
Pragmatic Expertise™

Schedule of Charges 2021

Personnel	2021	Rates/Units
Senior Principal Engineer/Geologist	$ 290	per hour
Principal Engineer/Geologist	$ 245	per hour
Associate Engineer/Geologist	$ 220	per hour
Senior Engineer/Geologist	$ 205	per hour
Project Engineer/Geologist	$ 165	per hour
Staff Engineer/Geologist	$ 150	per hour
Technician (Straight rate prevailing wage)	$ 135	per hour
Senior GIS/CADD Specialist	$ 145	per hour
GIS/CADD Specialist	$ 130	per hour
UAS Manager	$ 160	per hour
Project Assistant	$ 100	per hour
Administration/Clerical	$ 90	per hour
Special Inspector (Straight rate prevailing wage; no 4-hr min)	$ 140	per hour
Deposition/Court Testimony (minimum 4 hours)	$ 410	per hour

Field and Laboratory Tests	2021	Rates/Units
Concrete Compressive Strength Testing	$ 41	per cylinder
Moisture Content (ASTM D 2216)	$ 24	per test
Moisture & Density (ASTM D 4318)	$ 32	per test
Atterberg Limits (ASTM D 4318)	$ 208	per test
Compaction Curve, 4" mold (ASTM D 1557)	$ 264	per test
Compaction Curve, 6" mold (ASTM D 1557)	$ 326	per test
Wash over #200 Sieve (ASTM D 1140)	$ 73	per test
Sieve Analysis with #200 Wash (ASTM D 422)	$ 152	per test
Sieve & Hydrometer (ASTM D 422)	$ 236	per test

Reimbursables	2021	Rates/Units
Mileage (per allowable federal)	$0.56	per mile
Nuclear Gage	$ 59	per day
Inclinometer	$ 201	per day
Vane Shear Device	$ 116	per day
UAS Equipment	$ 371	per day
GNSS Mapping Equipment	$ 212	per day

1. **Professional Services -** These are "all-up" rates, and include direct salary cost, overhead, general and administrative costs not separately accounted for, and profit. They shall remain in effect through December 31, 2021. Ongoing work continuing beyond December 31, 2021 will be invoiced at the applicable new year's rate.
2. **Travel Time -** Travel time will be charged at regular hourly rates, not to exceed eight (8) hours per day.
3. **Expenses -** All direct costs will be billed at actual cost plus 10%, unless there is explicit agreement otherwise. Direct costs include:
   - Third party services – Fees for subcontracted third party services (including drilling and backhoe services, special consultant fees, permits, special equipment rental, overnight mail or

messenger services and other similar project related costs)

- Travel expenses, including airfares, hotel, meals, ground transportation, and miscellaneous expenses.
- Reproduction costs, including photocopy, blueprints, graphics, photo prints or printing.

4. **Subconsultants -** To the extent that it becomes necessary to use subconsultants, Client will be invoiced at cost plus 10% to cover insurance liability and other overhead costs.
5. **Accounting -** The cost of normal accounting services for invoicing has been considered in the overhead expense which is included in the above hourly rates. Additional requirements for invoice verification, such as copies of time sheets, detailed expense records, and supplemental daily work justification will be billed on an hourly basis.

NCE will provide the defined scope of work on a lump sum basis for an estimated fee of $434,900. The price breakdown by task is attached. Total compensation will not exceed the amounts set forth without receipt of prior written authorization from the Town.

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Town of Los Gatos
Shannon Road Repair Project
Fee Estimate
March 3. 2021

Task Description	Labor Hours: Project Manager	Principal QA/QC	Associate Engineer	Project Engineer	Staff Engineer/ Scientist	CADD Designer	Clerical	Labor Expenses	Coring/FWD	Laboratory Testing	Utility Location	Geotechnical Services	Topographic Surveys	Traffic Engineering	ROW Engineering	Reimbursable Expenses	Total Cost
Rate	$215	$265	$215	$160	$140	$130	$85										
1. Project Management																	
Project Kick-off and Progress Meetings	76	12	8		36		40	$ 29,680								$ 200	$ 29,900
Exhibits for Public Meetings	4			8	16	12		$ 5,940								$ 200	$ 6,100
Sub-Total	**80**	**12**	**8**	**8**	**52**	**12**	**40**	**$ 35,620**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**		**$ 400**	**$ 36,000**
2. Preliminary Engineering																	
2A. Design Data Gathering	8		8	12	14	20	2	$ 10,090						$ 4,400		$ 200	$ 14,700
2B. Topographic Survey and ROW	4			6	6	10	1	$ 4,045					$ 19,030			$ 100	$ 23,200
2C. Seismic Survey & Geotechnical Design	6			4	6	6	1	$ 3,635				$ 36,016				$ 100	$ 39,800
2D. Utility Location & Coordination	10			12	16	20	1	$ 8,995			$ 4,950					$ 100	$ 14,000
2E. Pavement Design	8	4	12	12	16	18	1	$ 11,945	$ 4,500	$ 1,540						$ 100	$ 18,100
2F. Environmental (CEQA)	10	8	6		78		3	$ 16,735								$ 1,300	$ 18,000
Sub-Total	**46**	**12**	**26**	**46**	**136**	**74**	**9**	**$ 55,445**	**$ 4,500**	**$ 1,540**	**$ 4,950**	**$ 36,016**	**$ 19,030**	**$ 4,400**		**$ 1,900**	**$ 127,800**
3. Plans, Specifications, & Estimates (PS&E)																	
3A. 35% PS&E	24	12	8	48	40	58	4	$ 31,220				$ 14,432		$ 5,500		$ 310	$ 51,500
3B. 65% PS&E	18	8	8	80	96	120	2	$ 49,720				$ 18,975		$ 5,500		$ 610	$ 74,800
3C. Prep 100% PS&E	12	6	6	48	60	48	2	$ 27,950				$ 20,339		$ 4,620		$ 1,600	$ 54,500
Sub-Total	**54**	**26**	**22**	**176**	**196**	**226**	**8**	**$ 108,890**	**$ -**	**$ -**	**$ -**	**$ 53,746**	**$ -**	**$ 15,620**		**$ 2,520**	**$ 180,800**
4. Construction Administration																	
4A. Bidding Support Services	16		8	12	20	8	2	$ 11,090				$ 1,451				$ 200	$ 12,700
4B. Construction Support Services	22	4	18	24	36	12		$ 20,100				$ 7,412				$ 300	$ 27,800
Sub-Total	**38**	**4**	**26**	**36**	**56**	**20**	**2**	**$ 31,190**	**$ -**	**$ -**	**$ -**	**$ 8,863**				**$ 500**	**$ 40,500**
5. Optional Additional Services																	
5A. Environmental Services																	
Nesting Bird Field Survey (up to 2)						12		$ 1,560									$ 1,600
Follow-up Bird Survey						6		$ 780									$ 800
Letter Report			2	8				$ 1,710									$ 1,700
5B. ROW Engineering Services																	
Property Valuation															$ 2,200		$ 2,200
Title Report													$ 1,650				$ 1,700
Legal Description and Plats													$ 3,850				$ 3,900
Appraisal															$ 5,500		$ 5,500
Land Rights Acquisition															$ 8,800		$ 8,800
Public Ownership Coordination with County															$ 8,800		$ 8,800
Sub-Total	**0**	**0**	**2**	**8**	**0**	**18**	**0**	**$ 4,050**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 5,500**	**$ -**	**$ 25,300**	**$ -**	**$ 35,000**
Total Without Optional Additional Services	**218**	**54**	**82**	**266**	**440**	**332**	**59**	**$ 231,145**	**$ 4,500**	**$ 1,540**	**$ 4,950**	**$ 98,625**	**$ 19,030**	**$ 20,020**	**$ -**	**$ 5,320**	**$ 385,100**
Total Without Optional Additional Services	**218**	**54**	**84**	**274**	**440**	**350**	**59**	**$ 235,195**	**$ 4,500**	**$ 1,540**	**$ 4,950**	**$ 98,625**	**$ 24,530**	**$ 20,020**	**$ 25,300**	**$ 5,320**	**$ 420,100**

The NCE team is excited to have this opportunity to complete construction documents for the Shannon Road Repair project based on the work we have already completed to date. As a principal with NCE, I am authorized to sign contracts on behalf of NCE and will be the point of contact should you have questions. I can be reached via phone at (510) 215-3620 or via email at rshafer@ncenet.com or via mail at NCE, 501 Canal Boulevard, Suite I, Richmond, CA 94804. NCE looks forward to your favorable review of our qualifications and continuing our work with the Town.

Sincerely,

NCE

J. Ryan Shafer, PE, GE
Principal

Lee Taubeneck, PE
Project Manager

Attachments:

A. Key Staff Resumes