

GHD ref: 12577015

**Scope of Services  
for  
Environmental and Engineering Services**

**Sunset Avenue and LK Wood Boulevard Improvements Project  
Plans, Specifications, and Estimate (PS&E) Phase Services  
City of Arcata**

**May 29, 2024**

**PROJECT UNDERSTANDING**

The following Scope of Services outlines Tasks necessary to complete the Plans, Specifications, and Estimate (PS&E) phase of the Sunset Avenue and LK Wood Boulevard Improvements Project. Our Scope of Services has been developed based upon the Request for Proposal (RFP), visits to the project site, our experience completing the Project Approval and Environmental Documents (PA&ED) phase of the project, and our experience on similar interchange projects with Caltrans oversight.

The project includes improvements to the US101 interchange at Sunset Avenue in Arcata, CA. Proposed project components include the following:

- A five-leg roundabout at the intersection of Sunset Avenue with LK Wood Boulevard and the northbound US 101 ramps.
- A four-leg roundabout at the intersection of Sunset Avenue with G and H Streets and the southbound US 101 ramps.
- Improved bicycle and pedestrian facilities on the highway bridge overcrossing with an ultimate connection between the new Annie and Mary Trail and Cal Poly Humboldt.

The project is located within Caltrans, the City of Arcata (City), and Cal Poly Humboldt (University) right of ways.

GHD understands that the City will implement the project in four distinct phases of work:

Phase 1: Project Approval and Environmental Documents (PA&ED) – Survey and mapping, engineering studies, preliminary design, environmental studies, public outreach materials, environmental studies, and California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documentation.

Phase 2: Plans, Specifications and Estimates (PS&E) – Final engineering studies, supplemental surveys, geotechnical investigation, plans, specifications, estimates, and constructability reviews.

Phase 3: Right of Way Engineering (ROW) – Support of right of way, including the preparation of access agreements and encroachment permit applications, environmental permit applications, and assistance with the preparation of the Right of Way Certification.

Phase 4: Construction Management (CON) – Bidding and construction period services, including construction management, inspections, and closeout support.

The following scope of services describes the tasks associated with Phase 2 – PS&E only. Our understanding is that the scope and fee for the subsequent ROW and CON phases of the project would be negotiated at a future time.

## **SCOPE OF SERVICES**

Based on our understanding of the project as described above, GHD has developed the following scope of services for the project.

### **Task 1 - Project Management, Meetings, and Coordination**

#### Task 1.1 Project Management and Coordination

GHD will serve as overall Project Manager during the entire duration of the PS&E Phase. The general project management responsibilities include:

- Develop Project Team and direct the team’s activities.
- Prepare and keep master Project Schedule, updating as necessary.
- Coordinate project status meetings.
- Prepare progress reports for inclusion in City’s reporting to Caltrans.
- Manage subconsultants.
- Effectively manage budget.

GHD will coordinate with the City, University, and Caltrans toward delivery of the PS&E phase deliverables. The coordination will include emails, phone calls, and regular teleconferences.

The scope assumes that Caltrans will provide Independent Quality Assurance (IQA), Risk Register, Traffic Management Plan (TMP), pavement structural section recommendations, and adequate staffing for IQA, reviews, and approvals.

#### Task 1.2 Project Development Team (PDT) Meetings

GHD will provide meeting coordination and oversight. At the outset of this project, an initiation meeting will be scheduled to establish the project team; review the scope of work and the project schedule; and establish lines of communications. GHD has budgeted for up to 18 meetings (all virtual). GHD will prepare agendas and meeting minutes highlighting decisions made and action items.

#### Task 1.3 Public Workshop/Meeting

GHD will provide exhibits and participate in one (1) public workshop meeting with the general public, specific stakeholders, and/or property owners adjacent to the project area identified by the City. This meeting can occur at any point during the PS&E phase of work.

We assume that the City will be responsible for identifying and notifying specific stakeholders or the general public about the meetings, and leading the meeting.

#### Task 1.4 Quality Assurance / Quality Control

GHD will plan for and ensure Quality Assurance and Quality Control (QA/QC) during the entire Project through development/update of the living Quality Management Plan (QMP) per Caltrans requirements. GHD will also confirm that all design calculations, deliverables, and other works are independently verified for accuracy. Exhibits and plans will be checked, corrected, and back-checked for accuracy and completeness.

#### Task 1 Products/Deliverables

- Meeting agendas, minutes, and documentation
- Caltrans information requests
- Public meeting exhibits
- QMP
- Quality Control / Quality Assurance for every major deliverable

## **Task 2 – Survey and Mapping**

### Task 2.1 Supplemental Topographic Survey and Mapping

UNICO will utilize the existing project control used for preliminary design for overall consistency.

By use of conventional total stations and 3D terrestrial scanners, UNICO will perform design level (non-aerial) supplemental topographic surveying and base mapping at key areas along the project limits. Items to locate include roadway conforms, spot elevations for walls and drainage, 2D planimetrics in certain areas and utility and storm drain dips for the entire project footprint. UNICO will set durable control points along the project corridor for future surveys and construction control.

UNICO will perform base mapping of all topographic information to include full mapping, 1' contours and digital 3D surface. All topographic data will be downloaded, processed and reviewed by UNICO staff for internal quality assurance. The topographic data will be mapped in Civil 3D AutoCAD, including a digital terrain model (DTM) in an XML file and 3D surface model.

UNICO will coordinate with Caltrans and City of Arcata to submit an encroachment permit for all survey related activities. It may be necessary for the City to apply for the encroachment permit as part of a City project. UNICO will provide relative survey information and support as needed.

UNICO has assumed up to 56 hours of a Two-Person Field Crew to perform supplemental topographic surveys, including travel to and from the project.

### Task 2.1 Products/Deliverables

- AutoCAD Topographic Survey Base Map with 3D Surface
- Points File(s)

### Task 2.2 Supplemental Boundary and Right-of-Way Survey

UNICO will attain current right of way maps, deeds, record of surveys, parcel maps, subdivision maps, corner records and other relevant mapping information for the City owned property lying adjacent to the right of way identified as APN 505-051-025 to identify ownership and location. The preliminary title report obtained in the PA&ED phase will be used to aid in the resolution of the property and boundaries. GPS and conventional surveys will be performed to locate right of way monuments, pins, pipes, wells and other boundary markers necessary to resolve and map the right of way and parcel boundary.

### Task 2.2 Products/Deliverables

- Right of Way and Boundary Base Map

## **Task 3 – Final Engineering Studies**

### Task 3.1. Geotechnical Analysis

Bajada Geosciences, Inc. will prepare the geotechnical analysis for the project. The following describes Bajada's scope of services under this task.

#### *Pre-Exploration*

Selected, existing, available geotechnical data pertinent to this study will be collected and reviewed. Those data include existing geotechnical reports obtained from a search of files within Caltrans files, subsurface soil data from the State's Geotracker database, and historical aerial photographs. Bajada will also compile and review regional geological maps and data, and soil survey data for the project area.

Prior to subsurface exploration, Bajada will obtain an encroachment permit from the City for exploration within its right of ways and easements. It is assumed that since this is a City project, the permit will be issued with no fees. It is also anticipated that work will be performed within Caltrans' right of way. Bajada will obtain an encroachment permit from Caltrans District 1 prior to field work.

Prior to performing exploration, Bajada will mark proposed exploration locations and contact Underground Service Alert, as required by California law.

### Subsurface Exploration

Twelve hollow-stem auger drill holes are proposed at locations surrounding the roundabout and along retaining wall alignments. Drill holes for retaining walls will be advanced to depths ranging from 20 to 50 feet. Drill holes for evaluation of paving and grading conditions will be advanced to depths of up to 10 feet.

Sampling of drill holes will be performed using a California modified split spoon (CM) or Standard Penetration Test (SPT) sampler. CM and SPT samplers will be driven using a 140-pound auto trip hammer in accordance with standard test method ASTM D1586-11. SPT samples will be collected in sample bags, labeled, and transported to the Bajada office for testing. California modified split-spoon samples will be collected in 2.5-inch diameter by 6-inch-long brass or stainless-steel sleeves. Those sleeves will be capped, labeled, and transported in foam-cushioned boxes.

Bajada personnel will log the soils and rocks exposed in the explorations, and will obtain samples for visual examination, classification, and laboratory testing. Logging of soils will be performed using methods specified in the Caltrans Rock and Soil Logging Manual. Bajada will estimate exploration locations using a compass and tape measure from known geographic control points on the property and by the use of a handheld Global Position System (GPS) receiver. All drill holes will be backfilled using cement grout. Asphaltic concrete, where disturbed by Bajada operations, will be patched using quickset concrete dyed black. Cuttings from drilling operations will be barreled and removed from the site.

Bajada will utilize the approved traffic control plans from our encroachment permits to create a safe working environment in all areas of their work in the public right of way. All lane closure and traffic control work will be performed by a qualified traffic control contractor. Flagging is assumed to not be required for work.

### Laboratory Testing

Soil samples obtained by Bajada will be delivered to Bajada's office for assignment of laboratory testing. It is anticipated that the following laboratory tests will be performed during the course of this study:

ANTICIPATED LABORATORY TESTING SCHEDULE		
Test	Standard Test Method	Number of Tests
In-Situ Moisture/Density	ASTM D7263	80
Atterberg Limits	ASTM D4318	10
Grain Size Analysis	ASTM D422	16
Maximum Density/Optimum Moisture	ASTM D1557	4
Direct Shear	ASTM D3080	10
Consolidation	ASTM D2435	2
R-Value	Cal 301	4
Soil Chemistry	AASHTO T288, CT 643, CT 417, CT 422	6

### Geotechnical Analysis

Upon completion of previous subtasks, Bajada will perform geotechnical evaluations in accordance with requirements of Caltrans Geotechnical Design Reports. Those evaluations will include:

- Subsurface soil profiles at the sites
- Excavatability of the on-site soils
- Evaluation of groundwater depths and distribution, if encountered
- Evaluation of expansive soil influence on project improvements
- Maximum slope inclinations
- Seismic hazards
- Allowable bearing capacities, friction coefficients, passive pressures, etc.
- Angle of internal friction, cohesion, and unit weight values for representative soil types at each wall site
- Active and passive lateral earth pressures
- Structural pavement sections for proposed new and widened roadways
- General corrosion potential for steel and concrete based upon soil chemistry testing of selected soil samples in accordance with Caltrans Corrosion Guidelines

### *Geotechnical Reporting*

Results of the field investigation, laboratory tests, and engineering analyses will be summarized in a geotechnical report prepared for the project. That report will conform with requirements of Caltrans Geotechnical Design Reports. That report will contain, at a minimum, the following:

- A description of the proposed project including site maps showing the approximate locations of the subsurface explorations advanced for this study
- A description of select, existing, available data collected, reviewed, and utilized during this study
- A description of the site surface and subsurface conditions encountered at the time of our field investigation
- A description of geotechnical conditions
- A description of groundwater conditions
- Seismic hazards
- Recommendations related to geotechnical aspects of:
  - Site grading and drainage, including compaction criteria and potential reuse of on-site soils as select backfill materials
  - Maximum slope inclinations
  - Retaining wall design including settlement, bearing, active and passive lateral earth pressures, and frictional coefficients
  - Structural pavement sections for widened/new roadways
  - Recommendations for sign and light post foundations
  - Recommended rehabilitation methods for existing AC pavements
- An appendix presenting a summary of the field investigation including Logs of Test Borings
- An appendix presenting the results of the laboratory testing

A draft copy of the report will be submitted in PDF format for review and comment. Upon receipt of comments, Bajada will edit the report and resubmit the finalized document.

#### Task 3.1 Products/Deliverables

- Draft/Final Geotechnical Design Materials Report (GDMR)

#### Task 3.2 Hydrology/Hydraulics

GHD will prepare a drainage study that will include the existing and proposed drainage shed maps, narrative of the drainage conditions prior to and after the project, determination of pre- and post-runoff quantities and water quality calculations consistent with Caltrans' hydraulic requirements and the requirements for low impact design (LID) following applicable standards (e.g. City of Arcata, Caltrans, or Cal Poly Humboldt).

The drainage study will be submitted to the City and Caltrans for review and comment. Upon receipt of comments, a final preliminary report will be prepared and submitted. The results of the drainage report will be used to support final design and cost estimate.

In addition, the Preliminary Storm Water Data Report completed during the PA&ED phase will be updated to match 60% design conditions and for consistency with the drainage study and submitted to Caltrans for review/final approval.

#### Task 3.2 Products/Deliverables

- Draft and Final Drainage Report
- Final SWDR

#### Task 3.3 Final Landscape Design Concept

GHD will update and finalize the landscape concept for the interchange that was developed in the PA&ED phase. The landscape concept is intended to capture the landscape approach that will be included in the design plans for bidding and construction. Final landscape designs will only be prepared for the western roundabout. It is assumed that the University will lead the design of all landscaping, planting and irrigation for the eastern roundabout and University frontage area.

The landscape design concepts will be included in a single Concept Design Package that will include the following:

- Text and schedules identifying design intent, material section, and preliminary plant list
- One (1) Colored illustrative plan exhibit of the landscape design for each roundabout
- One (1) Photo montage of proposed plant materials
- Up to two (2) three-Dimensional (3D) visualizations of the proposed roundabout landscape design
- Retaining wall aesthetic concepts (up to 2)

#### Task 3.3 Products/Deliverables

- Landscape conceptual design

#### Task 3.4: Preliminary Site Investigation

Geocon Consultants, Inc. will perform a Preliminary Site Investigation (PSI) based upon the conclusions and findings presented in the GHD 2023 Sunset Avenue and LK Wood Boulevard Improvements Project Initial Site Assessment (ISA) Report (GHD, 2023). Geocon will conduct the following tasks:

- Advance 14 soil borings outside the roadway shoulders along the onramps and offramps of the Sunset Avenue and SR-101 interchange and along Sunset Avenue, G Street, H Street, and L K Wood Boulevard to depths of 2 feet (eight borings) or 5 feet (six borings) at the proposed roundabout locations using hand auger sampling equipment.
- Collect soil samples at depth intervals of 0 to 1 and 1 to 2 feet from each 2-foot-deep boring, and from 0 to 1, 1 to 2 and 4 to 5 feet from each 5-foot-deep boring. Soil samples from the hand auger will be collected and transferred to re-sealable plastic bags or stainless-steel tubes. Samples will be subsequently labelled, placed in an ice chest, and delivered to the analytical laboratory under standard chain-of-custody documentation. Boring holes will be backfilled with the excavated soil materials. General soil types encountered will be noted in the daily field log.
- Perform quality assurance/quality control procedures during the field exploration activities. These procedures will include decontamination of sampling equipment before each sample is collected, and providing chain-of-custody documentation for each soil sample submitted to the laboratory. Soil sampling equipment will be decontaminate between each sample by washing the equipment with an Alconox® solution followed by a double rinse with deionized water. The rinsewater will be discharged to the ground surface areas within the right-of-way which do not slope to drainage inlets or surface water bodies.
- Analyze each of the soil samples from the 2-foot-deep borings and the soil samples collected from the 1 to 2 foot depth interval from the 5-foot-deep borings for total lead following United States Environmental Protection Agency (USEPA) Test Method 6010B (22 samples).
- Analyze samples with total lead concentrations between 50 and 1,000 milligrams per kilogram (mg/kg) for soluble lead using the Waste Extraction Test (WET) method, USEPA Test Method 7000, where necessary (assume 12 samples).
- Analyze soil samples with total lead concentrations greater than 1,000 mg/kg for Toxic Characteristic Leaching Procedure (TCLP) soluble lead, where necessary (assume two samples).
- Analyze the soil samples from the 0 to 1 and 4 to 5 foot depth intervals from the 5-foot-deep borings for CAM 17 heavy metals following USEPA Test Methods 6010B and 7471A, and gasoline-range, diesel-range and motor oil-range organics following USEPA Test Method 8015M (twelve samples). Select samples may be analyzed for soluble metals based on the results of the total metals analysis (assume six samples).
- Analyze soil samples from the 0 to 1 foot interval from the two borings nearest the railroad alignment for Polynuclear Aromatic Hydrocarbons following USEPA Test Method 8270.
- Prepare a report to present our findings and conclusions. The report will include the following:
  - Introduction/project description
  - Vicinity Map and Site Plan showing boring locations
  - Investigative methods

- Investigative results and field observations
- Statistical analysis of the data
- Conclusions and recommendations
- Appendices including laboratory reports and chain-of-custody documentation

Prior to subsurface exploration, Geocon will obtain an encroachment permit from the City and Caltrans for exploration within their right of ways and easements. It is assumed that the permit will be issued with no fees.

It's assumed that field work will be conducted outside the shoulders of the roadways and traffic control will not be required.

The sampling and analysis conducted in this task is for preliminary characterization prior to construction only. Additional laboratory testing would be necessary to characterize soil for disposal.

#### Task 3.4 Products/Deliverables

- Draft and Final PSI Report

#### Task 3.5 Soil and Groundwater Management Plan

Geocon will produce a single written Soil and Groundwater Management Plan (SGMP) for the project. The purpose of the SGMP is to describe actions to be implemented during excavation of soil within the project limits, in the event that unknown contamination and/or subsurface features are encountered in the soil. The SGMP provides the following information and guidelines:

- Project Contact List and Notification Procedures: The SGMP will identify names and phone numbers of project contacts and will summarize emergency notification procedures. Project contacts are expected to include construction personnel and City of Arcata representatives.
- Contractor Health and Safety Plans: The SGMP will summarize the responsibilities of the construction personnel with respect to worker health and safety during project activities.
- Soil and Groundwater Management: The SGMP will describe soil management procedures to be implemented during excavation such as the following:
  - Periodic observation of exposed and excavated soil for indications of potential contamination (e.g., discoloration, chemical odor).
  - If necessary, remedial soil excavation and segregation of apparent contaminated and non-impacted soil.
  - Soil stockpiling procedures (e.g., use of plastic sheeting) and stormwater best management practices to control dust and stormwater and sediment runoff.
  - If encountered during excavation, removal and temporary storage of groundwater.
  - Excavation confirmation sample, soil stockpile waste characterization sample, and groundwater sample collection and laboratory chemical analysis procedures (e.g., sample containers, quantities and locations of samples, sampling methodologies, sample preservation and transportation).
  - Identification of offsite soil and groundwater disposal facilities, including location and contact names and phone numbers.
  - Requirements for soil and groundwater handling and transportation (e.g., Occupational Safety and Health Administration (OSHA)-trained personnel, trucks covered with tarps, water spraying).
- Laboratory Analyses: The SGMP will identify a laboratory to be used for chemical analysis of soil and groundwater samples and summarize information regarding the test methods for various chemicals of potential concern, sample holding times, sample preservation requirements, chain-of-custody procedures, laboratory turn-around-times, laboratory detection limits, and laboratory quality control procedures.
- Cleanup Criteria: The SGMP will provide criteria to be used to determine whether impacted soil is suitable for onsite reuse or requires offsite disposal. Cleanup criteria may be based on, but not limited to the San Francisco Bay Regional Water Quality Control Board's Environmental Screening Levels (ESLs), United States Environmental Protection Agency's Regional Screening Level (RSLs), California hazardous waste criteria (e.g., total and soluble threshold limit concentrations), and/or local city and county requirements.

- Project Documentation: The SGMP will describe documentation that is required to support project activities including copies of any required permits, field notes and photographs, site plans with sample locations, laboratory reports, waste transportation manifests and/or bills of lading, disposal facility waste acceptance certifications, periodic project summary memos and/or reports, and a completion

#### Task 3.5 Products/Deliverables

- Draft and Final SGWMP

#### Task 3.6 Traffic Management Plan

GHD will prepare the request and supporting documentation for Caltrans to prepare the Transportation Management Plan (TMP). The information will include working days, costs, staging, detours, and preliminary plans. The Caltrans-prepared TMP will be included in the informational handout for construction of the project.

#### Task 3.6 Products/Deliverables

- TMP Request and Supporting Documentation

### **Task 4 – Utility Coordination**

Initial notifications to utility companies will be made early in the PS&E Phase. Work under this task will be consistent with the Local Assistance Procedures Manual (LAPM), Chapter 14 and relevant portions of the Right of Way Manual.

The preliminary utility conflict maps prepared in the PA&ED phase will be utilized at the beginning of the PS&E phase to coordinate with all potentially affected utility companies, the City, University, and Caltrans, to identify the existing and planned facilities owned, operated, and maintained by the respective entity, including both underground and overhead. GHD will coordinate efforts with each entity, up to 2 meetings each, to prepare the PS&E package.

GHD will contact the utility companies that are impacted by the Project and request that the utility companies verify the location of existing facilities within the Project area.

If necessary, a second set of plans will be provided to the utility companies showing sufficient horizontal and vertical information to enable them to determine the impact of the proposed City facilities on existing utility facilities (Letter C process).

GHD will identify potential points of conflict between proposed facilities and existing or proposed utility company facilities. Based on PA&ED information, it is assumed up to 8 valve adjustments will be required in addition to meter relocations for both electrical and telephone. GHD will coordinate resolution of these problems by working with the City and utility company personnel, including arranging for utility potholing, to verify location of any high priority facilities. Copies of the utility locations provided to GHD by the utility companies shall be submitted to the City. For purposes of this proposal, an allowance for \$25,000 is assumed for potholing. The City will be responsible for costs above the \$25,000 allowance.

Once initial coordination efforts are completed with the utility owners, and since minor relocations like adjustments are the only things anticipated for the project at this time, GHD will support the City in drafting the Notice to Owners as required per Caltrans LAPM. It's assumed that the City will be responsible for the preparation of the Utility Data Sheets and Utility Certification, or these services can be provided by GHD under a subsequent agreement in the ROW phase.

#### Task 4 Products/Deliverables

- Updated Utility Relocation Exhibits by Owner w/ Potholing information as required
- Utility 'B' Letters
- Utility 'C' Letters

### **Task 5 – Final Design Documents**

#### Task 5.1 60% Plans and Estimates

Based on the previous geometric design work that was completed in the PA&ED phase, and upon review and approval of the same by the City, GHD will prepare and submit 60% design plans and updated cost estimates

per Caltrans requirements to produce refined estimates of probable construction costs for all elements of the proposed Project. GHD will also identify (i.e. specifications outline) the Standard Special Provisions (SSPs) and potential Non-Standard Specifications (NSPs) that will be developed for the project in the subsequent 90% and 100% design tasks.

Existing base maps shall be developed into design drawings which will clearly illustrate the limits of construction, type of construction, and other items necessary for the construction of the facility.

GHD will provide a formal comment resolution table identifying all design review comments received on the previous geometric drawings.

No regulatory permits are assumed at this time, however if required could be done as out of scope work during this phase.

The following plan sheets are anticipated for 60%:

ID Code	Type of Sheet	Number Required
---	Title	1
X	Typical Cross Section	3
K	Key Map and Line Index	1
D	Demolition Plans	4
L	Layouts	4
PS	Profile and Superelevation Diagrams	5
C	Construction Details (Typical Details)	15
WPC	Temporary Water Pollution Control	4
D	Drainage Plans	4
DP	Drainage Profiles	5
DD	Drainage Details	8
U	Utility Plan	4
CS	Construction Area Signs	1
MI	Motorist Information Plans	4
SC	Stage Construction/Traffic Handling Plans	12
PD	Pavement Delineation Plans	10
S	Sign Plans	10
SD	Sign Details	2
I	Irrigation Notes, Plans and Details	5
P	Planting Plans and Details	5
EC	Erosion Control Plans & Details	6
E	Electrical Notes	1
E	Lighting Plans (Electroliers & Signs)	5
	Total	119

GHD will prepare detailed quantities, including a draft bid schedule with estimated quantities and unit prices, note that quantity sheets will be deferred to 90%. This estimate will also identify any additive/alternate bid items to include in the contract documents, such as specialty or decorative items, to be included in the

roundabout center island. The engineer's estimate of probable construction cost for the project will be revised using the most recent and relevant Caltrans cost data, as well as the City's cost data, if available.

Once the City and Caltrans receive the 60% design submittal, GHD will schedule a meeting with the City and PDT members to review the revisions on the 60% design submittal package. Following this review session(s), GHD will prepare the 90% design submittal.

Task 5.1 Products/Deliverables

- 60% Plans, Outline Specifications and Estimate
- Comment resolution table for 30% design, as appropriate

Task 5.2 90% PS&E

Based on the works from the previous 60% preliminary engineering phase, and upon review and approval of the same by the City, GHD will prepare the 90% design plans, updated cost estimates, and specifications (SSPs and NSPs). The City will be responsible for preparing the front-end specifications for the project.

GHD will provide a formal comment resolution table identifying all design review comments received on the 60% design plans, specifications, and estimate. Supplemental supporting calculations and other documentation will be updated and resubmitted as part of the 90% PS&E submittal package.

Materials testing requirements for construction will follow the City's Quality Assurance Plan (QAP). Additional quality control measures provided by the City will be included to comply with Federal requirements and supplement the QAP where needed.

As part of the 90% design submittal to the City, GHD will schedule a PDT meeting to present the 90% design to Project stakeholders for review and comments to support 100% PS&E.

The following plan sheets are anticipated for 90%:

ID Code	Type of Sheet	Number Required
---	Title	1
X	Typical Cross Section	3
K	Key Map and Line Index	1
CSS	Construction Staking Survey Control Sheet	1
D	Demolition Plans	4
L	Layouts	4
PS	Profile and Superelevation Diagrams	5
C	Construction Details	20
WPC	Temporary Water Pollution Control Details & Quantities	5
G	Contour Grading	4
D	Drainage Plans	4
DP	Drainage Profiles	5
DD	Drainage Details	10
DQ	Drainage Quantities	6
U	Utility Plan and Quantities	5
CS	Construction Area Signs	1
MI	Motorist Information Plans	4

ID Code	Type of Sheet	Number Required
SC	Stage Construction/Traffic Handling Plans and Quantities	16
DE	Detour Plans and Quantities	4
PD	Pavement Delineation Plans	10
PDQ	Pavement Delineation Quantities	2
S	Sign Plans	10
SD	Sign Details	2
SQ	Sign Quantities	4
I	Irrigation Notes, Plans and Details	5
P	Planting Plans and Details	5
EC	Erosion Control Plans, Details and Quantities	6
E	Electrical Notes	1
E	Lighting Plans (Electroliers & Signs)	5
E	Lighting Details (Electroliers & Signs) & Quantities	4
	Total	157

#### Task 5.2 Products/Deliverables

- 90% Plans, Specifications and Estimate
- Comment resolution table for 60% design

#### Task 5.3 Final Design (100% PS&E)

Once the City and Caltrans finalize their review of the 90% design submittal, GHD will schedule a meeting with the City (and PDT members) to review the revisions on the final 90% design submittal package. Following this review session(s), GHD will prepare the 100% PS&E Package (Bid Set).

The plans will indicate all items of work, details, and specifications, including but not limited to, existing conditions, construction staging and phasing, temporary and permanent erosion control, traffic control, clearing and grubbing, cutting and capping existing facilities, utility relocation, earthwork - grading, paving, slopes, curb and gutter, cross gutters, sidewalk, pedestrian ramps, walkway, curb ramps,, pavement and base, drainage facilities, retaining wall, traffic engineering - signing and striping, traffic signals, fencing, electrical systems and lighting, decorative hardscape, landscaping, and other related work required to complete the project per Caltrans standards.

GHD will also make sure that all design calculations, deliverables, and other works are independently verified to ensure accuracy. All exhibits, plans, and reports will be checked, corrected, and backchecked for accuracy and completeness.

The PS&E will be certified prior to final submission to Caltrans for the Encroachment Permit. GHD will assist the City in certifying the Project PS&E for compliance with all applicable federal and state regulations and procedures. A preliminary "PS&E Checklist" form, included as Exhibit 12-D in Chapter 12 (Plans, Specifications and Estimate) of Caltrans' LAPM, which summarizes the items requiring Local agency compliance and identifies critical Federal requirements shall be prepared by GHD. With prior approval and consent from the City, GHD will prepare the final Project PS&E Certification Checklist, PS&E Certification Letter (Exhibit 12-C, LAPM Chapter 12), and preliminary estimate to be submitted by the City to the Caltrans District Local Assistance Engineer (DLAE) along with the City's completed E-76 - Request for Authorization to

proceed with construction. The PS&E Certification will be signed by the design engineer responsible for the Project.

#### Task 5.3 Products/Deliverables

- Comment resolution table for 90% design
- 100% Plans, Specifications and Estimate
- PS&E Checklist
- PS&E Certification Letter
- Complete streets decision documentation

#### **GENERAL EXCLUSIONS AND ASSUMPTIONS**

This scope of services is based on the tasks described above which are anticipated for the project.

Drawings, including topo and base maps, will be designed and submitted in AutoCAD Civil 3D, Specifications will be submitted in MS Word, and Estimates will be submitted in MS Excel. PDFs of all submittals will be submitted as well; hard copies and mylar prints are not included.

The City may need additional services during the process of the project due to increased regulatory issues, unusual public interest, and additional issues identified during the project. This proposal is based on the following assumptions:

- The scope does not include anything not specifically described above.
- The project is funded in part with federal funds and includes DBE support.
- Caltrans will provide Independent Quality Assurance (IQA), Traffic Management Plan (TMP), Risk Register, pavement structural section recommendations or concurrence, pavement life-cycle analysis (if required), and adequate staffing for IQA, reviews and approvals.
- It's assumed that the City of Arcata, Caltrans, and Cal Poly Humboldt will issue encroachment permits for field work conducted under this scope to GHD and their subconsultants/subcontractors at no cost.
- Unless stated specifically otherwise, all reviews and processing time on all submittals is assumed to be four (4) weeks. If agency processing exceeds this estimate, additional budget may be required.
- Unless stated specifically otherwise, all reports will be limited to one (1) draft and one (1) final version.
- Street lighting for the project will be limited to standard Caltrans roadway lighting (non-standard decorative lighting and pedestrian level lighting is excluded).
- The scope assumes the ramp work extends no more than 400 feet from the centerline of Sunset Avenue other than minor restriping as necessary based on new intersection approach requirements.
- Hydraulic Analysis and capacity evaluation is limited to the project improvement area and does not include upstream/downstream calculations and capacity analysis.
- The scope assumes that Caltrans approval will come in the form of a Design Engineering Evaluation Report (DEER) during the PA&ED phase. The scope does not include updating or preparing a Project Study Report or a Project Report.
- No additional traffic analysis is required, and the ICE will not be updated in the PS&E phase.
- This scope of work does not include right-of-way services, including but not limited to appraisals, acquisition support, records of survey, and right-of-way data sheets. It's assumed that right-of-way services will be contracted under a separate agreement.
- It's assumed that the City will be responsible for compiling the full bid package including required general conditions, and federal provisions. GHD will be provided technical specifications only in the form of special provisions to the Caltrans Standards Specifications.
- This scope of work does not include NEPA Revalidation support or the preparation of a CEQA CE Amendment.
- Only one rendering is provided in this scope of the preferred build alternative in support of public and stakeholder outreach.
- Life cycle cost analysis, pavement overlay, deflection testing, or pavement smoothness studies are not included in this scope. Pavement cording is not included. Pavement excavation/removal assumptions will be based on current Caltrans as-builts.

- Utility records to be imported are in 2-dimensional format only. No 3-dimensional drawings or pipe networks are to be prepared.
- Utility relocation design is not included and will be completed by the utility owner.
- Final landscaping, planting and irrigation designs will only be prepared for the western roundabout. It is assumed that the University will lead the design of all landscaping, planting and irrigation for the eastern roundabout and University frontage area.
- Project will utilize published State Plane NAD 83 horizontal control and NAVD 1988 vertical control. New survey control will not be set during this phase and construction survey support is not included.
- Underground utility location, including utility potholing is limited to \$25,000 of effort as other direct cost.
- Utility data sheets, utility certification documentation/requests, right of way data sheets, and right of way certification documentation, and the preparation of a Caltrans encroachment permit for the project improvements is not included in this scope of services.





**EXHIBIT 10-H1 COST PROPOSAL**

Note: Mark-ups are Not Allowed

X Prime Consultant    Subconsultant    2<sup>nd</sup> Tier Subconsultant

Consultant: **GHD Inc.**

Project: Sunset Avenue and LK Wood Boulevard Improvement Project - PS&E Phase

Date: 5/29/2024

**DIRECT LABOR**

Classification/Title	Name	hours	Actual or Ave. Hourly Rate	Total
Sr.Engineer/Scientist/Planner/Surveyor IV	TBD	232	\$82.22	\$19,074.98
Sr.Engineer/Scientist/Planner/Surveyor III	TBD	590	\$76.92	\$45,380.00
Sr.Engineer/Scientist/Planner/Surveyor II	TBD	731	\$71.61	\$52,347.46
Sr.Engineer/Scientist/Planner/Surveyor I	TBD	0	\$66.31	\$0.00
Pr.Engineer/Scientist/Planner/Surveyor IV	TBD	428	\$61.00	\$26,108.75
Pr.Engineer/Scientist/Planner/Surveyor III	TBD	555	\$55.70	\$30,911.97
Pr.Engineer/Scientist/Planner/Surveyor II	TBD	1,468	\$50.39	\$73,976.56
Pr.Engineer/Scientist/Planner/Surveyor I	TBD	696	\$45.09	\$31,381.42
Staff Engineer/Scientist/Planner/Surveyor III	TBD	652	\$39.78	\$25,939.01
Staff Engineer/Scientist/Planner/Surveyor II	TBD	700	\$34.48	\$24,135.48
Staff Engineer/Scientist/Planner/Surveyor I	TBD	0	\$29.17	\$0.00
CAD/GIS/Tech IV	TBD	80	\$39.78	\$3,182.70
CAD/GIS/Tech III	TBD	0	\$34.48	\$0.00
CAD/GIS/Tech II	TBD	4	\$29.17	\$116.70
CAD/GIS/Tech I	TBD	0	\$23.87	\$0.00
Admin. Support II	TBD	194	\$29.17	\$5,659.90
Admin. Support II	TBD	0	\$23.87	\$0.00
Admin. Support II	TBD	0	\$18.57	\$0.00
<b>Total Hours</b>		<b>6,330</b>		

**LABOR COSTS**

a) Subtotal Direct Labor Costs	\$338,214.92
b) Anticipated Salary Increases	\$9,192.68
<b>c) TOTAL DIRECT LABOR COSTS [(a) + (b)]</b>	<b>\$347,407.60</b>

**INDIRECT COSTS**

d) Fringe Benefits (Rate: 28.91%)	e) Total Fringe Benefits [(c) x (d)]	\$100,435.54
f) Overhead (Rate: 153.72%)	g) Overhead [(c) x (f)]	\$534,034.97
h) General and Administrative (Rate: 0.000%)	i) Gen & Admin [(c) x (h)]	\$0.00
	<b>j) Total Indirect Costs [(e) + (g) + (i)]</b>	<b>\$634,470.50</b>

<b>FIXED FEE</b>	Fixed Fee: 11.00%	<b>k) TOTAL FIXED FEE [(c) + (j)] x fixed fee</b>	<b>\$108,006.59</b>
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**l) CONSULTANT'S OTHER DIRECT COSTS (ODC) – ITEMIZE (Add additional pages if necessary)**

Description of Item	Quantity	Unit(s)	Unit Cost	Total
Mileage	3500	Mile	\$0.655	\$2,292.50
Potholing	1	LS	\$25,000.00	\$25,000.00
<b>l) TOTAL OTHER DIRECT COSTS</b>				<b>\$27,292.50</b>

**m) SUBCONSULTANTS' COSTS (Add additional pages if necessary)**

Subconsultant 1:	UNICO	\$46,885.04
Subconsultant 2:	BAJADA Geosciences	\$71,972.48
Subconsultant 3:	GeoCon Consulting	\$34,441.21
Subconsultant 4:	APEX Engineering	\$78,094.20
<b>m) TOTALS SUBCONSULTANTS' COSTS</b>		<b>\$231,392.93</b>

**n) TOTAL OTHER DIRECT COSTS INCLUDING SUBCONSULTANTS [(l)+(m)]** **\$258,685.43**

**TOTAL COST [(c) + (j) + (k) + (n)]** **\$1,348,570.13**

**ANTICIPATED SALARY INCREASES**

**1. Calculate Average Hourly Rate for 1st year of the contract (Direct Labor Subtotal divided by total hours)**

Direct Labor <u>Subtotal</u> per Cost Proposal	Total Hours per Cost Proposal	=	Avg Hourly Rate	5 Year Contract Duration
\$338,214.92	6,330	=	\$53.43	Year 1 Avg Hourly Rate

**2. Calculate hourly rate for all years (Increase the Average Hourly Rate for a year by proposed escalation %)**

	Avg Hourly Rate		Proposed Escalation			
Year 1	\$53.43	+	3.0%	=	\$55.03	Year 2 Avg Hourly Rate
Year 2	\$55.03	+	3.0%	=	\$56.68	Year 3 Avg Hourly Rate
Year 3	\$56.68	+	5.0%	=	\$59.52	Year 4 Avg Hourly Rate
Year 4	\$59.52	+	5.0%	=	\$62.49	Year 5 Avg Hourly Rate

**3. Calculate estimated hours per year (Multiply estimate % each year by total hours)**

	Estimated % Completed Each Year	*	Total Hours per Cost Proposal	=	Total Hours per Year	
Year 1	30.00%	*	6330.0	=	1899.0	Estimated Hours Year 1
Year 2	50.00%	*	6330.0	=	3165.0	Estimated Hours Year 2
Year 3	20.00%	*	6330.0	=	1266.0	Estimated Hours Year 3
Year 4	0.00%	*	6330.0	=	0.0	Estimated Hours Year 4
Year 5	0.00%	*	6330.0	=	0.0	Estimated Hours Year 5
Total	100%		Total	=	6330.0	

**4. Calculate Total Costs including Escalation (Multiply Average Hourly Rate by the number of hours)**

	Avg Hourly Rate (calculated above)	*	Estimated hours (calculated above)	=	Cost per Year		
Year 1	\$53.43	*	1899	=	\$101,464.48	Estimated Hours Year 1	
Year 2	\$55.03	*	3165	=	\$174,180.68	Estimated Hours Year 2	
Year 3	\$56.68	*	1266	=	\$71,762.44	Estimated Hours Year 3	
Year 4	\$59.52	*	0	=	\$0.00	Estimated Hours Year 4	
Year 5	\$62.49	*	0	=	\$0.00	Estimated Hours Year 5	
Total Direct Labor Cost with Escalation					=	\$347,407.60	
Direct Labor Subtotal before Escalation					=	\$338,214.92	
Estimated total of Direct Labor Salary Increase					=	<b>\$9,192.68</b>	