DRAFT Initial Study/Mitigated Negative Declaration for Riggin Avenue Widening (Kelsey to Shirk)

December 2021

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Prepared For:

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City of Visalia
315 East Acequia Avenue
Visalia, CA 93291

SECTION 1
CEQA Review Process

Project Title: Riggin Avenue Widening (Kelsey to Shirk)

1.1 California Environmental Quality Act Guidelines

Section 15063 of the California Environmental Quality Act (CEQA) Guidelines requires that the Lead Agency prepare an Initial Study to determine whether a discretionary project will have a significant effect on the environment. All phases of the project planning, implementation, and operation must be considered in the Initial Study. The purposes of an Initial Study, as listed under Section 15063(c) of the CEQA Guidelines, include:

(1) Provide the lead agency with information to use as the basis for deciding whether to prepare an EIR or negative declaration;
(2) Enable an applicant or lead agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a negative declaration;
(3) Assist the preparation of an EIR, if one is required, by:
    (a) Focusing the EIR on the effects determined to be significant,
    (b) Identifying the effects determined not to be significant,
    (c) Explaining the reasons for determining that potentially significant effects would not be significant, and
    (d) Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the project's environmental effects.
(4) Facilitate environmental assessment early in the design of a project;
(5) Provide documentation of the factual basis for the finding in a negative declaration that a project will not have a significant effect on the environment
(6) Eliminate unnecessary EIRs;
(7) Determine whether a previously prepared EIR could be used with the project.

1.2 Initial Study

The Initial Study provided herein covers the potential environmental effects of the proposed reconstruction of approximately 1 mile of existing roadway to accommodate a 4-lane arterial street. The City of Visalia will act as the Lead Agency for processing the Initial Study/Mitigated Negative Declaration pursuant to the CEQA Guidelines.

1.3 Environmental Checklist

The Lead Agency may use the CEQA Environmental Checklist Form [CEQA Guidelines, Section 15063(d)(3) and (f)] in preparation of an Initial Study to provide information for determination if there are significant effects of the project on the environment. A copy of the completed Environmental Checklist is set forth in **Section Three**.

1.4 Notice of Intent to Adopt a Negative Declaration

The Lead Agency shall provide a Notice of Intent to Adopt a Negative Declaration (CEQA Guidelines, Section 15072) to the public, responsible agencies, trustee agencies and the County Clerk within which the project is located, sufficiently prior to adoption by the Lead Agency of the Negative Declaration to allow the public and agencies the review period. The public review period (CEQA Guidelines, Section 15105) shall not be less than 30 days when the Initial Study/Negative Declaration is submitted to the State Clearinghouse unless a shorter period, not less than 20 days, is approved by the State Clearinghouse.

Prior to approving the project, the Lead Agency shall consider the proposed Negative Declaration together with any comments received during the public review process, and shall adopt the proposed Negative Declaration only if it finds on the basis of the whole record before it, that there is no substantial evidence that the project will have a significant effect on the environment and that the Negative Declaration reflects the Lead Agency's independent judgment and analysis.

The written and oral comments received during the public review period will be considered by The City of Visalia prior to adopting the Negative Declaration. Regardless of the type of CEQA document that must be prepared, the overall purpose of the CEQA process is to:

1) Assure that the environment and public health and safety are protected in the face of discretionary projects initiated by public agencies or private concerns;
2) Provide for full disclosure of the project's environmental effects to the public, the agency decision-makers who will approve or deny the project, and the responsible trustee agencies charged with managing resources (e.g. wildlife, air quality) that may be affected by the project; and
3) Provide a forum for public participation in the decision-making process pertaining to potential environmental effects.

According to Section 15070(a) a public agency shall prepare or have prepared a proposed negative declaration for a project subject to CEQA when:

> ***The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment. Less than significant impacts with mitigation measures have been identified.***

The Environmental Checklist Discussion contained in Section Three of this document has determined that the environmental impacts of the project are less than significant with mitigation measures and that a Mitigated Negative Declaration is adequate for adoption by the Lead Agency.

1.5 Negative Declaration or Mitigated Negative Declaration

The Lead Agency shall prepare or have prepared a proposed Negative Declaration or Mitigated Negative Declaration (CEQA Guidelines Section 15070) for a project subject to CEQA when the Initial Study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment. The proposed Negative Declaration or Mitigated Negative Declaration circulated for public review shall include the following:

(a) A brief description of the project, including a commonly used name for the project.
(b) The location of the project, preferably shown on a map.
(c) A proposed finding that the project will not have a significant effect on the environment.
(d) An attached copy of the Initial Study documenting reasons to support the finding.
(e) Mitigation measures, if any.

1.6 Intended Uses of Initial Study/Negative Declaration documents

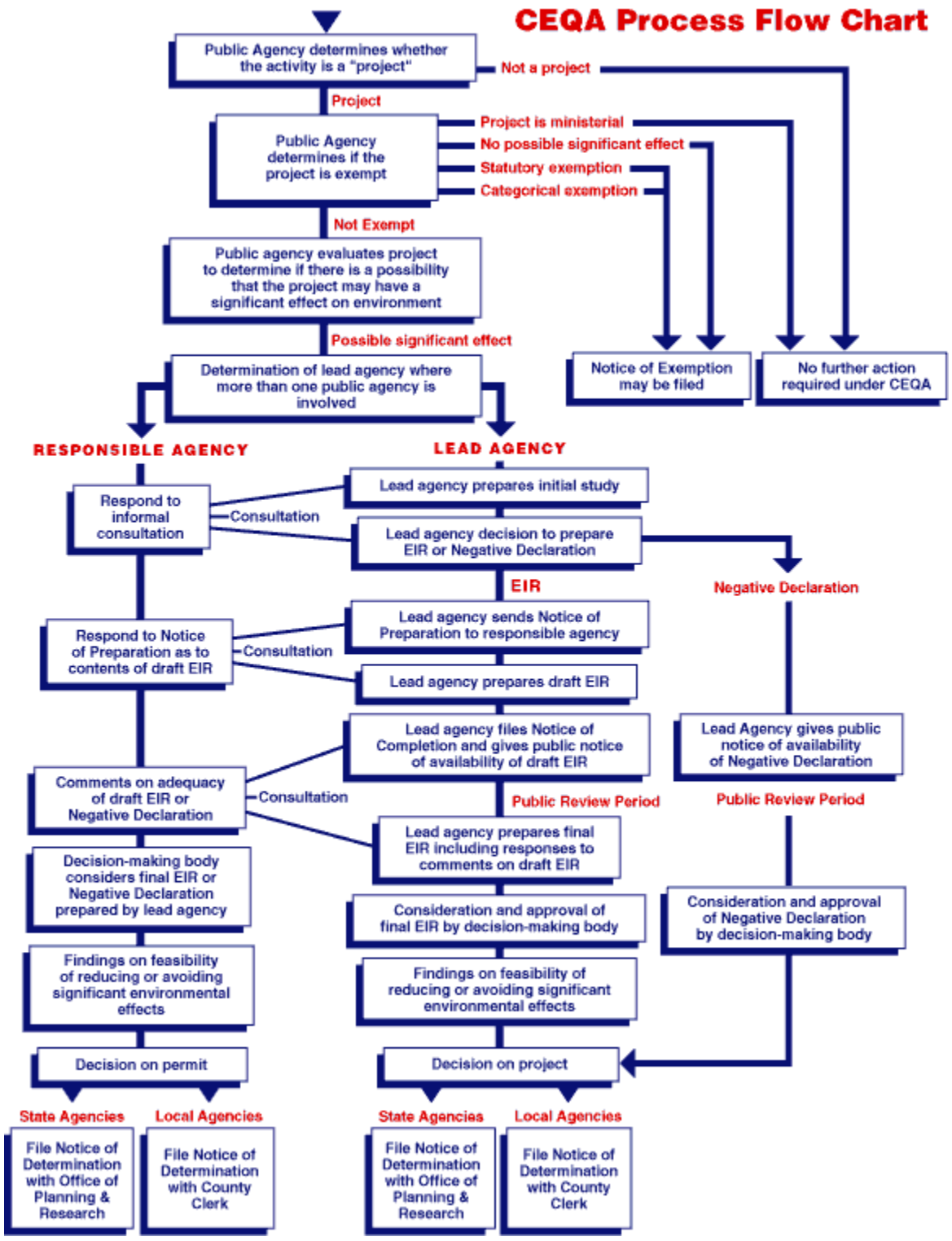
The Initial Study/Negative Declaration document is an informational document that is intended to inform decision-makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed project. The environmental review process has been established to enable the public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency must balance any potential environmental effects against other public objectives, including economic and social goals. The City of Visalia, as Lead Agency, will make a determination, based on the environmental review for the Environmental Study, Initial Study and comments from the general public, if there are less than significant impacts from the proposed project and the requirements of CEQA can be met by adoption of a Mitigated Negative Declaration.

1.7 Notice of Determination (NOD)

The Lead Agency shall file a Notice of Determination within five working days after deciding to approve the project. The Notice of Determination (CEQA Guidelines, Section 15075) shall include the following:

(1) An identification of the project including the project title as identified on the proposed negative declaration, its location, and the State Clearinghouse identification number for the proposed negative declaration if the notice of determination is filed with the State Clearinghouse.
(2) A brief description of the project.
(3) The agency's name and the date on which the agency approved the project.
(4) The determination of the agency that the project will not have a significant effect on the environment.
(5) A statement that a negative declaration or a mitigated negative declaration was adopted pursuant to the provisions of CEQA.
(6) A statement indicating whether mitigation measures were made a condition of the approval of the project, and whether a mitigation monitoring plan/program was adopted.
(7) The address where a copy of the negative declaration or mitigated negative declaration may be examined.
(8) The identity of the person undertaking a project which is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies or the identity of the person receiving a lease, permit, license, certificate, or other entitlement for use from one or more public agencies.

1.8 CEQA Process Flow Chart



Section 2

Project Description

City of Visalia
315 East Acequia Avenue
Visalia, CA 93291

SECTION 2
Project Description

Project Title: Riggin Avenue Widening (Kelsey to Shirk)

2.1 Project Description & Purpose

The proposed project involves the reconstruction of 1 mile of existing roadway between Kelsey Street and Shirk Street to accommodate a 4-lane arterial street with 110' total ROW. Improvements would include new 12' vehicular travel lanes (4 lanes total), new Class II bike lanes, new street lighting, new landscaped medians, a new bus turnout, new fire hydrants, new sewer line, new traffic signal, and curb returns at all involved intersections. A typical cross section detail is provided below (Figure 2-1). Construction would require demolition of existing asphalt between Kelsey Street and Shirk Street, removal of trees along Riggin Avenue frontage (including 2-3 rows of orchard trees along the north side of Riggin Avenue), and relocation of 17 existing power poles. Construction is proposed to begin January 2022 and continue through May 2022. Maps showing project layout and regional location are provided in Figures 2-2 and 2-3. Detailed improvement plans are provided in Appendix F.

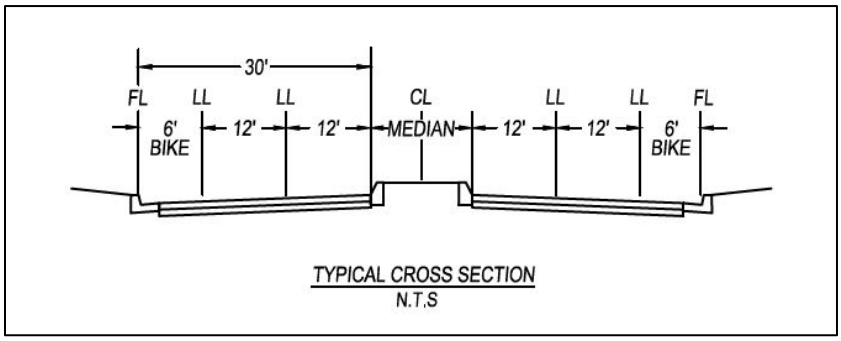


Figure 2-1. Typical Cross Section Detail.

2.2 Project Location

The proposed project site is located partially within the City of Visalia and partially within unincorporated Tulare County. The project would affect approximately 14 acres within City/County ROW along Riggin Avenue from Kelsey Street to Shirk Street. The site is bordered by agricultural uses to the north and south.

2.3 Existing Setting

The segment of Riggin Avenue that the Project proposes to widen is currently a two-lane road with a pavement width of approximately 24 feet and ROW width of 40'. This road is the entryway to the City's planned Industrial Park. The surrounding area is partially developed with industrial uses, and some properties are underdeveloped and remain under agricultural use.

2.4 Other Permits and Approvals

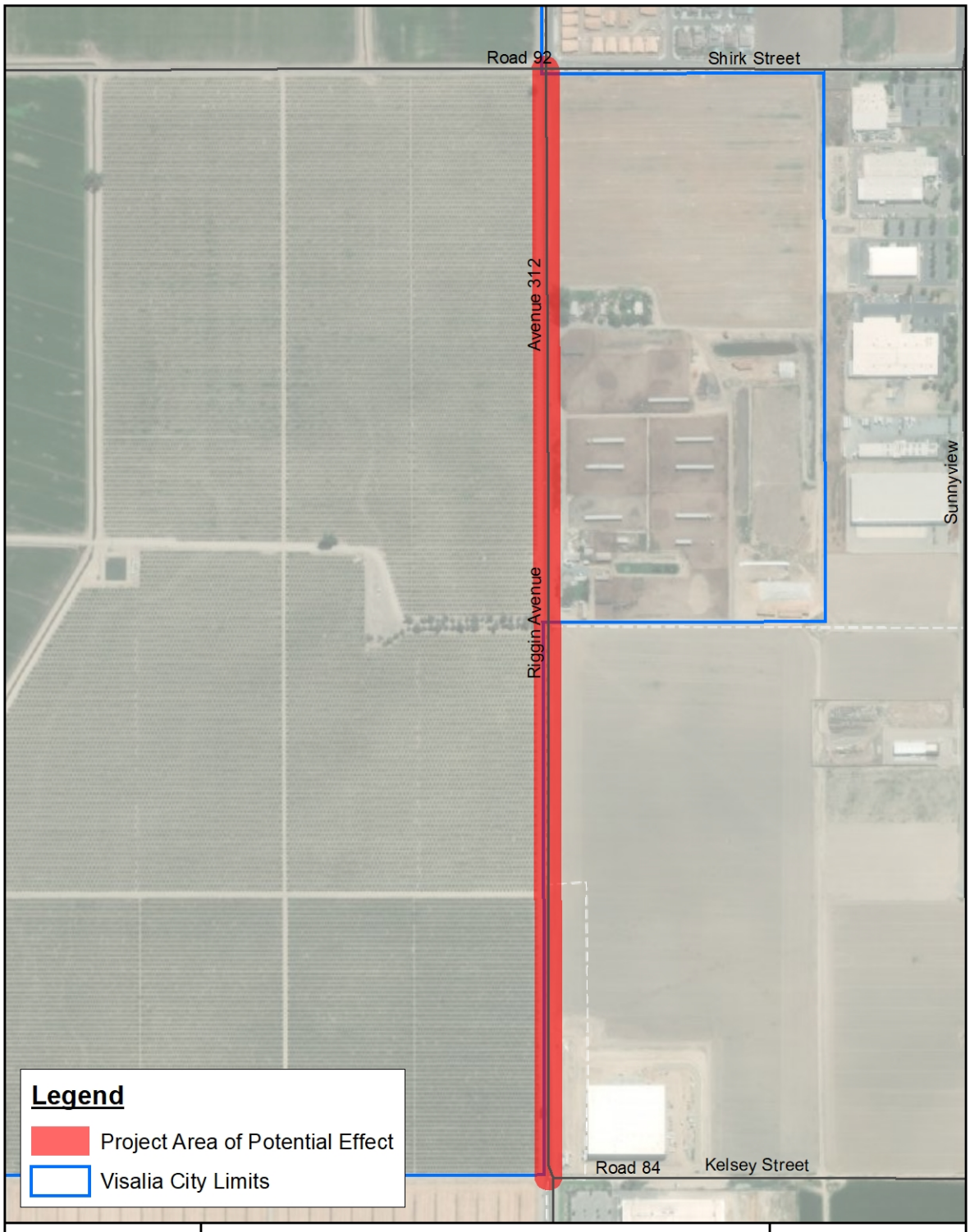
Other permits and approvals required for the Riggin Avenue Widening (Kelsey to Shirk) Project are listed below. It should be noted that this list is not exhaustive and additional permits and approvals may also be required.

- *City of Visalia Building and Encroachment Permits*
- *City of Visalia Grading Permits*
- *City of Visalia approved Landscape and Design Plans*
- *San Joaquin Valley Air Pollution Control District (SJVAPCD)*. The proposed project is within the jurisdiction of the SJVAPCD and will be required to comply with Rule VIII, 3135, 4101, and 9510.
- *Central Valley Regional Water Quality Control Board, SWPPP*. The proposed project site is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). The Central Valley RWQCB will require a Storm Water Pollution Prevention Plan (SWPPP) to prevent impacts related to stormwater as a result of project construction.

Regional Location

Riggin Avenue Widening (Kelsey to Shirk)

Figure 2-2



Vicinity Map

Riggin Avenue Widening (Kelsey to Shirk)

Figure 2-3

Section 3

Evaluation of Environmental Impacts

City of Visalia
315 East Acequia Avenue
Visalia, CA 93291

SECTION 3
Evaluation of Environmental Impacts

Project Title: Riggin Avenue Widening (Kelsey to Shirk)

This document is the Initial Study/Mitigated Negative Declaration for the proposed reconstruction of approximately 1 mile of existing roadway to accommodate a 4-lane arterial street. The proposed project site is located partially within the City of Visalia and partially within unincorporated Tulare County. The City of Visalia will act as the Lead Agency for this project pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

3.1 PURPOSE

The purpose of this environmental document is to implement the California Environmental Quality Act (CEQA). Section 15002(a) of the CEQA Guidelines describes the basic purposes of CEQA as follows.

(1) Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
(2) Identify the ways that environmental damage can be avoided or significantly reduced.
(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

This Initial Study of environmental impacts has been prepared to conform to the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.).

According to Section 15070(a), a Negative Declaration is appropriate if it is determined that:

(1) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment.

3.2 INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

1. **Project Title:** Riggin Avenue Widening (Kelsey to Shirk)

2. **Lead Agency:** City of Visalia
315 East Acequia Avenue
Visalia, CA 93291
(559) 713-4359

3. **Applicant:** City of Visalia
Contact Person: Diego Corvera
315 East Acequia Avenue
Visalia, CA 93291
(559) 713-4209

4. **Project Location:** The proposed project site is located partially within the City of Visalia and partially within unincorporated Tulare County. The project would affect approximately 14 acres within City/County ROW along Riggin Avenue from Kelsey Street to Shirk Street. The site is bordered by agricultural uses to the north and south.

5. **General Plan Designation**: This segment of Riggin Avenue is designated as a future arterial (Year 1-10) in the Circulation Element of the City of Visalia General Plan.

6. **Zoning Designation:** The project will take place within ROW, outside of zoning designations.

7. **Project Description:** The proposed project involves the reconstruction of 1 mile of existing roadway between Kelsey Street and Shirk Street to accommodate a 4-lane arterial street with 110' total ROW. Improvements would include new 12' vehicular travel lanes (4 lanes total), new Class II bike lanes, new street lighting, new landscaped medians, a new bus turnout, new fire hydrants, new sewer line, new traffic signal, and curb returns at all involved intersections. A typical cross section detail is shown in Figure 2-1. Construction would require demolition of existing asphalt between Kelsey Street and Shirk Street, removal of trees along Riggin Avenue frontage (including 2-3 rows of orchard trees along the north side of Riggin Avenue), and relocation of 17 existing power poles. Construction is proposed to begin January 2022 and continue through May 2022. See Figure 3-2 for site layout.

8. **Surrounding Land Use Designations and Settings:**

   North Industrial/Light Industrial, currently under agricultural use.
   South Industrial/Light Industrial, currently under agricultural and industrial use.
   West Industrial, currently agricultural and industrial use.
   East Residential Medium Density, currently single-family residential and vacant/agricultural use.

9. **Required Approvals:** No discretionary approvals are required from The City of Visalia for the proposed project.

10. **Native American Consultation:** On October 26, 2020, an e-mail was sent to the Native American Heritage Commission (NAHC) requesting a search of its Sacred Lands File and the contact information for local Native American tribal representatives who may have an interest in sharing information about the Project area and surrounding area. The NAHC responded on November 9, 2020, with its search findings and attached a list of Native American tribes and individuals culturally affiliated with the Project area. On November 10, 2020, a letter describing the project was sent to each of the individuals identified in the NAHC response. Follow-up contact by e-mail was completed on November 12, 2020 and telephone calls were placed on November 18, 2020 to confirm receipt of the letter and gather any information tribal representatives may want to share about resources in the Project area or general vicinity. Three responses were received during this outreach process. A representative from the Santa Rosa Rancheria Tachi-Yokut Tribe requested that an archaeological records search and cultural resources survey be done before any ground disturbance. The other two responses indicated that the Tribe had no comment on the proposed project. Native American Consultation efforts are detailed further in The Cultural Resources Assessment (Appendix C).

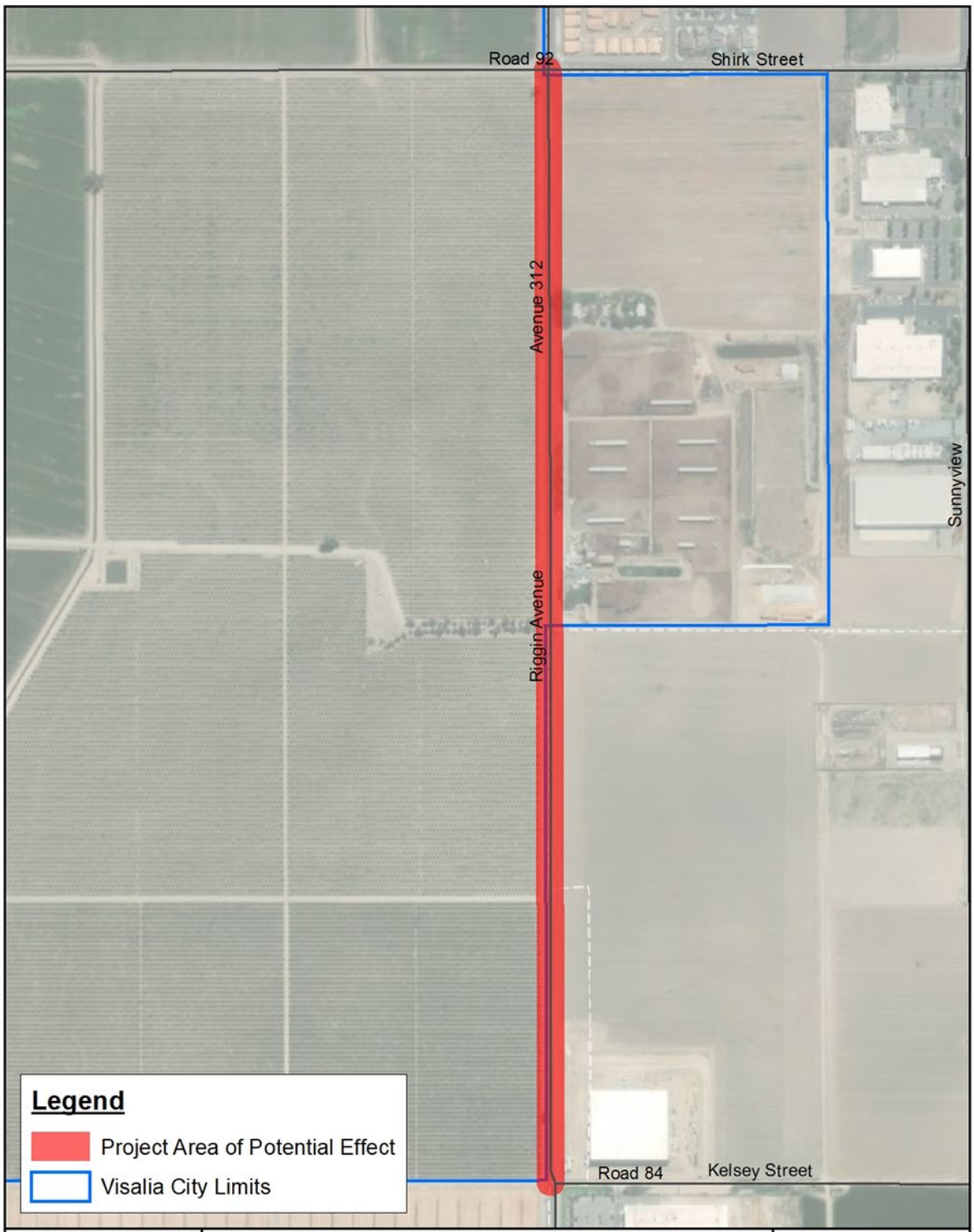
11. **Parking and access:** During construction, workers will utilize a temporary construction easement located adjacent to the project site for parking and equipment staging.

12. **Landscaping and Design:** The landscape and design plans will be required at time the project submits for building permit on the project and will be subject to the City of Visalia's Water Efficient Landscape Ordinance (WELO).

13. **Utilities and Electrical Services:** The proposed project will extend sewer and storm drain lines along Riggin Avenue as a part of current development standards. Electrical services are provided by SCE and the project will involve relocation of 17 existing power poles located on the north side of the street. The existing 12" water main along the south side of Riggin Ave will remain in-place.

Acronyms

BMP	Best Management Practices
CAA	Clean Air Act
CCR	California Code of Regulation
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CWA	California Water Act
DHS	Department of Health Services
FEIR	Final Environmental Impact Report
FPPA	Farmland Protection Policy Act
ISMND	Initial Study Mitigated Negative Declaration
MCL	Maximum Contaminant Level
ND	Negative Declaration
NAC	Noise Abatement Criteria
RCRA	Resource Conservation and Recovery Act of 1976
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Office
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWPPP	Storm Water Pollution Prevention Plan



Vicinity Map

Riggin Avenue Widening (Kelsey to Shirk)

Figure 3-1

Figure 3-2. Site Plan.

3.3 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately support by the information sources a lead agency cites, in the parentheses following each question. A "No Impact" answer is adequately supported if the reference information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR if required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequate analyzed in an earlier EIR or negative declaration. Section 15063(c) (3)(D). In this case, a brief discussion should identify the following.

    a) Earlier Analysis Used. Identify and state where they are available for review.
    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated." Describe and mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

3.4 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture and Forest Resources	☐ Hazards and Hazardous Materials	☐ Recreation
☐ Air Quality	☐ Hydrology and Water Quality	☐ Transportation
☐ Biological Resources	☐ Land Use and Planning	☐Utilities and Service System
☐ Cultural Resources	☐ Mineral Resources	☐ Wildfire
☐ Energy	☐ Noise	☐ Mandatory Findings of Significance
☐ Geology and soils	☐ Population	

DETERMINATION: (To be completed by the Lead Agency) Where potential impacts are anticipated to be significant, mitigation measures will be required, so that impacts may be avoided or reduced to insignificant levels.

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION WILL BE PREPARED.

☑ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. A Negative Declaration is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is requested.

Brandon Smith — January 4, 2022

SIGNATURE — DATE

Brandon Smith, Environmental Coordinator — City of Visalia

PRINTED NAME — AGENCY

3.5 ENVIRONMENTAL ANALYSIS

The following section provides an evaluation of the impact categories and questions contained in the checklist and identify mitigation measures, if applicable.

I. AESTHETICS

Except as provided in Public Resource Code Section 210999, would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within state scenic highway?	☐	☐	☐	☑
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☑
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

Environmental Setting

There are no aesthetic resources identified in the City of Visalia General Plan; however, the views of the Sierra Nevada Mountains are considered to be an important scenic vista in Tulare County.

Sierra Nevada Mountains: The Sierra Nevada mountain range and its foothills stretch along the east area of the county and are a valuable aesthetic resource. Additionally, Sequoia National Park is located within the stretch of the Sierra Nevada Mountains located in Tulare County. Sequoia National Forest is a U.S. National Forest known for its mountain scenery and natural resources. Located directly north of Sequoia National Park is Kings Canyon National Park, a U.S. National Park also known for its towering sequoia trees and scenic vistas. The Sierra Nevada Mountains are approximately 20 miles east of the proposed project site but views of the mountains are not visible on most days due to poor air quality.

The following photos demonstrate the aesthetic character of the project area. As shown, the proposed project site is located in a relatively flat area with primarily agricultural uses.

Photo 1: View of Riggin Avenue looking east. Source: 4-Creeks, 6/21/2020

Photo 2: View of Riggin Avenue looking west. Source: 4-Creeks, 6/21/2020

Photo 3: View of from south side of Riggin Avenue looking north. Source: 4-Creeks, 6/21/2020

Regulatory Setting

State Scenic Highways: The State Scenic Highway Program is implemented by Caltrans and was developed to preserve the aesthetic quality of certain highway corridors. Highways included in this program are designated as scenic highways. A highway is designated as scenic based on how much of the natural landscape is visible to travelers, the quality of that landscape, and the extent to which development obstructs views of the landscape. The 44-mile stretch of State Route 198 between State Route 99 and Sequoia National Park is classified as eligible for State Scenic Highway status, but is not officially designated. There are no designated State Scenic Highways within the City of Visalia.

City of Visalia General Plan: The City of Visalia General Plan includes the following goals and policies that are intended to protect the City's aesthetic resources that are applicable to the proposed project:

- LU-O-15 Maintain and enhance Visalia's physical diversity, visual qualities and small-town characteristics.
- LU-P-37 Adopt specific development standards for scenic entryways (gateways) and roadway corridors into the City, including special setback and landscape standards, open space and park development, and/or land use designations. These standards will apply to the west and east entries into Visalia along Highway 198 and to the "gateway boulevards" identified in the Transportation Element: Caldwell and Riggin Avenues; Shirk Road; and Lovers Lane
- LU-P-42 Develop scenic corridor and gateway guidelines that will maintain the agricultural character of Visalia at its urban fringe.

Discussion

a) Would the project have a substantial adverse effect on a scenic vista?

No Impact: A scenic vista is defined as a viewpoint that provides expansive views of highly valued landscape for the benefit of the general public. The Sierra Nevada Mountains are the primary scenic vista within this region and the Land Use Element of the City's General Plan states that view corridors to the mountains should be preserved. The foothills of the Sierra Nevada Mountains are approximately 20 miles east of the proposed project site, however views of the mountains are not visible on most days due to poor air quality. The proposed project would not result in any vertical construction that could effect views of the Sierra Nevada Mountains or any other scenic vista. There is *no impact.*

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within state scenic highway?

No Impact: There are no Officially Designated State Scenic Highways within the City of Visalia. Highway 198 is the nearest Eligible State Scenic Highway and is located approximately 2 miles south of the project site. Significant urban development between the project site and Highway 198 completely eliminates visibility of the project site from the highway. There is *no impact.*

c) In non-urbanized areas, would the project substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact: The proposed project site is located in an area characterized by agricultural activity, however the project would not negatively impact the existing visual character. Proposed improvements include new vehicular travel lanes, new Class II bike lanes, new street lighting, new landscaped medians, a new bus turnout, new fire hydrants, new sewer line, new traffic signal, and curb returns. All proposed improvements will be done in accordance with City development standards and will not affect the surrounding visual character. There is *no impact.*

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant Impact: The proposed project would result in new street lighting consistent with the City's development standards, which are developed to minimize impacts related to excessive light and glare. The impacts are *less than significant.*

Mitigation Measures for Aesthetic Resources

None Required

II. AGRICULTURE AND FOREST RESOURCES:

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☑
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned timberland Production (as defined by Government Code section 51104(g)?	☐	☐	☐	☑
d) Result in the loss of forestland or conversion of forest land to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☑

Environmental Setting

Agriculture is a vital component of the City of Visalia's economy and is a significant source of the City's cultural identity. As such, preserving the productivity of agricultural lands is integral to maintaining the City's culture and economic viability.

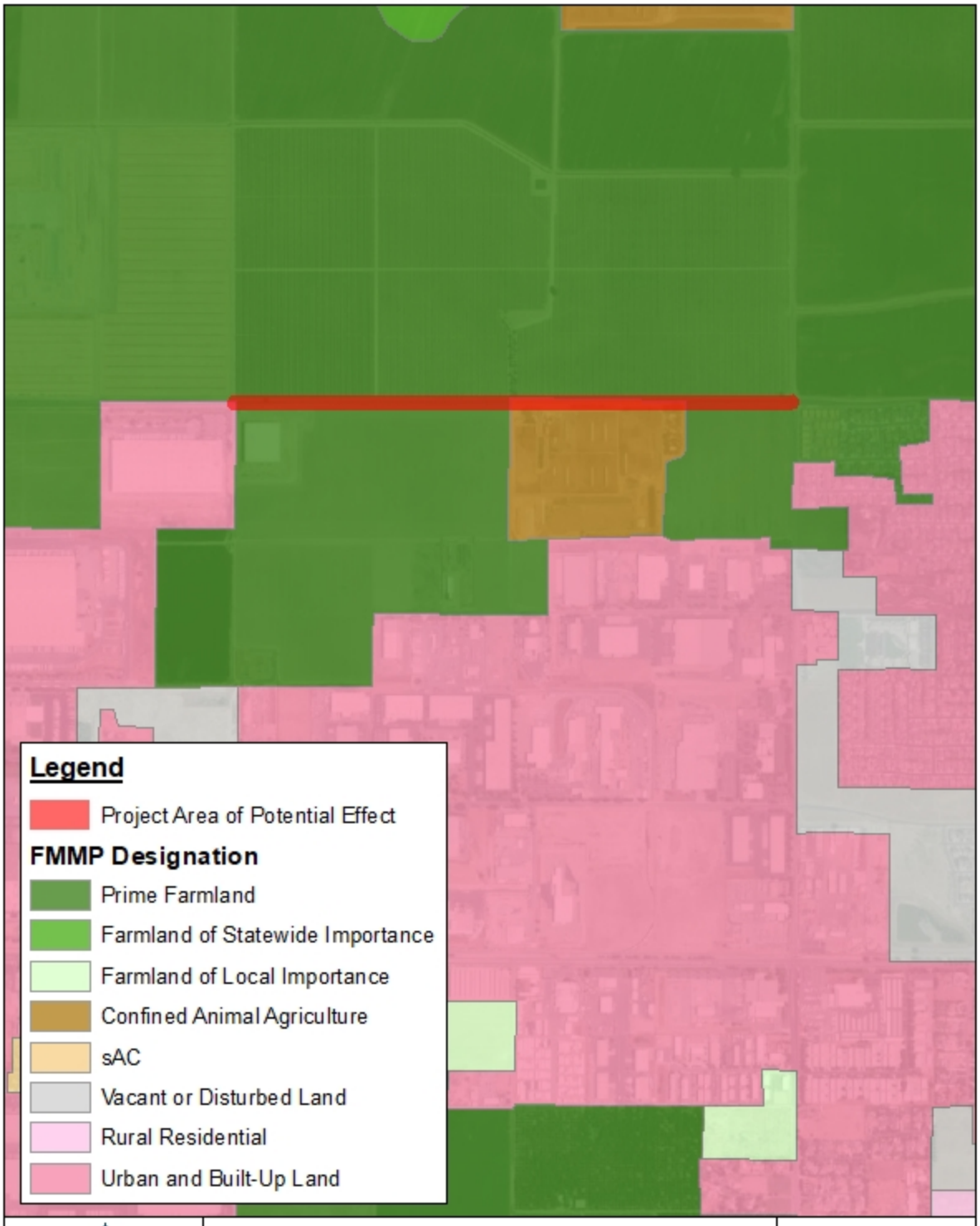
The proposed project site is designated as Prime Farmland and Confined Animal Agriculture under the Important Farmland Mapping and Monitoring Program, however the site is located within the public Right-of-Way and would not impact farming activities.

Regulatory Setting

California Land Conservation Act of 1965: The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, allows local governments to enter into contracts with private landowners to restrict the activities on specific parcels of land to agricultural or open space uses. The landowners benefit from the contract by receiving greatly reduced property tax assessments. The California Land Conservation Act is overseen by the California Department of Conservation; however local governments are responsible for determining specific allowed uses and enforcing the contract.

California Farmland Mapping and Monitoring Program (FMMP): The FMMP is implemented by the California Department of Conservation (DOC) to conserve and protect agricultural lands within the State. Land is included in this program based on soil type, annual crop yields, and other factors that influence the quality of farmland. The FMMP mapping categories for the most important statewide farmland are as follows:

- ***Prime Farmland*** has the ideal physical and chemical composition for crop production. It has been used for irrigated production in the four years prior to classification and is capable of producing sustained yields.
- ***Farmland of Statewide Importance*** has also been used for irrigated production in the four years prior to classification and is only slightly poorer quality than Prime Farmland.
- ***Unique Farmland*** has been cropped in the four years prior to classification and does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but has produced specific crops with high economic value.
- ***Farmland of Local Importance*** encompasses farmland that does not meet the criteria for the previous three categories. These may lack irrigation, produce major crops, be zoned as agricultural, and/or support dairy.
- ***Grazing Land*** has vegetation that is suitable for grazing livestock.



Important Farmland Map

Riggin Avenue Widening (Kelsey to Shirk)

Figure 3-3

Discussion

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact: The proposed site is classified as Prime Farmland and Confined Animal Agriculture by the California Department of Conservation Farmland Mapping and Monitoring Program, however the Project itself is a road widening project and will not result in the significant loss of agricultural lands and would not convert farmland to non-agricultural use. There is *no impact.*

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act Contract?

No Impact: The proposed project site is within the public ROW and is therefore not zoned for agricultural use or under a Williamson Act Contract. There is *no impact.*

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned timberland Production (as defined by Government Code section 51104(g)?

No Impact: The project site located within the public ROW and is therefore not zoned for forest or timberland production. There is n*o impact.*

d) Would the project result in the loss of forestland or conversion of forest land to non-forest use?

No Impact: The proposed project site is located within the public ROW and would not convert forestland to non-forest use. There is *no impact.*

e) Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?

No Impact: As discussed above, the proposed project site is located within the public ROW. The project would not result in the loss of Farmland to non-agricultural use or forestland to non-forest use. There is *no impact.*

Mitigation Measures for Agricultural and Forest Resources

None Required

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☑	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☑	☐

Environmental Setting

Air pollution is directly related to regional topography. Topographic features can either stimulate the movement of air or restrict air movement. California is divided into regional air basins based on topographic air drainage features. The proposed project site is within the San Joaquin Valley Air Basin, which is bordered by the Sierra Nevada Mountains to the east, Coastal Ranges to the west, and the Tehachapi Mountains to the south. The mountain ranges surrounding the San Joaquin Valley Air Basin (SJVAB) serve to restrict air movement and prevent the dispersal of pollution. As shown in the Table 3-1, the SJVAB is in nonattainment for several pollutant standards.

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – One hour	No Federal Standard[D]	Nonattainment/Severe
Ozone – Eight hour	Nonattainment/Extreme[C]	Nonattainment
PM 10	Attainment[A]	Nonattainment
PM 2.5	Nonattainment[B]	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

A. On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.
B. The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).
C. Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).
D. Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

Table 3-1. San Joaquin Valley Attainment Status; Source: SJVAPCD

Regulatory Setting

Federal Clean Air Act – The 1977 Federal Clean Air Act (CAA) authorized the establishment of the National Ambient Air Quality Standards (NAAQS) and set deadlines for their attainment. The Clean Air Act identifies specific emission reduction goals, requires both a demonstration of reasonable further progress and an attainment demonstration, and incorporates more stringent sanctions for failure to meet interim milestones. The U.S. EPA is the federal agency charged with administering the Act and other air quality-related legislation. EPA's principal functions include setting NAAQS; establishing minimum national emission limits for major sources of pollution; and promulgating regulations. Under CAA, the NCCAB is identified as an attainment area for all pollutants.

California Clean Air Act – California Air Resources Board coordinates and oversees both state and federal air pollution control programs in California. As part of this responsibility, California Air Resources Board monitors existing air quality, establishes California Ambient Air Quality Standards, and limits allowable emissions from vehicular sources. Regulatory authority within established air basins is provided by air pollution control and management districts, which control stationary-source and most categories of area-source emissions and develop regional air quality plans. The project is located within the jurisdiction of the San Joaquin Valley Air Pollution Control District.

The state and federal standards for the criteria pollutants are presented in Section 8.4 of The San Joaquin Valley Unified Air Pollution Control District's 2015 "Guidance for Assessing and Mitigating Air Quality Impacts". These standards are designed to protect public health and welfare. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soils, water, visibility, materials, vegetation and other aspects of general welfare. The U.S. EPA revoked the national 1-hour ozone standard on June 15, 2005, and the annual PM_{10} standard on September 21, 2006, when a new $PM_{2.5}$ 24-hour standard was established.

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (03)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet 8 Hour Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Annual Analysis
	Annual Arithmetic Mean	20 µg/m3		--		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour		Gravimetric or Beta Attenuation	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Annual Analysis
	Annual Arithmetic Mean	12 µg/m³		15 µg/m³		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	--	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	--	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		--	--	
Nitrogen Dioxide	1 Hour	0.18 ppm (339 µg/m³)		100 ppb (188 µg/m³)	--	Gas Phase Annual

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
(NO_2)[8]	Arithmetic Mean	0.030 ppm (57 µg/m³)	Gas Phase Chemiluminescence	53 ppb (100 µg/m³)	Same as Primary Standard	Chemiluminescence
Sulfur Dioxide	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	--		--	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)9	--	
	Annual Arithmetic Mean	--		0.030 ppm (for certain areas)9	--	
Lead[10,11]	30 Day Average	1.5 µg/m³	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m3 (for certain areas)11	Same as Primary Standard	
	Rolling 3-Month Average	--		0.15 µg/m³		
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standard		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
9. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Table 3-2. Ambient Air Quality Standards; Source: SJVAPCD

San Joaquin Valley Air Pollution Control District (SJVAPCD) – The SJVAPCD is responsible for enforcing air quality standards in the project area. To meet state and federal air quality objectives, the SJVAPCD adopted the following thresholds of significance for projects (Table 3-3). Additionally, the following SJVAPCD rules and regulations may apply to the proposed project:

- **Rule 3135:** Dust Control Plan Fee. All projects which include construction, demolition, excavation, extraction, and/or other earth moving activities as defined by Regulation VIII (Described below) are required to submit a Dust Control Plan and required fees to mitigate impacts related to dust.
- **Rule 4101:** Visible Emissions. District Rule 4101 prohibits visible emissions of air contaminants that are dark in color and/or have the potential to obstruct visibility.
- **Rule 9510:** Indirect Source Review (ISR). This rule reduces the impact PM10 and NOX emissions from growth on the SJVB. This rule places application and emission reduction requirements on applicable development projects in order to reduce emissions through onsite mitigation, offsite SJVAPCD administered projects, or a combination of the two.
- **Regulation VIII:** Fugitive PM10 Prohibitions. Regulation VIII is composed of eight rules which together aim to limit PM10 emissions by reducing fugitive dust. These rules contain required management practices to limit PM10 emissions during construction, demolition, excavation, extraction, and/or other earth moving activities.

Pollutant/ Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	Emissions (tpy)	Emissions (tpy)	Emissions (tpy)
CO	100	100	100
Nox	10	10	10
ROG	10	10	10
SOx	27	27	27
PM10	15	15	15
PM2.5	15	15	15

Table 3-3. SJVAPCD Thresholds of Significance for Criteria Pollutants; Source: SJVAPCD

Discussion

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact: The proposed project is located within the boundaries of the San Joaquin Valley Air Pollution Control District (SJVAPCD) and would result in air pollutant emissions that are regulated by the air district during both its construction and operational phases. The SJVAPCD is responsible for bringing air quality in Tulare County into compliance with federal and state air quality standards. The air district has Particulate Matter (PM) plans, Ozone Plans, and Carbon Monoxide Plans that serve as the clean air plan for the basin. Together, these plans quantify the required emission reductions to meet federal and state air quality standards and provide strategies to meet these standards.

Construction Phase. Project construction would generate pollutant emissions from the following construction activities: grubbing/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving. The construction related emissions from these activities were calculated using Road Construction Emissions Model, Version 9.0.0. The full Emissions Model results are available in

Appendix A. As shown in Table 3-4 below, project construction related emissions do not exceed the thresholds established by the SJVAPCD.

	CO (tpy)	ROG (tpy)	SOx (tpy)*	Nox (tpy)	PM10 (tpy)	PM2.5 (tpy)
Emissions Generated from Project Construction	**3.92**	**0.45**	**0.01**	**4.71**	**6.75**	**1.54**
SJVAPCD Air Quality Thresholds of Significance	**100**	**10**	**27**	**10**	**15**	**15**
*Threshold established by SJVAPCD for SOx, however emissions are reported as SO2 by the Road Construction Emissions Model.						

Table 3-4. Projected Project Emissions Compared to SJVAPCD Thresholds of Significance for Criteria Pollutants related to Construction; Source: SJVAPCD, Road Construction Emissions Model, Version 9.0.0 (Appendix A)

Operational Phase. The proposed project is being implemented in response to existing and planned growth in the area. Riggin Avenue is identified in the City's General Plan as a future arterial. Arterials collect and distribute traffic from freeways and expressways to collector streets. The Project will improve local roadway conditions to accommodate traffic that has already been planned for and analyzed in the City's General Plan EIR. The project itself would not generate any additional vehicle trips and there will be no stationary source emissions resulting from the Project.

Because the emissions from Project construction would not exceed the thresholds of significance established by the SJVAPCD, and the Project would result in operational emissions beyond the mobile source emissions that have been previously analyzed in the City's General Plan EIR, the project would not conflict with or obstruct implementation of an applicable air quality plan and there is *no impact.*

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact: The SJVAPCD accounts for cumulative impacts to air quality in Section 1.8 "Thresholds of Significance – Cumulative Impacts" in its 2015 Guide for Assessing and Mitigating Air Quality Impacts. The SJVAPCD considered basin-wide cumulative impacts to air quality when developing its significance thresholds. Because Project emissions are below the significance thresholds adopted by the air district, and compliance with SJVAPCD rules will address any cumulative impacts regarding operational emissions, impacts regarding cumulative emissions would be *less than significant.*

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact: The single-family residences located to the east of the proposed Project site are the closest sensitive receptors. The Project would not exceed emissions thresholds established by the SJVAPCD and would not result in operational emissions beyond the mobile source emissions that were previously analyzed in the City's General Plan EIR. The project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be *less than significant.*

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact: The project will create temporary localized odors during project construction. These odors are not likely to be noticeable for extended periods of time beyond the perimeter of the Project site. Once constructed, the project will not create any new sources of odor that result directly from the project. The project would not create objectionable odors affecting a substantial number of people and the impacts would be *less than significant.*

Mitigation Measures for Air Quality

None Required

IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Game or U.S. fish and Wildlife Service?	☐	☐	☐	☑
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☑
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through director removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☑	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☑	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Discussion for this section originates from the Biological Resource Assessment that was prepared for this project by Soar Environmental Consulting, Inc. in December 2020 to identify sensitive biological resources, provide project impact analysis, and suggest mitigation measures. The full document can be found in Appendix B of this Initial Study.

Environmental Setting

The Project Footprint is comprised of portions of Tulare County Assessor Parcel Numbers 077-840-001 and 077-840-003 and is located on the United States Geological Survey (USGS) Goshen and Visalia, 7.5-minute quadrangles, at an elevation ranging from approximately 300 to 330 feet above mean sea level (AMSL). The Project site has historically been used for agricultural purposes. The land use north of Riggin Avenue is currently active almond and pistachio orchards. The adjacent land uses to the south of Riggin Avenue are active agricultural land and a livestock feed lot. Residential homes are present along Riggin

Avenue and east of Shirk Street south of Riggin Avenue. In the western portion of the Project Footprint south of Riggin Avenue, the biologist noted newly installed landscaped sidewalks with curb and gutter fronting various commercial enterprises. Overhead utility lines follow the north side of Riggin Avenue.

Prior to field activities, Soar Environmental researched the California Natural Diversity Database (CNDDB) and the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC), to learn which species could potentially be present onsite. Soar Environmental researched specific species and habitat requirements for the species noted in the CNDDB, California Native Plant Society (CNPS), and IPaC databases and included proximal species observations and species status for these, and surrounding parcels, in this report.

On November 12, 2020, Soar Environmental Biologist Casey Stewman performed a pedestrian habitat assessment of the Project Footprint, which is comprised of highly compacted and disturbed road shoulders, and active orchards, whose rows are maintained free of vegetation using mechanical and chemical methods. No native or natural plant communities occur in the 14-acre Project Footprint. Rock dove (*Columba livia*), brown-headed cowbird (*Molothrus ater*), and one red-tail hawk (*Buteo jamaicensis*) were observed within the Project Footprint. However, the surrounding commercial orchards appeared to have more avian activity than the Project site itself.

Regulatory Setting

Federal Endangered Species Act (FESA): defines an *endangered species* as "any species or subspecies that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species or subspecies that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712): FMBTA prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Although the USFWS and its parent administration, the U.S. Department of the Interior, have traditionally interpreted the FMBTA as prohibiting incidental as well as intentional "take" of birds, a January 2018 legal opinion issued by the Department of the Interior now states that incidental take of migratory birds while engaging in otherwise lawful activities is permissible under the FMBTA. However, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

Birds of Prey (CA Fish and Game Code Section 3503.5): Birds of prey are protected in California under provisions of the Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

Clean Water Act: Section 404 of the Clean Water Act of (1972) is to maintain, restore, and enhance the physical, chemical, and biological integrity of the nation's waters. Under Section 404 of the Clean Water Act, the US Army Corps of Engineers (USACE) regulates discharges of dredged and fill materials into

"waters of the United States" (jurisdictional waters). Waters of the US including navigable waters of the United States, interstate waters, tidally influenced waters, and all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries.

California Endangered Species Act (CESA): prohibits the take of any state-listed threatened and endangered species. CESA defines *take* as "any action or attempt to hunt, pursue, catch, capture, or kill any listed species." If the proposed project results in a take of a listed species, a permit pursuant to Section 2080 of CESA is required from the CDFG.

City of Visalia Valley Oak Tree Ordinance: The City's Valley Oak Ordinance establishes policies for the care, trimming and removal of Valley Oaks. The ordinance also establishes an in-kind mitigation program and mitigation fee program for the removal of oak trees.

Discussion

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Game or U.S. fish and Wildlife Service?

No Impact: The existing roadway system, agricultural activities, and development within the project area, have altered the natural landscape by the introduction of horticultural and non-native plant species and by the removal of potentially suitable native habitat for sensitive plant or animal species within the APE. No impacts are expected to any of the special-status species that have any potential to occur in the APE. There is *no impact.*

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

No Impact: During the Habitat Assessment performed by Soar Environmental, no riparian habitat nor other sensitive natural communities were observed on-site. Development of the proposed project would not impact any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife (CDFW), or United States Fish and Wildlife Service (USFWS). There is *no impact.*

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through director removal, filling, hydrological interruption, or other means?

No Impact: No water or other hydrologic features occur within the limits of construction and operation of the proposed project. There are no jurisdictional water features and no nexus to Waters of the United States. Therefore, no impacts to state or federally protected wetlands would occur due to the proposed project. There is *no impact.*

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant Impact: The project involves widening an existing two lane paved road from 30' wide to 74' wide, and also includes other improvements such as sidewalks, landscaped medians and bike paths on each side of the road and traffic signals at one intersection. This roadway widening project will likely have some negative impact on the ease of movement of resident special-status wildlife because the paved roadway is getting wider. However, the West Riggin Avenue Widening Project is surrounded on all sides by active agricultural lands (south and east), orchards (north), commercial development (southwest) and urban housing (southeast). The Project contains no waterways, streambeds, wetlands, or natural communities. As such, the project would not interfere substantially with the movement of any resident or migratory fish, wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites. Converting land use from active agriculture and orchard and unvegetated ROW is considered a *Less than Significant Impact.*

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact with Mitigation: The City of Visalia Valley Oak Tree Ordinance contains requirements to preserve and maintain valley oak (Quercus lobata) trees in and near the City and requires mitigation based on the size or diameter at breast height (dbh) of the valley oak being removed in order to be issued a permit for removal (City of Visalia, 2020). In addition, the City of Visalia has regulations guiding the replanting and establishment of replacement valley oak trees in areas where they will be protected and conserved on public land in order to compensate for removal of large valley oaks in the City.

There is one existing valley oak tree (approximately 5.5 foot dbh) within the Project site. Therefore, mitigation is necessary to ensure impacts are less than significant. Incorporation of the City of Visalia Oak Tree Mitigation Policy (Mitigation Measure BIO-1) will reduce impacts to *less than significant with mitigation.*

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact: The proposed project is not located within the boundaries of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional or state habitat conservation plan. There is *no impact.*

Mitigation Measures for Biological Resources

Mitigation Measure BIO-1: Removal of the valley oak tree requires mitigation by paying a mitigation fee, or by performing in-kind mitigation, or by a combination of payment of mitigation fee and in-kind mitigation. Oak tree removal, and mitigation will be in accordance with the City of Visalia Oak Tree Mitigation Policy, pursuant to Visalia Municipal Code sections 12.24.037 and 12.24.110.

V. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☑	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☑	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☑	☐	☐

Environmental Setting

A Phase 1 Cultural Resources Assessment was prepared by Taylored Archaeology in November 2020. The Assessment included a Cultural Resources Records Search, archival research, Native American outreach, and a pedestrian survey.

The records search results indicated that there are no cultural resources (prehistoric or historic) recorded within the Project APE and also that there are no cultural resources within a 0.5-mile radius of the Project APE. In addition, Southern San Joaquin Valley Information Center staff also reported two prior investigations were conducted within the Project APE and three prior investigations were conducted within a 0.5-mile radius of the Project APE.

Archival research identified several structures within the vicinity of the project site, including a ditch along the western edge of N Shirk Rd and the along north side of west Riggin Avenue, a concrete culvert at the northwest corner of W Riggin Ave and N Shirk Rd, a wood pole distribution line, and a wood pole transmission line. It was determined that none of these structures met the eligibility criteria for NRHP under NHPA.

Taylored Archaeology conducted an archaeological pedestrian survey on November 7, 2020. No cultural resources were identified within the Project APE during the survey.

The Cultural Resources Assessment also included Native American Outreach, which will be discussed in greater depth in the Tribal Cultural Resources section of this Initial Study. The full Phase 1 Cultural Resources Assessment is available in Appendix C.

Regulatory Setting

National Historic Preservation Act: The National Historic Preservation Act was adopted in 1966 to preserve historic and archeological sites in the United States. The Act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation offices.

California Historic Register: The California Historic Register was developed as a program to identify, evaluate, register, and protect Historical Resources in California. California Historical Landmarks are sites,

buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific, religious, experimental, or other value. In order for a resource to be designated as a historical landmark, it must meet the following criteria:

- The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California).
- Associated with an individual or group having a profound influence on the history of California.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer or master builder.

City of Visalia General Plan: The Open Space and Conservation Element of the City of Visalia General Plan includes the following objectives and policies pertaining to cultural and historic resources:

Objective OSC-O-11 Preserve and protect historic features and archaeological resources of the Visalia planning area including its agricultural surrounding for aesthetic, scientific, educational and cultural values.

OSC-P-39 Establish requirements to avoid potential impacts to sites suspected of being archeologically, paleontologically, or historically significant or of concern, by:

- Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;
- Determining the potential effects of development and construction on archaeological or paleontological resources (as required by CEQA);
- Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historical and archaeological sensitivity; and
- Implementing appropriate measures to avoid the identified impacts, as conditions of approval.

Discussion

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to in Section 15064.5?

Less Than Significant Impact with Mitigation: A Phase 1 Cultural Resources Assessment was conducted in November 2020 for the proposed project. The Assessment included Southern San Joaquin Valley Information Center records search, a Native American Heritage Comission Sacred Lands File search, archival research, and pedestrian survey. The Phase 1 Cultural Resources Assessment did not identify any historical or cultural resources within the project APE. The full Phase 1 Cultural Resources Assessment is available in Appendix C.

Based on the results of this Cultural Resources Assessment, no known historic resources are located within the project site. Although no historic resources were identified, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measures CUL-1 and CUL-2 will ensure that impacts to this checklist item will be *less than significant with mitigation incorporation*.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant Impact with Mitigation: There are no known archaeological resources located within the project area. Implementation of Mitigation Measures CUL-1 and CUL-2 will ensure that potential impact will be *less than significant with mitigation incorporation.*

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact with Mitigation: There are no known human remains buried in the project vicinity. If human remains are unearthed during development, there is a potential for a significant impact. As such, implementation of Mitigation Measure CUL-2 will ensure that impacts remain *less than significant with mitigation incorporation.*

Mitigation Measures for Impacts to Cultural Resources:

Mitigation Measure CUL-1: If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any adverse effects.

Mitigation Measure CUL-2: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

VI. ENERGY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☑	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☑

Environmental Setting

Southern California Edison (SCE) provides electricity services to the region. SCE serves approximately 15 million people throughout a 50,000 square-mile service area in central, coastal, and southern California. SCE supplies electricity to its customers through a variety of renewable and nonrenewable sources. The Table 3-5 below shows the proportion of each energy resource sold to California consumers by SCE in 2017 as compared to the statewide average.

Fuel Type		SCE Power Mix	California Power Mix
Coal		0%	4%
Large Hydroelectric		8%	15%
Natural Gas		20%	34%
Nuclear		6%	9%
Other (Oil/Petroleum Coke/Waste Heat)		0%	<1%
Unspecified Sources of Power[1]		34%	9%
Eligible Renewables	Biomass	0%	2%
	Geothermal	8%	4%
	Small Hydro	1%	3%
	Solar	13%	10%
	Wind	10%	10%
	Total Eligible Renewable	**32%**	**29%**

1. "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

Table 3-5. 2017 SCE and State average power resources; Source: California Energy Commission

SCE also offers Green Rate Options, which allow consumers to indirectly purchase up to 100% of their energy from renewable sources. To accomplish this, SCE purchases the renewable energy necessary to meet the needs of Green Rate participants from solar renewable developers.

Southern California Gas (SoCalGas) Company provides natural gas services to the project area. Natural gas is an energy source developed from fossil fuels composed primarily of methane (CH4). Approximately 45% of the natural gas burned in California is used for electricity generation, while 21% is consumed by the residential sector, 25% is consumed by the industrial sector, and 9% is consumed by the commercial sector.

Regulatory Setting

California Code of Regulations, Title 20 and Title 24: Title 20 of the California Code of Regulations establishes standards and requirements for appliance energy efficiency. The standards apply to a broad range of appliances sold in California. Title 24 of the California Code of Regulations is a broad set of standards designed to address the energy efficiency of new and altered homes and commercial buildings. These standards regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. Title 24 requirements are enforced locally by the City of Visalia Building Department.

California Green Building Standards Code (CALGreen): CalGreen is a mandatory green building code that sets minimum environmental standards for new buildings. It includes standards for volatile organic compound (VOC) emitting materials, water conservation, and construction waste recycling

Discussion

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact: The proposed Project involves widening of an existing road. During construction, energy use would be primarily attributed the electricity and fuel energy consumed by construction vehicles and equipment. Energy use associated with project construction was estimated using the Road Construction Emissions Model Version 9.0 (Appendix A) and EMFAC data. Energy use calculations are provided in Appendix E and summarized in Table 3-6, below.

Source	Energy Use	
	Gallons	MBTU
Off-Road Equipment Fuel (Diesel)	76,036	10,569
On-Road Vehicle Fuel (Gasoline)	16,859	1,957
On-Road Vehicle Fuel (Diesel)	629	87
Total Construction Energy Use		**12,613**
Average Annual Construction Energy Use		**12,613**

Table 3-6. Construction Related Energy Use. Source: Road Construction Emissions Model & EMFAC (See Appendix E)

Title 24 Building Energy Efficiency Standards would provide guidance on construction techniques to maximize energy conservation. As such, it is anticipated that construction vehicle fuel energy would not involve the wasteful, inefficient, or unnecessary consumption of energy.

During project operations, energy consumption would be minimal. Street lighting is proposed along the length of the proposed improvement area, which would result in some energy use. However, the City of Visalia Engineering Standards require new streetlights to utilize energy efficient LED luminaires. Therefore, it is not anticipated that project operations would result in wasteful, inefficient, or unnecessary consumption of energy.

Because the proposed project will comply with all energy efficiency standards required under Title 24 of the California Building Code and City of Visalia Engineering Standards, it is presumed that the

project will not result in wasteful, inefficient, or unnecessary consumption of energy. The impact is *less than significant.*

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact: The proposed project will not conflict with or obstruct any state or local plans for renewable energy or energy efficiency. The project will be designed to meet Title 24 and City of Visalia energy efficiency standards. Compliance with these standards will be enforced by the City of Visalia Building Division. There is *no impact*

Mitigation Measures for Energy

None Required

VII. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☑	☐
ii) Strong seismic ground shaking?	☐	☐	☐	☑
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☑
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☑
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct and indirect risks to life or property?	☐	☐	☐	☑
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☑	☐

Environmental Setting

Geologic Stability and Seismic Activity

- **Seismicity**: Tulare County is considered to be a low to moderate earthquake hazard area. The San Andreas Fault is the longest and most significant fault zone in California and is approximately 40 miles west of the Tulare County Boundary. Owens Valley fault zone is the only active fault located within Tulare County. Section 5 of the 2017 Tulare Multi-Jurisdictional Local Hazard Mitigation Plan identifies the project site as likely to experience low to moderate shaking from earthquakes, and may experience higher levels if an earthquake were to occur in or near the County. Ground

shaking can result in other geological impacts, including liquefaction, landslides, lateral spreading, subsidence, or collapse.

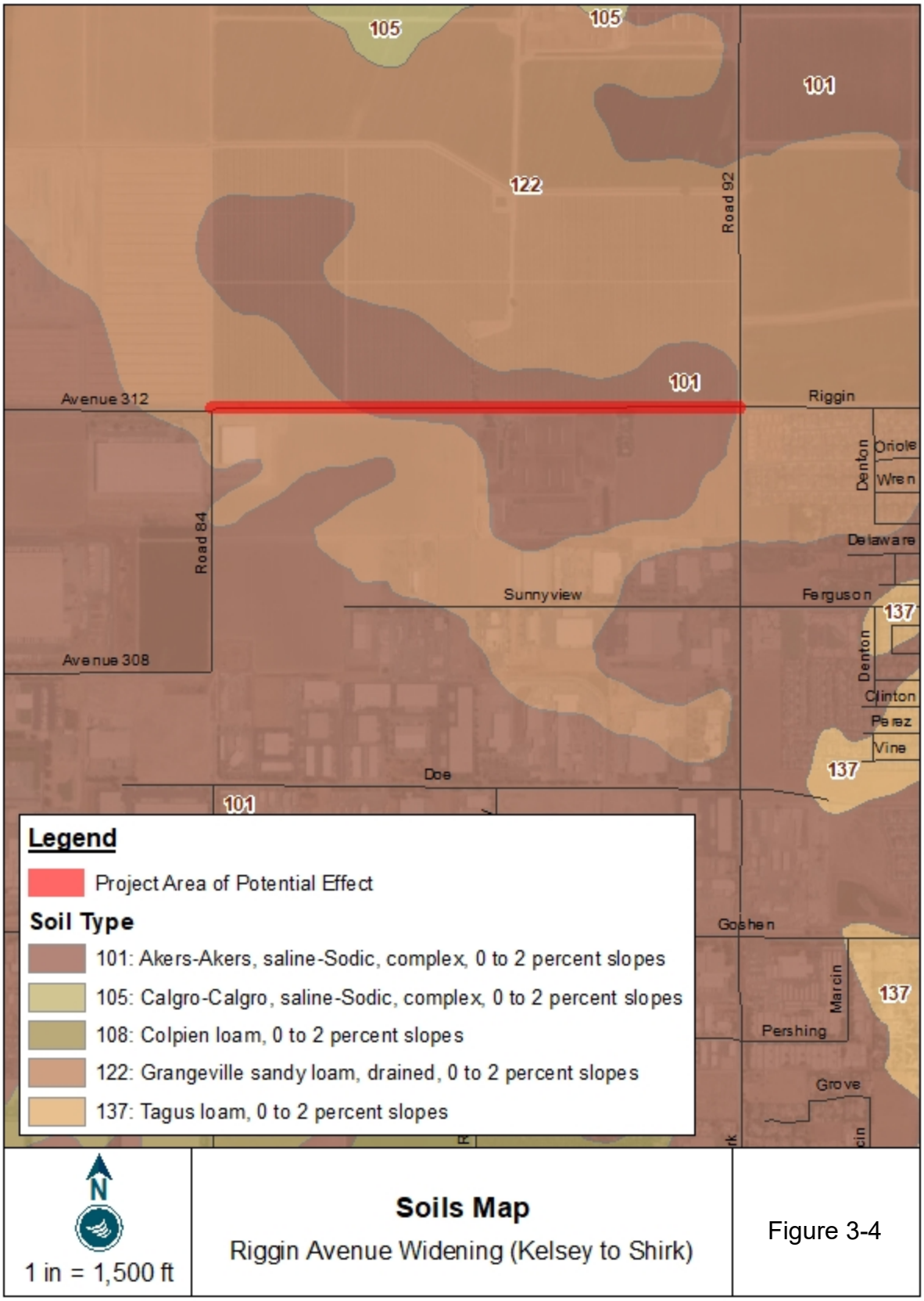
- **Liquefaction**: Liquefaction is a phenomenon whereby unconsolidated and/or near-saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in temporary, fluid-like behavior of the soil, which can result in landslides and lateral spreading. No specific countywide assessment of liquefaction has been performed; however the 2017 Tulare Multi-Jurisdictional Local Hazard Mitigation Plan identifies the risk of liquefaction within the county as low because the soil types in the area either too coarse or too high in clay content to be suitable for liquefaction.

- **Landslides**: Landslides refer to a wide variety of processes that result in the downward and outward movement of soil, rock, and vegetation under gravitational influence. Landslides can be caused by both natural and human-induced changes in slope stability and often accompany other natural hazard events, such as floods, wildfire, or earthquake. Eastern portions of the County are considered to be at a higher risk of landslides where steep slopes are present. However, the majority of the County, including the proposed project site, is considered to be at low risk of landslides and mudslides because of its flat topography. The 2017 Tulare Multi-Jurisdictional Local Hazard Mitigation Plan states that occurrence of landslide events within populated areas of Tulare County is unlikely.

- **Subsidence**: Land Subsidence refers to the vertical sinking of land as a result of either manmade or natural underground voids. Subsidence has occurred throughout the Central Valley at differing rates since the 1920's as a result of groundwater, oil, and gas withdrawal. During drought years, Tulare County is prone to accelerated subsidence, with some areas sinking up to 28 feet. Although western portions of the County show signs of deep and shallow subsidence, the majority of the County, including the proposed project site, is not considered to be at risk of subsidence related hazards.

Soils Involved in Project: The proposed project involves construction on one soil type. The properties of this soil is described below:

- **Grangeville Sandy Loam, drained, 0 to 2 percent slopes:** The Grangeville series consists of very deep, somewhat poorly drained soils that formed in moderate coarse textured alluvium dominantly from granitic rock sources. These soils are somewhat poorly drained, negligible to very low runoff, and moderate to moderately rapid permeability.
- **Akers-Akers, saline-Sodic, complex, 0 to 2 percent slopes:** The Akers series consists of very deep, well drained soils formed in alluvium derived from granitic rock. These soils have negligible runoff and Saline-sodic phases exhibit moderately slow permeability.


105
105
101
122
Road 92
101
Avenue 312
Riggin
Oriole
Wren
Denton
Delaware
Road 84
Sunnyview
Ferguson
137
Avenue 308
Denton
Clinton
Perez
Vine
137
Doe
101
Legend
Project Area of Potential Effect
Soil Type
101: Akers-Akers, saline-Sodic, complex, 0 to 2 percent slopes
105: Calgro-Calgro, saline-Sodic, complex, 0 to 2 percent slopes
108: Colpien loam, 0 to 2 percent slopes
122: Grangeville sandy loam, drained, 0 to 2 percent slopes
137: Tagus loam, 0 to 2 percent slopes
Goshen
Marcin
137
Pershing
Grove
N
1 in = 1,500 ft
Soils Map
Riggin Avenue Widening (Kelsey to Shirk)
Figure 3-4

Regulatory Setting

California Building Code: The California Building Code contains general building design and construction requirements relating to fire and life safety, structural safety, and access compliance. CBC provisions provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures and certain equipment.

City of Visalia General Plan: The Safety and Noise Element of the City of Visalia General Plan includes the following objectives and policies regarding soils and geology that may be applicable to the proposed project.

Objective S-O-1 Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

S-P-2 Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.

Discussion

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less than Significant Impact: According to the Tulare Multi-Jurisdictional Local Hazard Mitigation Plan, no active faults underlay the project site. Although the project is located in an area of relatively low seismic activity, the project could be affected by ground shaking from nearby faults. The potential for strong seismic ground shaking on the project site is not a significant environmental concern due to the infrequent seismic activity of the area and distance to the faults. The project has no potential to indirectly or directly cause the rupture of an earthquake fault. Therefore, the risk of loss, injury or death involving a rupture of a known earthquake fault would be *less than significant.*

ii. Strong seismic ground shaking?

No Impact: According to the Tulare Multi-Jurisdictional Local Hazard Mitigation Plan, the project site is located in an area of relatively low seismic activity. The proposed project does not include any activities or components which could feasibly cause strong seismic ground shaking, either directly or indirectly. There is *no impact.*

iii. Seismic-related ground failure, including liquefaction?

No Impact: No specific countywide assessment of liquefaction has been performed; however the Tulare Multi-Jurisdictional Local Hazard Mitigation Plan identifies the risk of liquefaction within the county as low because the soil types are unsuitable for liquefaction. There is *no impact.*

iv. Landslides?

No Impact: The proposed project site is generally flat and there are no hill slopes in the area. As a result, there is almost no potential for landslides. No geologic landforms exist on or near the site that would result in a landslide event. There is *no impact.*

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact: Because the project site is relatively flat, the potential for erosion is low. However, construction-related activities and increased impermeable surfaces can increase the probability for erosion to occur. Construction-related impacts related to erosion will be temporary and subject to best management practices (BMPs) required by SWPPP, which are developed to prevent significant impacts related to erosion from construction. The project would extend stormwater collection lines along the length of the proposed improvements on Riggin Avenue. Stormwater from the project site will be collected and coveyed to the basin located at the extensions of Ferguson and Kelsey. Because impacts related to erosion would be temporary and limited to construction, and because required best management practices would prevent significant impacts related to erosion, the impact will remain *less than significant.*

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

No Impact: The soils associated with the project site are considered stable and have a low capacity for landslides, lateral spreading, subsidence, liquefaction or collapse. Because the project area is considered to be stable, and this project would not result in a substantial grade change to the topography to the point that it would increase the risk of landslides, lateral spreading, subsidence, liquefaction or collapse, there is *no impact.*

d) Would the project be located on expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

No Impact: Expansive soils contain large amounts of clay, which absorb water and cause the soil to increase in volume. Conversely, the soils associated with the proposed project site have relatively low levels of clay Because the soils associated with the project are not suitable for expansion, implementation of the project will pose no direct or indirect risk to life or property caused by expansive soils and there is *no impact.*

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact: No wastewater will be generated as a part of the proposed project. There is no *impact.*

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact: There are no unique geologic features and no known paleontological resources located within the project area and no excavation is proposed in undisturbed soils, particularly to a depth with a potential to unearth paleontological resources. Potential impacts resulting from project implementation would be *less than significant.*

Mitigation Measures for Soils and Geology

None Required

VIII. GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	☐	☐	☑	☐
a) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

Environmental Setting

Natural processes and human activities emit greenhouse gases. The presence of GHGs in the atmosphere affects the earth's temperature. Without the natural heat-trapping effect of GHGs, the earth's surface would be about 34ºC cooler. However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

The effect of greenhouse gasses on earth's temperature is equivalent to the way a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydro chlorofluorocarbons, and hydro fluorocarbons, per fluorocarbons, sulfur and hexafluoride. Some gases are more effective than others. The Global Warming Potential (GWP) has been calculated for each greenhouse gas to reflect how long it remains in the atmosphere, on average, and how strongly it absorbs energy. Gases with a higher GWP absorb more energy, per pound, than gases with a lower GWP, and thus contribute more to global warming. For example, one pound of methane is equivalent to twenty-one pounds of carbon dioxide.

GHGs as defined by AB 32 include the following gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHGs as defined by AB 32 are summarized in Table 3-7. Each gas's effect on climate change depends on three main factors. The first being the quantity of these gases are in the atmosphere, followed by how long they stay in the atmosphere and finally how strongly they impact global temperatures.

Greenhouse Gas	Description and Physical Properties	Lifetime	GWP	Sources
Methane (CH4)	Is a flammable gas and is the main component of natural gas	12 years	21	Emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

Greenhouse Gas	Description and Physical Properties	Lifetime	GWP	Sources
Carbon dioxide (CO2)	An odorless, colorless, natural greenhouse gas.	30-95 years	1	Enters the atmosphere through burning fossil fuels (coal, natural gas and oil), solid waste, trees and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
Chloro-fluorocarbons	Gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are non-toxic nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	55-140 years	3,800 to 8,100	Were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone.
Hydro-fluorocarbons	A man-made greenhouse gas. It was developed to replace ozone-depleting gases found in a variety of appliances. Composed of a group of greenhouse gases containing carbon, chlorine an at least one hydrogen atom.	14 years	140 to 11,700	Powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for stratospheric ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases.
Nitrous oxide (N2O)	Commonly known as laughing gas, is a chemical compound with the formula N2O. It is an oxide of nitrogen. At room temperature, it is a colorless, non-flammable gas, with a slightly sweet odor and taste. It is used in surgery and dentistry for its anesthetic and analgesic effects.	120 years	310	Emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
Pre-fluorocarbons	Has a stable molecular structure and only breaks down by ultraviolet rays about 60 kilometers above Earth's surface.	50,000 years	6,500 to 9,200	Two main sources of pre-fluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	An inorganic, odorless, colorless, and nontoxic nonflammable gas.	3,200 years	23,900	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing and as a tracer gas.

Table 3-7. Greenhouse Gasses; Source: EPA, Intergovernmental Panel on Climate Change

In regards to the quantity of these gases are in the atmosphere, we first must establish the amount of particular gas in the air, known as Concentration, or abundance, which are measured in parts per million, parts per billion and even parts per trillion**.** To put these measurements in more relatable terms, one part per million is equivalent to one drop of water diluted into about 13 gallons of water, roughly a full tank of gas in a compact car. Therefore, it can be assumed larger emission of greenhouse gases lead to a higher concentration in the atmosphere.

Each of the designated gases described above can reside in the atmosphere for different amounts of time, ranging from a few years to thousands of years. All of these gases remain in the atmosphere long enough to become well mixed, meaning that the amount that is measured in the atmosphere is roughly the same all over the world regardless of the source of the emission.

Regulatory Setting

AB 32: AB 32 set the 2020 greenhouse gas emissions reduction goal into law. It directed the California Air Resources Board to begin developing discrete early actions to reduce greenhouse gases while also preparing a scoping plan to identify how best to reach the 2020 limit. The reduction measures to meet the 2020 target are to be adopted by the start of 2011.

SB 1078, SB 107 and Executive Order S-14-08: SB 1078, SB 107, and Executive Order S-14-08 require California to generate 20% of its electricity from renewable energy by 2017. SB 107 then changes the 2017 deadline to 2010. Executive Order S-14-08 required that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020.

Discussion

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Less Than Significant Impact: Greenhouse gas emissions for the construction of the proposed project were modeled using the Road Construction Emissions Model, Version 9.0.0. The Emissions Model results can be found in Appendix A.

Construction: Greenhouse gasses would be generated during construction from activities including grubbing/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving. The Road Construction Emissions Model report predicts that this project will create a maximum of 854.44 MT of CO2e emissions during construction. Because the SJVAPCD does not have numeric thresholds for assessing the significance of construction-related GHG emissions, predicted emissions from project construction were compared to Council of Environmental Quality (CEQ) thresholds for construction related GHG emissions. The CEQ currently has a presumptive threshold of 10,000 metric tons of CO2e per year for construction emissions amortized over a 30-year project lifetime. Because project construction would generate far less GHG emissions than this threshold, impacts related to GHG emissions during project construction would be less than significant.

Operation: As discussed in the Air Quality section of this Initial Study, the Project is being implemented in response to existing and planned growth in the area. Riggin Avenue is identified as a future arterial in the City of Visalia General Plan. The Project itself will improve roadway operations but would not generate additional vehicle trips beyond what was planned for an analyzed in the City's

General Plan EIR. Therefore, the project is not considered to be growth inducing and would not increase mobile source greenhouse gas emissions beyond what was previously analyzed in the City's General Plan EIR.

Because construction of the project will result in less than significant increases in GHG emissions, and operation of the project would not increase GHG emissions beyond those already analyzed in the City's General Plan EIR, the impact is *less than significant.*

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact: The proposed project will comply with all Federal, State, and Local rules pertaining to the regulation of greenhouse gas emissions. In addition, the project will implement Best Performance Standards developed by the SJVAPCD. Projects implementing Best Performance Standards are determined to have a less than significant impact on global climate change. The project will not conflict with any plan, policy, or regulation developed to reduce GHG emissions. There is *no impact.*

Mitigation Measures for Greenhouse Gas Emissions

None Required

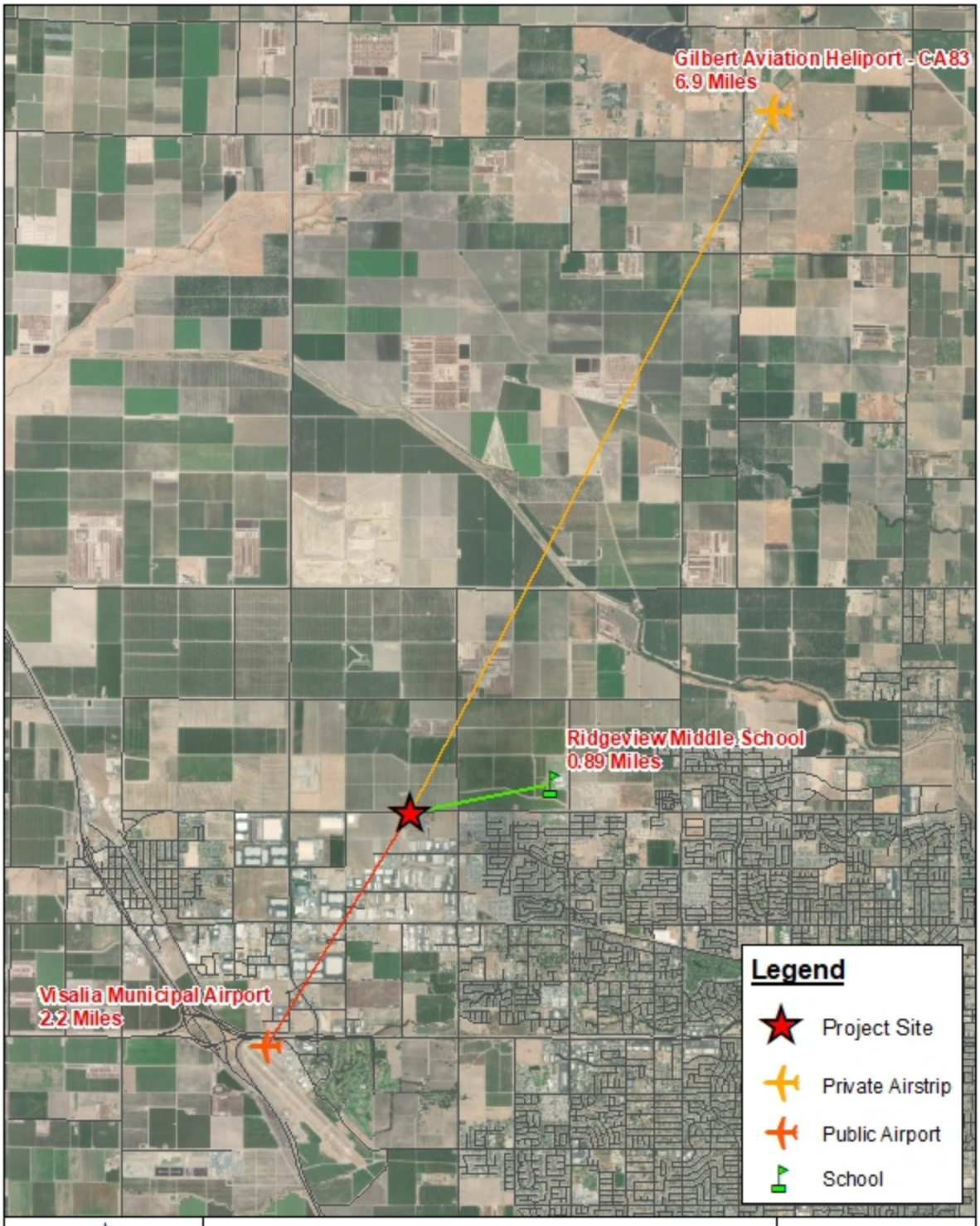
IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard or excessive noise to the public or the environment?	☐	☐	☐	☑
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
g) Expose people or structures, either directly or indirectly, to significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

Environmental Setting

The proposed project site is located approximately 0.89 miles west of the nearest school (Ridgeview Middle School), 6.9 miles southwest of the nearest private airstrip (Gilbert Aviation Heliport – CA83), and 2.2 miles northeast of the nearest public airport (Visalia Municipal Airport).

The Department of Toxic Substances Control's (DTSC's) Envirostor was used to identify any sites known to be associated with releases of hazardous materials or wastes within the project area. This research confirmed that the project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.


Gilbert Aviation Heliport - CA83
6.9 Miles
Ridgeview Middle School
0.89 Miles
Visalia Municipal Airport
2.2 Miles
Legend
Project Site
Private Airstrip
Public Airport
School
N
1 in = 1 miles
Distance to Schools and Airports
Riggin Avenue Widening (Kelsey to Shirk)
Figure 3-5

Regulatory Setting

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S. Code [U.S.C.] §9601 et seq.). The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or the Superfund Act) authorizes the President to respond to releases or threatened releases of hazardous substances into the environment.

Occupational Safety and Health Administration. The Occupational Safety and Health Administration (OSHA) sets and enforces Occupational Safety and Health Standards to assure safe working conditions. OSHA provides training, outreach, education, and compliance assistance to promote safe workplaces. The proposed Project would be subject to OSHA requirements during construction, operation, and maintenance.

Toxic Substances Control Act of 1976 (15 U.S.C. §2601 et seq.). The Toxic Substance Control Act was enacted by Congress in 1976 and authorizes the EPA to regulate any chemical substances determined to cause an unreasonable risk to public health or the environment.

Hazardous Waste Control Law, Title 26. The Hazardous Waste Control Law creates hazardous waste management program requirements. The law is implemented by regulations contained in Title 26 of the California Code of Regulations (CCR), which contains requirements for the following aspects of hazardous waste management:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

California Code of Regulations, Title 22, Chapter 11. Title 22 of the California Code of Regulations contains regulations for the identification and classification of hazardous wastes. The CCR defines a waste as hazardous if it has any of the following characteristics: ignitability, corrosivity, reactivity, and/or toxicity.

California Emergency Services Act. The California Emergency Services Act created a multi-agency emergency response plan for the state of California. The Act coordinates various agencies, including CalEPA, Caltrans, the California Highway Patrol, regional water quality control boards, air quality management districts, and county disaster response offices.

Hazardous Materials Release Response Plans and Inventory Law of 1985. Pursuant to the Hazardous Materials Release Response Plans and Inventory Law of 1985, local agencies are required to develop "area plans" for response to releases of hazardous materials and wastes. Tulare County maintains a Hazardous Material Incident Response Plan to coordinate emergency response agencies for incidents and requires the submittal of business plans by persons who handle hazardous materials.

City of Visalia General Plan: The Safety and Noise Element of the City of Visalia General Plan includes the following objectives and policies pertaining to hazards and hazardous materials potentially applicable to the proposed project:

Objective S-O-3: Protect soils, surface water, and groundwater from contamination from hazardous material.

S-P-19 Coordinate with the Tulare County Envi - ronmental Health Division and other appropriate regulatory agencies during the review process of all proposals for the use of hazardous materials or those involving properties that may have toxic contamination, such as petroleum hydrocarbons, CAM 17 metals, asbestos, and lead.

Discussion

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact: Once constructed, the Project itself will not contain, use, or produce any hazardous materials. Project construction activities may involve the use and transport of hazardous materials, such as fuels, oils, and other chemicals (e.g., pains, lead, adhesives, etc.) typically used during construction. Improper use, transportation, and storage of hazardous materials could result in accidental releases or spills that could pose health risks to workers, the public, and the environment. However, all materials used during construction would be contained, stored, and handled in compliance with all applicable standards and regulations established by DTSC, the EPA, and the Occupational Safety and Health Administration (OSHA). In addition, a Storm Water Pollution Prevention Plan (SWPPP) is required for the project and will include emergency procedures for incidental hazardous materials releases. The SWPPP also includes Best Management Practices which include requirements for hazardous materials storage. Therefore, the impact is *less than significant.*

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact: There is no reasonably foreseeable condition or incident involving the project that could result in release of hazardous materials into the environment, other than any potential accidental releases of standard fuels, solvents, or chemicals encountered during typical construction. Should an accidental hazardous release occur or should the project encounter hazardous soils, existing regulations for handling hazardous materials require coordination with the California Department of Toxic Substances Control for an appropriate plan of action, which can include studies or testing to determine the nature and extent of contamination, as well as handling and proper disposal. Therefore, potential impacts are considered to be *less than significant*.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact: The project is located approximately 0.89 miles from the nearest school. There is *no impact.*

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact: The project site is not listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control (DTSC). The project would not create a significant hazard to the public or the environment and there is *no impact.*

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact: The proposed project is not located within an airport land use plan and is not within two miles of a public airport. Visalia Municipal Airport is the nearest public airport to the project site and is located approximately 2.2 miles away. Implementation of the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area. There is *no impact.*

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact: The City's site plan review procedures ensure compliance with emergency response and evacuation plans. In addition, the site plan will be reviewed by the Fire Department per standard City procedure to ensure consistency with emergency response and evacuation needs. Therefore, the proposed project would have *no impact* on emergency evacuation.

g) Would the project expose people or structures, either directly or indirectly, to significant risk of loss, injury or death involving wildland fires?

No Impact: The land surrounding the project site is developed with urban, suburban, and agricultural uses and are not considered to be wildlands. Additionally, the 2017 Tulare County Multi-Jurisdictional Local Hazard Mitigation Plan finds that fire hazards within the City of Visalia, including the proposed project site, have low frequency, limited extent, limited magnitude, and low significance. The proposed project would not expose people or structures to significant risk of loss, injury or death involving wildland fires and there is *no impact.*

Mitigation Measures for Hazards and Hazardous Materials

None Required

X. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise sustainably degrade surface or ground water quality?	☐	☐	☑	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☑
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:	☐	☐	☑	☐
(i) result in substantial erosion or siltation on- or off-site?	☐	☐	☑	☐
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☑	☐
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☑	☐
(iv) impede or redirect flood flows?	☐	☐	☐	☑
d) In flood hazard, tsunami, or seiche zones risk the release of pollutants due to project inundation?	☐	☐	☐	☑
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater movement plan?	☐	☐	☐	☑

Environmental Setting

Hydrologic System: The proposed project site is located in the Tulare Lake Hydrologic Region, which covers 10.9 million acres south of the San Joaquin River. The proposed project site lies within the San Joaquin Valley Groundwater Basin. The San Joaquin Valley Groundwater Basin is divided into seven sub-basins. The proposed project site is located within the Kaweah Subbasin. The subbasin lies between the Kings Groundwater Subbasin on the north, the Tule Groundwater Subbasin on the south, the Tulare Lake subbasin on the west, and crystalline bedrock of the Sierra Nevada foothills on the east. The area is comprised mostly of lands in the Kaweah Delta Water Conservation District. Major rivers in the subbasin include the St. Johns and lower Kaweah Rivers; although the Kaweah River is considered the primary surface water source for groundwater recharge.

Groundwater: California Water Service Visalia District provides water services within the City of Visalia. The Visalia District also serves the communities of Goshen, Mullen and Tulco. California Water Service operates 72 wells to meet the water demands of Visalia and Goshen customers.

Surface Waters: The Planning Area is located in the heart of the Kaweah River's delta system, so many rivers and creeks flow through the city. Surface runoff generally flows from east to west and terminates in the Tulare Lake Basin. Major surface water resources in the area include St. Johns River, Mill Creek, Packwood Creek, Cameron Creek, Deep Creek, Evans Creek, Modoc Ditch, Mill Creek Ditch, Persian Ditch, Tulare Irrigation District (TID) Canal, and some other local Ditches. None of the City's potable water is supplied through surface water.

Regulatory Setting

Clean Water Act: The Clean Water Act (CWA) is enforced by the U.S. EPA and was developed in 1972 to regulate discharges of pollutants into the waters of the United States. The Act made it unlawful to discharge any pollutant from a point source into navigable waters unless a National Pollution Discharge Elimination System (NPDES) Permit is obtained.

Central Valley RWQCB: The proposed project site is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). The Central Valley RWQCB requires a National Pollution Discharge Elimination System (NPDES) Permit and Stormwater Pollution Prevention Plan (SWPPP) for projects disturbing more than one acre of total land area. Because the project is greater than one acre, a NPDES Permit and SWPPP will be required.

City of Visalia General Plan: The Open Space and Conservation Element of the City of Visalia General Plan contains the following goals and policies related to water resources that may be applicable to the proposed project:

Objective OSC-O-6: Protect water resources vital to the health of the community's residents and important to the Planning Area's ecological and economic stability

Objective OSC-O-7: Preserve and enhance Planning Area waterways and adjacent corridors as valuable community resources which serve as plant and wildlife habitats, as groundwater recharge facilities, as flood control and irrigation components, and as connections between open space areas.

Discussion

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact: The project will result in less than significant impacts to water quality due to potentially polluted runoff generated during construction activities. Construction would include excavation, grading, and other earthwork that may occur across most of the 14.0-acre project site. During storm events, exposed construction areas across the project site may cause runoff to carry pollutants, such as chemicals, oils, sediment, and debris. However, implementation of a Stormwater Pollution Prevention Plan (SWPPP) will be required for the project. A SWPPP identifies all potential sources of pollution that could affect stormwater discharges from the project site and identifies best management practices (BMPs) related to stormwater runoff. Therefore, the impacts would be *less than significant.*

b) **Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?**

No Impact: The proposed Project, once operational, will not require on-going use of water and therefore would not affect an aquifer or local water table. Therefore, the Project will have *no impact.*

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:

i. Result in substantial erosion or siltation on- or off-site?

Less than Significant Impact: The proposed Project includes installation of additional impervious surfaces that may be considered an alteration of existing drainage patterns, however, this would not result in substantial erosion or siltation on- or off-site. A Stormwater Pollution Prevention Plan (SWPPP) will be implemented during project construction. SWPPPs include mandated erosion control measures, which are developed to prevent significant impacts related to erosion caused by runoff during construction. During project operations, stormwater on the existing and proposed impervious surfaces would be collected and conveyed to an existing basin located at the extensions of Ferguson and Kelsey. The impact is *less than significant.*

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less than Significant Impact: Because the project would result in an increase of impervious surfaces, an increase in surface runoff may occur. However, the project proposed to extend stormwater lines along the length of the improvement area. These lines would be used to convey stormwater from the existing and proposed impervious surfaces to an existing basin located at the extensions of Ferguson and KelseyThe project has been reviewed by the City of Visalia Public Works Director and the City's Engineer who have determined that the implementation of the proposed Project will not result in substantial flooding on- or off-site. The project will have a *less than significant impact.*

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant Impact: The Project proposes to widen an existing road, which will add new impervious surfaces to the project area. The project includes an extension of stormwater collection lines along the length of the project site to accommodate the increase in runoff. Stormwater on the existing and proposed impervious surfaces would be collected and conveyed to an existing basin located at the extensions of Ferguson and Kelsey, which has adequate capacity to accommodate increased flows resulting from the proposed project. The impact is *less than significant.*

iv. Impede or redirect flood flows?

No Impact: The Project site is generally flat and no significant grading or leveling will be required. The proposed project site is not in proximity to a stream or river and will not alter the course of a stream or river. According to National Flood Hazard mapping by the Federal Emergency Management Agency, the proposed project site is not located within a 100-year flood hazard area. There would be *no impact* with regard to impeding or redirecting flood flows.

d) Would the project, in flood hazard, tsunami, or seiche zones, risk the release of pollutants due to project inundation?

No Impact: The proposed project is located inland and not near an ocean or large body of water, and therefore, would not be affected by a tsunami. The proposed project is located in a relatively flat area and would not be impacted by inundation related to mudflow. Since the project is located in an area that is not susceptible to inundation, the project would not risk release of pollutants due to project inundation. As such, there is *no impact.*

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact: The proposed project will not conflict with or obstruct implementation of a water quality control plan. The proposed project will be subject to the requirements of the NPDES Stormwater Program and will be required to comply with a SWPPP, which will identify all potential sources of pollution that could affect stormwater discharges from the project site and identify BMPs to prevent significant impacts related to stormwater runoff.

The proposed project site is within the jurisdiction of the Mid-Kaweah Groundwater Sustainability Agency (GSA). The Groundwater Sustainability Plan (GSP) was adopted by the Mid-Kaweah GSA in December 2019. The plan was reviewed for consistency with the proposed project and it was determined that the proposed project does not conflict with and would not obstruct implementation of the GSP. There is *no impact.*

Mitigation Measures for Hydrology and Water Quality

None Required

XI. LAND USE AND PLANNING

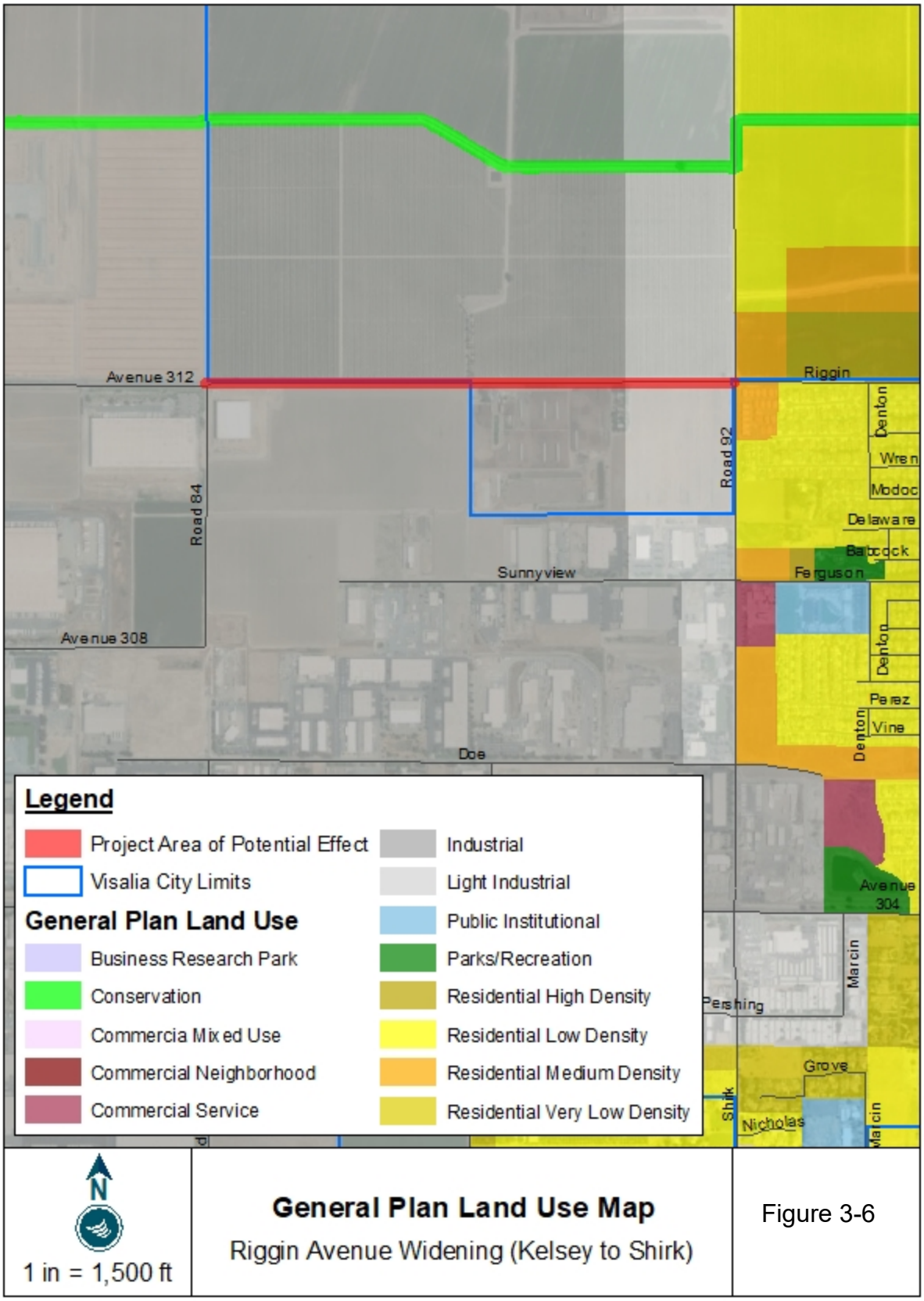
Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☑
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑

Environmental Setting

The proposed project site is located with the northern portion of the City of Visalia and would effect approximately 14 acres within the City/County Right of Way. This segment of Riggin Avenue is in an area designated by the City's General Plan as Industrial. The area south of the project is zoned County/Industrial. Properties west of the project site are zoned Industrial and properties east of the project site are zoned County/Multi-Family Residential. Zoning and General Plan Land Use maps are shown in Figures 3-6 and 3-7.

Regulatory Setting

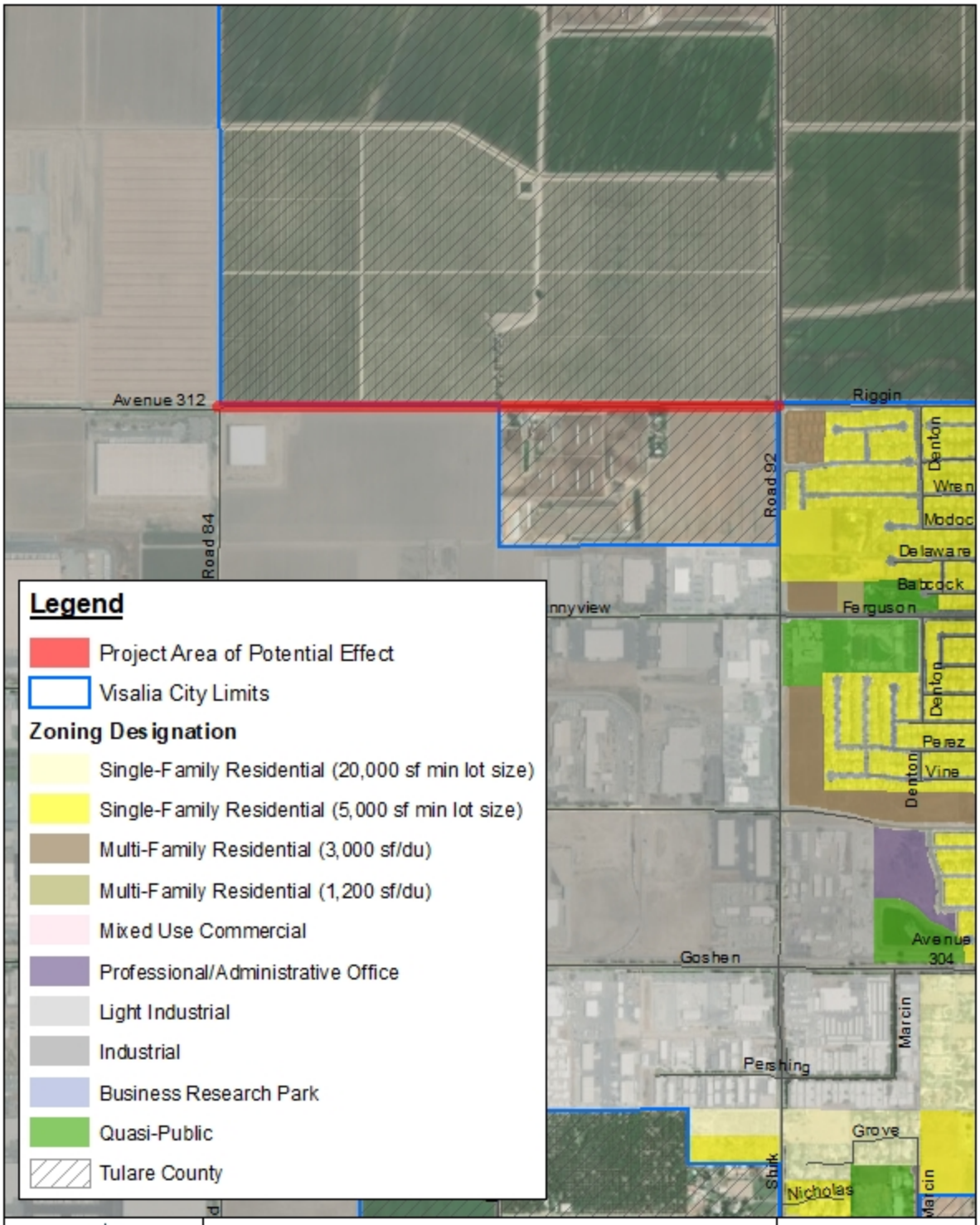
City of Visalia General Plan: The Circulation element designates this segment of Riggin Avenue as a future arterial.



General Plan Land Use Map

Riggin Avenue Widening (Kelsey to Shirk)

Figure 3-6



Zoning Map

Riggin Avenue Widening (Kelsey to Shirk)

Figure 3-7

Discussion

a) Would the project physically divide an established community?

No Impact: The project proposes the reconstruction of 1 mile of existing roadway between Kelsey Street and Shirk Street to accommodate a 4-lane arterial street with 110' total ROW. The project would not act as a physical barrier within a community. There is *no impact.*

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact: The proposed project does not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. There is *no impact.*

Mitigation Measures for Land Use and Planning

None Required

XII. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally - important mineral resource recovery site delineated on a local general plan, specific plan or other lands use plan?	☐	☐	☐	☑

Environmental Setting

There are no mineral resource zones in Tulare County and there is no mineral extraction occurring on or adjacent to the proposed project site. Historical mines within the County include mineral deposits of tungsten, copper, gold, magnesium and lead, however most of these mines are now closed – leaving only 37 active mining operations. There are no active mining operations within the City of Visalia.

Regulatory Setting

California State Surface Mining and Reclamation Act: The California State Surface Mining and Reclamation Act was adopted in 1975 to regulate surface mining to prevent adverse environmental impacts and to preserve the state's mineral resources. The Act is enforced by the California Department of Conservation's Division of Mine Reclamation.

City of Visalia General Plan: The following objectives and policies in the Open Space and Conservation Element of the City of Visalia General Plan are intended to protect mineral resources within the City.

Objective OSC-O-9 Protect agricultural land from premature urban development.

OSC-P-24 To allow efficient cultivation, pest control and harvesting methods, require buffers and transition areas between urban development and adjoining or nearby agricultural land.

OSC-P-25 Require new development to implement measures, as appropriate, to minimize soil erosion related to grading, site preparation, landscaping and construction.

Discussion

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b)

No Impact: The project site has no known mineral resources that would be of a value to the region and the residents of the state, therefore the proposed project would not result in the loss of impede the mining of regionally or locally important mineral resources. There is *no impact.*

c) Would the project result in the loss of availability of a locally - important mineral resource recovery site delineated on a local general plan, specific plan or other lands use plan?

No Impact: There are no known mineral resources of importance to the region and the project site is not designated under the City's or County's General Plan as an important mineral resource recovery site. For that reason, the proposed project would not result in the loss of availability of known regionally or locally important mineral resources. There is *no impact.*

Mitigation Measures for Mineral Resources

None Required

XIII. NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permeant increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b) Generation of excessive ground-borne vibration or groundborne noise levels?	☐	☐	☑	☐
c) For a project located within the vicinity of a private airstrip or, an airport land use plan or, where such a plan has not been adopted, within two miles of public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Environmental Setting

Noise is often described as unwanted sound. Sound is the variation in air pressure that the human ear can detect. If the pressure variations occur at least 20 times per second, they can be detected by the human ear. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz). Ambient noise is the "background" noise of an environment. Ambient noise levels on the proposed project site are primarily due to agricultural activities and traffic. Construction activities usually result in an increase in sound above ambient noise levels.

Regulatory Setting

City of Visalia General Plan: The Safety and Noise Element of the City of Visalia General Plan is responsible for establishing noise standards within the City and includes the following objectives and policies related to noise that may be applicable to the project.

Objective N-O-1: Strive to achieve an acceptable noise environment for present and future residents of Visalia.

Objective N-O-3: Protect noise sensitive land uses such as schools, hospitals, and senior care facilities from encroachment of and exposure to excessive levels of noise.

N-P-4 Where new development of industrial, commercial or other noise generating land uses (including roadways, railroads, and airports) may result in noise levels that exceed the noise level exposure criteria established by Tables 8-2 and 8-3, require a noise study to determine impacts, and require developers to mitigate these impacts in conformance with Tables 8-2 and 8-3 as a condition

of permit approval through appropriate means. Noise mitigation measures may include but are not limited to:

- ***Screen and control noise sources, such as parking and loading facilities, outdoor activities, and mechanical equipment;***
- ***Increase setbacks for noise sources from adjacent dwellings;***
- ***Retain fences, walls, and landscaping that serve as noise buffers;***
- ***Use soundproofing materials and doubleglazed windows;***
- ***Use open space, building orientation and design, landscaping and running water to mask sounds; and***
- ***Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.***
- ***Alternative acoustical designs that achieve the prescribed noise level reduction may be approved, provided a qualified Acoustical Consultant submits information demonstrating that the alternative designs will achieve and maintain the specific targets for outdoor activity areas and interior spaces. As a last resort, developers may propose to construct noise walls along state highways and arterials when compatible with aesthetic concerns and neighborhood char - acter. This would be a developer responsibility, with no City funding.***

Discussion

a) Would the project result in generation of a substantial temporary or permeant increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact: Project construction is anticipated to last approximately 6 months and will involve temporary noise sources. The average noise levels generated by construction equipment that will be used in the proposed project are shown below.

Type of Equipment	dBA at 50 feet
Air Compressors	81
Excavators	81
Concrete/Industrial Saws	76
Cranes	83
Forklifts	75
Generators	81
Pavers	89
Rollers	74
Dozers	85
Tractors	84
Loaders	85
Backhoes	80
Graders	85
Scrapers	89
Welders	74

Table 3-8. Noise levels of noise-generating construction equipment. Source: Federal Highway Administration Construction Noise Handbook.

The City of Visalia General Plan and Noise Ordinance does not identify noise thresholds for noise sources related to construction, however the City's Noise Ordinance does limit noise generating activities related to construction to daytime hours Monday through Friday. The project will comply with these regulations and construction will only occur Monday through Frida between 6:00 AM and 7:00 PM.

The project itself will not generate long term noise levels. The Project is being implemented in response to existing and planned growth in the area. The project itself will improve local roadway operations, but will not generate additional vehicle trips on Riggin Avenue beyond what was already planned for and analyzed in the City's General Plan EIR. The Project is therefore not considered to be growth inducing and will not result in noise impacts beyond what was previously analyzed in the City's General Plan EIR.

According to the City's General Plan, major noise sources in Visalia are related to roadways, vehicle traffic, and railroad noises. According to the City's General Plan EIR, Riggin Avenue (from Road 80 to Shirk Street) is projected to produce traffic noise levels of 71.0 Ldn (day-night average sound level) at 50 feet at full buildout of the General Plan in Year 2030. As such, the Project site is included in the City's Future Noise Contours. When future development projects are proposed in areas within the City's Noise Contours, such developments may require sound attenuation measures such as noise barriers.

Because noise generated from construction would be temporary, construction activities would comply with all measures established by the City to limit construction related noise impacts, and operational noise would be consistent with what was previously analyzed in the City's General Plan EIR, the impact is *less than significant.*

b) Would the project result in generation of excessive ground-borne vibration or groundborne noise levels?

Less than Significant Impact: Ground-borne vibration or ground-borne noise levels may occur as part of construction activities associated with the project. Construction activities will be temporary and will not expose persons to such vibration or noise levels for an extended period of time. Therefore, impacts are *less than significant.*

c) For a project located within the vicinity of a private airstrip or, an airport land use plan or, where such a plan has not been adopted, within two miles of public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact: The project site is located approximately 2.2 miles from Visalia Municipal Airport. However, The Project consists of a road widening and does not include any above ground structures (other than standards street lighting). The Project will not conflict with any adopted airport land use plans or expose people to excessive airport noise. There is *no impact*.

Mitigation Measures for Noise

None Required

XIV. POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Environmental Setting

The United States Census Bureau estimated the population in the City of Visalia to be 133,800 in 2018. This is an increase from the 2010 census, which counted the population in the City of Visalia to be 124,867. Factors that influence population growth include job availability, housing availability, and the capacity of existing infrastructure.

Regulatory Setting

The size of the population in the City of Visalia is controlled by the development code and Land Use Element of the General Plan. These documents regulate the number of dwelling units per acre allowed on various land uses and establish minimum and maximum lot sizes. These factors have a direct impact on the City's population size. The project site is located entirely within the public ROW. Therefore, no residences are permitted within the project area.

Discussion

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by new homes and businesses) or directly (for example, through extension of roads or other infrastructure)?

No Impact: The project does not propose any new homes and there are no residential structures currently on-site. The Project is being implemented in response to existing and planned growth in the Area. The Project itself will improve local roadway operations but would not generate additional vehicle trips on Riggin Avenue beyond what was already planned for and analyzed in the City's General Plan EIR. The Project is therefore not considered to be growth inducing. The proposed Project will not affect any regional population, housing, or employment projections anticipated by City of Visalia policy documents. Therefore, there is *no impact*.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact: There project does not involve the removal of existing residences and would not displace any people. There is *no impact.*

Mitigation Measures for Population and Housing

None Required

XV. PUBLIC SERVICES

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable serve ratios, response times of other performance objectives for any of the public services:				
a. Fire protection?	☐	☐	☐	☑
b. Police protection?	☐	☐	☐	☑
c. Schools?	☐	☐	☐	☑
d. Parks?	☐	☐	☐	☑
e. Other public facilities?	☐	☐	☐	☑

Environmental Setting

Fire: The project site is served by the City of Visalia Fire Department. The City of Visalia Fire Department will continue to provide fire protection services to the proposed project site upon development.

Police: Law enforcement services are provided to the project site via the Visalia Police Department. The City of Visalia will continue to provide police protection services to the proposed project site upon development.

Schools: The proposed project site is located within Visalia Unified School District.

Discussion

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable serve ratios, response times of other performance objectives for any of the public services:

a. Fire protection?

No Impact: The City of Visalia Fire Department will continue to provide fire protection services within the project site. No additional fire personnel or equipment is anticipated, as the site is already served by the Fire Station. There is *no impact.*

b. Police protection?

No Impact: The proposed Project will continue to be served by the City's Police Department. No additional police personnel or equipment is anticipated. There is *no impact.*

c. Schools?

No Impact: The proposed project does not contain any residential uses, which are typically associated with an increased demand for schools. The project would not increase the population within the City of Visalia and would therefore not result in increased demand upon School District resources. There is *no impact*

d. Parks?

No Impact: The proposed Project would not result in an increase in demand for parks or other recreation facilities because it would not cause an increase in population. There is *no impact.*

e. Other public facilities?

No Impact: The proposed Project is not growth inducing and is within the land use and growth projections identified in the City's General Plan. The Project would not result in increased demand for, or impacts on, other public facilities. There is *no impact.*

Mitigation Measures for Public Services

None Required

XVI. PARKS AND RECREATION

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☑

Environmental Setting

The City of Visalia owns and operates 23 parks within the City limits. Lions Neighborhood Park is the closest recreational area to the project site and is located approximately 0.35 miles southeast of the project site.

Regulatory Setting

City of Visalia General Plan: The Parks, Schools, Community Facilities, and Utilities Element of the City of Visalia General Plan identifies existing and planned parks, trails and recreation facilities within the City's planning area. No existing or planned recreational facilities are present within the Project site.

Discussion

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact: The proposed project does not contain any features that would increase the use of existing neighborhood parks, regional parks, or other recreational facilities. There is *no impact.*

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact: The proposed project does not include any recreational facilities and would not necessitate the construction or expansion of additional recreational facilities. There is *no impact*

Mitigation Measures for Parks and Recreation

None Required

XVII. TRANSPORTATION

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☑	☐
b) Conflict or be inconsistent with the CEQA guidelines Section 15064.3, Subdivision (B)?	☐	☐	☑	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☑	☐
d) Result in inadequate emergency access?	☐	☐	☑	☐

Discussion for this section originates from the VMT Technical Memorandum prepared for this project by TJKM. The full Technical Memorandum can be found in Appendix D of this Initial Study.

Environmental Setting

Vehicular Access: The proposed project involves the reconstruction of one mile of existing roadway on Riggin Avenue between Kelsey Street and Shirk Street. Vehicular access to the project is available from Kelsey Street and Shirk Street, and from Riggin Avenue to the east and west of the project site.

Parking: During construction, workers will utilize a temporary construction easement located adjacent to the project site for parking and equipment staging. During project operations, there will be no permanent personnel on-site and no additional parking facilities will be required.

Pedestrian and Cyclist Connectivity: The project will install 6' Class 2 bicycle lanes along both sides of Riggin Avenue as part of the proposed improvements. These bicycle lanes will connect to planned Class 2 bicycle lanes along Riggin Avenue on either side of the proposed project site.

Regulatory Setting

City of Visalia Improvement Standards: The City of Visalia's Improvement Standards are developed and enforced by the City of Visalia's Engineering Division to guide the development and maintenance of City Roads. The cross section drawings contained in the City Improvement Standards dictate the development of roads within the City.

City of Visalia General Plan: Riggin Avenue is classified as a future arterial in the Circulation Element of the City of Visalia General Plan.

Discussion

a) Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant Impact: The proposed project involves the reconstruction of one mile of existing roadway between Kelsey Street and Shirk Street to accommodate a four-lane arterial street as envisioned by the Buildout Circulation Network described in the Visalia General Plan. Improvements would include new 12' vehicular travel lanes (4 lanes total), new Class II bike lanes, new street lighting, new landscaped medians, a new bus turnout, new fire hydrants, new sewer line, new traffic signal, and curb returns at all involved intersections. The proposed project site is located partially within the City of Visalia and partially within unincorporated Tulare County (within the Visalia General Plan planning area boundaries). The proposed project is consistent with the Visalia General Plan, and is not anticipated to conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. A project's effect on automobile delay, typically measured based on "level of service" (LOS) would not constitute a significant environmental impact under the CEQA Guidelines effective July 1, 2020. This impact is *less than significant.*

b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?

Less than Significant Impact: TJKM utilized the Tulare Council of Governments (Tulare COG) Travel Demand Model to forecast the net change in total VMT for Tulare County, with and without the proposed project. Table T-2 shows the model results under Existing plus Project conditions, and Table T-3 shows the model forecast under Cumulative (Year 2042) Conditions, with and without the proposed project. As shown: based on the travel demand model, the proposed project is not anticipated to result in a net increase in total VMT. In addition, TJKM pulled out total number of trips from the model with and without project. The number of trips did not increase between the with and without project model runs in both the base and cumulative conditions.

The City of Visalia's VMT guidelines stipulated a study on induced demand for roadway expansion projects. The following are from the guidelines on how to estimate induced VMT impacts from roadway expansion projects (UC Davis Induced Travel Calculator NCST Method):

1. *Determine total lane-miles over an area that fully captures travel behavior changes resulting from the project (generally the region, but for projects affecting interregional travel look at all affected regions).*
2. *Determine the percentage change in total lane miles that will result from the project.*
3. *Determine the total existing VMT over that same area.*
4. *Multiply the percentage increase n lane miles by the existing VMT, and then multiply that by the elasticity from the induced travel literature:*

[% increase in lane miles] x [existing VMT] x [elasticity] = [VMT resulting from the project]

While the travel demand model forecasted no growth in VMT, TJKM used the above formula to calculate induced VMT from the Riggins project.

% increase in lane miles = 1 / 10,756 = **0.009%** (The project widens 1 mile of Riggins avenue, and 10,756 miles are the total lane miles in Tulare County from the TCAG model).

Existing VMT = ***15,164,825*** (The existing VMT of the region pulled from the TCAG Model)

Elasticity = 1 (The elasticity value was pulled from the transportation analysis guidelines).

Putting the three values together generates an induced daily VMT of **1,410** for the Riggins Widening. As a percentage of the existing VMT, this value is statistically insignificant (1,410/15,164,825 =**0.009%**).

As described in Section 15064.3: "Vehicle miles traveled" refers to the amount and distance of automobile travel "attributable to a project." As described separately in the Technical Advisory on Evaluating Transportation Impacts in CEQA (Governor's Office of Planning & Research, December 2018), VMT re-routed from other origins or destinations as the result of a project would not be attributable to a project except to the extent that the re-routing results in a net increase in VMT. A roadway widening could result in a net increase in total VMT if the roadway is currently operating at capacity, in which case the added capacity provided by a road widening could result in added VMT due to latent demand. However, this is not the case for the proposed project. The *Visalia General Plan EIR* (2010) noted that Riggin Avenue served approximately 7,800 daily vehicles, well below the estimated capacity of more than 15,000 daily vehicles for the existing 2-lane configuration. Additionally, excess capacity is also currently provided on parallel routes such as State Route 198, further reducing the likelihood that the proposed project would result in a net increase in total VMT. Riggin Avenue also provides a direct connection to Highway 99 via Betty Drive, which could VMT for some trips that would otherwise travel on State Route 198.

Even though the calculation resulted in an increase of 1,410 VMT, it is highly unlikely there will be excess demand from a 1 mile widening due to excess capacity available from the routes mentioned in the above paragraph.

In addition, the guidelines states the induced VMT growth stems from induced land use; the Visalia general plan does not include any additional residential or commercial land uses in the Riggins / Shirk area for the project lifespan. It is highly unlikely the widening will induce demand since additional capacity exists and no additional land uses are planned for the area.

Since the induced VMT for this project is statistically 0, TJKM finds that *VMT impacts associated with the proposed project are less than significant and no mitigation is required.*

Tables 3-9 through 3-12 show VMT outputs from the TCAG model for the base scenario and future scenario with and without project conditions.

Scenario	Total VMT (Tulare County Model Area)
Existing Conditions	15,164,825
Existing plus Project Conditions	15,164,825
Net VMT with Proposed Project	0
VMT Impact Finding (Existing plus Project Conditions)	Less Than Significant

Table 3-9. VMT Forecast: Existing Plus Project Conditions. Source: TJKM; Tulare COG Travel Demand Model (Year 2020 Base Year), September 2020

Scenario	Total VMT (Tulare County Model Area)
2042 Model Forecast Year (without Riggin Avenue widening)	17,164,139
2042 Model Forecast Year (with Riggin Avenue widening)	17,164,139
Net VMT with Proposed Project	0
VMT Impact Finding (Cumulative Conditions)	Less Than Significant

Table 3-10. VMT Forecast: Cumulative Conditions. Source: TJKM; Tulare COG Travel Demand Model (Year 2042 Forecast)), September 2020

Scenario	Total Trips (Tulare County Model Area)
Existing Conditions	1,295,032
Existing plus Project Conditions	1,295,032
Net Trips with Proposed Project	0
VMT Impact Finding (Existing plus Project Conditions)	Less Than Significant

Table 3-11. Total Project Trips Forecast: Existing plus Project Conditions. Source: TJKM; Tulare COG Travel Demand Model (Year 2020 Base Year Forecast), September 2020

Scenario	Total Trips (Tulare County Model Area)
2042 Model Forecast Year (without Riggin Avenue widening)	1,459,536
2042 Model Forecast Year (with Riggin Avenue widening)	1,459,536
Net VMT with Proposed Project	0
VMT Impact Finding (Cumulative Conditions)	Less Than Significant

Table 3-12. Total Project Trips Forecast: Cumulative Conditions. Source: TJKM; Tulare COG Travel Demand Model (Year 2042 Forecast), September 2020

The Tulare model shows no growth in VMT when the Riggins widening is coded into the roadway network.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than Significant Impact: The proposed project is not anticipated to substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Improvements would include new 12' vehicular travel lanes (4 lanes total), new Class II bike lanes, new street lighting, new landscaped medians, a new bus turnout, new fire hydrants, new sewer line, new traffic signal, and curb returns at all involved intersections. Construction would include demolition of existing asphalt between Kelsey Street and Shirk Street, removal of trees along Riggin Avenue frontage, and relocation of 17 existing power poles. The proposed project design will be subject to review and permitting by the City of Visalia and other agencies (as described in the Project Description) to ensure the design and construction is consistent with applicable standards. This impact is *less than significant.*

d) Would the project result in inadequate emergency access?

Less Than Significant Impact: The proposed project would widen Riggin Avenue from two to four lanes between Kelsey Street and Shirk Street, thus providing additional travel lanes that could be utilized by emergency vehicles on a one-mile segment of Riggin Avenue. Therefore, the proposed project is anticipated to enhance emergency access, and would not result in inadequate emergency access. This impact is l*ess than significant*

Mitigation Measures for Transportation

None Required

XVIII. TRIBAL CULTURAL RESOURCES

Would the project: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☑	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☑	☐	☐

Environmental Setting

A Cultural Resources Assessment was conducted by Taylored Archaeology in November 2020. The Assessment included a Cultural Resources Records Search, Native American Heritage Commission Sacred Lands File Search, Archival Research, Native American Outreach, and a Pedestrian Survey. The Assessment did not identify any tribal cultural resources within the project area. The Full Cultural Resources Assessment is available in Appendix C.

Native American Consultation: On October 26, 2020, an e-mail was sent to the Native American Heritage Commission (NAHC) requesting a search of its Sacred Lands File and the contact information for local Native American tribal representatives who may have an interest in sharing information about the Project area and surrounding area. The NAHC responded on November 9, 2020, with its search findings and attached a list of Native American tribes and individuals culturally affiliated with the Project area. On November 10, 2020, a letter describing the project was sent to each of the individuals identified in the NAHC response. Follow-up contact by e-mail was completed on November 12, 2020 and telephone calls were placed on November 18, 2020 to confirm receipt of the letter and gather any information tribal representatives may want to share about resources in the Project area or general vicinity. Three responses were received during this outreach process. A representative from the Santa Rosa Rancheria Tachi-Yokut Tribe requested that an archaeological records search and cultural resources survey be done before any ground disturbance. The other two responses indicated that the Tribe had no comment on the proposed project. Native American Consultation efforts are detailed further in The Cultural Resources Assessment (Appendix C).

Definitions

- **Historical Resources**: Historical resources are defined by CEQA as resources that are listed in or eligible for the California Register of Historical Resources, resources that are listed in a local historical resource register, or resources that are otherwise determined to be historical under California Public Resources Code Section 21084.1 or California Code of Regulations Section 15064.5. Under these definitions Historical Resources can include archaeological resources, Tribal cultural resources, and Paleontological Resources.

- **Archaeological Resources:** As stated above, archaeological resources may be considered historical resources. If they do not meet the qualifications under the California Public Resources Code 21084.1 or California Code of Regulations Section 15064.5, they are instead determined to be "unique" as defined by the CEQA Statute Section 21083.2. A unique archaeological resource is an artifact, object, or site that: (1) contains information (for which there is a demonstrable public interest) needed to answer important scientific research questions; (2) has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

- **Tribal Cultural Resource (TCR):** Tribal Cultural Resources can include site features, places, cultural landscapes, sacred places, or objects, which are of cultural value to a Tribe. It is either listed on or eligible for the CA Historic Register or a local historic register, or determined by the lead agency to be treated as TCR.

- **Paleontological Resources:** For the purposes of this section, "paleontological resources" refers to the fossilized plant and animal remains of prehistoric species. Paleontological Resources are a limited scientific and educational resource and are valued for the information they yield about the history of the earth and its ecology. Fossilized remains, such as bones, teeth, shells, and leaves, are found in geologic deposits (i.e., rock formations). Paleontological resources generally include the geologic formations and localities in which the fossils are collected.

Regulatory Setting

National Historic Preservation Act: The National Historic Preservation Act was adopted in 1966 to preserve historic and archeological sites in the United States. The Act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation offices.

California Historic Register: The California Historic Register was developed as a program to identify, evaluate, register, and protect Historical Resources in California. California Historical Landmarks are sites, buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific, religious, experimental, or other value. In order for a resource to be designated as a historical landmark, it must meet the following criteria:

- The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California).
- Associated with an individual or group having a profound influence on the history of California.

- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer or master builder.

City of Visalia General Plan: The City of Visalia General Plan includes the following goals and policies pertaining to tribal cultural resources:

> **OSC-P-39 Establish requirements to avoid potential impacts to sites suspected of being archeologically, paleontologically, or historically significant or of concern, by:**
>
> - Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;
> - Determining the potential effects of development and construction on archaeological or paleontological resources (as required by CEQA);
> - Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historical and archaeological sensitivity; and
> - Implementing appropriate measures to avoid the identified impacts, as conditions of project approval

Discussion

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

Less Than Significant Impact with Mitigation: A Cultural Resources Assessment was conducted in November 2020 for the proposed project. The Assessment included a Cultural Resources Records Search, Native American Heritage Commission (NAHC) Sacred Lands File Search, Archival Research, Native American Outreach, and a Pedestrian Survey. The Cultural Resources Records Search, NAHC Sacred Lands File search, archival research, and pedestrian survey did not identify any resources that are listed or eligible for listing in the California Register of Historic Resources, or in a local register of historical resources. The Full Cultural Resources Assessment is available in Appendix C.

Although no tribal cultural resources were identified, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measures CUL-1 and CUL-2 will ensure that impacts to this checklist item will be *less than significant with mitigation incorporation*.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less Than Significant Impact with Mitigation: Based on the findings on the Cultural Resources Assessment, which included a Cultural Resources Records Search, Native American Heritage Commission (NAHC) Sacred Lands File Search, Archival Research, Native American Outreach, and a Pedestrian Survey, there are no known tribal cultural resources within the project area. The Full Cultural Resources Assessment is available in Appendix C.

Although no tribal cultural resources were identified, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measures CUL-1 and CUL-2 will ensure that impacts to this checklist item will be *less than significant with mitigation incorporation*.

Mitigation Measures for Impacts to Cultural Resources:

Mitigation Measure CUL-1: If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any adverse effects.

Mitigation Measure CUL-2: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relation of which could cause significant environmental effects?	☐	☐	☑	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☑	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☑
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☑
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☑

Environmental Setting

Wastewater: The proposed project will not generate wastewater. Sewer lines would be extended along Riggin Avenue as part of the proposed improvements, per City of Visalia development standards.

Solid Waste: The proposed project will not generate solid waste and will not require solid waste collection services.

Water: An existing 12" water line runs along Riggin Avenue through the project area. The project includes construction of fire hydrants at 1000ft intervals along the length of the improvement area. Other than emergency fire hydrant use, the project would not utilize any water resources.

Storm Drainage: As part of proposed improvements to Riggin Avenue, the Project includes extension of stormdrain lines along the length of the project site. Stormwater would be collected and conveyed to a basin located at the extensions of Ferguson and Kelsey.

Regulatory Setting

CalRecycle: California Code of Regulations, Title 14, Natural Resources – Division 7 contains all current CalRecycle regulations regarding nonhazardous waste management in the state. These regulations include standards for the handling of solid waste, standards for the handling of compostable materials, design standards for disposal facilities, and disposal standards for specific types of waste.

Central Valley RWQCB: The Central Valley RWQCB requires a Stormwater Pollution Prevention Plan (SWPPP) for projects disturbing more than one acre of total land area. Because the project is greater than one acre, a SWPPP to manage stormwater generated during project construction will be required.

The Central Valley RWQCB regulates Wastewater Discharges to Land by establishing thresholds for discharged pollutants and implementing monitoring programs to evaluate program compliance. This program regulates approximately 1500 dischargers in the region.

The Central Valley RWQCB is also responsible for implementing the federal program, the National Pollutant Discharge Elimination System (NPDES). The NPDES Program is the federal permitting program that regulates discharges of pollutants to surface waters of the U.S. Under this program, a NPDES permit is required to discharge pollutants into Water's of the U.S. There are 350 permitted facilities within the Central Valley Region.

Discussion

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relation of which could cause significant environmental effects?

Less than Significant Impact: The proposed project will extend sewer and stormwater lines through the project area and relocate 17 existing power poles as part of improvements to Riggin Avenue.

Although the project would result in the construction of new wastewater collection facilities (the proposed mainline pipe to run along Riggin Avenue), the project itself will not generate wastewater, so it does not have to potential to exceed wastewater treatment capacities.

The proposed improvements would result in new impervious surfaces that could increase the amount of stormwater runoff. However, the project proposes to extend stormwater lines through the project area as part of the improvements to Riggin Avenue. Stormwater would be collected and conveyed to a basin located at the extensions of Ferguson and Kelsey, which has adequate capacity to accommodate these flows. The project will also incorporate appropriate pollution prevention and MBPs in accordance with the City design standards and RWQCB requirements. The existing power poles along the north side of Riggin Avenue will need to be relocated to accommodate the proposed street improvements. Relocation of these poles will not necessitate new power generation facilities to be constructed that would have a significant impact on the environment.

Because the improvements to Riggin Avenue, including sewer lines, stormwater lines, and power pole relocation, would not require the construction any additional water, wastewater treatment, storage drainage, electric power, natural gas, or telecommunications facilities beyond those analyzed in this IS/MND, the impact is *less than significant.*

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant Impact: The only water used by the proposed project would be from fire hydrants that are proposed as part of improvements on Riggin Avenue. These fire hydrants would only be utilized in emergency situations. As such, existing water supplies are sufficient to serve the project during normal, dry, and multiple dry years. The impact is *less than significant.*

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact: The project itself will not generate wastewater. There is *no impact.*

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

No Impact: The project itself will not generate solid waste and would therefore not impair the attainment of solid waste reduction goals. There is *no impact.*

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact: The project itself will not generate solid waste and would therefore not conflict with any federal, state, or local management and reduction statutes or regulations related to solid waste. There is *no impact.*

Mitigation Measures for Utilities and Service Systems

None Required

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☑
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑

Regulatory Setting

Definitions:
Fire hazard severity zones: geographical areas designated pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189.

Tulare County Disaster Preparedness Guide (2011): The Tulare County Preparedness Guide provides guidelines regarding disaster preparedness and evacuation planning for Tulare County residents.

Tulare County Multi-Jurisdictional Hazard Mitigation Plan (2018): The 2018 Tulare County Multi-Jurisdictional Hazard Mitigation Plan assesses the natural, technological, and human-caused risks to Communities within Tulare County. The proposed project site is not located in an area designated as a Fire Hazard Severity Zone by the Tulare County Multi-Jurisdictional Hazard Mitigation Plan.

Discussion

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact: The project would not substantially impair an adopted emergency response plan or emergency evacuation plan. There is *no impact.*

b) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact: The project is located on a flat area of land with little risk of fire. The Tulare County Multi-Jurisdictional Local Hazard Mitigation Plan identifies the risk of fire within the City of Visalia as having unlikely frequency, limited extent, limited magnitude, and low significance. The project would not exacerbate wildfire risks and expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire. There is *no impact.*

c) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact: The proposed project involves the installation of fire hydrants as part of proposed street improvements. If anything, installation of these features would reduce fire risks within the vicinity of the project site. There is *no impact.*

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire instability, or drainage changes?

No Impact: The project site is located on land with relatively flat topography. Therefore, the project would not be susceptible to downslope or downstream flooding or landslides as a result of post-fire instability or drainage changes. There is *no impact.*

Mitigation Measures for Wildfire

None Required

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
b) Does the project have the potential substantially to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☑	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☑	☐
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

Discussion

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact with Mitigation: This initial study/mitigated negative declaration found the project could have significant impacts on biological, cultural, and Tribal cultural resources. However, implementation of the identified mitigation measures for each respective section would ensure that impacts are *less than significant with mitigation incorporation.*

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant Impact: CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the

project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The proposed project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increase need for housing, increase in traffic, air pollutants, etc). Impacts would be *less than significant*.

c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact: The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have substantial impact on human beings, either directly or indirectly. Mitigation measures have been incorporated in the project design to reduce all potentially significant impacts to less than significant, which results in a *less than significant* impact to this checklist item.

3.6 MITIGATION MONITORING AND REPORTING PROGRAM

As required by Public Resources Code Section 21081.6, subd. (a)(1), a Mitigation Monitoring and Reporting Program (MMRP) has been prepared for the project in order to monitor the implementation of the mitigation measures that have been adopted for the project. This Mitigation Monitoring and Reporting Program (MMRP) has been created based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the Riggin Avenue Widening Project in the City of Visalia.

The first column of the table identifies the mitigation measure. The second column names the party responsible for carrying out the required action. The third column, "Timing of Mitigation Measure" identifies the time the mitigation measure should be initiated. The fourth column, "Responsible Party for Monitoring," names the party ensuring that the mitigation measure is implemented. The last column will be used by the City of Visalia to ensure that the individual mitigation measures have been monitored.

Plan checking and verification of mitigation compliance shall be the responsibility of the City of Visalia .

Mitigation Measure	Responsible Party for Implementation	Implementation Timing	Responsible Party for Monitoring	Verification
Mitigation Measure BIO-1: Removal of the valley oak tree requires mitigation by paying a mitigation fee, or by performing in-kind mitigation, or by a combination of payment of mitigation fee and in-kind mitigation. Oak tree removal, and mitigation will be in accordance with the City of Visalia Oak Tree Mitigation Policy, pursuant to Visalia Municipal Code sections 12.24.037 and 12.24.110.	Project Sponsor	Prior to the start of construction.	City of Visalia	
Mitigation Measure CUL-1: If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any adverse effects.	Project Sponsor & Construction Contractor	Ongoing during construction.	City of Visalia	
Mitigation Measure CUL-2: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be	Project Sponsor & Construction Contractor	Ongoing during construction.	City of Visalia	

Mitigation Measure	Responsible Party for Implementation	Implementation Timing	Responsible Party for Monitoring	Verification
prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.				

3.7 Supporting Information and Sources

1. AB 3098 List
2. City of Visalia General Plan
3. City of Visalia General Plan EIR
4. City of Visalia Climate Action Plan
5. City of Visalia 2015 Urban Water Management Plan
6. City of Visalia Zoning Ordinance
7. Engineering Standards, City of Visalia
8. SJVAPCD Regulations and Guidelines
9. Flood Insurance Rate Maps
10. California Air Resources Board's (CARB's) Air Quality and Land Use Handbook
11. 2008 (California Environmental Quality Act CEQA Guidelines
12. California Building Code
13. California Stormwater Pollution Prevention Program (SWPPP)
14. "Construction Noise Handbook." U.S. Department of Transportation/Federal Highway Administration.
15. Government Code Section 65962.5
16. California Environmental Protection Agency (CEPA)
17. Cypher, Brian, Et Al. Conservation of Endangered Tipton Kangaroo Rats (Dipodomys Nitratoides Nitratoides): Status Surveys, Habitat Suitability, And Conservation Strategies. California Department Of Fish And Wildlife, 2016.
18. California Energy Efficiency Strategic Plan: New Residential Zero Net Energy Action Plan 2015-2020, June 2015
19. San Joaquin Valley Air Pollution Control District Mitigation Measures (http://www.valleyair.org/transportation/Mitigation-Measures.pdf)
20. "Residential Water Use Trends and Implications for Conservation Policy." Legislative Analyst's Office/The California Legislature's Nonpartisan Fiscal and Policy Advisor. March 2017.
21. US Census (2014-2018). QuickFacts Visalia city, California. https://www.census.gov/quickfacts/visaliacitycalifornia

Section 4

List of Preparers

City of Visalia
315 East Acequia Avenue
Visalia, CA 93291

SECTION 4
List of Preparers

Project Title: Riggin Avenue Widening (Kelsey to Shirk)

List of Preparers

4-Creeks Inc.
- David Duda, AICP, GISP
- Molly McDonnel, Associate Planner
- Kyle McDonald, PE
- Macy Hernandez, Asst. Engineering Designer

Persons and Agencies Consulted

The following individuals and agencies contributed to this Initial Study/Mitigated Negative Declaration:

City of Visalia
- Paul Bernal, City Planner
- Diego Corvera, PE
- Devon Jones, Economic Development Manager

Taylored Archaeology
- Consuelo Sauls

TJKM
- Colin Burgett, Sr. Project Manager

SOAR Environmental Consulting
- Jon Sarquis, DVBE, SDVOSB
- Casey Stewman, Biologist

Appendix A

Road Construction Emissions Model Results

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Riggin Avenue Widening (Kelsey to Shirk)

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.53	21.95	27.33	141.14	1.14	140.00	30.13	1.01	29.12	0.05	5,201.93	1.40	0.12	5,273.83
Grading/Excavation	11.13	89.87	120.58	145.00	5.00	140.00	33.62	4.50	29.12	0.21	20,785.73	6.18	0.28	21,023.61
Drainage/Utilities/Sub-Grade	8.22	76.70	81.45	143.62	3.62	140.00	32.47	3.35	29.12	0.16	15,250.09	3.17	0.19	15,387.32
Paving	2.93	37.86	28.62	1.55	1.55	0.00	1.37	1.37	0.00	0.06	6,131.37	1.67	0.11	6,206.87
Maximum (pounds/day)	11.13	89.87	120.58	145.00	5.00	140.00	33.62	4.50	29.12	0.21	20,785.73	6.18	0.28	21,023.61
Total (tons/construction project)	0.45	3.92	4.71	6.75	0.20	6.55	1.54	0.18	1.36	0.01	845.27	0.23	0.01	854.44

Notes:

Project Start Year ->	2022
Project Length (months) ->	5
Total Project Area (acres) ->	14
Maximum Area Disturbed/Day (acres) ->	14
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	480	120
Grading/Excavation	0	0	0	0	1,680	120
Drainage/Utilities/Sub-Grade	0	0	0	0	1,400	80
Paving	0	0	0	0	880	80

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Riggin Avenue Widening (Kelsey to Shirk)

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.12	0.15	0.78	0.01	0.77	0.17	0.01	0.16	0.00	28.61	0.01	0.00	26.31
Grading/Excavation	0.28	2.22	2.98	3.59	0.12	3.47	0.83	0.11	0.72	0.01	514.45	0.15	0.01	472.04
Drainage/Utilities/Sub-Grade	0.14	1.27	1.34	2.37	0.06	2.31	0.54	0.06	0.48	0.00	251.63	0.05	0.00	230.33
Paving	0.02	0.31	0.24	0.01	0.01	0.00	0.01	0.01	0.00	0.00	50.58	0.01	0.00	46.45
Maximum (tons/phase)	0.28	2.22	2.98	3.59	0.12	3.47	0.83	0.11	0.72	0.01	514.45	0.15	0.01	472.04
Total (tons/construction project)	0.45	3.92	4.71	6.75	0.20	6.55	1.54	0.18	1.36	0.01	845.27	0.23	0.01	775.14

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Appendix B

Biological Resources Assessment

CEQA Initial Study for the West Riggin Avenue Widening Project

Prepared for

4CREEKS

324 South Santa Fe Street, Suite A
Visalia, CA 93292

Prepared by

SOAR ENVIRONMENTAL CONSULTING

March 12, 2021

Contents

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Biological Resources

BIOLOGICAL RESOURCES – Within the project:				
	Potentially Significant Impact	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☑	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☑	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Impact Discussion

a. No impact. The existing roadway system, agricultural activities, and development within the project area, have altered the natural landscape by the introduction of horticultural and non-native plant species. By the removal of potentially suitable native habitat for sensitive plant or animal species within the APE. No impacts are expected to any of the special-status species that have any potential to occur in the APE.

b. No Impact. During the Habitat Assessment performed by Soar Environmental, no riparian habitat or other sensitive natural communities were observed on-site. Development of the proposed project would not impact any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife (CDFW), or United States Fish and Wildlife Service (USFWS).

c. No Impact. No water or other hydrologic features occur within the limits of construction and operation of the proposed project. There are no jurisdictional water features and no nexus to Waters of the United States. Therefore, no impacts to state or federally protected wetlands would occur due to the proposed project.

d. Less than Significant Impact. The project involves widening an existing two lane paved road from 30' wide to 74' wide, and includes other improvements such as sidewalks, landscaped medians, and bike paths on each side of the road and traffic signals at one intersection. This roadway widening project will likely have some negative impact on the ease of movement of resident special-status wildlife because the paved roadway is getting wider. However, the West Riggin Avenue Widening Project is surrounded on all sides by active agricultural lands (south and east), orchards (north), commercial development (southwest) and urban housing (southeast). The Project contains no waterways, streambeds, wetlands, or natural communities. As such, the project would not interfere substantially with the movement of any resident or migratory fish, wildlife species or with established resident or migratory wildlife corridors or impede the use of wildlife nursery sites. Converting land use from active agriculture and orchard and unvegetated ROW is considered a Less than Significant Impact.

e. Less Than Significant Impact with Mitigation. The City of Visalia Valley Oak Tree Ordinance contains requirements to preserve and maintain valley oak (*Quercus lobata*) trees in and near the City and requires mitigation based on the size or diameter at breast height (dbh) of the valley oak being removed in order to be issued a permit for removal (City of Visalia, 2020). In addition, the City of Visalia has regulations guiding the replanting and establishment of replacement valley oak trees in areas where they will be protected and conserved on public land to compensate for removalof large valley oaks in the City. One approximately 5.5 foot dbh valley oak tree occurs within the Project site, approximately 300 feet east of Kelsey Street on the north side of Riggin Ave., so the policies related to tree preservation do apply. The tree is a large canopied, multi-trunk tree that has high value to wildlife and is likely more than 500 years old. The edge of the trunk is currently approximately 9 feet north of the edge of Riggin Avenue. Removal of this large native valley oak tree would be a significant impact in terms of violating a local City ordinance for the City that is the lead agency, but with incorporation of the City of Visalia Valley Oak Tree Ordinance and by following the City of Visalia Oak Tree Mitigation Policy the impact would be reduced to Less than Significant. The project proponent will have to obtain an oak removal permit and comply with all of the City mitigation measures regarding removal of this large native oak tree. Mitigation involves replacing the valley oakwith many young valley oaks elsewhere and/or paying fees to the City for loss of the oak to be used for native oak restoration.

f. No Impact. The proposed project is not located within the boundaries of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or statehabitat conservation plan.

Environmental Evaluation

The City of Visalia (City) has tasked 4Creeks, Inc. (4Creeks) with conducting a California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) [(42 U.S.C. 4332(2)(C)] Initial Study for the West Riggin Avenue Widening and Traffic Signal Installation Project (Project) within the City, and in unincorporated Tulare County, California. As part of this Initial Study, 4Creeks sought an environmental consulting firm to provide biological services. Soar Environmental Consulting, Inc. (Soar Environmental) prepared this Biological Resource Assessment for 4Creeks, in support of in support of CEQA requirements (Section 15380 of CEQA Guidelines). The 14-acre proposed Project involves the reconstruction of 1 mile of existing roadway between Kelsey Street and Shirk Street to accommodate a 4-lane arterial street with 110' total ROW. Improvements would include new 12' vehicular travel lanes (4 lanes total), new Class II bike lanes, new street lighting, new landscaped medians, a new bus turnout, new fire hydrants, new sewer line, new traffic signal, and curb returns at all involved intersections. Construction would require demolition of existing asphalt between Kelsey Street and Shirk Street, removal of trees along Riggin Avenue frontage (including 2-3 rows of orchard trees along the north side of Riggin Avenue), and relocation of 17 existing power poles.

Environmental Setting

The Project Footprint is comprised of portions of Tulare County Assessor Parcel Numbers 077-840-001 and 077-840-003 and is located on the United States Geological Survey (USGS) *Goshen* and *Visalia*, 7.5-minute quadrangles, at an elevation ranging from approximately 300 to 330 feet above mean sea level (AMSL). The Project site has historically been used for agricultural purposes. The land use north of RigginAvenue is currently active almond and pistachio orchards (**Figure 2**). The adjacent land uses to the south of Riggin Avenue are active agricultural land and a livestock feed lot. Residential homes are present alongRiggin Avenue and east of Shirk Street south of Riggin Avenue. In the western portion of the Project Footprint south of Riggin Avenue, the biologist noted newly installed landscaped sidewalks with curb and gutter fronting various commercial enterprises. Overhead utility lines follow the north side of Riggin Avenue.

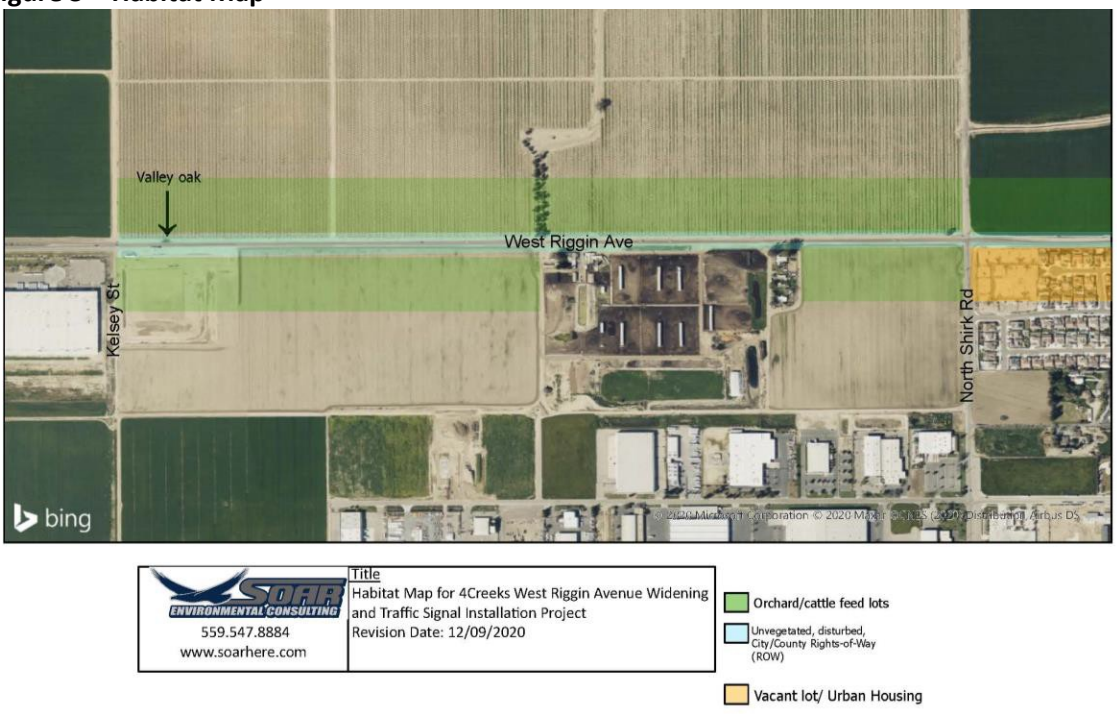
Prior to field activities, Soar Environmental researched the California Natural Diversity Database (CNDDB) and the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC), to learn which species could potentially be present onsite. Soar Environmental researched specific species and habitat requirements for the species noted in the CNDDB, California Native Plant Society (CNPS), andIPaC databases and included proximal species observations and species status for these, and surroundingparcels, in this report.

On November 12, 2020, Soar Environmental Biologist Casey Stewman performed a pedestrian habitat assessment of the Project Footprint, which is comprised of highly compacted and disturbed road shoulders, and active orchards, whose rows are maintained free of vegetation using mechanical and chemical methods (**Figure 3**). No native or natural plant communities occur in the 14-acre Project Footprint. Rock dove (*Columba livia*), brown-headed cowbird (*Molothrus ater*), and one red-tail hawk (*Buteo jamaicensis*) were observed within the Project Footprint. However, the surrounding commercial orchards appeared to have more avian activity than the Project site itself.

Figure 1 – Project Location

Figure 2 – Habitat Assessment Boundary

Figure 3 – Habitat Map



SOAR ENVIRONMENTAL CONSULTING
559.547.8884
www.soarhere.com

Title
Habitat Map for 4Creeks West Riggin Avenue Widening and Traffic Signal Installation Project
Revision Date: 12/09/2020

- Orchard/cattle feed lots
- Unvegetated, disturbed, City/County Rights-of-Way (ROW)
- Vacant lot/ Urban Housing

Methods

1.1. Literature Review

Prior to performing the habitat assessment, Soar Environmental conducted a review of the CNDDB and the CNPS Online Rare Plant Inventory for the *Cairn's Corner, Exeter, Goshen, Ivanhoe, Monson, Paige, Traver, Tulare,* and *Visalia* 7.5-minute USGS quadrangles, and the USFWS IPaC. The CNDDB search indicated that the Federal and/or State-listed special-status wildlife species most likely to occur within or near the Project Footprint are Swainson's hawk, vernal pool fairy shrimp, California tiger salamander, and San Joaquin kit fox. The suite of rare and endangered plants known from the region include heartscale (*Atriplex cordulata*) and other diminutive chenopod annuals, California jewelflower and San Joaquin adobe sunburst.

The IPaC search revealed the Federally listed sensitive species likely to occur within, or near the Project Footprint are San Joaquin kit fox, Tipton kangaroo rat, blunt-nosed leopard lizard, giant garter snake, California red-legged frog, California tiger salamander, delta smelt, vernal pool fairy shrimp, and San Joaquin adobe sunburst.

Soar Environmental researched the species noted in the CNDDB and IPaC databases and included proximal species observations and status in this report. The Project site occurs primarily on the north western sections of the Visalia 7.5-minute USGS quadrangle but also on the north eastern corner sections of the Goshen quadrangle.

The CNDDB search indicated that the Federal and/or State-listed special-status wildlife species most likely to occur within, or near the Project Footprint are:

- Swainson's hawk,
- vernal pool fairy shrimp,
- California tiger salamander, and,
- San Joaquin kit fox.

The suite of rare and endangered plants known from the region include:

- heartscale (Atriplex cordulata) and other diminutive chenopod annuals,
- Recurved larkspur
- California jewelflower, and,
- San Joaquin adobe sunburst

The IPaC search revealed the Federally listed sensitive species likely to occur within, or near the Project Footprint are:

- San Joaquin kit fox,
- Tipton kangaroo rat,
- Fresno kangaroo rat,
- blunt-nosed leopard lizard,
- giant garter snake,
- California red-legged frog,
- California tiger salamander,
- delta smelt,
- vernal pool fairy shrimp, and,
- San Joaquin adobe sunburst.

According to the U.S. Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS) Web Soil Survey, two soil types occur in the Project site: 101 Akers-Akers (Saline-Sodic complex comprising approximately 41% of Project Footprint) and, 122 Grangeville sandy loam, a well-drained agricultural or range soil (comprising approximately 59% of project Footprint). Due to the disturbed and compacted nature of the road shoulders with above-ground power lines in the Project Footprint, the road shoulders are largely devoid of herbaceous vegetation and/or an observable native seed bank.

1.2. Pedestrian Biological Assessment

1.2.1. Field Reconnaissance Methodology

On November 12, 2020, Soar Environmental biologist Casey Stewman, conducted a 2.5-hour pedestrian habitat assessment throughout the entire Project Footprint. Mr. Stewman began at the intersection of Shirk Street and Riggin Avenue where new traffic signals are proposed **(Figures 4 and 5)**. Mr. Stewman proceeded west along Riggin Avenue down the north side of the roadside surveying the entire Project Footprint north of Riggin Avenue. Mr. Stewman continued approximately one mile to the intersection of Riggin Avenue and Kelsey Street, and he crossed over Riggin Avenue and walked eastward on the opposite side of Riggin Avenue, surveying the road shoulder and neighboring ag lands and livestock feedlot. The biologist surveyed the areas surrounding the Project Footprint in addition to the Project Footprint itself. During the survey, Mr. Stewman did not observe any small mammal burrows or California ground squirrel colonies in the Project footprint or surrounding adjacent study area. At the intersection of Riggin Avenue and Shirk Street, the Soar Biologist noted an exposed concrete stormwater catch basin and irrigation culvert with no recent evidence of water **(Figures 6** and **7).** The majority of the Riggin Avenue shoulders are completely devoid of vegetation and may have been potentially impacted by orchards and the commercial cattle feedlots **(Figures 9 and 10)**. One large, approximately 5.5-to-6-foot diameter at breastheight old growth, multi-trunk valley oak (*Quercus lobata*) tree occurs within the Project Footprint on the north side of Riggin Avenue, approximately 300 feet east of Kelsey Street. The tree is readily visible on aerial photos. The edge of pavement is approximately 8 to 9 feet from the trunk of this heritage size multi-trunk tree **(Figure 11 and 12)**. No native shrub species or native plant communities were present. No nesting birds or active nests were observed in the large, canopied valley oak. The Soar Biologist observed utility lines and associated poles along the north side of Riggin Avenue. During the Survey, the biologist observed no small mammal burrows or small mammal activity within the Footprint.

After surveying the entire Project Footprint, Mr. Stewman used binoculars to observe the surrounding agricultural fields for potential special-status species, or suitable habitat for such. Mr. Stewman did not observe any special-status species, nor suitable habitat.

1.2.2. Field Reconnaissance Photos

Figure 4 – Intersection of Shirk Street and Riggin Avenue from southwestern corner of Project Footprint (View North)

Figure 5 – Intersection of Shirk Street and Riggin Avenue from northeastern corner of Project Footprint (View northeast)

Figure 6 – Roadside ephemeral swale vegetated with primarily ruderal, non-native annuals, including Russian thistle or tumbleweed (*Salsola tragus*) draining to concrete culvert at intersection of Shirk Street and Riggin Ave (view north)

Figure 7 – Concrete irrigation culvert located on the northwestern corner of Shirk St at Riggin Ave, the culvert traverses north to south under Riggin Avenue at intersection with Shirk Street (Facing northeast)

Figure 8 – Road shoulder and active agricultural lands of the Project Footprint from the south side of Riggin Avenue at intersection with Shirk Street (View west).

Figure 9 North side of Riggin Avenue and unvegetated road shoulder. Note active orchard to north and active ag fields to the south, across Riggin Avenue (View west)

Figure 10 – North side of Riggin Avenue with unvegetated road shoulder. Note the orchard to the north, overhead power lines, and cattle feed lots to the south, across Riggin Avenue (View east)

Figure 11 – Mature, multi-trunk, native, valley oak (Quercus lobata), with 5-foot diameter at breast height (dbh) trunk, located on north side of Riggin Avenue approximately 300 feet east of Kelsey Street. (View west)

Figure 12 – Mature multi-trunk valley oak (Quercus lobata) with overhead powerlines on north side of Riggin Avenue near western edge. Trunk is approximately 8 to 9 feet north of asphalt pavement (Vieweast)

Figure 13 – New sections of irrigated landscaping and paved curb on south side of Riggin Avenue near Kelsey Street (View East)

1.2.3. Field Reconnaissance Results

During the field reconnaissance no special-status species were observed within, or surrounding, the Project Footprint. The Project Footprint was found to be heavily disturbed, previously impacted and regularly maintained at short intervals by both private landowners and City and County personnel as a Rights-of -Way (ROW) on the north and south sides of Riggin Avenue. The soils exposed in the Project site are heavily compacted from automotive and agricultural equipment. The land surrounding the Riggin Avenue road shoulders is being used for active agriculture, functioning livestock feedlots, and for two residential properties or as graveled pullout from Riggin Avenue. No native species were observed in anyabundance along the entirety of the Project site, and few plants occur as the Project Footprint is comprised of road shoulders and regularly maintained crop land, using both chemical and mechanical methods, to be kept free of vegetation. Any patches of plants found in localized areas were composed ofcommon, non-native species, however, these localized areas were primarily just outside the Project Footprint in the adjacent orchard property. No ground squirrel colonies or small mammal burrows were observed anywhere within the Project Footprint, and minimal native seed bank is anticipated to be stored in these historic orchards and active agricultural lands. The dirt shoulders within the project Footprint areheavily compacted and disturbed. New landscaped and irrigated sidewalks with curb and gutter are beinginstalled along Riggin Avenue (**Figure 12**).

The compacted and disturbed bare ground may provide limited poor-quality habitat for certain terrestrial species, such as San Joaquin kit fox. The oak tree along the north side of Riggin Avenue near Kelsey Street provides limited raptor foraging habitat, however, it appears that this oak is within the construction footprint and will require removal during Project activities. The City of Visalia has a Valley Oak Ordinance that can permit the removal of the tree with mitigation based on the size of the tree removed (City of Visalia, 2020). All herbaceous plants observed in the Project Footprint were common, non-native species, typical of disturbed areas, such as Shepherd's purse (*Capsella bursa-pastoris*), tumbleweed or Russian thistle (*Salsola tragus*) and ripgut brome (*Bromus diandrus*). The Soar biologist did not observe any nativeplant communities within, or surrounding the Project site, other than the lone valley oak tree (**Figure 11**)located on the north side of Riggin near Kelsey Street.

Table 1: Regional Special Status Plant Species

Scientific Name	Common Name	Status Fed/CA/CNPS/Bloom Period	General Habitat Description/Elevation (ft)	Habitat Present/ Absent	Rationale
Atriplex cordulata var. *cordulata*	heartscale	--/--/1B.2/ April-October	Chenopod scrub, saline or alkaline soils/ <230	Absent	While saline soils occur in portions of the Project, the roadsides are managed to be free of vegetation and are impacted. Outside known elevation range.
Atriplex cordulata var. erecticaulis	Earlimart orache	--/--/1B.2/ August-November	valley and foothill grassland /<330	Absent	No grassland habitat occurs in the Project. The site is heavily disturbed and maintained.
Atriplex depressa	bitterscale	--/--/1B.2/ April-October	Chenopod scrub, alkaline soils/<1100	Absent	No potential habitat occurs in Project. The roadsides are heavily disturbed and maintained.
Atriplex minuscula	lesser saltscale	--/--/1B.1/ May-October	Chenopod scrub, alkaline playa/<330	Absent	No potential habitat occurs in Project.
Atriplex persistens	vernal pool smallscale	--/--/1B.2/ June-October	alkaline vernal pools/<380	Absent	No potential habitat occursin Project.
Atriplex subtilis	subtle orache	--/--/1B.2/ May-October	valley and foothill grassland, often on alkaline and clay/<220	Absent	No habitat occurs in theProject.
Caulanthus californicus	California jewelflower	FE/CE/1B.1/ Feb-May	Chenopod scrub, Pinyon-Juniper woodland, valley and foothill grassland /210-3335	Absent	No potential habitat occurs in BSA.
Delphinium recurvatum	recurved larkspur	--/--/1B.2/ March-June	Cismontane woodland, chenopod scrub, desert scrub, alkaline soils/100-1900	Present	One large oak in Project. Limited or marginal potential habitat.
Eryngium spinosepalum	spiny-sepaled button celery	FT/--/1B.2 April-June	Valley and foothill grassland, vernal pools/330-4,000	Absent	No grassland or vernal pool habitat occurs in the Project.
Euphorbia (*Chamaescyce*) *hooveri*	Hoover's spurge	--/--/1B.2/ June-October	Vernal pools/<800	Absent	No habitat occurs in the Project for this species.
Helianthus winteri	Winter's sunflower	--/--/1B.2 January-December	Openings in cismontane woodland, valley and foothill grassland/360-7500	Absent	This shrub would have been identifiable during the survey. It does not occur in the Project.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	--/--/1B.1 Feb-June	Marshes and swamps/<3,330	Absent	No potential habitat occurs in BSA.

Table 1: Regional Special Status Plant Species

Scientific Name	Common Name	Status Fed/CA/CNPS/Bloom Period	General Habitat Description/Elevation (ft)	Habitat Present/ Absent	Rationale
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	FT/CE/1B.1/ April-Sept	Vernal pools/<2,500	Absent	No habitat in Project for the species.
Pseudobahia peirsonii	San Joaquin adobe sunburst	FT/CE/1B.1/ Feb-April	Cismontane woodland, valley and foothill grassland, adobe clay /330-2800	Present	One oak tree occurs in the Project. No clay present. Limited marginal potential habitat occurs.
Puccinellia simplex	California alkali grass	--/--/1B.2/ March-May	Chenopod scrub, meadows, alkaline flats/<2800	Absent	No habitat occurs in the Project for this species.
Sagittaria sanfordii	Sanford's arrowhead	FT/CT/1B.1/ May-Nov	Marshes, ponds, ditches and swamps (freshwater)/<1000	Absent	No ponds, wetlands, ditches or drainages occur in the Project.

Key:

Federal

-- = No status definition.
D = Delisted. Status to be monitored for 5 years.
FE = Listed as endangered under the federal Endangered Species Act.
PT = Proposed for federal listing as threatened under the federal Endangered Species Act.
SC = Species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
SLC = Species of local concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
FT = Listed as threatened under the federal Endangered Species Act.

State

-- = No status definition.
CE = Listed as endangered under the California Endangered Species Act.
SC = Species of special concern in California.
CT = Listed as threatened under the California Endangered Species Act.

2.1 Plants

2.2.1 California jewelflower (Caulanthus californicus)

California jewelflower (CJ) is listed as Endangered on the Federal level and as Endangered on the State level. CJ is an annual herb in the mustard family, growing to approximately a foot (12 inches) tall, with white and maroon flowers. This is found only in the south San Joaquin valley and adjacent coastal ranges. CJ has a blooming period between March and May.

During the field survey, the Soar Biologist did not observe signs of CJ within the Project footprint or surrounding areas. The roadsides that comprise the Project are regularly maintained free of vegetation using mechanical and chemical methods. These areas are also heavily disturbed from motor vehicles, farm equipment and the soils are compacted, covered with gravel and/or covered in garbage or broken glass **Figure 3**. None to very little of the native seed bank is likely to be present in these long-maintained ROW in their degraded current condition.

CNDDB records do not contain any observations of CJ in the Visalia 7.5-minute quadrangle in more than 30 years. According to CNDDB records, the most recent report of this species in Tulare County was reported extirpated in 1986.

CJ Habitat

During the field survey, no signs of CJ were observed within the Project footprint or surrounding areas. However, there are no potential suitable habitat features on site for this species, such as natural grassland areas anywhere throughout the entire Project site. This species is unlikely to be impacted by this Project.

2.2.2 Recurved larkspur (Delphinium recurvatum)

Recurved larkspur (*Delphinium recurvatum*) is a CNPS List 1B.2 plant in the buttercup family that flowers between March and June and is known to grow on poorly drained fine alkaline soils in grasslands, chenopod scrub (e.g., *Atriplex* spp.) or oak woodland. Very limited oak habitat occurs beneath and near the one valley oak in the Project site. There is low potential for this species to be present.

2.2.3 Hoover's spurge (Euphorbia hooveri)

Hoover's spurge (*Euphorbia h*. synonym *Chamaesyce h*.) is a Federally Threatened (CNPS List 1B.2) annual herbaceous plant in the spurge family (Euphorbiaceae). The species is typically found in vernal pool habitats. The species is in identifiable phenology late in the summer between July and September. The regular chemical and mechanical previously disturbed and maintained upland roadside contains unlikely, low quality habitat, if any, for the species. No vernal pool habitats or seasonal wetlands occur within or adjacent to the Project. The species is known from vernal pool habitats in the adjacent Monsonand Ivanhoe 7.5-minute quadrangles.

2.2.4 San Joaquin Valley Orcutt grass (Orcuttia inaequalis)

San Joaquin Valley Orcutt grass is a Federally Threatened and State Endangered mat-forming, hairy annual species that is known from vernal pool habitats. The closest known occurrence of the species is in the Monson 7.5-minute quadrangle north of the Project. No wetlands, or vernal pool habitats occur in the Project site and the project will have no impact on this species.

2.2.5 San Joaquin adobe sunburst (Pseudobahia peirsonii)

San Joaquin adobe sunburst (SJAS) is listed as Threatened on the Federal level and as Endangered on the State level. This species is an annual herb growing up to 70 centimeters (28 inches) tall and is found primarily on the southeastern side of the San Joaquin Valley, at elevations between 330 and 3000 feet above sea level, growing in grasslands and open oak woodland habitats, sometimes on adobe clay. SJAS has an early blooming period, between February and April annually.

During the field survey, the Soar biologist did not observe signs of SJAS habitat or SJAS within the Project footprint or surrounding areas. However, there are areas with unlikely potential habitat on site for this species, such as orchards and active agricultural fields through the north side of the Project site, depicted in **Figure 3**. However, these orchard rows were maintained free of vegetation, including ground cover, and it is likely given the high interval of mechanical and chemical treatments, that the Project site is purposefully kept free of plants and vegetation, in the places that plants could grow.

SJAS Habitat

During the field survey, no signs of SJAS were observed within the Project footprint or surrounding areas. However, there is limited low quality potential habitat near the valley oak and other limited areas for this species on the Project site.

CNDDB records do not contain any observations of SJAS in the Visalia 7.5-minute quadrangle. According to CNDDB records, the nearest occurrence of this species in Tulare County was recorded in the Fountain Springs 7.5-minute quadrangle, more than 30 miles southeast of the Project site in March 2016. Due to poor habitat quality and Lack of occurrences in the vicinity of the Project site, this species is unlikely to be impacted by this Project.

Table 2: Regional Special Status Wildlife Species

Scientific Name	Common Name	Status Fed/CA	General Habitat Description	Habitat Present Absent	Rationale
Invertebrates					
Branchinecta lynchi	Vernal pool fairy shrimp	FT/--	Vernal pools, seasonal wetlands	Absent	No wetlands or vernal pool habitat occurs in the Project.
Lepidurus packardi	Vernal pool tadpole shrimp	FE/--	Vernal pools	Absent	No wetlands or vernal pool habitat occurs in the Project.
Desmocerus californicus dimorphos	Valley elderberry longhorn beetle	FT/--	Lifecycle takes place in and on elderberry (Sambucus) shrubs	Absent	No elderberry shrub habitat occurs in the Project.
Fish					
Hypomesus transpacificus	Delta smelt	FT / --	Inhabits freshwater and estuaries of the pacific coast, in areas of aquatic vegetation.	Absent	No aquatic habitat occurs in the Project.
Amphibians and Reptiles					
Ambystoma californiense	California tiger salamander	FT /CT	Breeding occurs in ponds, vernal pools and vegetated drainages, adults primarily live or estivate in underground animal burrows. They emerge for rainy night breeding trips to water sources.	Absent	No potential breeding or foraging habitat present. Upland habitat not suitable for species.
Gambelia silus	Blunt-nosed Leopard Lizard	FE/--	Dry washes and riverbeds, sandy grassland and shrubland, chenopod scrub	Absent	No vegetated habitat occurs in the Project, bare ground is present.
Rana aurora draytonii	California red-legged frog	FT / SC	Dense, emergent and riparian vegetation associated with deep (0.7 m), still or slow-moving water.	Absent	The habitats within the BSA are not considered suitable due to the brackish conditions found at the site
Thamnophis gigas	Giant Garter Snake	FE / --	Heavily vegetated freshwater wetlands and ponds with available basking habitat.	Absent	No aquatic habitats within the Project. No suitable habitat.
Birds					
Agelaius tricolor	tricolored blackbird	-- / CT	Requires dense, tall emergent vegetation in freshwater and brackish marshes.	Absent	No habitat within the Project.

Table 2: Regional Special Status Wildlife Species

Scientific Name	Common Name	Status Fed/CA	General Habitat Description	Habitat Present Absent	Rationale
Buteo swainsoni	Swainson's hawk	-- / CT	Nesting in trees or shrubs, this species feeds voraciously on grasshoppers and insects.	Present	Limited marginal nesting habitat and low-quality foraging habitat in Project.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FT / CE	A rare bird that is dependent on large tracts of streamside (riparian) forests.	Absent	Suitable nesting or foraging habitat is not present in the Project.
Melospiza melodia	song sparrow	-- / SC	Resident of the borders between marsh and upland habitats within the south arm of San Francisco bay.	Absent	No suitable habitat for nesting and foraging within the Project.
Mammals					
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE/--	Occurs in chenopod scrub and alkaline grassland with seed sources for forage. Nests in mounds.	Absent	No suitable grassland and scrub habitat in Project. Limited poor quality barren upland habitat occurs.
Dipodomys nitratoides	Tipton kangaroo rat	FE / FE	Occurs in chenopod scrub and alkaline grassland with seed sources for forage. Nests in mounds.	Absent	No suitable grassland and scrub habitat in Project. Limited poor quality barren upland habitat occurs.
Vulpes macrotis mutic	San Joaquin kit fox	FE / CT	San Joaquin kit fox are small and rare foxes feeding on small mammals. They occupy grasslands, woodlands and use human made landscapes opportunistically and the Project is within the range of known populations that extend into Tulare County.	Present	Limited low quality upland dispersal habitat occurs in the Project. No burrows or small mammal activity was observed.

Key:

Federal

- - = No status definition.
E = Listed as endangered under the federal Endangered Species Act.
T = Listed as threatened under the federal Endangered Species Act.

State

-- = No status definition.
E = Listed as endangered under the California Endangered Species Act.
FP = Fully protected species may not be taken or possessed without a permit from the DFG and/or the FG Commission. Information on Fully Protected species can be found in DFG code Section 3511, 4700, 5050, and 5515.
SC = Species of special concern in California.
T = Listed as threatened under the California Endangered Species Act.

2.4. Invertebrates

2.4.1. Vernal pool fairy shrimp (*Branchinecta lynchi*)

Vernal pool fairy shrimp (VPFS) is listed as Threatened on the Federal level and has no listing on the State level. VPFS are one inch (2.5 cm) long, translucent crustaceans, with 11 pairs of appendages. VPFS are limited to vernal pool habitats in Oregon and California and do not occurin riverine, marine, or other permanent bodies of water where fish are present. During the wet

season, the females produce hardy resting eggs, called cysts, which survive the dry season and hatch when the rains come again. During the field survey, the Soar Biologist did not observe signs of VPFS or habitats known to support them within the Project Footprint or surrounding areas. The habitat on the Project Site is not suitable for VPFS as there are only disturbed upland roadsides, active agricultural lands, and orchards present (e.g., hydric soil, wetland vegetation, and hydrology), and stormwater does not appear to pool for a long enough duration to support any wetland species, including VPFS. CNDDB records do not contain any observations of VPFS in the Visalia 7.5-minute quadrangle. According to CNDDB records, the nearest occurrence of this species in Tulare County was recorded in the Traver 7.5-minute quadrangle, approximately 20 miles northwest of the Project Footprint, in March 2017.

Because of these reasons, no adverse impacts to VPFS are anticipated to occur during proposed construction activities.

2.4.2. Vernal pool tadpole shrimp (Lepidurus packardi)

Vernal pool tadpole shrimp (VPTS) is listed as Endangered on the Federal level and has no listing on the State level. VPTS are 2 to 5 centimeters (one to two inches) long, horseshoe crab shaped crustaceans with appendages. VPTS are limited to vernal pool habitats in Oregon and California and do not occur in riverine, marine, or other permanent bodies of water where fish are present. During the wet season, the females produce hardy resting eggs, called cysts, which survive the dry season and hatch when the rains come again. During the field survey, the Soar Biologist did not observe signs of VPTS or habitats known to support them within the Project footprint or surrounding areas. The habitat on the Project Site is not suitable for VPTS as it is upland habitat in active agricultural or livestock use, there are no vernal pool characteristics present (e.g., hydric soil, wetland vegetation, and hydrology), and stormwater does not appear to pool for a long enough duration to support any wetland species, including VPTS. CNDDB records do not contain any observations of VPTS in the Visalia 7.5-minute quadrangle. No vernal pools occur inthe Project footprint. The Project will not impact this species.

2.5. Fish

2.5.1. Delta smelt (*Hypomesus transpacificus*)

Delta smelt (DS) is listed as Threatened on the Federal level and Endangered on the State level. DS are 2- 3 inches (8 cm) long, slim bodied fish with a silver sheen. DS prefer shallow, fresh, or slightly brackish backwater sloughs and edge waters, with good water quality and substrate for spawning, andare generally 27 found in brackish waters below 25 degrees Celsius. The range of DS is restricted to the upper reaches of the San Francisco Bay and Sacramento-San Joaquin Delta Estuary. The habitat within the Project Footprint is unsuitable for delta smelt as there are no bodies of water onsite and there is no nexus to the Sacramento-San Joaquin Delta Estuary. No record of DS observation has beenrecorded anywhere in Tulare County in the CNDDB. Because of these reasons, no adverse impacts toDS are anticipated to occur during proposed construction activities.

2.6. Reptiles

2.6.1. Giant garter snake (*Thamnophis gigas*)

Giant garter snake (GGS) is listed as Threatened on the Federal and the State level. GGS are at least 64 inches (162 cm) long, with a brownish olive background, a yellow stripe down the center of the back, and a light-colored stripe on either side. GGS historically ranged from Kern County to Butte County, but due to habitat degradation, this species is thought to no longer occur south of Fresno County. GGS are found primarily in marshes, sloughs, drainage canals, irrigation ditches, and prefer locations with vegetation close to water for basking. GGS use small mammal burrows and

vegetation piles for cover during hotter weather. During the field survey, the Soar Biologist did not observe signs of GGS within the Project footprint or surrounding areas. There are no marshes or bodies of water and no small mammal burrows present within the Project Footprint to provide potentially suitable habitat features for GGS (Figure 3). CNDDB records do not contain any observations of GGS in Tulare County. Because of these reasons, no adverse impacts GGS are anticipated to occur during proposedconstruction activities.

GGS Habitat

During the field survey, no signs of GGS were observed in the Project footprint or surrounding areas. In addition, there are no potential suitable habitat features on site for this species, such as the small mammal burrows or wetlands. No habitat occurs onsite for this species, aside from unvegetated upland roadside and disturbed unvegetated agricultural land. Potential impact to GGS is less than significant.

2.6.2. Blunt-nosed leopard lizard (*Gambelia silus*)

Blunt-nosed leopard lizard (BNLL) is listed as Endangered on the Federal and the State level. BNLL have a light background with dark gray-brown spotting, giving it an almost Giraffe-like appearance. The body length of the BNLL ranges from 7 to 12 centimeters (3 to 5 inches), with a tail typically longer than the body. BNLL are found in the southern San Joaquin Valley and surrounding foothills and valleys. BNLL prefer flat areas with open space for running, including semi-arid grasslands, alkali flats,and washes. BNLL typically utilize shrubs and small mammal burrows for cover and shelter, and typically avoid densely vegetated areas. During the field survey, the Soar Biologist did not observe signs of BNLL within the Project Footprint or surrounding areas. The compacted and disturbed road shoulders and agricultural land shrubs and lacked shrubs and small mammal burrows, and thus do not provide suitable habitat for this BNLL (**Figures 3 & 11**). CNDDB records do not contain any observations of BNLL in the Visalia 7.5-minute quadrangle. According to CNDDB records, the most recent occurrence of this species in Tulare County was recorded in the Allensworth 7.5-minute quadrangle, 32 miles southwest of the Project site in July 2019. Because of these reasons, no impactsto BNLL are anticipated to occur during proposed construction activities.

BNLL Habitat

During the field survey, no signs of BNLL were observed in the Project footprint or surrounding areas. In addition, there are no potential suitable habitat features on site for this species. No small mammalburrows occur on the site. BNLL are known to utilize small mammal burrows as refugia, or to hibernate. The species is unlikely to occur.

2.7. Amphibians

2.7.1. California red-legged frog (Rana draytonii)

California red-legged frog (CRLF) is listed as Threatened on the Federal level and is considered a Species of Special Concern in California. CRLF are medium-sized frogs from 1.75 to 5.5 inches (4.4-

13.3 centimeters) long, with a slim waist, long legs, reddish brown, gray, or olive color with black flecks, a dark mask on the head, and red on the hind legs and lower belly. In the San Joaquin Valley, CRLF are not thought to occur south of Fresno County. CRLF are most commonly found in lowlands and foothills, primarily near ponds in humid forests, woodlands, grasslands, and coastal scrub, and prefer streamside locations with vegetative cover. During the field survey, the Soar Biologist did not observe signs of CRLF within the Project Footprint or surrounding areas. The compacted and disturbed upland characteristics of the Project Footprint provide low-quality dispersal habitat for CRLF. No breeding or refugia habitat, such as small mammal burrows or water bodies, or habitats

characteristic of CRLF requirements are present within the Project Footprint. CNDDB records do not contain any observations of CRLF in Tulare County. Because of these reasons, no adverse impacts to CRLF are anticipated to occur during proposed construction activities.

CRLF Habitat
During the field survey, no signs of CRLF were observed in the Project footprint or surrounding areas. In addition, no potential refugia, small burrows or grassland and wetland mosaics occur in the Project site. No suitable estivation, breeding or foraging habitat features occur on site for this species. Though the Project site could be considered low quality upland dispersal habitat.

2.7.2. California tiger salamander (*Ambystoma californiense*)

California tiger salamander (CTS) is listed as Endangered in Santa Barbara and Sonoma Counties, and Threatened in the Central San Joaquin Valley. Adult CTS range in size from 15-22 centimeters (6 to 9 inches) long and have a dark background color with distinctive yellow spots. Juvenile CTS look much like adults but lack the yellow spots. Larval CTS are grayish green in color and have the appearance of tadpoles with obvious, external gills. CTS eggs are clear and are typically laid singly or in groups of three or four in shallow ponds. This endemic California species is found in grasslands, oak savannah woodlands, edges of mixed woodland, lower elevations of coniferous forests, and in heavily grazed fields along the Central California Coast and within the Central San Joaquin Valley.

However, CTS may breed in ditches where water is present for a long enough duration for eggs and larvae to metamorphose into adults. During the non-breeding season (approximately late May through early November), CTS live in small mammal burrows. During the field survey, the Soar Biologist did not observe any signs of CTS or habitat suitable for CTS within the Project Footprint or surrounding areas. In addition, there are minimal potential suitable habitat features on site for this species, as no small mammal burrows were observed in the maintained ROW and no wetlands or streams occur in the Project (Figure 3).

CNDDB records do not contain any observations of CTS in the Tulare 7.5-minute quadrangle. According to CNDDB records, the nearest occurrence of this species in Tulare County was recorded in the Orange Cove North 7.5-minute quadrangle, 27 miles northeast of the Project site in May 2017.

CTS Habitat
During the field survey, no signs of CTS were observed in the Project footprint or surrounding areas. No potential suitable habitat features occur on site for this species. There is an absence of small mammal burrows throughout the site, and no ground squirrel colonies were observed. CTS are known to utilize small mammal burrows for refugia and/or to hibernate. No estivation/refugia, breeding, or foraging habitat occurs for this species within the APE and the APE is outside of any designated critical habitat for the species. For these reasons, no adverse impacts to CTS are anticipated to occur during proposed construction activities.

2.8. Birds

2.8.1. Swainson's hawk (*Buteo swainsoni*)

Swainson's Hawk (SWHA) is listed as Threatened on the State level. SWHAs favor open habitat for foraging, such as agricultural fields, pastures, and row crops. They nest in scattered stands of eucalyptus, willow, oak, cottonwood, and conifers. On occasion, SWHA will nest on a power pole or transmission towers. Nests are constructed with loose bundles of sticks and debris items. Incubationperiod is approximately 35 days and nesting period is 17-22 days. The breeding season for this speciesbegins in March and ends In September. During the field survey, the Soar Biologist did

observe a large multi-trunk valley oak, Eucalyptus, olive and almond trees and power poles but not highly suitable habitat for SWHA within the Project Footprint or surrounding areas. The maintained commercial orchard and planted horticultural trees provide limited low-quality habitat potential within the ProjectFootprint.

There is one mature valley oak within the Project Footprint that may provide nesting opportunities, and the power poles located along the north side of Riggin Avenue provide limited nesting habitat. The oak tree is between Riggins Avenue and the active orchard, so the potential for traffic and agricultural activities to disturb nest building and/or fledglings exists, and power poles are not considered suitable habitat for SWHA. CNDDB records do not contain any observations of SWHA in the Visalia 7.5-minute quadrangle. According to CNDDB records, the nearest occurrence of this species in Tulare County was recorded in the Taylor Weir 7.5-minute quadrangle, 14 miles southwest of the Project site in July 2019. Because of these reasons, no adverse impacts to SWHA are anticipatedto occur during proposed construction activities.

2.9. Mammals

2.9.1. San Joaquin kit fox (*Vulpes macrotis mutica*)

The San Joaquin kit fox (SJKF) is listed as Threatened at the Federal level and Endangered at the State level. SJKF are petite, light-colored canids, approximately 20 inches (50 cm) in length, with bushy, black tipped tails, large ears, and pointed snouts. SJKF are fond of alkali meadows, playas, grassland communities, scrubland, and wetland communities in the San Joaquin Valley and adjoining foothills. SJKF have adapted to human habitation and can also be found in more developed areas such as golf courses, airports, and residential areas. During the field survey, the Soar Biologist did not observe signs of SJKF within the Project footprint or surrounding areas. However, there are potentially suitable habitat features on site for this species, such as the low-quality potential upland dispersal habitat, and the concrete irrigation culverts present throughout the Footprint and surrounding agricultural areas (Figure 7).

CNDDB records do not contain any observations of SJKF in the Visalia 7.5-minute quadrangle since 1975 when a roadkill was recorded in July. Many other occurrences of San Joaquin kit fox occur in allof the quadrangles surrounding the project area, but most of them date from 1973 to 1975, while some are updated occurrences. According to CNDDB records, the nearest occurrence of this species in Tulare County was recorded in the Delano West 7.5-minute quadrangle, approximately 50 miles south of the Project site in June 2004.

SJKF Habitat

During the field survey, no signs of SJKF were observed in the Project footprint or surrounding areas. There are no potential suitable habitat features on site for this species. No small mammal burrows or California ground squirrel colonies were observed on or near the site. No impacts to SJKF are anticipated to occur during proposed construction activities.

2.9.2. Tipton kangaroo rat (*Dipodomys nitratoides*)

Tipton kangaroo rat (TKR) is listed as Endangered at both the Federal and State level. TKR have light brown bodies averaging 10-11 centimeters (4 inches) in length, long rear legs, short front legs adapted for digging, long tufted tails averaging 12.5-13 (~5 inches) centimeters long, and large black eyes. TKR inhabit saltbush scrub, sink scrub, and grassland habitats, from the floor of the San Joaquin Valley upto 300 feet in elevation, from north of Visalia, to south of Bakersfield, California. TKR are fossorial mammals whose burrows are typically less than three inches in diameter and are usually found at thebase of shrubs. During the field survey, the Soar Biologist did not observe signs of TKR within the Project Footprint or surrounding areas. The species is unlikely to occur within the Project site, as no potential suitable habitat, such as vegetated shrublands and grasslands, or small mammal burrows occurs within the Footprint.

CNDDB records do not contain any observations of TKR in the Visalia 7.5-minute quadrangle. According to CNDDB records, the nearest occurrence of this species in Tulare County was recorded in the Allensworth 7.5-minute quadrangle, 27 miles south of the Project site in August 2003. Because ofthese reasons, no adverse impacts to TKR are anticipated to occur during proposed construction activities.

TKR Habitat

During the field survey, no signs of TKR were observed in the Project footprint or surrounding areas. However, there are no potential suitable habitat features on site for this species. No small mammal burrows occur on the site, because it is disturbed orchard and active agricultural land. No impacts to TKR are anticipated to occur as a result from proposed construction activities. Special status species observations and potential habitat findings are summarized in Table 3 below.

Table 3 – Special Status Species Findings

Species Name	Species Observed on Project Site	Suitable Habitat on Project Site
Vascular Plants		
California Jewelflower (*Caulanthus californicus*)	No	No
Hoover's spurge (*Euphorbia hooveri*)	No	No
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	No	No
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	No	No
Crustaceans		
vernal pool fairy shrimp (*Branchinecta lynchi*)	No	No
Fish		
Delta smelt (*Hypomesus transpacificus*)	No	No
Herpefauna		
California tiger salamander (*Ambystoma californiense*)	No	No
blunt-nosed leopard lizard (*Gambelia silus*)	No	No
California red-legged frog (*Rana draytonii*)	No	No
giant garter snake (*Thamnophis gigas*)	No	No
Birds		
Swainson's Hawk (*Buteo swainsoni*)	No	Yes
Mammals		
San Joaquin kit fox (*Vulpes macrotis mutica*)	No	No
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	No	No
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	No	No

Mitigation Measures:

MM BIO – 1 Removal of the valley oak tree requires mitigation by payinga mitigation fee, or by performing in-kind mitigation, or by a combination of payment of mitigation fee and in-kind mitigation. Oak tree removal, and mitigation will be in accordance with the City of Visalia Oak Tree Mitigation Policy, pursuant to Visalia Municipal Code sections 12.24.037 and 12.24.110.

Study Limitations

This Section has been prepared in accordance with generally accepted environmental methodologies, and contains all the limitations inherent in these methodologies. The Section documents site conditions that were observed during field reconnaissance and do not apply to future conditions. No otherwarranties, expressed or implied, are made as to the professional services provided under the terms of our contract and included in this Section.

City of Visalia.2020. City of Visalia - Valley Oak Ordinance

Appendix C

Cultural Resources Assessment

Cultural Resources Assessment for the Riggin Avenue Widening (Kelsey to Shirk) Project, Tulare County, California

Consuelo Y. Sauls

Prepared By

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Prepared For
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November 2020

USGS Visalia and Goshen 7.5' topographic quadrangle;
14 total project acres; 14 acres surveyed
Keywords: Negative findings

EXECUTIVE SUMMARY

4Creeks, Inc. (4Creeks) is preparing an environmental analysis for the Riggin Avenue Widening (Kelsey to Shirk) Project in the City of Visalia, California. The project is funded in part through the United States Economic Development Administration and therefore constitutes a federal undertaking. Taylored Archaeology was contracted by 4Creeks to conduct a cultural resources assessment for the project under the California Environmental Quality Act and Section 106 of the National Historic Preservation Act as part of the overall environmental analysis.

The proposed Project will widen a one-mile stretch of Riggin Avenue between Kelsey Street and Shirk Avenue from a two-lane road to four-lane road with a central median and bike lanes. The right-of-way will be approximately 110 feet wide. The Area of Potential Effects (APE) for the Project was defined as the area of potential ground disturbance resulting from project construction activities. The total horizontal APE is approximately 14 acres and the vertical APE is approximately 20 feet below ground surface.

The Southern San Joaquin Valley Information Center records search identified two prior cultural resource investigations, and no recorded cultural resources, within the Project APE. In addition, the search also determined that there were three prior investigations, and no recorded cultural resources, within a 0.5-mile radius of the Project APE (Appendix B).

The Native American Heritage Commission (NAHC) Sacred Lands File search, archival research, and pedestrian survey resulted in negative findings for tribal or cultural resources within the APE. Based on the results of the records search, there is a low probability of encountering cultural deposits.

Consistent with state statutes and regulations, Taylored Archaeology recommends that in the event of accidental discovery of unidentified archaeological deposits during development or ground-moving activities in the Project area, all work should be halted until a qualified archaeologist can identify the discovery and assess its significance.

If human remains are uncovered during construction, the Tulare County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the treatment and disposition of the remains.

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CONTENTS

APPENDICIES

FIGURES

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1
INTRODUCTION

The City of Visalia (City) proposes to widen a one mile stretch of Riggin Avenue between Kelsey Street and Shirk Street (Project) to accommodate a 4-lane arterial street with a total right-of-way width of 110 feet. The purpose of the road widening is to accommodate increased traffic between the City of Visalia along its northern boundary and State Route 99 to the west. The Project is funded through local, state, and federal funds. The United States Economic Development Administration (EDA) is serving as the lead agency under the National Environmental Policy Act, and the City of Visalia is serving as lead agency under the California Environmental Quality Act (CEQA). This Project is therefore subject to cultural resources and historical laws under the National Historic Preservation Act (NHPA) and CEQA.

4Creeks, Inc., as the prime contractor to the City for environmental compliance services, retained Taylored Archaeology to conduct a Phase I cultural resources assessment of the Project for compliance with the NHPA and CEQA.

1.1 PROJECT LOCATION AND DESCRIPTION

The Project site is located along Riggin Avenue within the northwestern portion of the City of Visalia (Figure 1-1). The proposed Project consists of a one mile stretch of Riggin Avenue between Kelsey Street and Shirk Street. The proposed action includes the widening and reconstruction of 1 mile of existing roadway to widen Riggin Avenue to a 4-lane arterial street with a total right-of-way width of 110 linear feet. Project improvements would include new bike lands, street lighting, a curbed median, fire hydrants, new street lighting, and curbs. The Project will additionally include relocation of 17 existing wood power poles, demolition of existing asphalt between Kelsey and Shirk Streets, and removal of road-side trees and some orchard trees within the Project Area of Potential Effects (APE).

The APE for the Project is defined as the area of potential ground disturbance resulting from project activities based upon the project description. The total horizontal APE is approximately 14 acres, and the vertical APE is approximately 20 feet below ground surface.

1.2 REGULATORY SETTING

1.2.1 CALIFORNIA ENVIRONMENT QUALITY ACT

Pursuant to CEQA, a historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources. Historical resources may include, but are not limited to, “any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically or archaeologically significant” (PRC §5020.1[j]). In addition, a resource included in a local register of historical resources or identify as significant in a local survey conducted in accordance with the state guidelines are also considered historic resources under California Public Resources Code (PRC) Section 5020.1.

According to CEQA guidelines §15064.5 (a)(3), criteria for listing on the California Register of Historical Resources includes the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(B) Is associated with the lives of persons important in our past.
(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(D) Has yielded, or may be likely to yield, information important in prehistory or history.

1.2.2 NATIONAL HISTORIC PRESERVATION ACT OF 1966

The National Historic Preservation Act (NHPA) (16 U.S.C. 470 ET SEQ.) was enacted in 1966 and created a national policy of historic preservation. The law established several programs, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at local, state, and federal levels. The NHPA authorized the creation and expansion of the National Register of Historic Places (NRHP), formed the position of State Historic Preservation Officer (SHPO), allowed for the creation of State Review Boards to set up methods for local governments to enact the NHPA at a local level, assisted Native American tribes with preserving their heritage, and established the Advisory Council on Historic Preservation (ACHP).

The NHPA established criteria for determining if a historic property is eligible for inclusion in the NRHP. These criteria are set forth in 36 CFR 60.4 as follows:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) that are associated with the lives of persons significant in our past; or
>
> (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) that have yielded, or may be likely to yield, information important in prehistory or history.

1.2.3 SECTION 106 OF THE NHPA

Section 106 of NHPA states that any federal agency with direct or indirect jurisdiction over federally assisted or proposed federal action will take into account the effect the action will have on any historic property that is on, or eligible to be included in, the NRHP. The NHPA provides

the Advisory Council on Historic Preservation and the relevant SHPO the opportunity to provide comment on the federal action in regard to potential impacts to historic properties.

1.3 PROFESSIONAL QUALIFICATIONS

Archaeologist Consuelo Y. Sauls (M.A.), a Registered Professional Archaeologist (RPA 41591505), served as Principal Investigator, conducting all cultural resource tasks for the Project study. Ms. Sauls meets the Secretary of the Interior's Standards for Professional Qualifications in Archaeology. Statement of Qualifications for key personnel is provided in Appendix A.

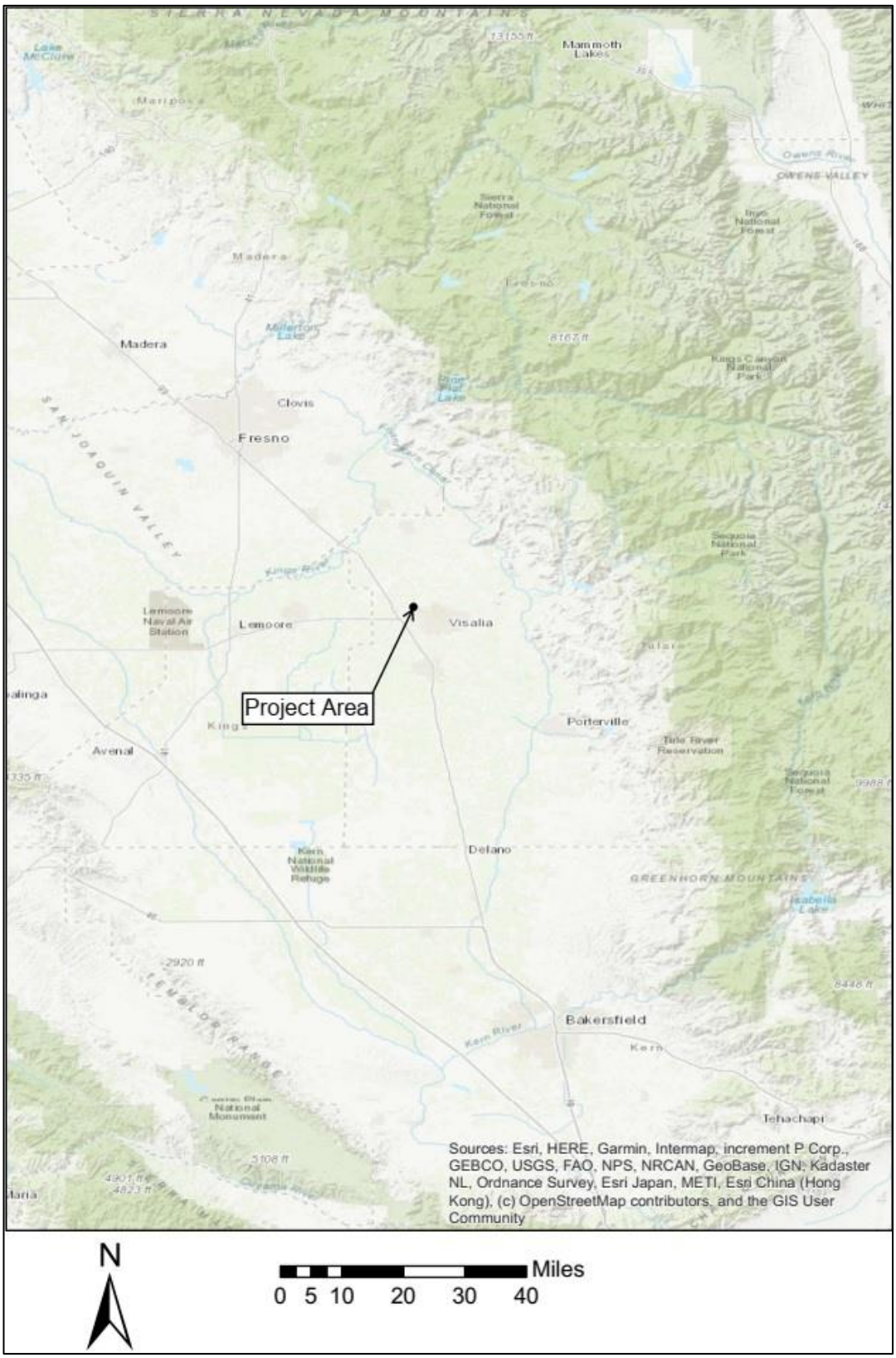

Figure 1-1 Project vicinity in Tulare County, California.

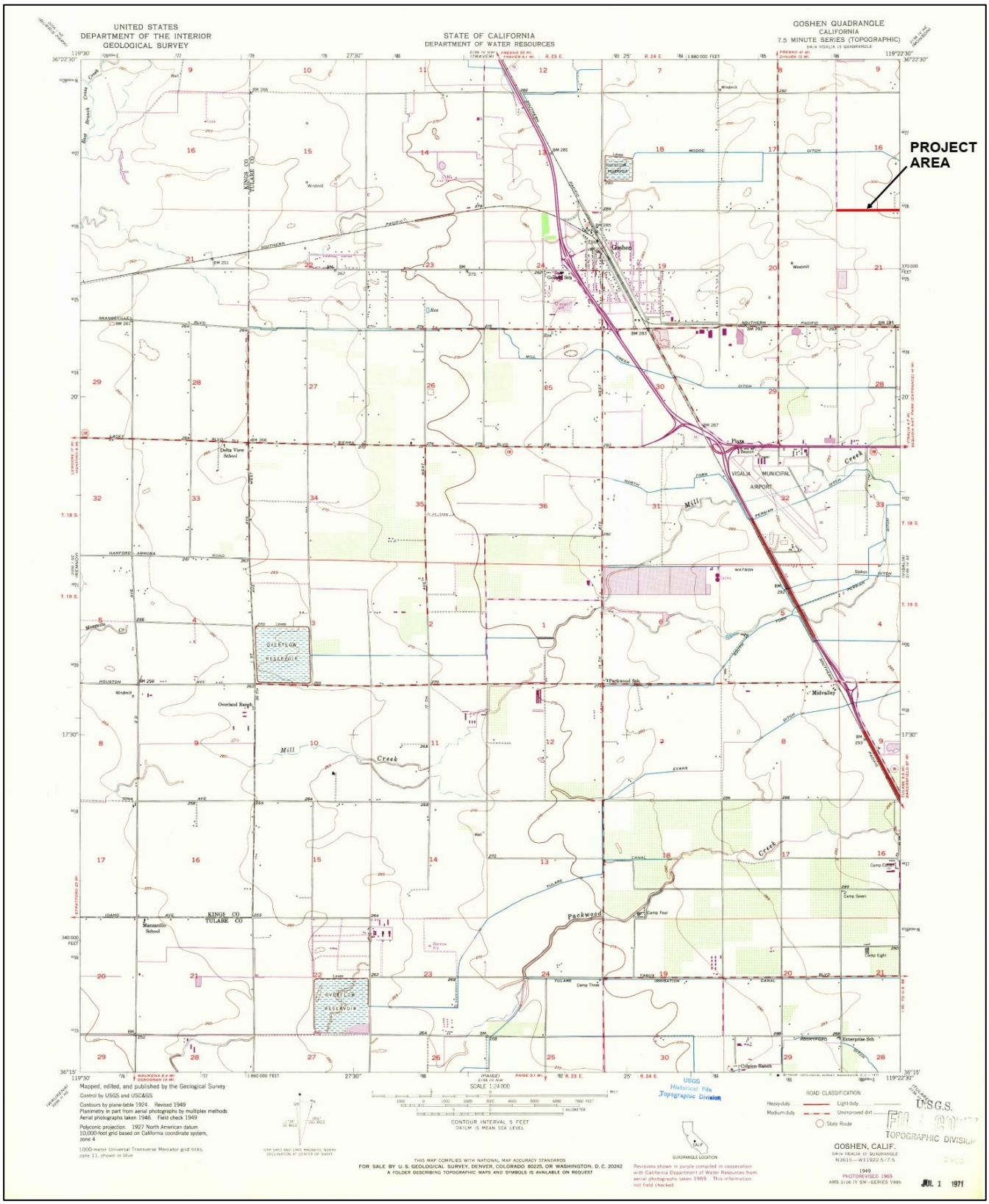

Figure 1-2 Project location on the USGS Goshen, CA 7.5-minute quadrangle.

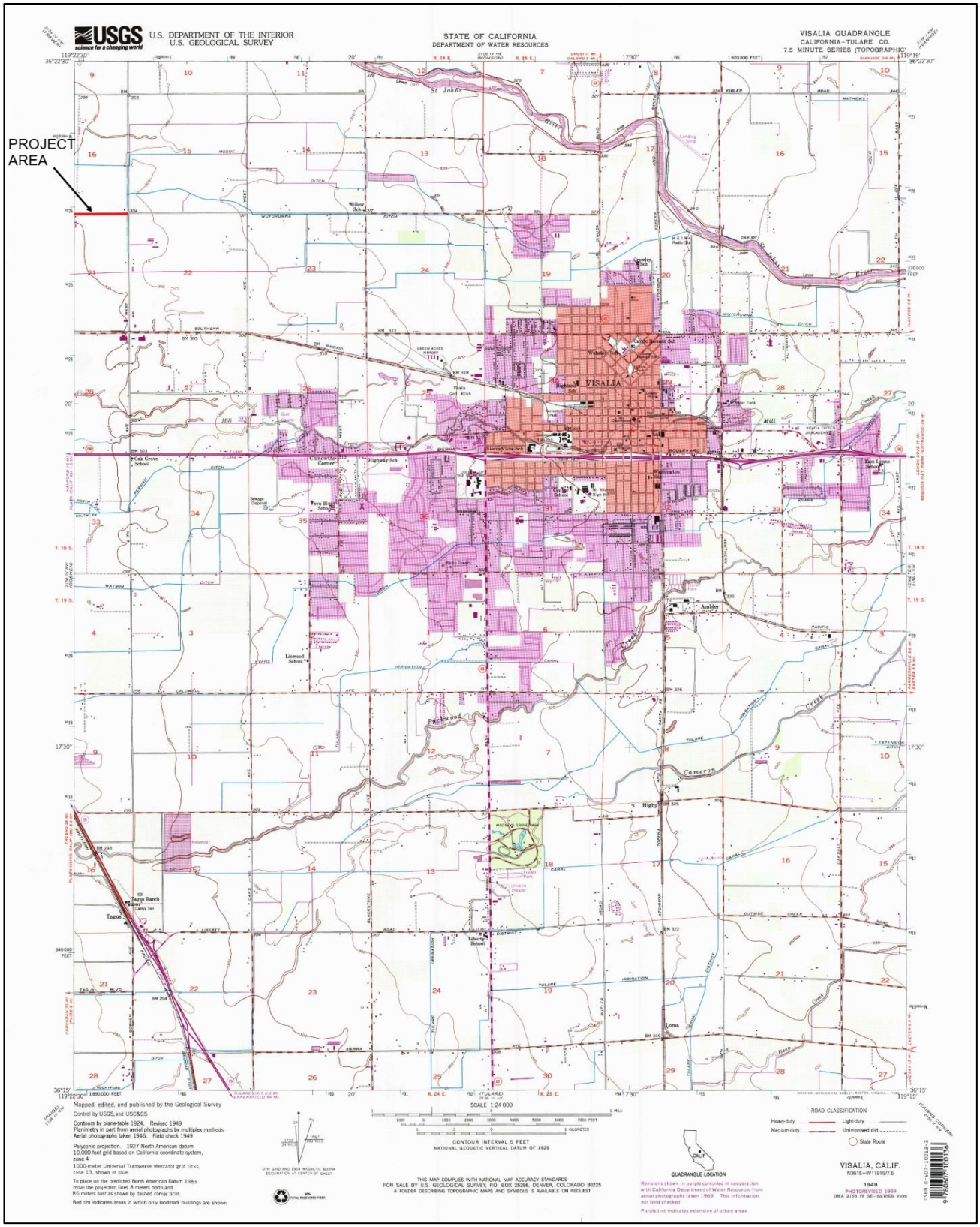

Figure 1-3 Project location on the USGS Visalia, CA 7.5-minute quadrangle.

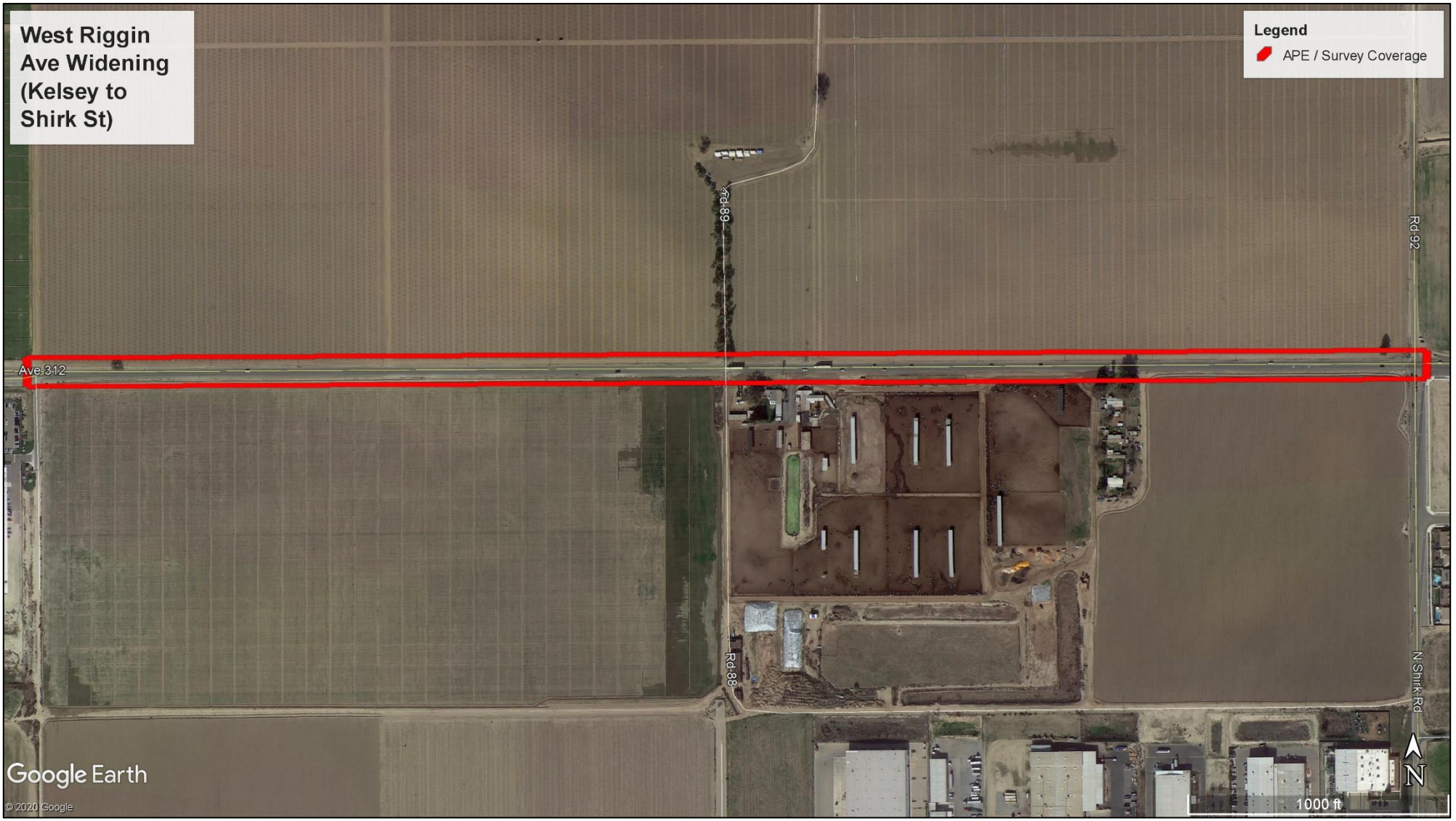

Figure 1-4 Aerial view of the APE showing survey coverage.

1.4 REPORT STRUCTURE

In order to comply with California regulations for CEQA and Section 106 of NHPA, the following specific tasks were completed: (1) requesting a records search from the Southern San Joaquin Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS), at California State University, Bakersfield; (2) requesting a Sacred Lands File Search and list of interested parties from the Native American Heritage Commission (NAHC) and initiating outreach to local Native American individuals and tribal representatives; (3) conducting an archaeological pedestrian survey of the APE, and (4) preparing this technical report.

Taylored Archaeology prepared this report following the California Office of Historic Preservation standards in the 1990 Archaeological Resources Management Report Recommended Contents and Format. Chapter 1 includes the Project description, the Project APE, the state and federal regulations and identifies the key personnel involved in this report. Chapter 2 presents the Project setting, including the natural, prehistoric, historic, and ethnohistoric background for the Project area. Chapters 3 and 4 describe the methods and findings of the archival studies, Native American outreach, and pedestrian survey. Chapter 5 summarizes the Project findings and offers management recommendations. Chapter 6 is a bibliography of references cited within this report. The report also contains the following appendices: Qualifications of key personnel (Appendix A), the CHRIS records search results (Appendix B), and Taylored Archaeology's nongovernmental Native American outreach (Appendix C).

2
PROJECT SETTING

2.1 NATURAL ENVIRONMENT

The Project area is approximately 400 feet above sea level on the open flat plains of the Southern San Joaquin Valley. The San Joaquin Valley is a comprised of structural trough created approximately 65 million years ago and is filled with nearly 6 miles of sediment (Bull 1964). The San Joaquin can be split between the San Joaquin River hydrologic area and the Tulare Lake Drainage Basin. Tulare County is located within the latter of the two hydrologic units. The Kaweah, Tule, Kern, and Kings rivers flowed into large inland lakes with no outflow except in high flood events, in which the lakes would flow from through the Fresno Slough into the San Joaquin River. The largest of these inland lakes was the Tulare Lake, which occupied a vast area of Tulare and Kings Counties.

The Project is two miles south of the of the south branch of the Saint John's River, which is a distributary of the Kaweah River. Before the appearance of agriculture in the nineteenth century, the Project location would have been comprised of prairie grasslands with scatter oak tree savannas near the foothills, and along the various streams and drainages (Preston 1981). Riparian environments would also have been present along various waterways, including drainages and marshes. Native vegetation likely would have consisted of needle grasses and other perennial bunchgrasses before the introduction of non-native species in the 1800s.

The valley floor of the region was largely dominated by marshlands, lakes, and annual grasslands. These habitats provided a lush environment for large animals, including various migratory birds and other waterfowl, grizzly bear (*Ursus arctos californicus*), tule elk (*Cervus* sp.), pronghorn (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), black bear (*Ursus americanus*), and mountain lion (*Puma concolor*) (Preston 1981). Native trees and plants observed in the Project vicinity include various blue, live, and white oaks (*Quercus* sp.), cottonwood (*Populus aegiros*), and willow (*Salix* sp.). The introduction of agriculture to region resulted in large animals being forced out of their habitat. Common land mammals now include valley coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox, kit fox (*Vulpes macrotis*), and rabbits (Leporidae). Rivers and lakes throughout the valley provide habitat for freshwater fish, including rainbow trout (*Oncorhynchus mykiss*), Sacramento sucker (*Catostomidae* sp.), and Sacramento perch (*Archoplites interruptus*), (Preston 1981).

2.2 PREHISTORIC SETTING

To better understand the past, archaeologists develop models of prehistoric resource chronologies and description of lifestyles based on data collected at the archaeological sites they investigate. Models of prehistoric life patterns are developed from both archaeological and ethnographic research. Within archaeology, models of prehistoric lifestyles are based on data collected from archaeological sites. The Southern San Joaquin Valley is of one of the least understood areas within California (Rosenthal et al. 2007). This is largely due to the valley floor being filled with thick alluvial deposits, and from human activity largely disturbing much of the valley floor due to a century and a half of agricultural use (Dillon 2002; Siefken 1999). Much of the early to middle

Holocene archaeological sites may have been as deep as 10 meters due to millennia of erosion and alluvial deposits from the western Sierras (Moratto 1984).

Agricultural activities have heavily disturbed and changed the landscape of the Southern San Joaquin Valley, from the draining of marshes and the vanishing of the extensive Tulare Lake, to grading nearly the entire valley for agricultural operations (Garone 2011). These activities have impacted or scattered much of the shallow surface deposits and mounds throughout the valley (Rosenthal et al 2007). Riddell suggested that potentially as much as 90 percent of all Central California archaeological sites have been destroyed (Riddell 2002).

The cultural traits and chronologies which are summarized below are largely based upon information discussed in multiple sources, including Bennyhoff and Fredrickson (Fredrickson 1973, 1974), Garfinkel (2015), McGuire and Garfinkel (1980), Moratto (1984), and Rosenthal et al. (2007).

The Paleo-Indian Period (13,500-10,600 cal B.P.) was largely represented by ephemeral lake sites which were characterized by atlatl and spear projectile points. Around 14,000 years ago, California was largely a cooler and wetter place, but with the retreat of continental Pleistocene glaciers, California largely experienced a warming and drying red. Lakes filled with glacial meltwater were located in the valley floor and used by populations of now extinct large game animals. A few prehistoric sites were discovered near the southwestern shore of Tulare Lake, but none were located near the Project Area (Garfinkel 2015). Foragers appear to have operated in small groups which migrated on a regular basis.

During the Lower Archaic Period (10,500-7450 cal B.P.), climate change created a largely different environment which lead to the creation of larger alluvial fans and flood plains. Most of the archaeological records of the prior period wound up being buried by geological processes. During this time, cultural patterns appear to have emerged between the foothill and valley populations of the local people. The foothill sites were often categorized by dense flaked and ground stone assemblages, while the valley sites were instead characterized by a predominance of crescents and stemmed projectile points. Variations in consumption patterns emerged as well, with the valley sites more marked by consumption of waterfowl, mussels, and freshwater fish, while the foothills sites saw an increase in nuts, seeds, and a more narrowly focused diet than the valley sites.

The Middle Archaic (7450-2500 cal B.P.) saw an increase in semi-permanent villages along river and creek settings, with more permanent sites located along lakes with a more stable supply of water and wildlife. Due to the warmer and drier weather of this period, many lakes within the valley dramatically reduced in size, while some vanished completely (Garone 2011). Cultural patterns during this time saw an increase in stone tools, while a growth in shell beads, ornaments, and obsidian evidence an extensive and ever-growing long-distance trade network. Little is known of cultural patterns in the valley during the Upper Archaic (2500-850), but large village structures appeared to be more common around local rivers. An overall reduction of projectile point size suggests changing bow and arrow technologies. Finally, the Emergent Period (850 cal B.P.-Historic Era) was generally marked by an ever-increasing specialization in tools, and the bow and arrow generally replaced the dominance of the dart and atlatl. Cultural traditions ancestral to those recorded during ethnographic research in the early 1900s are identifiable.

2.3 ETHNOGRAPHY

While the prehistoric record of the San Joaquin Valley has not been extensively studied, the ethnography of the region has been intensively research. The Project area is located within the ethnographic territory of the Penutian-speaking Yokuts tribal groups, who occupied the southern San Joaquin Valley and the surrounding Sierra Nevada. The Yokuts are a sub-group of the Penutian language that covers much of coastal and central California and Oregon (Callaghan 1958). The Yokuts language contained multiple dialects spoken throughout the region, though many of them were mutually understandable (Merriam 1904). The Yokuts were generally divided into three major groups, the Northern Valley Yokuts, the Southern Valley Yokuts, and the Foothill Yokuts.

The Yokuts have been extensively researched and recorded by ethnographers, including Powers (1877), Kroeber (1925), Gifford and Schenck (1926, 1929), Gayton (1930, 1945), Driver (1937), Harrington (1957), Latta (1977), and Wallace (1978). Much of the research from these ethnographers focuses on the central Yokuts tribes due to the northernmost tribes being impacted by Euro-Americans during the California Gold Rush of the mid 1800s, and by the southernmost tries often being removed and relocated by the Spanish to various Bay Area or coastal mission. The central Yokuts tribes, and especially the western Sierra Nevada foothill tribes, were the most intact at the time of ethnographic study.

Based upon Kroeber's map of Southern and Central Yokuts (1925: Plate 47), the Project area is likely within the Tulamni Yokuts territory. The main village for this area was *Waitatahulul*, which was 7 miles north of the City of Tulare on the bank of Packwood Creek, a distributary of the Kaweah River (Kroeber 1925). Primary Yokuts villages were typically located along lakeshores and major stream courses, with scattered secondary or temporary camps and settlements located near gathering areas in the foothills. Yokuts were organized into groups originally designated as tribelets by Kroeber, with one or more linked villages and smaller settlements within a territory (Kroeber 1925). Designation of these units as 'tribelets' is often viewed as pejorative by many Native Americans, and for the remainder of this report will be referred to as 'local tribes' instead. Each local tribe was a land-owning group that was organized around a central village, and shared common territory and ancestry. Most local tribe populations ranged from 150 to 500 people (Kroeber 1925). These local tribes were often led by a chief, who was often advised by a variety of assistants including the winatum, who served as a messenger and assistant chief (Gayton 1930).

Prior to Euro-American contact, the Yokuts were one of the densest populations of Native Americans in western North America due to the substantial natural resources surrounding Tulare Lake (Cook 1955). Six Native American tribal groups are currently associated with the Project area, including the Tubatulabals of Kern Valley, Wukasache Indian Tribe/Eshom Valley Band, the Kern Valley Indian Community, the Santa Rosa Rancheria Tachi Yokut Tribe, and the Tule River Indian Tribe.

2.4 HISTORIC SETTING

While the California coast saw European contact as early as the 1500s, the San Joaquin valley did not experience contact until the early 1800s (Starr 2007). The initial excursions to the valley were for exploration such as those led by Lieutenant Bariel Moraga in 1806, but also to find sites for suitable missions and to track down Native Americans fleeing the coastal missions (Cook 1960).

Subsequent expeditions were also sent to pursue outlaws from the coast who would often flee to the valley for safety. The first Euro-Americans to set foot in what would become modern-day Tulare County were Jedediah and Pegleg Smith (Menefee and Dodge 1913). As the valley was still relatively lawless in the 1830s, those drawn to it were often either trappers like Jedediah Smith or horse thieves like Pegleg Smith (Clough and Secrest 1984). In fact, horse and other livestock theft was so rampant that ranching operations on the Rancho Laguna de Tache by the Kings River and Rancho del San Joaquin Rancho along the San Joaquin River could not be properly established (Cook 1962). With the end of the Mexican-American War and the beginning of the gold rush in 1848, the San Joaquin Valley became more populated with ranchers and prospectors. By 1850, California became a state and Tulare County was established in 1853.

The City of Visalia is one of the oldest cities within the Southern San Joaquin Valley and was founded in 1852. By the mid-1850s the town of Visalia was a major station along the Butterfield Overland Mail state route as it traveled north from Los Angeles to Stockton (Helmich 2008; OHP 2019). During the first few decades, Visalia was a supply center for nearby gold rushes, and had an agricultural economy based on livestock (Dyett and Bhatia 2014). The Southern Pacific Railroad was extended from Fresno into Tulare County in the early 1870s and brought a population to towns such as Goshen that served as a regional stop (ESA 2010). With it, the rail line brought an increased in agriculture and farms that clashed with existing ranching operations in the local area. Escalating conflicts and livestock disputes between ranchers and farmers lead to the "No Fence Law" in 1874, which forced ranchers to pay for crop and property damage caused by their cattle (Ludeke 1980). With the passage of this law and the expansion of irrigation systems, predominant land use in the 1870s switched from grazing to farming (Mitchell 1976). This led to the beginning of the vast change of the San Joaquin Valley from native vegetation and grasslands to irrigated crops (Varner and Stuart 1975).

Water conveyance systems were developed throughout the region in order to minimize flooding and to divert water to the dryer areas (PID 2012). Surface waters and local wells were only able to satisfy the water demands of the valley for so long, and in 1911 California created the State Reclamation Board to solve water issues in the valley. Various reports were commissioned and 12 years later the California State Water Plan was proposed (Stene 2015). The Central Valley Project was approved in 1933, but funds were stalled until funded by the Rivers and Harbors Act in 1937. Construction on the Central Valley Project began soon after and continued until the mid-1950s (Stene 2015). One cornerstone of this project was the Friant-Kern Canal (FKC), located immediately east of the study area. The FKC, built between 1945 and 1951, is over 150 miles long and represents one of the largest lined canals in the western US (Hundley 2001). Creation of the FKC brought new opportunities for irrigation to the region and led to the creation of new irrigation districts.

3
METHODS

3.1 RECORDS SEARCH

Consuelo Sauls conducted a records search from the SSJVIC of the CHRIS at California State University in Bakersfield, California on October 26, 2020. The records search encompassed the Project area and all the land within a 0.5-mile radius of the Project. Sources consulted included archaeological site and survey base maps, historical United States Geological Survey (USGS) topographic maps, reports of previous investigations, cultural resource records (DPR forms) as well as listings of the Historic Properties Directory of the Office of Historic Preservation, General Land Office Maps, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources (Appendix B). This records search had two primary purposes: (1) to identify prior cultural resource investigations completed in or near the Project area, and (2) to identify prehistoric or historical cultural resources that were previously recorded within the Project area.

3.2 ARCHIVAL RESEARCH

Taylored Archaeology reviewed topographic maps from historical collections of the U.S. Geological Survey (USGS) and historic aerial photographs, Google Maps, and Google Earth to identify the history of land use and change in the Project area.

3.3 NATIVE AMERICAN OUTREACH

On October 26, 2020, Consuelo Sauls sent an e-mail to the Native American Heritage Commission (NAHC) requesting a search of its Sacred Lands File and the contact information for local Native American tribal representatives who may have an interest in sharing information about the Project area and surrounding area. The NAHC responded on November 9, 2020, with its search findings and attached a list of Native American tribes and individuals culturally affiliated with the Project area. Consuelo Sauls sent a letter describing the Project to each tribal representative and asking for input regarding cultural resources or tribal cultural resources in the Project area. The letters were sent to the individuals listed in Appendix C via USPS on November 10, 2020. Sending letters and recording responses received are part of the standard tribal outreach best practices for cultural resources reports and is not intended to serve the purpose of satisfying Assembly Bill (AB) 52 or Section 106 government-to-government Native American tribal consultation. A record of all correspondence with the NAHC and tribal contacts is included in Appendix C.

3.4 PEDESTRIAN SURVEY

On November 7, 2020, Archaeologist Consuelo Sauls conducted a field survey of the 14-acre Project APE to identify the presence of archaeological resources. Visible landmarks, plan maps and Locus Map application were used for navigation to locate and survey the Project area. Ms. Sauls photographed the survey area using an iPhone 11 Pro digital camera and recorded location data using the Locus Map application. Ms. Sauls recorded her observations on a Survey Field Record and compiled a Photographic Record.

4
FINDINGS

4.1 RECORDS SEARCH

The records search was conducted by staff of SSJVIC and the results were provided to Taylored Archaeology on November 2, 2020 (Records Search File No. 20-387; Appendix B). The results indicated that there are no cultural resources (prehistoric or historic) recorded within the Project APE and also that there are no cultural resources within a 0.5-mile radius of the Project APE. In addition, the SSJVIC also reported two prior investigations were conducted within the Project APE and three prior investigations were conducted within a 0.5-mile radius of the Project APE.

4.2 ARCHIVAL RESEARCH

Available historic aerial photograph coverage of the site began in 1969, and the first available USGS map covering the APE began in 1926. West Riggin Avenue appeared on aerial photographs starting in 1969, and on historic topographic maps starting in 1926. A ditch appeared within the APE along the western edge of North Shirk Road starting with the 1971 USGS topographic map. Starting in aerial photographs from 1994, the dirt ditch also ran west within the APE from North Shirk Road along the north side of West Riggin Avenue for approximately 0.5 miles to the west before ending at a tree-lined dirt road. The western running ditch no longer appeared in aerial photographs after 2018.

A concrete culvert at the northwestern corner of West Riggin Avenue and North Shirk Road appeared on aerial maps starting in 2009. A livestock corral, with approximately 375 feet of metal pipe fencing within the APE, on the south side of West Riggin Avenue first appeared in aerial photographs starting in 1994. Additionally, a wood pole distribution line and a wood pole subtransmission line were identified within the APE on the north side of West Riggin Avenue. Both lines only appeared on aerial photographs starting in 2004. The distribution line ran east and west within the APE for one mile on the north side of West Riggin Avenue. The subtransmission line appeared within the APE only on the northwestern corner of West Riggin Avenue and North Shirk Street. A review of Google Street View photographs dated April 2019, and the California Energy Infrastructure Map (California Energy Commission 2020) identify the subtransmission line as the 66 kilovolt (kV) Oakgrove – Riverway subtransmission line.

Based upon the archival research, the dirt ditch, concrete culvert and corral metal pipe fence appeared to be less than 50 years old and therefore are generally considered not eligible for listing in the NRHP. While the exact age of the wood pole distribution and subtransmission lines along the north side of West Riggin Avenue were unable to be determined based upon historic topographic maps and aerial photographs, both lines were reviewed against Southern California Edison (SCE) guidance under the 2015 *Historic-Era Electrical Infrastructure Management Program*. SCE guidance states wood pole subtransmission or distribution line structures are often less than 50 years old, and for the rare wood pole lines older than 50 years old, continual replacement of parts and the common and indistinctive nature of the lines "disqualify them as potentially National Register eligible" (Tinsley Beker et al. 2015). Therefore, the aforementioned structures are not considered eligible for the NRHP under the NHPA.

NATIVE AMERICAN OUTREACH

In a November 9, 2020 response to Taylored Archaeology's request for information, the NAHC stated that a search of the Sacred Lands File did not indicate the presence of resources in the immediate Project area or surrounding 0.5-mile radius (see Appendix C). The NAHC supplied a list of tribal representatives and recommended that Taylored Archaeology contact the following representatives for information regarding Native American cultural resources in the study locale:

- Chairperson Elizabeth D. Kipp of the Big Sandy Rancheria of Western Mono Indians;
- Tribal Chair Benjamin Charley Jr. of the Dunlap Band of Mono Indians;
- Tribal Liaison Dirk Charley of the Dunlap Band of Mono Indians
- Secretary Julie Turner of Kern Valley Indian Community;
- Chairperson Robert Robinson of the Kern Valley Indian Community;
- Brandy Kendricks of the Kern Valley Indian Community;
- Chairperson Leo Sisco of the Santa Rosa Rancheria Tachi Yokut Tribe;
- Tribal Chairperson Robert L. Gomez, Jr. of the Tubatulabals of Kern Valley;
- Chairperson Neil Peyron of the Tule River Indian Tribe; and
- Chairperson Kenneth Woodrow of the Wuksache Indian Tribe/Eshom Valley Band.

On November 10, 2020, Consuelo Sauls sent a letter describing the Project to each of the individuals identified in the NAHC response letter. Follow-up contact by e-mail was completed on November 12, 2020 and telephone calls were placed on November 18, 2020 to confirm receipt of the letter and gather any information tribal representatives may want to share about resources in the Project area or general vicinity.

Elizabeth D. Kipp of the Big Sandy Rancheria of Western Mono Indians replied on behalf of Big Sandy Rancheria that they have no comments or concerns that is in relation to the Project. However, they do request that at any time, any discovery of cultural significance, at a minimum they be notified.

Dirk Charley, Tribal Liaison of the Dunlap Band of Mono Indians, replied on behalf of the Dunlap Band of Mono Indians that they have no comment regarding projects outside the band's traditional lands. Their traditional lands generally include only lands within the Sierra Nevada near Fresno and Tulare Counties above 2,000-foot elevation.

Samantha McCarty, Cultural Specialist II of the Santa Rancheria Tachi Yokut Tribe replied on behalf of Chairperson Leo Sisco that the Tribe requests an archaeological records search and cultural resources survey be done before any ground disturbance. The tribe also requested to be notified of the results from the records search and survey, and also if any discoveries are made

during any ground disturbance related to the project. Because Ms. McCarty replied after the survey had been conducted, Consuelo Sauls informed Ms. McCarty the results of the survey, NAHC Sacred Lands file search, and the SSJVIC records search.

No other responses were received.

4.3 PEDESTRIAN SURVEY RESULTS

On November 7, 2020, Taylored Archaeology conducted an archaeological pedestrian survey within the 14-acre Project APE along West Riggin Avenue. Field recording and photo documentation of features and the Project APE was completed. A series of overview photographs was taken to document the current conditions. Soils consisted of light brown sandy loam alongside the roadway, and an imported road base consisting of crushed aggregate and chalk (Figure 4-1). The ground surface within the APE was nearly completely bare with little to no vegetation, affording clear 98 percent ground visibility (Figure 4-2). The Project APE is located within the greater alluvial fan of the St. John's River, a distributary of the Kaweah River. Vegetation consisted of mature pistachio trees along the northern boundary of the APE, and occasional roadside oak, palm, and eucalyptus trees (Figure 4-3). No water sources or flowing water was observed within the APE. Surrounding land uses included orchards, developed commercial uses, a dairy farm, and a few rural residences. Several commercial properties were under active construction at the time of the survey.

Within the APE, West Riggin Avenue consisted of a paved asphalt two lane road with no sidewalks, gutters, curbs, or other improvements. An approximately 0.5-meter-deep dirt ditch running north and south was observed at the western boundary of the APE at the intersection of West Riggin Avenue and North Shirk Street. The ditch was located on the western edge of North Shirk Avenue and terminated in a concrete culvert running south under West Riggin Avenue. The culvert terminated at the southwest corner of the intersection, and the ditch did not continue any further south (Figure 4-4).

A distribution line ran east and west along the north side of West Riggin Avenue within the APE. At the eastern boundary of the APE, the distribution line connected into the 66 kilovolt (kV) Oakgrove-Riverway subtransmission line. Both the distribution line and 66 kV subtransmission consisted of wooden poles (Figure 4-5). Approximately 375 feet of a metal pipe fence of a goat corral was also observed within the APE (Figure 4-6).

No cultural resources (e.g. isolated artifacts, features, or archaeological sites) were identified within the Project APE during the survey.

Figure 4-1 Road aggregate on south side of West Riggin Ave, facing west.

Figure 4-2 Ground visibility on south side of West Riggin Ave, facing west.

Figure 4-3 Pistachio orchard and roadside oak tree on north side of West Riggin Ave, facing east.

Figure 4-4 Dirt ditch and concrete culvert at northwest corner of West Riggin Ave and North Shirk Road, facing south.

Figure 4-5 Wooden distribution line on north side of West Riggin Ave, facing east.

Figure 4-6 Metal pipe corral fence on south side of West Riggin Ave, facing west.

5
SUMMARY AND RECOMMENDATION

Taylored Archaeology conducted a cultural resources assessment for the Riggin Avenue Widening (Kelsey to Shirk) Project. The City of Visalia will widen Riggin Avenue to a four-lane road with a central median and bike lanes. The APE for the Project was defined as the area of potential ground disturbance resulting from project construction activities. The total horizontal APE is approximately 14 acres and the vertical APE is approximately 20 feet below ground surface.

The SSJVIC records search identified two previous investigations and no cultural resources were recorded within the Project APE. In addition, the search also determined that there were three investigations, but no cultural resources were recorded within a 0.5-mile radius of the Project APE (Appendix B).

The NAHC Sacred Lands File search, archival research, and pedestrian survey resulted in negative findings for tribal or cultural resources within the APE. Based on the results of the records search, there is a low probability of encountering cultural deposits.

Consistent with state statutes and regulations, Taylored Archaeology recommends that in the event of accidental discovery of unidentified archaeological deposits during development or ground-moving activities in the Project area, all work within the immediate vicinity of the discovery should be halted until a qualified archaeologist can identify the discovery and assess its significance.

If human remains are uncovered during construction, the Tulare County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the treatment and disposition of the remains.

6
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APPENDIX A

Personnel Qualifications

Consuelo Sauls, M.A., RPA 41591505 csaulsarchaeo@gmail.com
Archaeologist **559.797.1572**

Areas of Expertise

- Prehistoric archaeology
- Rock art recordation and analysis
- Laboratory management

Years of Experience

- 12

Education

- M.A., Archaeology, University of Durham, 2014
- B.A., Anthropology, California State University, Fresno, 2009

Registrations/Certifications

- Registered Professional Archaeologist 41591505

Professional Affiliations

- Association of Environmental Professionals
- California Rock Art Foundation
- Society for American Archaeology
- Society for California Archaeology

Professional Experience

2019-2020	Principal Investigator, Taylored Archaeology
2018–2019	Staff Archaeologist, Applied EarthWorks, Inc., Fresno, California
2016–2018	Principal Investigator, Soar Environmental Consulting, Inc., Fresno, California
2015	Archivist/Database Technician, Development and Conservation Management, Inc., Laguna Beach, California
2013	Laboratory Research Assistant, Durham University Archaeology Department and Archaeology Museum, Durham, England, UK
2011–2012	Laboratory Technician (volunteer), University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia, Pennsylvania
2008–2009	Laboratory Technician (intern), California State University, Fresno
2008	Field School, California State University, Fresno

Technical Qualifications

Ms. Sauls meets the Secretary of the Interior's Professional Qualification Standards as an archaeologist. She has conducted pedestrian surveys, supervised Extended Phase I survey, authored technical reports, and completed the Section 106 process with the State Historic Preservation Officer and Tribal Historic Preservation Officer. Her experience includes data recovery excavation at Western Mono sites and processing recovered artifacts in the laboratory as well as conducting archival research about prehistory and ethnography of Central California. Ms. Sauls has authored and contributed to technical and letter reports in compliance with of the National Historical Preservation Act (NHPA) Section 106 and the California Environmental Quality Act (CEQA). She also has supported NHPA tribal consultation and responded to Assembly Bill 52 tribal comments. Ms. Sauls also has an extensive background supervising laboratory processing, cataloging, and conservation of prehistoric and historical archaeological collections. In addition, she worked with the Rock Art Heritage Group in the management, preservation, and presentation of rock art in museums throughout England, including a thorough analysis of the British Museum's rock art collections. At Durham University Archaeology Museum, Ms. Sauls processed the excavated skeletal remains of 30 individuals from the seventeenth century

APPENDIX B

Records Search Results

California Historical Resources Information System

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

11/2/2020

Consuelo Sauls
Taylored Archaeology
6083 N. Figarden Drive, Suite 616
Fresno, CA 93722

Re: Riggin Avenue Widening (Kelsey to Shirk) Project
Records Search File No.: 20-387

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on the Goshen and Visalia USGS 7.5' quads. The following reflects the results of the records search for the project area and the 0.5 mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☒ custom GIS maps ☐ GIS data

Resources within project area:	None
Resources within 0.5 mile radius:	None
Reports within project area:	TU-00041, 01190
Reports within 0.5 mile radius:	TU-00628, 01069, 01149

Resource Database Printout (list):	☐ enclosed	☐ not requested	☒ nothing listed
Resource Database Printout (details):	☐ enclosed	☐ not requested	☒ nothing listed
Resource Digital Database Records:	☐ enclosed	☐ not requested	☒ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☒ enclosed	☐ not requested	☐ nothing listed
Report Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Resource Record Copies:	☐ enclosed	☐ not requested	☒ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed
OHP Built Environment Resources Directory:	☐ enclosed	☐ not requested	☒ nothing listed
Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☐ not requested	☒ nothing listed

Caltrans Bridge Survey: Not available at SSJVIC; please see

http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

Historical Maps: Not available at SSJVIC; please see
http://historicalmaps.arcgis.com/usgs/

Local Inventories: Not available at SSJVIC

GLO and/or Rancho Plat Maps: Not available at SSJVIC; please see
http://www.glorecords.blm.gov/search/default.aspx#searchTabIndex=0&searchByTypeIndex=1 and/or
http://www.oac.cdlib.org/view?docId=hb8489p15p;developer=local;style=oac4;doc.view=items

Shipwreck Inventory: Not available at SSJVIC; please see
http://www.slc.ca.gov/Info/Shipwrecks.html

Soil Survey Maps: Not available at SSJVIC; please see
http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Celeste M. Thomson
Coordinator

APPENDIX C

Native American Outreach

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

November 9, 2020

Conselo Sauls

Independent Archaeology Consultant

Via Email to: csaulsarchaeo@gmail.com

Re: Riggin Avenue Widening (Kelsey to Shirk) Project, Tulare County

Dear Ms. Sauls:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez-Lopez
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contacts List
November 9, 2020

Big Sandy Rancheria of Western Mono Indians
Elizabeth D. Kipp, Chairperson
PO. Box 337
Auberry ,CA 93602
lkipp@bsrnation.com
(559) 374-0066
(559) 374-0055
Western Mono

Dunlap Band of Mono Indians
Benjamin Charley Jr., Tribal Chair
P.O. Box 14
Dunlap ,CA 93621
ben.charley@yahoo.com
(760) 258-5244
Mono

Dunlap Band of Mono Indians
Dirk Charley, Tribal Secretary
5509 E. McKenzie Avenue
Fresno ,CA 93727
dcharley2016@gmail.com
(559) 554-5433
Mono

Kern Valley Indian Community
Julie Turner, Secretary
P.O. Box 1010
Lake Isabella ,CA 93240
(661) 340-0032 Cell
Kawaiisu
Tubatulabal

Kern Valley Indian Community
Robert Robinson, Chairperson
P.O. Box 1010
Lake Isabella ,CA 93240
bbutterbredt@gmail.com
(760) 378-2915 Cell
Tubatulabal
Kawaiisu

Kern Valley Indian Community
Brandy Kendricks
30741 Foxridge Court
Tehachapi ,CA 93561
krazykendricks@hotmail.com
(661) 821-1733
(661) 972-0445
Kawaiisu
Tubatulabal

Santa Rosa Rancheria Tachi Yokut Tribe
Leo Sisco, Chairperson
P.O. Box 8
Lemoore ,CA 93245
(559) 924-1278
(559) 924-3583 Fax
Tache
Tachi
Yokut

Tubatulabals of Kern Valley
Robert L. Gomez, Jr., Tribal Chairperson
P.O. Box 226
Lake Isabella ,CA 93240
(760) 379-4590
(760) 379-4592 Fax
Tubatulabal

Tule River Indian Tribe
Neil Peyron, Chairperson
P.O. Box 589
Porterville ,CA 93258
neil.peyron@tulerivertribe-nsn.gov
(559) 781-4271
(559) 781-4610 Fax
Yokuts

Wuksache Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas ,CA 93906
kwood8934@aol.com
(831) 443-9702
Foothill Yokuts
Mono
Wuksache

This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,Section 5097.94 of the Public Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans Tribes for the proposed:
Riggin Avenue Widening (Kelsey to Shirk) Project, Tulare County.

Native American Outreach Log

Riggin Avenue Widening (Kelsey to Shirk) Project, Tulare County, California

Organization	Name	Position	Address	Phone Number	Email Address	Letter	E-Mail	Phone	Summary of Contact
Native American Heritage Commission							10/26/2020		In a letter dated November 9, 2020, the NAHC stated that the results were negative, there are no known resources within the project area. The NAHC also sent a list of 10 Native American contacts.
Kern Valley Indian Community	Julie Turner	Secretary	P.O. Box 1010 Lake Isabella, CA 93240	661-340-0032	no email provided	11/10/2020		11/18/2020	Called and left a mesaage.
Kern Valley Indian Community	Robert Robinson	Chairperson	P.O. Box 1010 Lake Isabella, CA 93240	760-378-2915	bbutterbredt@gmail.com	11/10/2020	11/12/2020	11/18/2020	Called and left a message.
Kern Valley Indian Community	Brandy Kendricks		30741 Foxridge Court Techachapi, CA 93561	661-821-1733 661-972-0445	krazykendricks@hotmail.com	11/10/2020	11/12/2020	11/18/2020	Called and left a message.
Santa Rosa Rancheria Tachi Yokut Tribe	Leo Sisco	Chairperson	P.O. Box 8 Lemoore, CA 93240	559-924-1278 559-924-3583	no email provided	11/10/2020		11/18/2020	Called and left a message.
Tubatulabals of Kern Valley	Robert L. Gomez, Jr.	Tribal Chairperson	P.O. Box 226 Lake Isabella, CA 93240	760-379-4590 760-379-4592 (fax)	no email provided	11/10/2020		11/18/2020	Called and number out of service.
Tule River Indian Tribe	Neil Peyron	Chairperson	P.O. Box 589 Porterville, CA 93258	559-781-4271 559-781-4610	neil.peyron@tulerivertribe-nsn.	11/10/2020	11/12/2020	11/18/2020	Left a message to Peyron's assistant.
Wuksache Indian Tribe/ Eshom Valley Band	Kenneth Woodrow	Chairperson	1179 Rock Haven Ct. Salinas, CA 93906	831-443-9702	kwood8934@aol.com	11/10/2020	11/12/2020	11/18/2020	Called and left a message.
Big Sandy Rancheria of Western Mono Indians	Elizabeth D. Kipp	Chairperson	P.O. Box 337 Auberry, CA 93602	559-374-0066 559-374-0055	lkipp@bsrnation.com	11/10/2020	11/12/2020		Elisabeth D. Kipp responded via email and has no comments or concerns that is in relation to the project.
Dunlap Band of Mono Indians	Benjamin Charley Jr.	Tribal Chair	P.O Box 14 Dunlap, CA 93621	760-258-5244	ben.charley@yahoo.com	11/10/2020	11/12/2020		Dirk Charley spoke on behalf of Benjamin Charley during phone call on 11/16/2020.
Dunlap Band of Mono Indians	Dirk Charley	Tribal Liaison	5509 E. McKenzie Avenue Fresno, CA 93727	559-554-5433	dcharley2016@gmail.com	11/10/2020	11/12/2020		Dirk Charley reached out to me by phone on 11/16/2020 regarding the letter received of the project.
Santa Rosa Rancheria Tachi Yokut Tribe	Samantha McCarty	Cultural Specialist	P.O. Box 8 Lemoore, CA 93240	559-924-1278	SMcCarty@tachi-yokut-nsn.gov				Samantha McCarty emailed on behalf of Tribal Chairperson Leo Sisco on November 23, 2020. She said the Tribe has concerns regarding the project and requested a cultural resources assessment be done.

November 10, 2020

Julie Turner, Secretary
Kern Valley Indian Community
P.O Box 1010
Lake Isabelle, CA 93240

RE: Riggin Avenue Widening (Kelsey to Shirk) Project Tulare County, California

Dear Julie Turner,

I am currently under contract to 4Creeks, Inc. to provide cultural resource services for the Riggin Avenue Widening (Kelsey to Shirk) Project in Tulare County, California. The project involves the reconstruction of 1 mile of existing roadway between Kelsey Street and Shirk Street to accommodate a 4-lane arterial street with 110' total Right-of-Way. Improvements would include new 12' vehicular travel lanes (4 lanes total), new Class II bike lanes, new street lighting, new landscape medians, a new bus turnout, new sewer line and new traffic signals. This project is subject to Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA). The project's Area of Potential Effects (APE) is located in Sections 16 and 21, Township 18 South, Range 24 East, Mount Diablo Meridian of the Goshen and Visalia, California 7.5-minute USGS quadrangles.

A search of the Native American Heritage Commission's (NAHC) Sacred Lands File did not indicate the presence of cultural or tribal cultural resources in the immediate Project area. Taylored Archaeology also requested a records search of the APE at the California Historic Resources Information System (CHRIS), Southern San Joaquin Valley Information Center (SSJVIC) located at the California State University, Bakersfield. The records search did not identify any prehistoric and historic archaeological resources.

The NAHC provided your name and address as someone who might have an interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the Project area. Please note that all information shared with me regarding this Project is considered best practices for cultural resource inventories and is not government-to-government consultation under Assembly Bill 52. Taylored Archaeology understands and takes measures to protect the confidentiality of archaeological site locations, cemeteries, or sacred places, as required by law. Taylored Archaeology will not disclose locational information in any document available to the general public.

If you have information that you would like to share, have questions, or would like more information about the project, please contact me by phone (559) 797-1572, email at csaulsarchaeo@gmail.com, or send a letter to my attention at 6083 N. Figarden Dr., Ste. 616, Fresno, CA 93722. Any response by November 20, 2020 would be greatly appreciated.

Sincerely,

Consuelo Sauls

Consuelo Y. Sauls, M.A., RPA # 41591505
Archaeologist

encl: Project Location Map

Appendix D

VMT Technical Memo

TECHNICAL MEMORANDUM

Date *November 18, 2021*

To: *Diego Corvera, City of Visalia*

From: *Arthur Chen,, TJKM*

Subject: ***Transportation Impact Analysis for Riggin Avenue Widening (Kelsey to Shirk)***

This memorandum describes the analysis of transportation impacts conducted by TJKM Transportation Consultants for the proposed Riggins Avenue widening ("the proposed project") in Visalia, California. The impact findings, based on the CEQA checklist, are summarized on Table T-1. Responses to each of the checklist questions are provided below.

Table T-1: Transportation Impact Findings (CEQA Checklist)

Would the proposed project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?			X	
b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d) Result in inadequate emergency access?			X	

Responses to CEQA Checklist Questions

Response a): The proposed project involves the reconstruction of one mile of existing roadway between Kelsey Street and Shirk Street to accommodate a four-lane arterial street as envisioned by the Buildout Circulation Network described in the Visalia General Plan. Improvements would include new 12' vehicular travel lanes (4 lanes total), new Class II bike lanes, new street lighting, new landscaped medians, a new bus turnout, new fire hydrants, new sewer line, new traffic signal, and curb returns at all involved intersections. The proposed project site is located partially within the City of Visalia and partially within unincorporated Tulare County (within the Visalia General Plan planning area boundaries). The proposed project is consistent with the Visalia General Plan, and is not anticipated to conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. A project's effect on automobile delay, typically measured based on "level of service" (LOS) would not constitute a significant environmental impact under the CEQA Guidelines effective July 1, 2020. ***This impact is less than significant and no mitigation is required.***

Response b): The proposed project is not anticipated to conflict with CEQA Guidelines section 15064.3 (b) criteria for analyzing transportation impacts which describes the requirements for assessing transportation impacts based on vehicle miles traveled (VMT) that applied statewide beginning on July 1, 2020. VMT impacts for the proposed project would be considered potentially significant if the proposed project results in net increase in total VMT. This is consistent with CEQA Guidelines section 1506.3 (b) (2), criteria for analyzing transportation projects, which states that transportation projects that reduce, or have no impact on, VMT should be presumed to cause a less than significant impact.

TJKM utilized the Tulare Council of Governments (Tulare COG) Travel Demand Model to forecast the net change in total VMT for Tulare County, with and without the proposed project. Table T-2 shows the model results under Existing plus Project conditions, and Table T-3 shows the model forecast under Cumulative (Year 2042) Conditions, with and without the proposed project. As shown: based on the travel demand model, the proposed project is not anticipated to result in a net increase in total VMT. In addition, TJKM pulled out total number of trips from the model with and without project. The number of trips did not increase between the with and without project model runs in both the base and cumulative conditions.

The City of Visalia's VMT guidelines stipulated a study on induced demand for roadway expansion projects. The following are from the guidelines on how to estimate induced VMT impacts from roadway expansion projects (UC Davis Induced Travel Calculator NCST Method):

1. *Determine total lane-miles over an area that fully captures travel behavior changes resulting from the project (generally the region, but for projects affecting interregional travel look at all affected regions).*
2. *Determine the percentage change in total lane miles that will result from the project.*
3. *Determine the total existing VMT over that same area.*
4. *Multiply the percentage increase n lane miles by the existing VMT, and then multiply that by the elasticity from the induced travel literature:*

[% increase in lane miles] x [existing VMT] x [elasticity] = [VMT resulting from the project]

While the travel demand model forecasted no growth in VMT, TJKM used the above formula to calculate induced VMT from the Riggins project.

% increase in lane miles = 1 / 10,756 = **0.009%** (The project widens 1 mile of Riggins avenue, and 10,756 miles are the total lane miles in Tulare County from the TCAG model).

Existing VMT = ***15,164,825*** (The existing VMT of the region pulled from the TCAG Model)

Elasticity = 1 (The elasticity value was pulled from the transportation analysis guidelines).

Putting the three values together generates an induced daily VMT of **1,410** for the Riggins Widening. As a percentage of the existing VMT, this value is statistically insignificant (1,410/15,164,825 =**0.009%**).

As described in Section 15064.3: "Vehicle miles traveled" refers to the amount and distance of automobile travel "attributable to a project." As described separately in the Technical Advisory on Evaluating Transportation Impacts in CEQA (Governor's Office of Planning & Research, December 2018), VMT re-routed from other origins or destinations as the result of a project would not be attributable to a project except to the extent that the re-routing results in a net increase in VMT. A roadway widening could result in a net increase in total VMT if the roadway is currently operating at capacity, in which case the added capacity provided by a road widening could result in added VMT due to latent demand. However, this is not the case for the proposed project. The *Visalia General Plan EIR* (2010) noted that Riggin Avenue served approximately 7,800 daily vehicles, well below the estimated capacity of more than 15,000 daily vehicles for the existing 2-lane configuration. Additionally, excess capacity is also currently provided on parallel routes such as State Route 198, further reducing the likelihood that the proposed project would result in a net increase in total VMT. Riggin Avenue also provides a direct connection to Highway 99 via Betty Drive, which could VMT for some trips that would otherwise travel on State Route 198.

Even though the calculation resulted in an increase of 1,410 VMT, it is highly unlikely there will be excess demand from a 1 mile widening due to excess capacity available from the routes mentioned in the above paragraph.

In addition, the guidelines states the induced VMT growth stems from induced land use; the Visalia general plan does not include any additional residential or commercial land uses in the Riggins / Shirk area for the project lifespan. It is highly unlikely the widening will induce demand since additional capacity exists and no additional land uses are planned for the area.

Since the induced VMT for this project is statistically 0, TJKM finds that ***VMT impacts associated with the proposed project are less than significant and no mitigation is required.***

Tables T-2 through T-5 show VMT outputs from the TCAG model for the base scenario and future scenario with and without project conditions.

Table T-2: VMT Forecast: Existing plus Project Conditions

Scenario	Total VMT (Tulare County Model Area)
Existing Conditions	15,164,825
Existing plus Project Conditions	15,164,825
Net VMT with Proposed Project	0
VMT Impact Finding (Existing plus Project Conditions)	Less Than Significant

Source: TJKM; Tulare COG Travel Demand Model (Year 2020 Base Year), September 2020.

Table T-3: VMT Forecast: Cumulative Conditions

Scenario	Total VMT (Tulare County Model Area)
2042 Model Forecast Year (without Riggin Avenue widening)	17,164,139
2042 Model Forecast Year (with Riggin Avenue widening)	17,164,139
Net VMT with Proposed Project	0
VMT Impact Finding (Cumulative Conditions)	Less Than Significant

Source: TJKM; Tulare COG Travel Demand Model (Year 2042 Forecast), September 2020.

Table T-4: Total Project Trips Forecast: Existing plus Project Conditions

Scenario	Total Trips (Tulare County Model Area)
Existing Conditions	1,295,032
Existing plus Project Conditions	1,295,032
Net Trips with Proposed Project	0
VMT Impact Finding (Existing plus Project Conditions)	Less Than Significant

Source: TJKM; Tulare COG Travel Demand Model (Year 2020 Base Year), September 2020.

Table T-5: Total Project Trips Forecast: Cumulative Conditions

Scenario	Total Trips (Tulare County Model Area)
2042 Model Forecast Year (without Riggin Avenue widening)	1,459,536
2042 Model Forecast Year (with Riggin Avenue widening)	1,459,536
Net VMT with Proposed Project	0
VMT Impact Finding (Cumulative Conditions)	Less Than Significant

Source: TJKM; Tulare COG Travel Demand Model (Year 2042 Forecast), September 2020.

The Tulare model shows no growth in VMT when the Riggins widening is coded into the roadway network.

Response c): The proposed project is not anticipated to substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Improvements would include new 12' vehicular travel lanes (4 lanes total), new Class II bike lanes, new street lighting, new landscaped medians, a new bus turnout, new fire hydrants, new sewer line, new traffic signal, and curb returns at all involved intersections. Construction would include demolition of existing asphalt between Kelsey Street and Shirk Street, removal of trees along Riggin Avenue frontage, and relocation of 17 existing power poles. The proposed project design will be subject to review and permitting by the City of Visalia and other agencies (as described in the Project Description) to ensure the design and construction is consistent with applicable standards. ***This impact is less than significant and no mitigation is required.***

Response d): The proposed project would widen Riggin Avenue from two to four lanes between Kelsey Street and Shirk Street, thus providing additional travel lanes that could be utilized by emergency vehicles on a one-mile segment of Riggin Avenue. Therefore, the proposed project is anticipated to enhance emergency access, and would not result in inadequate emergency access. ***This impact is less than significant and no mitigation is required.***

Appendix E

Energy Calculations

Construction Equipment Energy Use

Phase Name	Off Road Equipment Type	Off Road Equipment Unit Amount[1]	Usage Hours Per Day[1]	Horse Power (lbs/sec)[1]	Load Factor[5]	Total Operational Hours	BSFC[2]	Fuel Used (gallons)[3]	MBTU[4]
Grubbing/Land Clearing	Excavators	4	8	158	0.38	320	0.367	991.86	137.86785
Grubbing/Land Clearing	Crawler Tractors	3	8	212	0.43	240	0.367	1129.47	156.99575
Grading/Excavation	Cranes	2	8	231	0.29	800	0.367	2766.67	384.56727
Grading/Excavation	Crawler Tractos	3	8	212	0.43	1200	0.367	5647.33	784.97877
Grading/Excavation	Excavators	5	8	158	0.38	2000	0.367	6199.09	861.67408
Grading/Excavation	Graders	4	8	187	0.41	1600	0.367	6332.91	880.27384
Grading/Excavation	Rollers	4	8	80	0.38	1600	0.408	2791.55	388.02528
Grading/Excavation	Rubber Tired Loaders	3	8	97	0.37	1200	0.408	2471.76	343.57468
Grading/Excavation	Scrapers	4	8	367	0.48	1600	0.367	14550.73	2022.5517
Grading/Excavation	Tractors/Loaders/Backhoes	6	8	97	0.37	2400	0.408	4943.52	687.14936
Drainage/Utilities/Subgrade	Air Compressors	3	8	78	0.48	840	0.408	1804.96	250.88897
Drainage/Utilities/Subgrade	Generator Sets	3	8	84	0.74	840	0.408	2996.69	416.54003
Drainage/Utilities/Subgrade	Graders	3	8	187	0.41	840	0.367	3324.78	462.14377
Drainage/Utilities/Subgrade	Plate Compactors	3	8	8	0.43	840	0.408	165.84	23.051765
Drainage/Utilities/Subgrade	Pumps	3	8	84	0.74	840	0.408	2996.69	416.54003
Drainage/Utilities/Subgrade	Rough Terrain Forklifts	3	8	100	0.4	840	0.367	1734.59	241.108
Drainage/Utilities/Subgrade	Scrapers	3	8	367	0.48	840	0.367	7639.13	1061.8396
Drainage/Utilities/Subgrade	Tractors/Loaders/Backhoes	5	8	97	0.37	1400	0.408	2883.72	400.83713
Paving	Pavers	3	8	130	0.48	408	0.367	1314.32	182.69098
Paving	Paving Equipment	3	8	132	0.36	408	0.367	1000.91	139.12621
Paving	Rollers	4	8	80	0.38	544	0.408	949.13	131.92859
Paving	Tractors/Loaders/Backhoes	5	8	97	0.37	680	0.408	1400.66	194.69232
Total								**76036.30**	**10569.0**

Construction Phases

PhaseNumber	Phase Name	Phase Start Date	Phase End Date	Num Days Week	Total Number of Days
1	Grubbing/Land Clearing	1/2/2022	1/14/2022	5	10
2	Grading/Excavation	1/17/2022	3/25/2022	5	50
3	Drainage/Utilities/Subgrade	3/28/2022	5/10/2022	5	35
4	Paving	5/11/2022	5/31/2022	5	17

Notes

1. Roadway Construction Emissions Model Default Values Used
2. BSFC - Brake Specific Fuel Consumption (pounds per horsepower-hour) – If less than 100 Horsepower = 0.408, if greater than 100 Horsepower = 0.367
3. Fuel Used = Load Factor x Horsepower x Total Operational Hours x BSFC / Unit Conversion
4. MBTU calculated for comparison purposes. Assumed 1 gallon of diesel = 0.139 MBTU
5. CalEEMod Default Values Used

Mobile Energy Use (Construction)

Worker Trips

	Daily Worker Trips[1]	Worker Trip Length[1]	VMT/Day	MPG Factor[3]	Gallons of Gas/Day	# of Days[1]	Total Gallons of Gas	MBTU
Grubbing/Land Clearing	24	20	480	29.23	16.4	10	164.21	19.06
Grading/Excavation	84	20	1680	29.23	57.5	30	1724.26	200.17
Drainage/Utilities/Subgrade	70	20	1400	29.23	47.9	300	14368.80	1668.07
Paving	44	20	880	29.23	30.1	20	602.12	69.90
Total	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**360**	**16859.39**	**1957.21**

Water Truck

	Daily Vendor Trips[1]	Vendor Trip Length[1]	VMT/Day	MPG Factor[3]	Gallons of Diesel/Day	# of Days[1]	Total Gallons of Diesel	MBTU
Grubbing/Land Clearing	5	8	40	7.12	5.6	10	56.18	7.81
Grading/Excavation	5	8	40	7.12	5.6	50	280.90	39.04
Drainage/Utilities/Subgrade	5	8	40	7.12	5.6	35	196.63	27.33
Paving	5	8	40	7.12	5.6	17	95.51	13.28
Total							629.21	87.46

Fleet Characteristics

	Vehicle Class	Fleet Mix	2024 MPG Factor (EMFAC2017)	Average MPG Factor
Assumed Vehicle Fleet for Workers	LDA	33%	33.24	29.23
	LDT1	33%	28.07	
	LDT2	33%	26.38	

Notes
1. Road Construction Emissions Model Default values used
2. MBTU calculated for comparison purposes. Assumed 1 gallon of gasoline = 0.11609 MBTU
3. MPG Factor Based on EMFAC2017

Appendix F

30% Design Plans

City of Visalia

County of Tulare — State of California

RIGGIN WIDENING - SHIRK TO KELSEY

PROJECT NO. XXXX-XXXXX/_____-XXX

Know what's **below.** **Call** before you dig.

CITY OF VISALIA CONTACT INFORMATION:

Sanitary Sewer &
Storm Water Collection
Attn: Rick Paradez
City of Visalia
7579 Avenue 288 (WWTP)
Visalia, CA 93277
Phone: (559) 713-4273

Street Department
Attn: Wendi Ferguson
City of Visalia
336 N. Ben Maddox Way
Visalia, CA 93292
Phone: (559) 713-4186

UTILITY CONTACT INFORMATION:

California Water Service Company
Area Superintendent: Stuart Skoglund
216 N. Valley Oaks Drive
Visalia, CA 93291
Phone: (559) 772-5260
Email: sskoglund@calwater.com

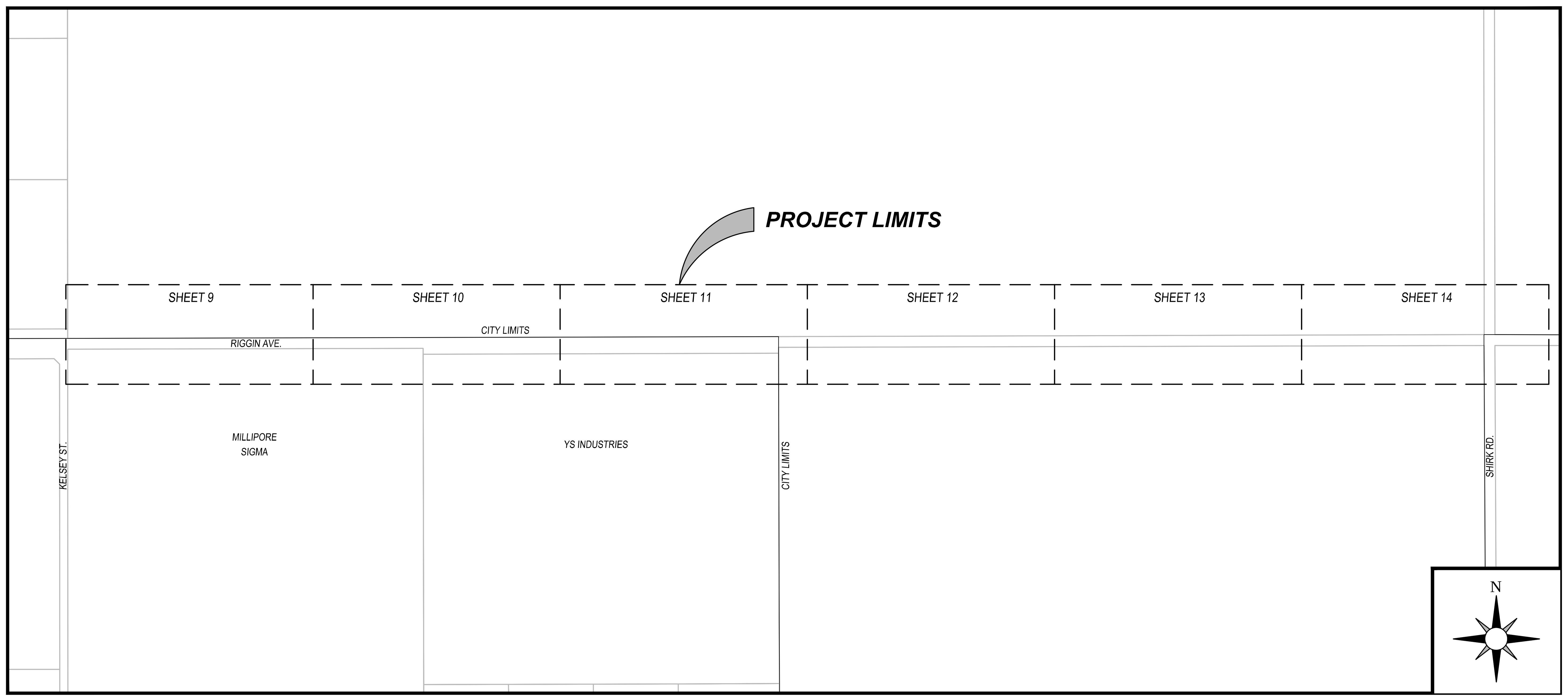
Comcast Cable
Construction Supervisor: Michael Corral
1031 N. Plaza Drive
Visalia, CA 93291
Phone: (559) 735-2104
Email: michael_corral@cable.comcast.com

AT&T California
Project Manager: Erin Pectol
217 W. Acequia Ave.
P.O. Box 2666
Visalia, CA 93291
Phone: (559) 739-6649
Email: EP8545@att.com

Southern California Gas Company
Project Manager: Jeff Goforth
404 N. Tipton St.
Visalia, CA 93292
Fax: (559) 739-2253
Phone: (559) 739-2337
Email: jgoforth@semprautilities.com

Southern California Edison (SCE)
Local Planner: Christian Bright
San Joaquin Valley
Phone: (559) 684-3527
Email: christian.bright@sce.com

Century Link (Previously LEVEL 3)
OSP Engineer Scott Mattingly
Southern California Division CentryLink
818 W. 7th St, Suite 1110
Los Angeles, CA 90017
Office: (213) 996-5587
Mobile: (213) 309-9869
Email: scott.mattingly@centurylink.com



PROJECT MAP

SCALE 1": 300'

DETAILED SHEET INDEX

BENCHMARK

CITY OF VISALIA BM #535
RR SPIKE IN PP NORTHWEST CORNER OF RIGGIN AVE. AND SHIRK RD.
ELEVATION 304.54

CITY OF VISALIA

THIS SET OF PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH CITY REQUIREMENTS & THE CITY OF VISALIA STANDARD SPECIFICATION & DETAILS. THE CITY DOES NOT ASSUME ANY LIABILITY FOR ERRORS OR OMISSIONS. THIS ACCEPTANCE SHALL NOT PREVENT THE CITY ENGINEER FROM REQUIRING CORRECTION OF ERRORS OR OMISSIONS THAT ARE IN VIOLATION OF ANY LAW OR ORDINANCE.

DIEGO CORVERA — ASSOCIATE ENGNEER, CITY OF VISALIA — Date

KYLE MCDONALD P.E. — CIVIL ENGINEER, 4-CREEKS, INC. — Date

NO. | DATE | DESCRIPTION

PREPARED BY: 4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
COVER SHEET

PROJ. NO. 20205
DATE: 3/8/2021
DESIGN BY: KM | DRAWN BY: MH
SCALE: AS SHOWN
SHEET 1 OF 61

CITY OF VISALIA GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE 2018 EDITION OF CALTRANS' STANDARD PLANS AND SPECIFICATIONS, THE 2014 CA MUTCD, THE CURRENT EDITION OF THE CITY OF VISALIA ENGINEERING STANDARD SPECIFICATIONS AND ENGINEERING DESIGN & IMPROVEMENT STANDARDS, THE PLANS, AND ALL OTHER CONTRACT DOCUMENTS. WHERE CITY STANDARD DETAILS ARE SHOWN AS MODIFIED ON THESE PLANS, THE MODIFIED DETAIL SHALL BE USED.

2. AT LEAST 5 WORKING DAYS PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY THE INFORMATION SHOWN ON THESE PLANS WITH THE REFERENCED DOCUMENTS AND NOTIFY THE CITY OF VISALIA OF ANY DISCREPANCIES. NOTIFY THE CITY OF VISALIA OF ANY AND ALL CONFLICTS BETWEEN THIS SET OF PLANS AND THE ACTUAL SITE CONDITIONS. AND NOTIFY THE CITY OF VISALIA CONSTRUCTION MANAGER WHEN CONSTRUCTION WILL COMMENCE. THE PROJECT'S MANAGER WILL BE ASSIGNED AFTER THE AWARD FOR CONSTRUCTION.

3. SHOULD IT APPEAR THAT THE WORK TO BE DONE OR ANY MATTER RELATIVE HERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE CONSTRUCTION MANAGER FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.

4. CITY OF VISALIA, OR DESIGNATED RESPRESENTATIVE SHALL INSPECT ALL WORK PHASES FOR CONFORMANCE TO THE PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL ITEMS THAT REQUIRE INSPECTION WITH THE CITY INSPECTOR. REINFORCING SHALL NOT BE ENCASED IN CONCRETE WITHOUT PRIOR CITY OF VISALIA INSPECTIONS. LIKEWISE, CONCRETE AND OTHER IMPROVEMENTS SHALL NOT BE COVERED WITH EARTH PRIOR TO CITY OF VISALIA INSPECTION. ANY INSPECTIONS TO BE PERFORMED BY THE CITY SHALL REQUIRE 2 WORKING DAYS NOTICE. ANY WORK CONCEALED WITHOUT INSPECTION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTORS EXPENSE.

5. CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

6. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 5 WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. CALL "UNDERGROUND SERVICE ALERT" (USA) 1-800-227-2600 OR 811.

7. CONTRACTOR SHALL EXPOSE ALL EXISTING UNDERGROUND PIPELINES OR OTHER UNDERGROUND OBSTRUCTIONS TO VERIFY THAT THERE ARE NO GRADE CONFLICTS PRIOR TO LAYING ANY GRAVITY PIPELINES.

8. MONUMENTS AND BENCHMARKS SHALL NOT BE DISTURBED WITHOUT THE CITY'S CONSENT.

9. CONTRACTOR SHALL NOTIFY THE CITY'S LAND SURVEYOR 5 WORKING DAYS PRIOR TO DISTURBING ANY SURVEY MONUMENTS OR BENCHMARKS. CONTRACTOR WILL BE RESPONSIBLE FOR RECONSTRUCTING SURVEY MONUMENTS / BENCHMARKS IN ACCORDANCE WITH CITY STANDARDS, AT NO ADDITIONAL COST.

10. CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION SURVEY STAKES AND PROPERTY LINE MARKERS. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY CARELESS REMOVALS OR DESTRUCTION.

11. ADJUST MANHOLES, VALVE BOXES AND OTHER UTILITY BOXES TO GRADE WITHIN NEWLY CONSTRUCTED AREAS.

12. CONTRACTOR SHALL PROVIDE PEDESTRIAN, VEHICLE, WORKER, AND TREE PROTECTION AS NECESSARY FOR THE FULL DURATION OF THE PROJECT.

13. CONTRACTOR SHALL INSTALL APPROVED TRAFFIC CONTROL SIGNS PRIOR TO COMMENCEMENT OF ANY WORK.

14. CONTRACTOR SHALL KEEP THE WORK SITE CLEAN AND FREE FROM RUBBISH AND DEBRIS THROUGH ALL PHASES OF CONSTRUCTION.

15. CONTRACTOR SHALL SWEEP ALL STREETS, ALLEYS, AND WALKS PRIOR TO CITY ACCEPTANCE OF PROJECT.

16. ALL EXCESS MATERIAL AND/OR DEBRIS SHALL BE REMOVED UPON COMPLETION OF THIS PROJECT.

17. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL WASTE MATERIALS AND SALVAGE OR RELOCATE OTHER STRUCTURES AS SHOWN ON THE PLANS OR AS DIRECTED BY THE CITY'S REPRESENTATIVE.

18. THE CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS FOR PRIVATE PROPERTY ADJACENT TO WORK THROUGHOUT THE PERIOD OF CONSTRUCTION.

19. THE LIMITS OF WORK ARE ENCOMPASSED BY THE RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS, AND SHALL INCLUDE ONLY SUCH WORK AS IS SHOWN ON THESE PLANS OR AS SPECIFIED IN THE SPECIFICATIONS OR OTHER CONTRACT DOCUMENTS.

20. PRIOR TO CONSTRUCTING ANY IMPROVEMENTS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT ALL MATCH EXISTING ELEVATIONS SHOWN ON THE PLANS ARE ACCURATE AND FOR VERIFYING THAT NONE OF THE MAXIMUM ACCESSIBILITY SLOPES ARE VIOLATED. CONTRACTOR SHALL NOTIFY CITY CONSTRUCTION MANAGER IMMEDIATELY IF ANY PROBLEMS EXIST. ANY IMPROVEMENTS THAT REQUIRE REMOVAL AND REPLACEMENT BECAUSE OF THE CONTRACTOR'S FAILURE TO COMPLY WITH THIS NOTE SHALL BE COMPLETED BY THE CONTRACTOR AT HIS OR HER OWN EXPENSE.

21. ANY RELOCATION OF PUBLIC UTILITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ANY AND ALL REQUIREMENTS OF THE UTILITY COMPANY, INCLUDING FEES, BONDS, PERMITS AND WORKING CONDITIONS, ETC.

22. APPROPRIATE APPROVALS SHALL BE OBTAINED PRIOR TO PROCEEDING WITH ANY WORK IN THE VICINITY OF IRRIGATION DITCHES, CREEKS, ASSOCIATED IRRIGATION FACILITIES, AND RAILROADS WHETHER OR NOT SHOWN ON THESE PLANS.

23. ANY LANDSCAPING AND/OR IRRIGATION DISTURBED OR DESTROYED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED IN-KIND.

24. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING STABILIZED CONSTRUCTION ENTRANCES IN ORDER TO REDUCE OR ELIMINATE TRACKING OF SEDIMENT ONTO PUBLIC STREETS. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTION DITCHES, PROTECTIVE BERMS, CONCRETE CHANNELS, OR OTHER MEASURES DESIGNED TO PROTECT IMPROVEMENTS FROM RUN-OFF MUST BE CONSTRUCTED PRIOR TO CONSTRUCTION OF ANY IMPROVEMENTS.

25. CONTRACTOR SHALL MAINTAIN DUST CONTROL ABOUT THE SITE OF WORK AS SPECIFIED BY "CALTRANS STANDARD SPECIFICATIONS 2018".

26. CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO COMPLETE THE CONTRACT IN A SATISFACTORY MANNER PROVIDING ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK UNLESS SPECIFIED OTHERWISE.

27. CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS THE CITY, ITS ENGINEER AND CONSULTANTS, THEIR OFFICERS, EMPLOYEES AND AGENTS FROM ANY AND ALL LIABILITY CLAIMS, LOSSES OR DAMAGES ARISING OR ALLEGED FROM THE PERFORMANCE OF THE WORK DESCRIBED ON THESE PLANS, NOT INCLUDING NEGLIGENCE ON THE PART OF THE CITY.

28. THE LOCATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON THE BEST INFORMATION AVAILABLE; HOWEVER, THE CITY OF VISALIA AND 4CREEKS INC. ASSUME NO RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION SHOWN, OR FOR THE INADVERTENT OMISSION OF ANY SUCH INFORMATION. THE CONTRACTOR SHALL COOPERATE WITH ALL UTILITY COMPANIES AND OTHER CONTRACTORS WORKING WITHIN THE LIMITS OF THIS PROJECT.

29. THE DEPTH OF THE EXISTING DRY UTILITIES (CABLE, PHONE, AND POWER), WATER MAINS, AND GAS MAINS IS SHOWN AT THE MOST PROBABLE LOCATION, BASED ON INDUSTRY STANDARDS. 4CREEKS INC. AND THE CITY OF VISALIA DO NOT ASSUME RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION SHOWN. CONTRACTOR SHALL CONFIRM ALL DEPTHS OF EXISTING UTILITIES, AS NECESSARY FOR CONSTRUCTION OF THE PROJECT PRIOR TO CONSTRUCTION. IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES/CONFLICTS.

30. INSTALL NEW SIGNS WITH PROJECT. CONTRACTOR SHALL ALSO REPAIR AND REPLACE ALL CURB, GUTTER, PAVEMENT, SIDEWALK, VAULTS, MAILBOXES, AND OTHER STRUCTURE'S DAMAGED DURING THE COURSE OF CONSTRUCTION AT HIS OWN EXPENSE.

31. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING FLOWLINES PROPOSED TO BE CONNECTED TO. PRIOR TO LAYING PIPE. ANY DISCREPANCIES AND/OR CONFLICTS WITH THE APPROVED PLANS SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE CITY OF VISALIA CONSTRUCTION MANAGER AND DESIGN ENGINEER.

32. CONTRACTOR IS RESPONSIBLE FOR RE-CONNECTING EXISTING UTILITY SERVICES WHERE THE UTILITY MAIN-LINE HAS BEEN RELOCATED DUE TO CONSTRUCTION.

33. PRIOR TO CONSTRUCTION CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AND CONFIRM THAT NO CONFLICTS EXIST WITH NEW IMPROVEMENTS SHOWN ON THESE PLANS INCLUDING PAVEMENT SECTIONS. CONTRACTOR SHALL PROVIDE A SIGNED CERTIFICATION LETTER TO THE CITY PRIOR TO STARTING CONSTRUCTION THAT STATES NO CONFLICTS EXIST OR THAT IDENTIFIES CONFLICTS FOR CITY TO ADDRESS.

34. THE CITY OF VISALIA WILL PROVIDE AN INSPECTOR AND A TESTING LAB FOR THIS PROJECT.

35. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THE VICINITY SHALL BE BORNE BY THE CONTRACTOR AND NO ADDITIONAL COMPENSATION SHALL BE PROVIDED.

36. ALL CONCRETE AND ASPHALT IMPROVEMENTS SHALL MEET CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. CITY OF VISALIA STANDARD REQUIREMENTS AND THESE DRAWINGS. CONSTRUCTION TOLERANCES SHALL NOT BE CONSTRUED TO ALLOW A CONTRACTOR TO VIOLATE ADA REQUIREMENTS. IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOWN ON THE PLANS, OR THAT BECOME APPARENT IN THE FIELD PRIOR TO CONSTRUCTION.

37. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS, AND FOR COORDINATING WITH THE CITY CONSTRUCTION MANAGER TO SCHEDULE INSPECTIONS AND MATERIAL TESTING

38. PRIOR TO START OF WORK, THE CONTRACTOR SHALL SECURE A CITY OF VISALIA ENCROACHMENT PERMIT PRIOR TO DOING ANY WORK IN THE CITY.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL ACCEPT THE SITE IN ITS PRESENT CONDITION AND DEMOLISH AND OR REMOVE FROM THE AREA OF DESIGNATED PROJECT EARTHWORK ALL STRUCTURES, BOTH SURFACE AND SUBSURFACE, TREES, BRUSH, ROOTS, DEBRIS, ORGANIC MATTER, AND ALL OTHER MATTER DETERMINED BY THE INSPECTOR TO BE DELETERIOUS, SUCH MATERIAL SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

2. ALL RETURN RADII AND CURB DATA ARE TO FACE OF CURB UNLESS SHOWN OR NOTED OTHERWISE.

3. ALL QUANTITIES AND PAY ITEMS ARE AND WILL BE BASED ON HORIZONTAL MEASUREMENTS.

4. LENGTHS OF SANITARY SEWERS AND STORM DRAINS ARE HORIZONTAL DISTANCES FROM CENTER TO CENTER OF STRUCTURES, ROUNDED OFF TO THE NEAREST FOOT.

5. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORDED INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEES MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 5 WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. CALL UNDERGROUND SERVICE ALERT (U.S.A.) AT 1-800-227-2600. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED INTO THE CONTRACT UNIT PRICE.

6. ALL EXISTING REMAINING UTILITIES AND REMAINING IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE CITY OF VISALIA CONSTRUCTION MANAGER, AT THE CONTRACTOR'S SOLE EXPENSE.

7. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE ENGINEER AND THE CITY HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING THE LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER, OR CITY.

8. NO CONCRETE SHALL BE POURED FOR NEW IMPROVEMENTS UNTIL FORMWORK AND REBAR HAS BEEN INSPECTED AND APPROVED BY THE CITY INSPECTOR. IF THE CONTRACTOR FAILS TO OBTAIN INSPECTIONS PRIOR TO POURING THE CITY HAS THE RIGHT TO REJECT THE CONCRETE AND REQUIRE THE CONTRACTOR TO REMOVE AND REPLACE THE IMPROVEMENTS AT ITS OWN EXPENSE.

9. 4CREEKS, INC DOES NOT SPECIFY NOR RECOMMEND THE USE OR INSTALLATION OF ANY MATERIAL OR EQUIPMENT WHICH IS MADE FROM, OR WHICH CONTAINS ASBESTOS FOR USE IN THE CONSTRUCTION OF THESE IMPROVEMENTS. ANY PARTY INSTALLING OR USING SUCH MATERIALS OR EQUIPMENT SHALL BE SOLELY RESPONSIBLE FOR ALL INJURIES, DAMAGES, OR LIABILITIES, OF ANY KIND, CAUSED BY THE USE OF SUCH MATERIAL OR EQUIPMENT. THE PROVISIONS OF THIS NOTE SHALL APPLY UNLESS THEY ARE EXPRESSLY WAIVED IN WRITING BY 4CREEKS, INC.

PROJECT SPECIFIC NOTES:

1. THE CONTRACTOR SHALL TEST ALL LANDSCAPE IRRIGATION SYSTEMS IN THE PRESENCE OF THE CITY INSPECTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING ALL LANDSCAPING SYSTEMS AT THE END OF CONSTRUCTION IN THE PRESENCE OF THE CITY INSPECTOR AND SHALL MAKE ANY REPAIRS NECESSARY FROM DAMAGE CAUSED DURING CONSTRUCTION.

2. IF CONCRETE CURB AND GUTTER IMPROVEMENTS ARE UNDERMINED OR LOSS OF SUPPORT OCCURS DUE TO CONTRACTOR'S EXCAVATION MEANS AND METHODS THE CONTRACTOR SHALL BE RESPONSIBLE FOR FILLING THE VOIDS WITH A SAND CEMENT SLURRY MEETING CITY OF VISALIA REQUIREMENTS.

3. CONTRACTOR SHALL BE REQUIRED TO SUPPORT EXISTING UNDERGROUND UTILITIES DURING TRENCHING ACTIVITIES IN A MANNER THAT PREVENTS DAMAGE OF THE UTILITY. IF THE UTILITY BECOMES DAMAGED THE CONTRACTOR SHALL MAKE REPAIRS AT HIS OWN EXPENSE.

4. WHERE NEW IMPROVEMENTS ARE BEING INSTALLED NEAR EXISTING UTILITY POLES OR STRUCTURES THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORTING THE POLES OR STRUCTURES IN PLACE TO PREVENT DAMAGE AT HIS OWN EXPENSE. CONTRACTOR SHALL REPAIR ANY DAMAGED EXISTING INFRASTRUCTURE AT HIS OWN EXPENSE.

5. CONTRACTOR SHALL PROVIDE WRITTEN AND VERBAL NOTIFICATION TO RESIDENTS AND BUSINESSES WITHIN 5 DAYS IN ADVANCE OF CONSTRUCTION.

6. CONTRACTOR SHALL ADJUST MANHOLES, VALVE BOXES, AND OTHER UTILITY BOXES TO GRADE. ADJUST MANHOLES AND VALVE BOXES TO FINISH GRADE AFTER PAVING IS COMPLETE.

7. ALL SALVAGED MATERIALS SHALL BE DELIVERED TO THE CITY CORPORATION YARD LOCATED AT 336 N. BEN MADDOX WAY. THE CONTRACTOR SHALL NOTIFY THE CITY CONSTRUCTION MANAGER AT LEAST 2 WORKING DAYS PRIOR TO DELIVERY FOR COORDINATION. CONTRACTOR SHALL PROVIDE ADEQUATE MEANS FOR SAFELY UNLOADING MATERIAL.

GRADING NOTES:

1. ALL GRADING SHALL BE DONE IN CONFORMANCE WITH THE STATE OF CALIFORNIA BUILDING CODE, LATEST EDITION, THE CITY OF VISALIA IMPROVEMENT STANDARDS, APPLICABLE SECTION OF THE CALTRANS STANDARD SPECIFICATIONS, LATEST EDITION.

2. BACKFILL OR ONSITE UNDERGROUND UTILITIES PLACED ON THE SITE SHALL BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 90% IN LANDSCAPE AREAS. ALL BACKFILL IN TRENCHES IN PAVED AND OTHER AREAS TO BE COMPACTED ACCORDING TO THE CITY OF VISALIA STANDARD DETAILS.

3. ALL SPOIL PILES SHALL HAVE SIDE SLOPES AS REQUIRED FOR SAFETY IN ACCORDANCE WITH APPLICABLE CA OSHA REQUIREMENTS.

STREET NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR RAISING ALL VALVES, MANHOLES, AND ANY OTHER VAULTS AND BOXES FOUND IN THE STREET WHETHER OR NOT THEY ARE SHOWN ON THESE PLANS.

2. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH HIS CONSTRUCTION.

TRENCHING NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING ALL TRENCHES. IF TRENCHES OR PIPING BECOME DAMAGED DUE TO WATER INFILTRATION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR THE TRENCH AND PIPING TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

WATER SYSTEM NOTES:

1. ALL PIPING WORK WITHIN THE STREET RIGHT OF WAY SHALL BE IN CONFORMANCE WITH THE CITY OF VISALIA IMPROVEMENT STANDARDS.

2. ALL WORK OUTSIDE THE STREET RIGHT OF WAY SHALL BE CLASSIFIED AS ON-SITE WATER PIPING AND SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS, LATEST EDITION. THE REQUIREMENTS BELOW ARE FOR ON-SITE PIPING.

3. FIRE SERVICE LINES AND DOMESTIC WATER SERVICE LINES 4 INCHES AND LARGER SHALL MEET THE FOLLOWING REQUIREMENTS. ALL PIPELINES SHALL MEET THE REQUIREMENTS OF AWWA C900 FOR PVC PIPE DR 18 (235 PSI) AND SHALL HAVE BELL AND SPIGOT JOINTS IN COMPLIANCE WITH ASTM 3139 WITH GASKETS MEETING ASTM F 477. ALL FITTINGS SHALL BE DUCTILE IRON PRESSURE CLASS 250 CONFORMING TO ASSA STD 153 FOR PUSH-ON AND MECHANICAL JOINTS AND AWWA C110 FOR FLANGED FITTINGS. ALL FITTINGS SHALL HAVE A CEMENT MORTAR LINING CONFORMING TO AWWA C104 FLANGED FITTINGS SHALL ONLY BE USED WHERE NOTED ON THE DRAWINGS.

4. DOMESTIC WATER LINES SMALLER THAN 4 INCHES SHALL BE POLYVINYL CHLORIDE (PVC) PIPE MEETING THE FOLLOWING REQUIREMENTS, ASTM D1785, PVC 1120, SCHEDULE 40, 160 PSIG MIN WITH SOLVENT WELDED JOINTS.

5. GATE VALVES: ALL GATE VALVES SHALL MEET OR EXCEED THE LATEST REVISION OF AWWA C515 FOR REDUCED WALL RESILIENT-SEATED GATE VALVES (OR C509 FOR RESILIENT SEATED GATE VALVES) AND SHALL BE PROVIDED WITH LEFT HAND TO OPEN, DUCTILE IRON (OR CAST IRON) BODY WITH EPOXY COATING INSIDE AND OUT COMPLYING WITH THE LATEST REVISION OF AWWA C550, NUT OPERATED NON-RISING STEM WITH 2 FOOT SQUARE OPERATING NUT, TWO O-RING STEM SEALS ABOVE THE THRUST COLLAR AND ONE BELOW, O-RING GASKETS AND 304 STAINLESS STEEL BOLTS AND NUTS ON BONNET AND STUFFING BOX AND EPDM RUBBER ENCAPSULATED WEDGIE (WHEN AVAILABLE AT NO EXTRA COST. ALL GATE VALVES SHALL BE MANUFACTURED BY MUELLER COMPANY, KENNEDY VALVE, CO. CLOW VALVE CO, AMERICAN FLOW CONTROL, AMERICAN AYK CO. OR US PIPE. 2 INCH AND SMALLER GATE VALVES SHALL BE CLASS 125 WITH STANDARD THREAD, BRONZE WITH WHEEL, AND BE MANUFACTURED BY MILWAUKEE (NO. 105) OR NIBCO.

6. CHECK VALVES: UNLESS SPECIFIED OTHERWISE, ALL CHECK VALVES SHALL BE SWING TYPE WITH SPRING AND LEVER AND SHALL COMPLY WITH THE LATEST REVISION OF AWWA C508. THE VALVES SHALL HAVE CLASS 125 FLANGED ENDS UNLESS SHOWN OTHERWISE ON THE DRAWINGS. CHECK VALVES SHALL BE MANUFACTURED BY MUELLER, CLOW OR M&H.

7. THRUST BLOCKS SHALL BE CONSTRUCTED AT ALL HORIZONTAL AND VERTICAL FITTINGS FOR PIPES 4 INCH DIAMETER AND LARGER ACCORDING TO CITY OF VISALIA STANDARDS.

8. FIRE HYDRANT ASSEMBLIES: FIRE HYDRANTS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH CITY OF VISALIA STANDARDS.

9. SERVICE LINES: DOMESTIC AND IRRIGATION SERVICE LINES AND METER CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF VISALIA STANDARDS AS APPLICABLE FOR THE SERVICE.

LEGEND

BC	BEGIN CURVE	MB	MAILBOX
BCR	BEGIN CURB RETURN	MJ	MECHANICAL JOINT
BP: STA	ALIGNMENT BEGINNING POINT	OG	ORIGINAL GROUND
BSW	BACK OF SIDEWALK	P	PAVEMENT
C	CONCRETE	PCC	POINT OF COMPOUND CURVATURE
CR	CROWN OF ROAD	POC	POINT OF CURVATURE
C&G	CURB & GUTTER	PRC	POINT OF REVERSE CURVATURE
EP	EDGE OF PAVEMENT	RD	EDGE OF ROAD
EP: STA	ALIGNMENT END POINT	(R)	RADIAL BEARING
EC	END CURVE	S=0.0000	SLOPE, IN FOOT PER FOOT
ECR	END CURB RETURN	SS	SANITARY SEWER
(000.00)	EXISTING ELEVATION	SSMH	SANITARY SEWER MANHOLE
FDR-C	FULL DEPTH RECLAMATION W/ CEMENT	STA.	STATION
FL	FLOW LINE	TC	TOP OF CURB
FTG	TOP OF FOOTING ELEVATION	TOE	TOE OF SLOPE
GB	GRADE BREAK	000.00	PROPOSED ELEVATION
GV	GATE VALVE	SD	STORM DRAIN
HMA	HOT MIX ASPHALT	SDMH	STORM DRAIN MANHOLE
HP	HINGE POINT	W	WATER LINE
INV.	INVERT		
LIP	LIP OF GUTTER		

PROPOSED CONCRETE
PROPOSED ASPHALT CONCRETE
CHAIN LINK FENCE
STORM DRAIN PIPE LINE
SANITARY SEWER PIPE LINE
DRAINAGE INLET
FIRE HYDRANT ASSEMBLY
STREET LIGHT
WATER METER
WATER VALVE
STREET SIGN
STORM DRAIN MANHOLE
SEWER MANHOLE
"R" VALUE
PROPOSED LANDSCAPE AREA

EXISTING ASPHALT PAVEMENT
EXISTING CONCRETE
EXISTING GAS LINE
ELECTRIC AND COMMUNICATION OVERHEAD LINE
EXISTING CHAIN LINK FENCE
EXISTING WOODEN FENCE
EXISTING IRON FENCE
EXISTING AT&T OVERHEAD LINE
EXISTING ELECTRICAL OVERHEAD LINE
EXISTING ELECTRICAL UNDERGROUND CONDUIT
EXISTING CENTRAL VALLEY INDEPENDENT NETWORK LINE
EXISTING STORM DRAIN PIPE LINE
EXISTING SANITARY SEWER PIPE LINE
EXISTING DRAINAGE INLET
EXISTING FIRE HYDRANT ASSEMBLY
EXISTING STREET LIGHT
EXISTING WATER METER
EXISTING WATER VALVE

EXISTING STREET SIGN
EXISTING SURVEY MONUMENT
EXISTING CHRYSTIE BOX (UTILITY TYPE)
EXISTING TELEPHONE PEDESTAL
EXISTING BOLLARD
EXISTING TELEPHONE VAULT
EXISTING ELECTRIC VAULT
EXISTING POWER POLE
EXISTING GUY ANCHOR
EXISTING STORM DRAIN MANHOLE
EXISTING SEWER MANHOLE
PROPERTY LINE
EXIST. RIGHT OF WAY
SECTION LINE
CENTER LINE
IOD
PROPOSED RIGHT OF WAY

NO.	DATE	DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE A.
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

DRW BY: MH | CHK BY: KM

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
GENERAL NOTES

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 2 OF 61

811 Know what's **below.** **Call** before you dig.

NORTH

40' 0' 40'

GENERAL DEMOLITION NOTES:

1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
2. CONTRACTOR TO REMOVE AND DISPOSE OF ALL VEGETATION, CONCRETE, IRRIGATION SYSTEMS, ASPHALT, AGGREGATE BASE , SOIL, FENCES, STRUCTURES, ETC. WITHIN APPROXIMATE LIMITS OF CLEARING, GRUBBING, AND DEMOLITION; UNLESS OTHERWISE NOTED ON THESE PLANS.
3. ALL EXISTING STREET SIGNS THAT CANNOT BE RE-USED SHALL BE RETURNED TO THE CITY OF VISALIA CORP. YARD.
4. ANY EXISTING MANHOLES AND/OR WATER VALVES ENCOUNTERED WHETHER OR NOT SHOWN ON THESE PLANS SHALL BE PROTECTED AND ADJUSTED TO FINISH GRADE.
5. ALL CONCRETE AND ASPHALT LOCATED OUTSIDE DEMOLITION LIMITS TO BE PROTECTED IN PLACE.
6. EXISTING IMPROVEMENTS AND UTILITIES TO BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE ON THESE PLANS.

DEMOLITION NOTES (THIS SHEET ONLY)

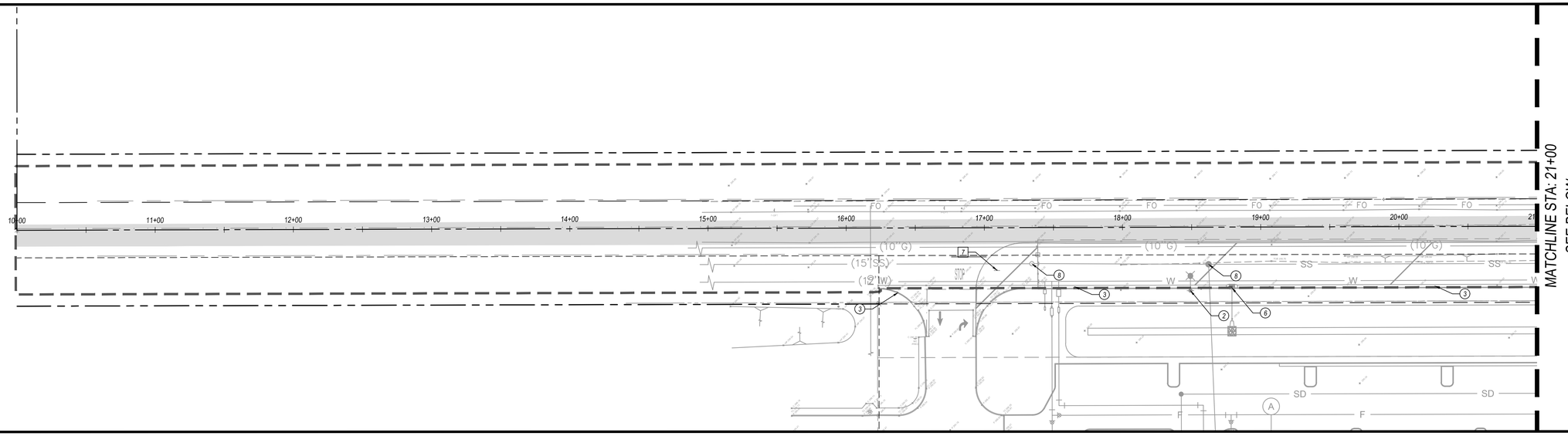
1. REMOVE & RELOCATE EXISTING POWER / UTILITY POLE / GUY WIRE (TO BE DONE BY SOUTHERN CALIFORNIA EDISON)
2. REMOVE EXISTING ASPHALT CONCRETE
3. SAWCUT EXISTING ASPHALT CONCRETE TO A NEAT CLEAN ON-GRADE EDGE
4. SAWCUT & REMOVE EXISTING CURB & GUTTER / CURB
5. SAWCUT & REMOVE EXISTING ASPHALT DIKE
6. REMOVE EXISTING DRAINAGE INLET
7. REMOVE & SALVAGE EXISTING SIGN
8. REMOVE EXISTING STORM DRAIN PIPE & RE-COMPACT AREA AS NEEDED
9. REMOVE & RELOCATE EXIST. ELECTRICAL BOX. (TO BE DONE BY SOUTHERN CALIFORNIA EDISON)

PROTECTION NOTES (THIS SHEET ONLY)

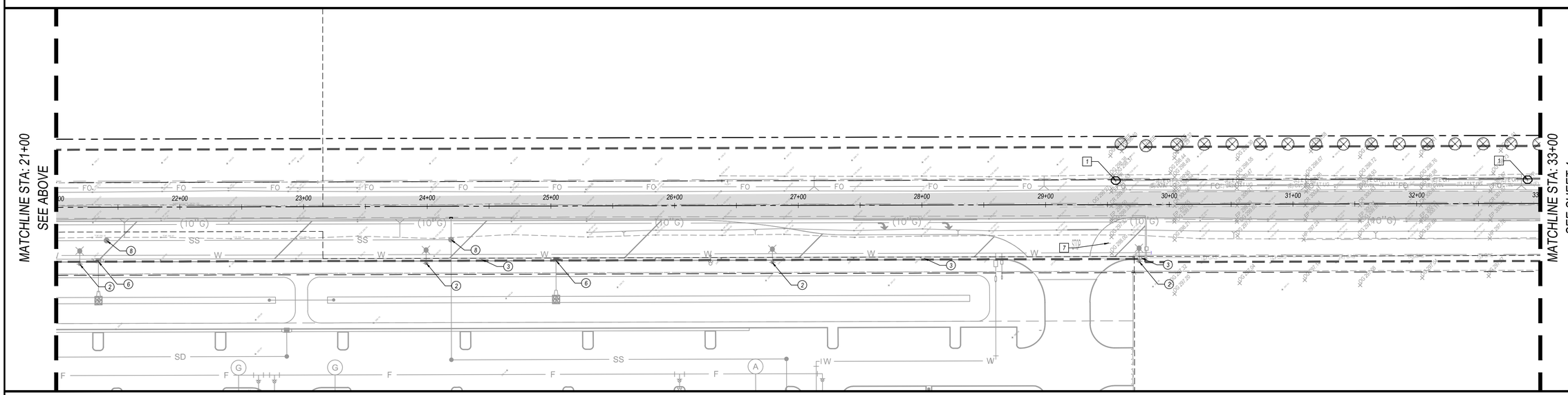
1. PROTECT IN PLACE EXISTING POWER POLE / UTILITY POLE / GUY WIRE
2. PROTECT IN PLACE EXISTING STREET LIGHT
3. PROTECT IN PLACE EXISTING CURB & GUTTER
4. PROTECT IN PLACE EXISTING SIGN
5. PROTECT IN PLACE EXISTING CONTROL BOX
6. PROTECT IN PLACE EXISTING STORM DRAIN INLET
7. PROTECT IN PLACE EXISTING STORM DRAIN MANHOLE
8. PROTECT IN PLACE EXISTING SANITARY SEWER MANHOLE
9. PROTECT IN PLACE EXISTING FIRE HYDRANT
10. PROTECT IN PLACE EXISTING ASPHALT CONCRETE
11. PROTECT IN PLACE EXISTING FENCE

LEGEND

- APPROXIMATE LIMITS OF CLEARING, GRUBBING, & DEMOLITION
- EXIST. ASPHALT CONCRETE REMOVAL
- EXIST. CONCRETE REMOVAL
- EXIST. CURB / CURB & GUTTER REMOVAL
- EXIST. FENCE REMOVAL
- EXIST. VEGETATION REMOVAL
- EXIST. VEGETATION PROTECTION
- EXIST. POWER POLE
- EXIST. UTILITY POLE



RIGGIN AVE. STA: 10+00 – 21+00



RIGGIN AVE. STA: 21+00 – 33+00

NO.	DATE	DESCRIPTION

324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

PREPARED BY: 4CREEKS

CHK BY: KM

DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
TOPOGRAPHIC & DEMOLITION PLAN

PROJ. NO. 20205	
DATE:3/8/2021	
DESIGN BY: KM	DRAWN BY:MH
SCALE: AS SHOWN	
SHEET 3 OF 61	

Know what's **below.**
Call before you dig.

NORTH

40' 0' 40'

GENERAL DEMOLITION NOTES:

1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
2. CONTRACTOR TO REMOVE AND DISPOSE OF ALL VEGETATION, CONCRETE, IRRIGATION SYSTEMS, ASPHALT, AGGREGATE BASE , SOIL, FENCES, STRUCTURES, ETC. WITHIN APPROXIMATE LIMITS OF CLEARING, GRUBBING, AND DEMOLITION; UNLESS OTHERWISE NOTED ON THESE PLANS.
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6. EXISTING IMPROVEMENTS AND UTILITIES TO BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE ON THESE PLANS.

DEMOLITION NOTES (THIS SHEET ONLY)

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2. REMOVE EXISTING ASPHALT CONCRETE
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PROTECTION NOTES (THIS SHEET ONLY)

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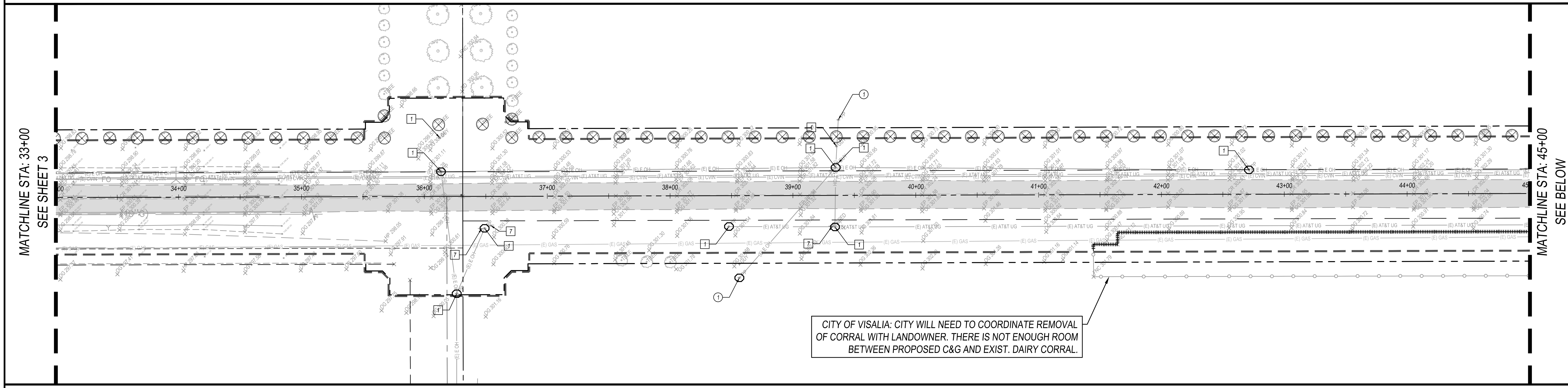
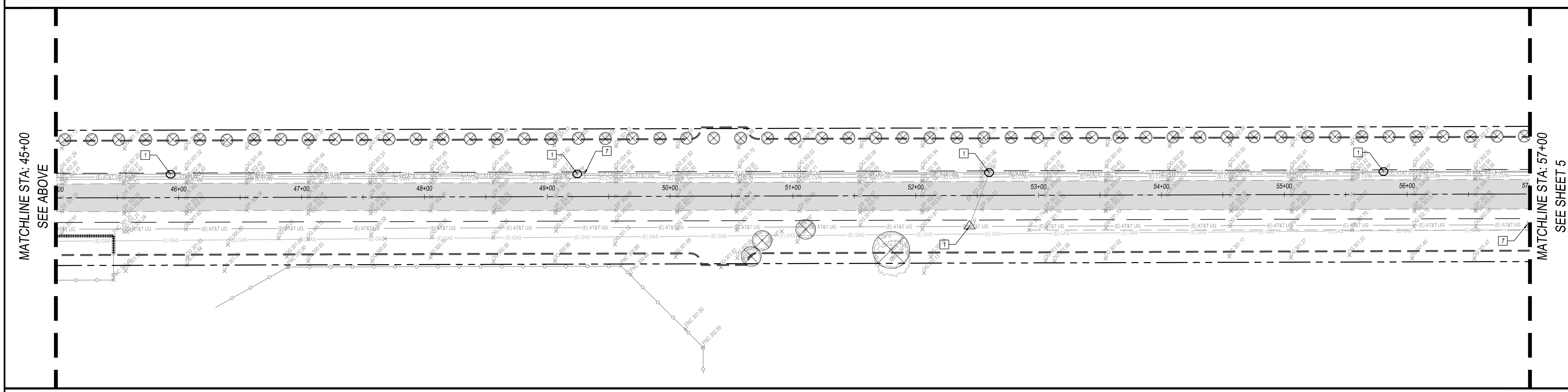
9. PROTECT IN PLACE EXISTING FIRE HYDRANT
10. PROTECT IN PLACE EXISTING ASPHALT CONCRETE
11. PROTECT IN PLACE EXISTING FENCE

LEGEND

- APPROXIMATE LIMITS OF CLEARING, GRUBBING, & DEMOLITION
- EXIST. ASPHALT CONCRETE REMOVAL
- EXIST. CONCRETE REMOVAL
- EXIST. CURB / CURB & GUTTER REMOVAL
- EXIST. FENCE REMOVAL
- EXIST. VEGETATION REMOVAL
- EXIST. VEGETATION PROTECTION
- EXIST. POWER POLE
- EXIST. UTILITY POLE



RIGGIN AVE. STA: 33+00 – 45+00



RIGGIN AVE. STA: 45+00 – 57+00

NO. DATE DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
KYLE J. McDONALD
NO. 82531
EXP. 09/30/22
CIVIL
STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
CHK BY: KM
DRW BY: MH

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
TOPOGRAPHIC & DEMOLITION PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM DRAWN BY:MH
SCALE: AS SHOWN
SHEET 4 OF 61

Know what's **below.** **Call** before you dig.

40' 0' 40'

NORTH

GENERAL DEMOLITION NOTES:

1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
2. CONTRACTOR TO REMOVE AND DISPOSE OF ALL VEGETATION, CONCRETE, IRRIGATION SYSTEMS, ASPHALT, AGGREGATE BASE , SOIL, FENCES, STRUCTURES, ETC. WITHIN APPROXIMATE LIMITS OF CLEARING, GRUBBING, AND DEMOLITION; UNLESS OTHERWISE NOTED ON THESE PLANS.
3. ALL EXISTING STREET SIGNS THAT CANNOT BE RE-USED SHALL BE RETURNED TO THE CITY OF VISALIA CORP. YARD.
4. ANY EXISTING MANHOLES AND/OR WATER VALVES ENCOUNTERED WHETHER OR NOT SHOWN ON THESE PLANS SHALL BE PROTECTED AND ADJUSTED TO FINISH GRADE.
5. ALL CONCRETE AND ASPHALT LOCATED OUTSIDE DEMOLITION LIMITS TO BE PROTECTED IN PLACE.
6. EXISTING IMPROVEMENTS AND UTILITIES TO BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE ON THESE PLANS.

DEMOLITION NOTES (THIS SHEET ONLY)

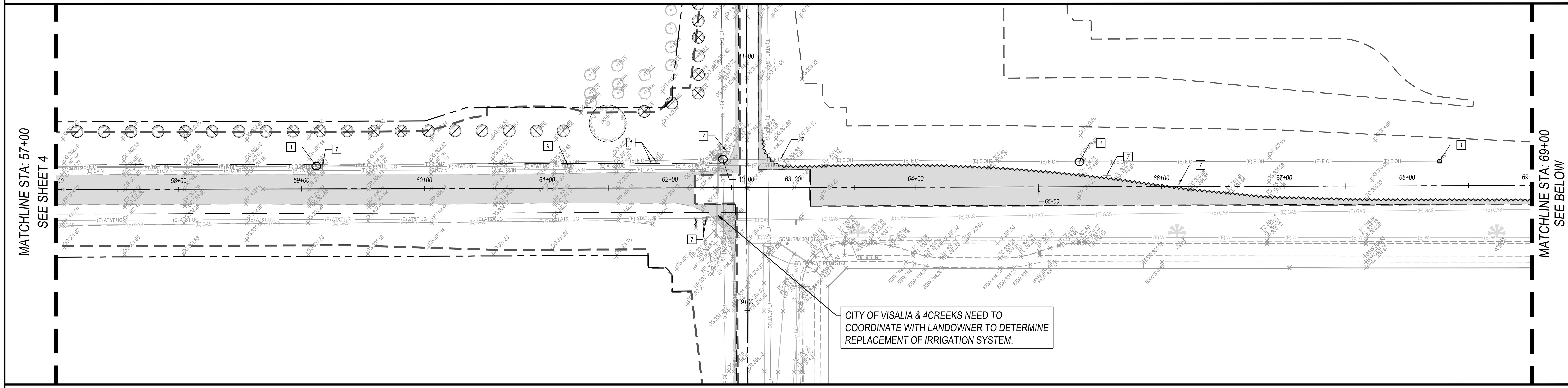
1. REMOVE & RELOCATE EXISTING POWER / UTILITY POLE / GUY WIRE (TO BE DONE BY SOUTHERN CALIFORNIA EDISON)
2. REMOVE EXISTING ASPHALT CONCRETE
3. SAWCUT EXISTING ASPHALT CONCRETE TO A NEAT CLEAN ON-GRADE EDGE
4. SAWCUT & REMOVE EXISTING CURB & GUTTER / CURB
5. SAWCUT & REMOVE EXISTING ASPHALT DIKE
6. REMOVE EXISTING DRAINAGE INLET
7. REMOVE & SALVAGE EXISTING SIGN
8. REMOVE EXISTING STORM DRAIN PIPE & RE-COMPACT AREA AS NEEDED
9. REMOVE & RELOCATE EXIST. ELECTRICAL BOX. (TO BE DONE BY SOUTHERN CALIFORNIA EDISON)

PROTECTION NOTES (THIS SHEET ONLY)

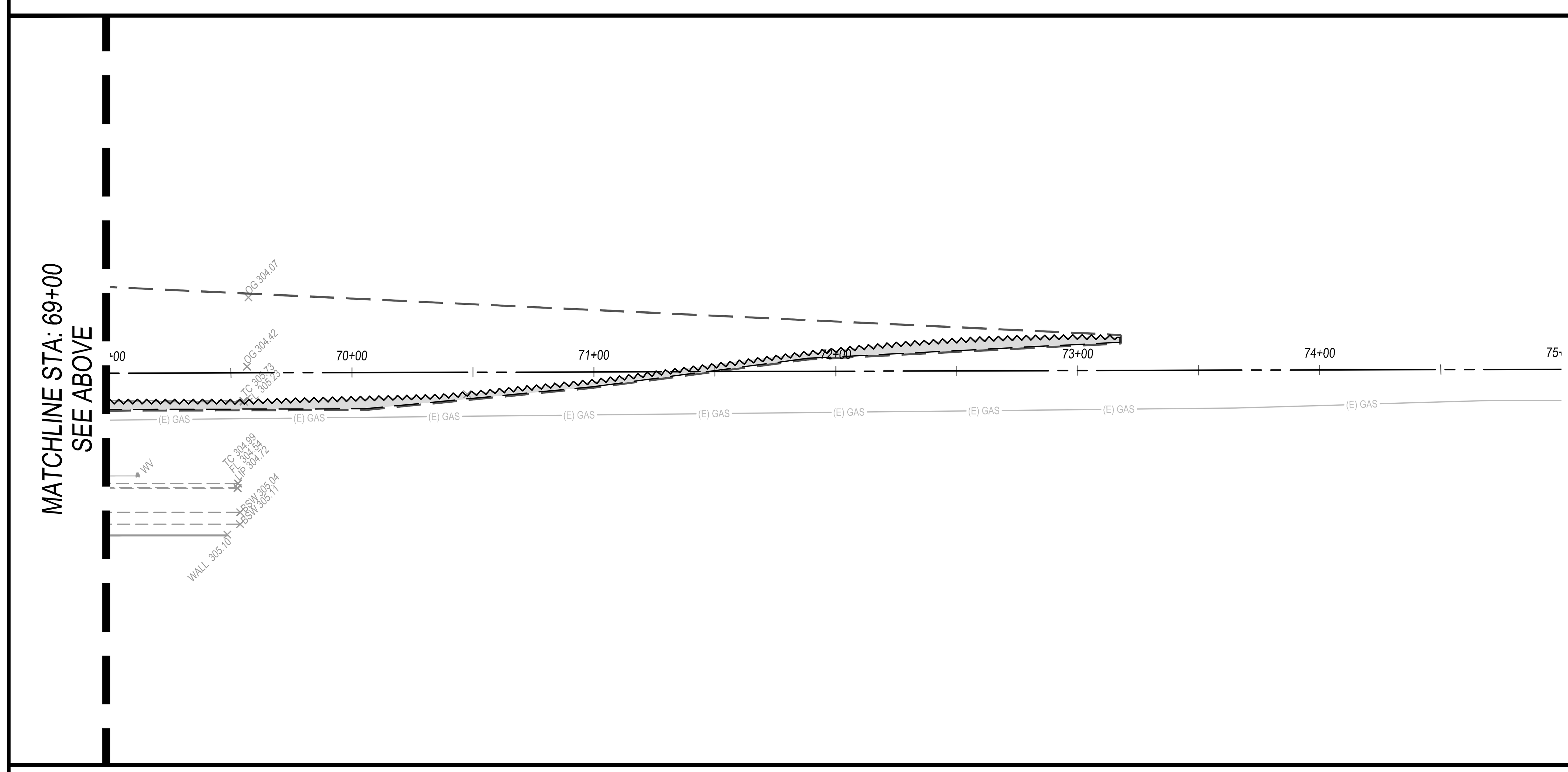
1. PROTECT IN PLACE EXISTING POWER POLE / UTILITY POLE / GUY WIRE
2. PROTECT IN PLACE EXISTING STREET LIGHT
3. PROTECT IN PLACE EXISTING CURB & GUTTER
4. PROTECT IN PLACE EXISTING SIGN
5. PROTECT IN PLACE EXISTING CONTROL BOX
6. PROTECT IN PLACE EXISTING STORM DRAIN INLET
7. PROTECT IN PLACE EXISTING STORM DRAIN MANHOLE
8. PROTECT IN PLACE EXISTING SANITARY SEWER MANHOLE
9. PROTECT IN PLACE EXISTING FIRE HYDRANT
10. PROTECT IN PLACE EXISTING ASPHALT CONCRETE
11. PROTECT IN PLACE EXISTING FENCE

LEGEND

- APPROXIMATE LIMITS OF CLEARING, GRUBBING, & DEMOLITION
- EXIST. ASPHALT CONCRETE REMOVAL
- EXIST. CONCRETE REMOVAL
- EXIST. CURB / CURB & GUTTER REMOVAL
- EXIST. FENCE REMOVAL
- EXIST. VEGETATION REMOVAL
- EXIST. VEGETATION PROTECTION
- EXIST. POWER POLE
- EXIST. UTILITY POLE



RIGGIN AVE. STA: 57+00 – 69+00



RIGGIN AVE. STA: 69+00 – END

NO. | DATE | DESCRIPTION

NOT FOR CONSTRUCTION
REGISTERED PROFESSIONAL ENGINEER KYLE J. McDONALD NO. 82531 EXP. 09/30/22 CIVIL STATE OF CALIFORNIA

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

DRW BY: MH
CHK BY: KM

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
TOPOGRAPHIC & DEMOLITION PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 5 OF 61

Know what's **below.**
Call before you dig.

NORTH

40' 0' 40'

GENERAL DEMOLITION NOTES:

1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
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6. EXISTING IMPROVEMENTS AND UTILITIES TO BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE ON THESE PLANS.

DEMOLITION NOTES (THIS SHEET ONLY)

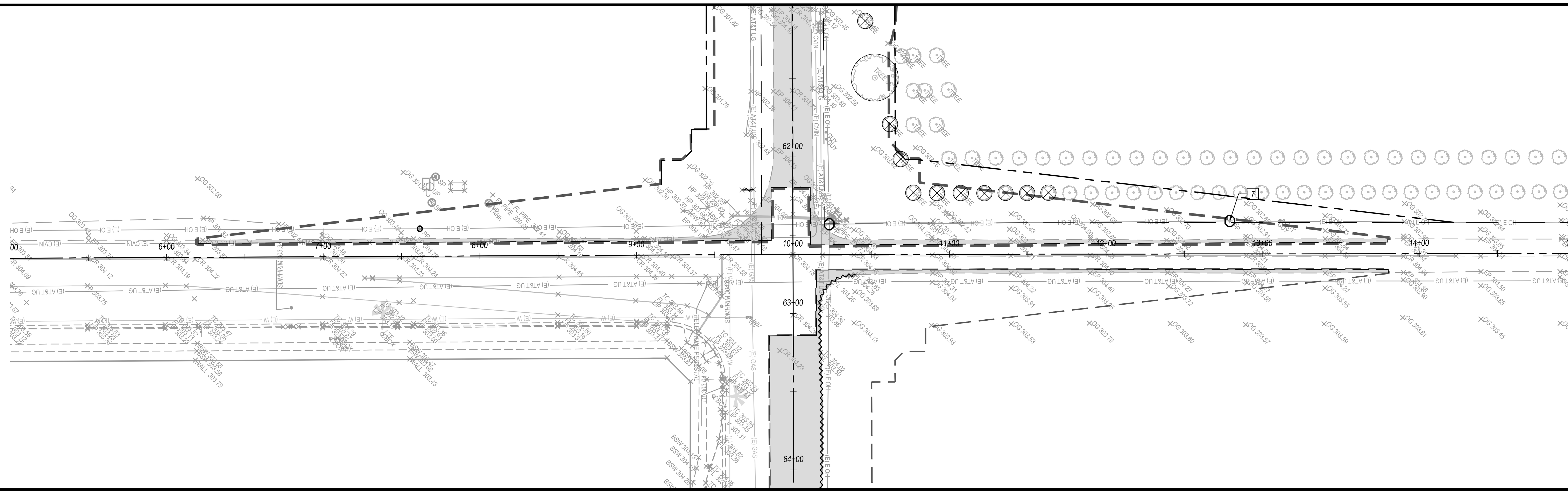
[1] REMOVE & RELOCATE EXISTING POWER / UTILITY POLE / GUY WIRE (TO BE DONE BY SOUTHERN CALIFORNIA EDISON)
[2] REMOVE EXISTING ASPHALT CONCRETE
[3] SAWCUT EXISTING ASPHALT CONCRETE TO A NEAT CLEAN ON-GRADE EDGE
[4] SAWCUT & REMOVE EXISTING CURB & GUTTER / CURB
[5] SAWCUT & REMOVE EXISTING ASPHALT DIKE
[6] REMOVE EXISTING DRAINAGE INLET
[7] REMOVE & SALVAGE EXISTING SIGN
[8] REMOVE EXISTING STORM DRAIN PIPE & RE-COMPACT AREA AS NEEDED
[9] REMOVE & RELOCATE EXIST. ELECTRICAL BOX. (TO BE DONE BY SOUTHERN CALIFORNIA EDISON)

PROTECTION NOTES (THIS SHEET ONLY)

(1) PROTECT IN PLACE EXISTING POWER POLE / UTILITY POLE / GUY WIRE
(2) PROTECT IN PLACE EXISTING STREET LIGHT
(3) PROTECT IN PLACE EXISTING CURB & GUTTER
(4) PROTECT IN PLACE EXISTING SIGN
(5) PROTECT IN PLACE EXISTING CONTROL BOX
(6) PROTECT IN PLACE EXISTING STORM DRAIN INLET
(7) PROTECT IN PLACE EXISTING STORM DRAIN MANHOLE
(8) PROTECT IN PLACE EXISTING SANITARY SEWER MANHOLE
(9) PROTECT IN PLACE EXISTING FIRE HYDRANT
(10) PROTECT IN PLACE EXISTING ASPHALT CONCRETE
(11) PROTECT IN PLACE EXISTING FENCE

LEGEND

APPROXIMATE LIMITS OF CLEARING, GRUBBING, & DEMOLITION
EXIST. ASPHALT CONCRETE REMOVAL
EXIST. CONCRETE REMOVAL
EXIST. CURB / CURB & GUTTER REMOVAL
EXIST. FENCE REMOVAL
EXIST. VEGETATION REMOVAL
EXIST. VEGETATION PROTECTION
EXIST. POWER POLE
EXIST. UTILITY POLE



SHIRK RD. STA: 5+00 – 15+00

NO. | DATE | DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE WIDENING & IMPROVEMENTS
TOPOGRAPHIC & DEMOLITION PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 6 OF 61

811
Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

WATER KEYNOTES (THIS SHEET ONLY)

1 XXX.

UTILITY CONFLICT KEYNOTES (THIS SHEET ONLY)

U1 XXX.

POTHOLING KEYNOTES (THIS SHEET ONLY)

P1 XXX.

LEGEND

- EXIST. ASPHALT CONCRETE
- PROPOSED ASPHALT CONCRETE
- PROPOSED CONCRETE
- DETECTABLE WARNING SURFACE
- MEDIAN STAMPED CONCRETE
- PROPOSED STREET LIGHTING SINGLE HEAD

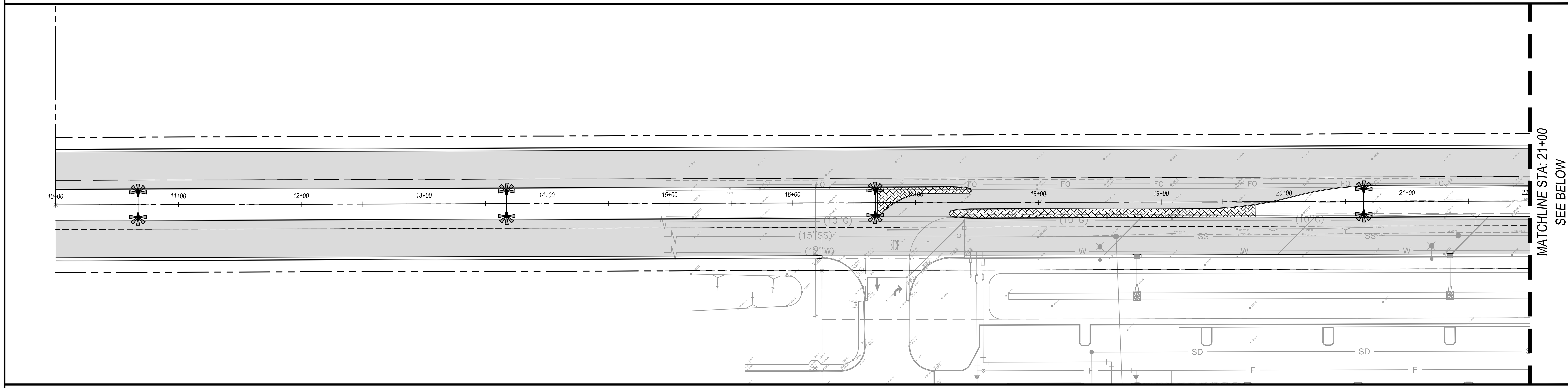
P XXX.XX = PROPOSED PAVEMENT ELEVATION

P (XXX.XX) = EXISTING PAVEMENT ELEVATION

- PROPOSED STORM OR SEWER MANHOLE TYP.
- PROPOSED STREET LIGHT PULL BOX
- EXIST. POWER POLE
- EXIST. UTILITY POLE

GENERAL UTILITY NOTES:

1. THE UTILITY INFORMATION SHOWN ON THESE PLANS IS BASED ON UTILITY PLATS RECEIVED FROM THE UTILITY COMPANIES, ABOVE GROUND IMPROVEMENTS IDENTIFIED DURING THE TOPOGRAPHIC SURVEY STAGE, USA MARKINGS PROVIDED DURING PRELIMINARY POTHOLING, AND SOME PRELIMINARY POTHOLING INFORMATION. IT SHALL BE THE RESPONSIBILITY OF EACH UTILITY COMPANY TO REVIEW THIS DRAWING AND VERIFY THAT THE LOCATIONS OF THEIR UTILITIES ARE ACCURATELY SHOWN AND CALLED OUT. NOTIFY THE CITY'S CONSULTANT WITH ANY CORRECTIONS AS SOON AS POSSIBLE.
2. THIS PLAN CALLS OUT SOME OF THE MAJOR UTILITY CONFLICT LOCATIONS THAT NEED TO BE RESOLVED. THERE WILL MOST LIKELY BE OTHER CONFLICT POINTS THAT THE UTILITY COMPANY DISCOVERS THAT NEED TO BE RESOLVED. UTILITY COMPANY SHALL CLEARLY IDENTIFY ALL CONFLICT POINTS AND NEW IMPROVEMENTS ON THEIR RELOCATION PLANS.
3. UTILITY TO ALSO INCLUDE LATERAL RELOCATIONS AND MORE MINOR INFRASTRUCTURE RELOCATIONS ON THEIR PLANS.
4. REFER TO COVER AND DEMO SHEETS FOR BENCHMARKS, GENERAL NOTES, & INFORMATION.
5. TOPO SURVEY FADED IN THE BACKGROUND OF THE PLAN.
6. ALL UTILITIES REQUIRED TO ADJUST INFRASTRUCTURE TO GRADE.



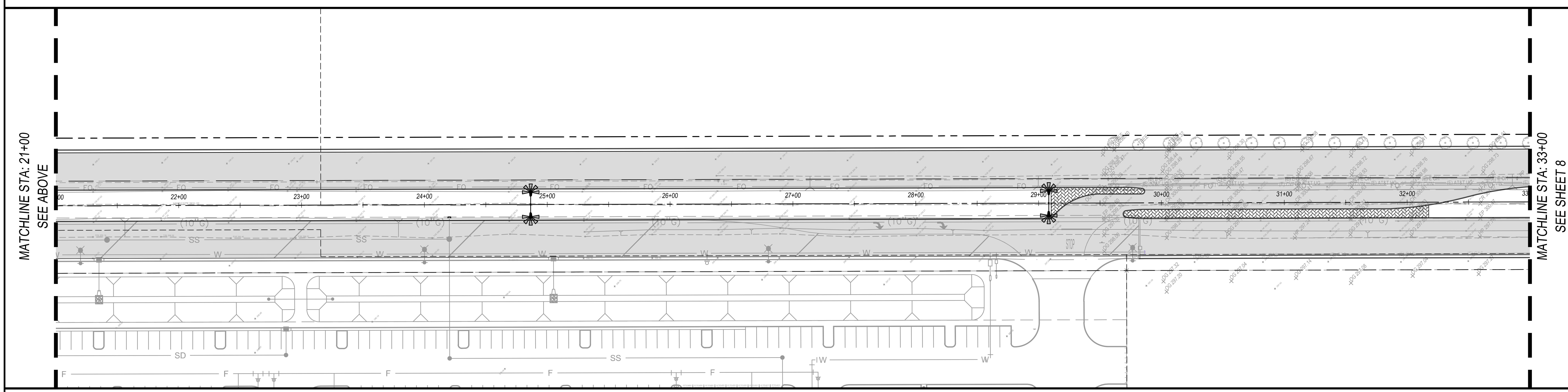
UTILITY ABBREVIATION LEGEND

DTT - DEPTH TO TOP
ATT - AT&T INC.
COM - COMCAST
CW - CALWATER
SCE - SOUTHERN CALIFORNIA EDISON
SCG - SOUTHERN CALIFORNIA GAS
CNTL - CENTURY LINK

RIGGIN AVE. STA: 10+00 – 21+00

EXISTING UTILITY LINE LEGEND

Line	Description
(E) AT&T UG	ATT UNDERGROUND
(E) COMCAST UG	COM UNDERGROUND
(E) W	CW
(E) E OH	SCE OVERHEAD
(E) E&C OH	SCE AND COM OVERHEAD
(E) E,T&C OH	SCE, ATT AND COM OVERHEAD
(E) GAS	SCG



RIGGIN AVE. STA: 21+00 – 33+00

NO. DATE DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER
KYLE J. McDONALD
NO. 82531
EXP. 09/30/22
CIVIL
STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

DRW BY: MH
CHK BY: KM

VISALIA
Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
UTILITY & POTHOLING PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM
DRAWN BY:MH
SCALE: AS SHOWN
SHEET 7 OF 61

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

WATER KEYNOTES (THIS SHEET ONLY)

1 XXX.

UTILITY CONFLICT KEYNOTES (THIS SHEET ONLY)

U1 XXX.

POTHOLING KEYNOTES (THIS SHEET ONLY)

P1 XXX.

LEGEND

- EXIST. ASPHALT CONCRETE
- PROPOSED ASPHALT CONCRETE
- PROPOSED CONCRETE
- DETECTABLE WARNING SURFACE
- MEDIAN STAMPED CONCRETE
- PROPOSED STREET LIGHTING SINGLE HEAD

P XXX.XX = PROPOSED PAVEMENT ELEVATION

P (XXX.XX) = EXISTING PAVEMENT ELEVATION

- PROPOSED STORM OR SEWER MANHOLE TYP.
- PROPOSED STREET LIGHT PULL BOX
- EXIST. POWER POLE
- EXIST. UTILITY POLE

GENERAL UTILITY NOTES:

1. THE UTILITY INFORMATION SHOWN ON THESE PLANS IS BASED ON UTILITY PLATS RECEIVED FROM THE UTILITY COMPANIES, ABOVE GROUND IMPROVEMENTS IDENTIFIED DURING THE TOPOGRAPHIC SURVEY STAGE, USA MARKINGS PROVIDED DURING PRELIMINARY POTHOLING, AND SOME PRELIMINARY POTHOLING INFORMATION. IT SHALL BE THE RESPONSIBILITY OF EACH UTILITY COMPANY TO REVIEW THIS DRAWING AND VERIFY THAT THE LOCATIONS OF THEIR UTILITIES ARE ACCURATELY SHOWN AND CALLED OUT. NOTIFY THE CITY'S CONSULTANT WITH ANY CORRECTIONS AS SOON AS POSSIBLE.
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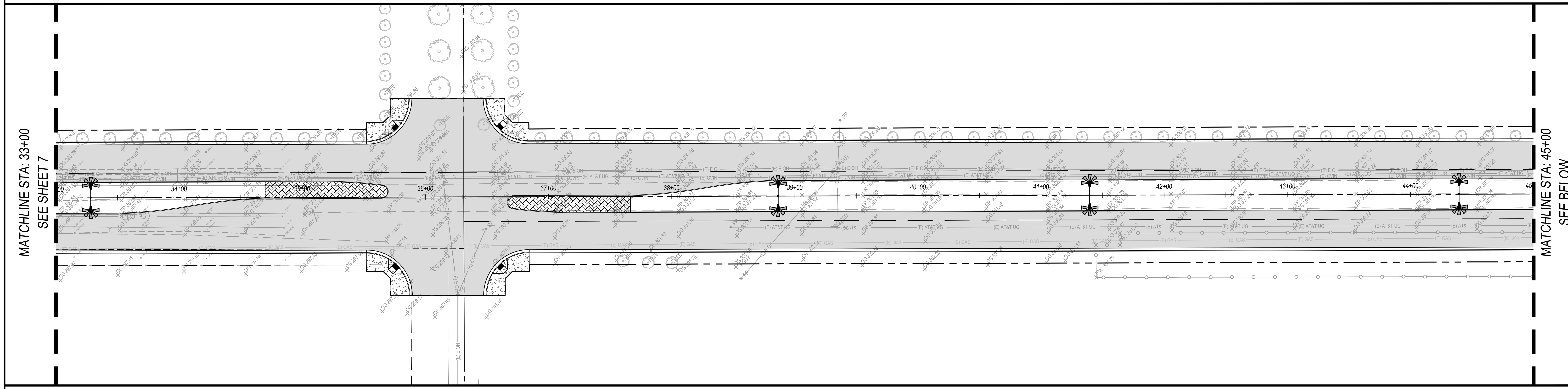

UTILITY ABBREVIATION LEGEND

DTT - DEPTH TO TOP
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COM - COMCAST
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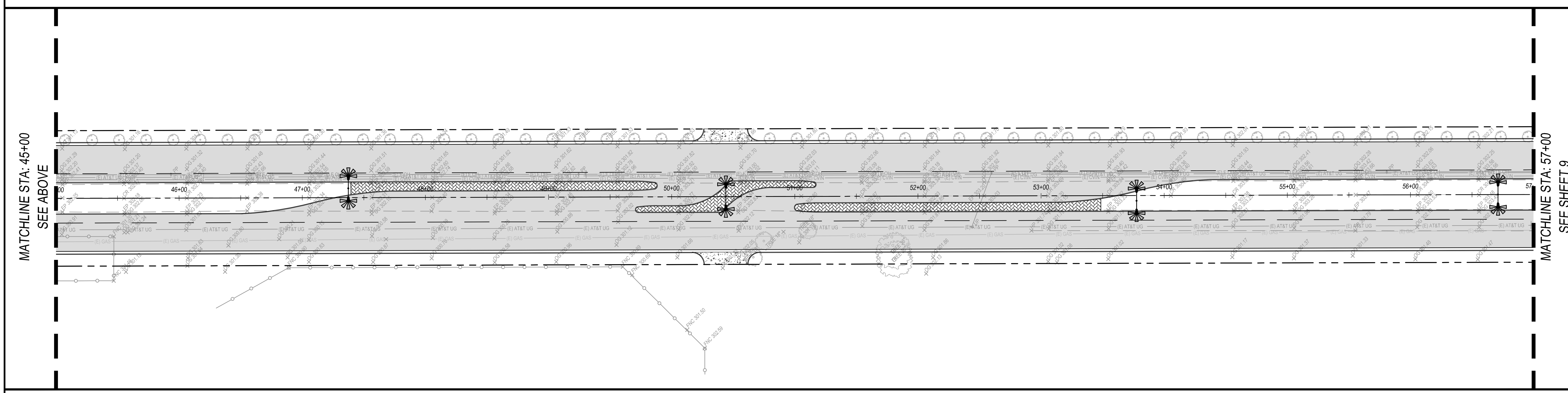
SCG - SOUTHERN CALIFORNIA GAS
CNTL - CENTURY LINK

RIGGIN AVE. STA: 33+00 – 45+00

EXISTING UTILITY LINE LEGEND

(E) AT&T UG	ATT UNDERGROUND
(E) COMCAST UG	COM UNDERGROUND
(E) W	CW
(E) E OH	SCE OVERHEAD
(E) E&C OH	SCE AND COM OVERHEAD
(E) E,T&C OH	SCE, ATT AND COM OVERHEAD
(E) GAS	SCG



RIGGIN AVE. STA: 45+00 – 57+00

PREPARED BY:

4CREEKS

324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

NO. DATE DESCRIPTION

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
UTILITY & POTHOLING PLAN

PROJ. NO. 20205
DATE: 3/8/2021
DESIGN BY: KM DRAWN BY: MH
SCALE: AS SHOWN
SHEET 8 OF 61

Know what's **below.** **Call** before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

WATER KEYNOTES (THIS SHEET ONLY)

1 XXX.

UTILITY CONFLICT KEYNOTES (THIS SHEET ONLY)

U1 XXX.

POTHOLING KEYNOTES (THIS SHEET ONLY)

P1 XXX.

LEGEND

- EXIST. ASPHALT CONCRETE
- PROPOSED ASPHALT CONCRETE
- PROPOSED CONCRETE
- DETECTABLE WARNING SURFACE
- MEDIAN STAMPED CONCRETE
- PROPOSED STREET LIGHTING SINGLE HEAD

P XXX.XX = PROPOSED PAVEMENT ELEVATION

P (XXX.XX) = EXISTING PAVEMENT ELEVATION

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- PROPOSED STREET LIGHT PULL BOX
- EXIST. POWER POLE
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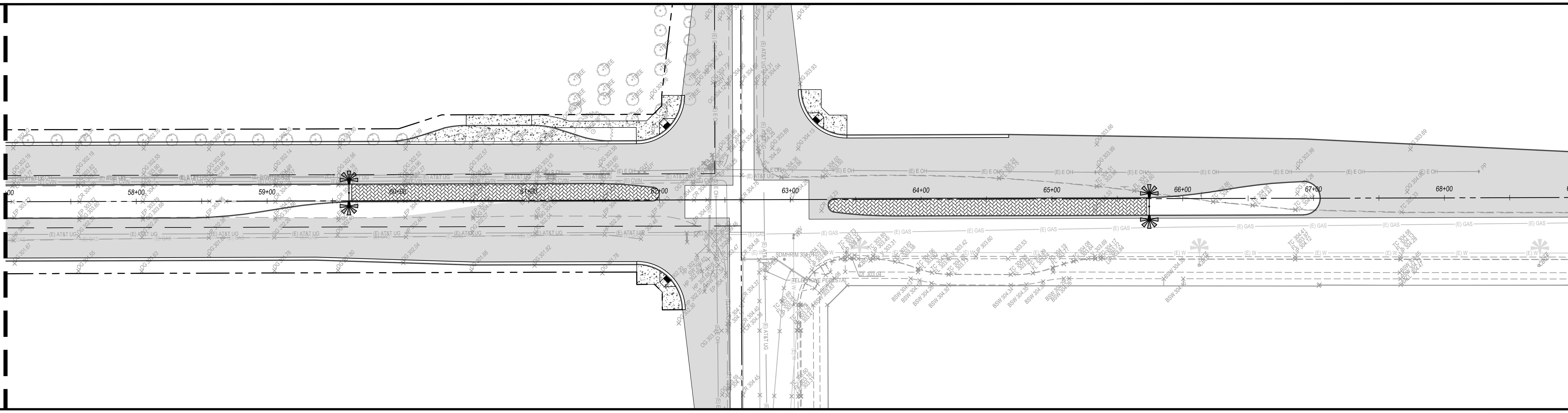

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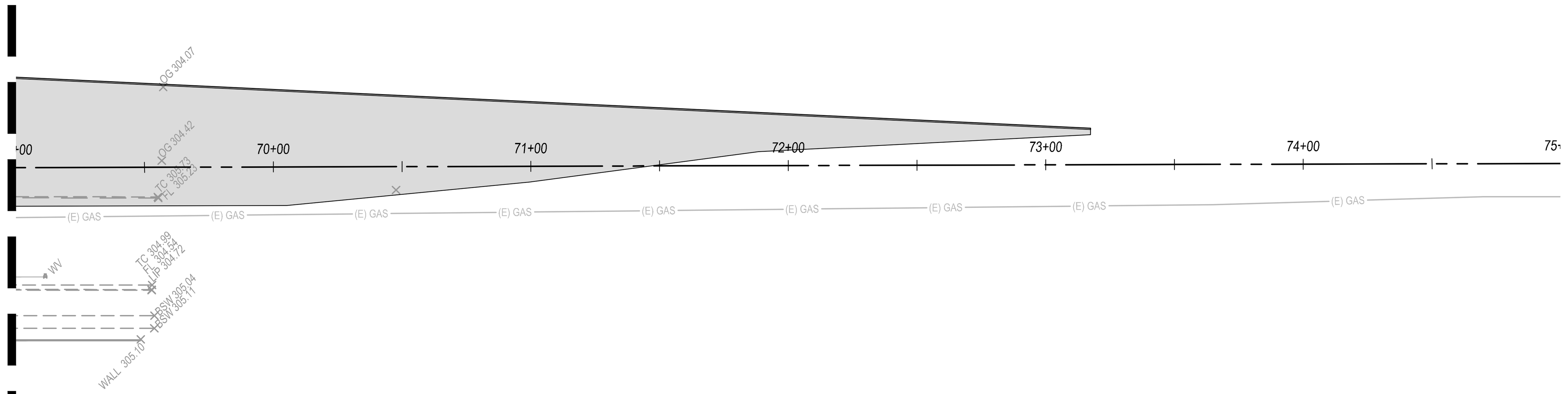
RIGGIN AVE. STA: 57+00 – END

EXISTING UTILITY LINE LEGEND

(E) AT&T UG	ATT UNDERGROUND	(E) E&C OH	SCE AND COM OVERHEAD
(E) COMCAST UG	COM UNDERGROUND	(E) E,T&C OH	SCE, ATT AND COM OVERHEAD
(E) W	CW	(E) GAS	SCG
(E) E OH	SCE OVERHEAD		



RIGGIN AVE. STA: 69+00 – END

NO. DATE DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER KYLE J. McDONALD NO. 82531 EXP. 09/30/22 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

PREPARED BY:
4CREEKS
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DRW BY: MH
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VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
UTILITY & POTHOLING PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 9 OF 61

Know what's **below.**
Call before you dig.

811

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

WATER KEYNOTES (THIS SHEET ONLY)

1 XXX.

UTILITY CONFLICT KEYNOTES (THIS SHEET ONLY)

U1 XXX.

POTHOLING KEYNOTES (THIS SHEET ONLY)

P1 XXX.

LEGEND

- EXIST. ASPHALT CONCRETE
- PROPOSED ASPHALT CONCRETE
- PROPOSED CONCRETE
- DETECTABLE WARNING SURFACE
- MEDIAN STAMPED CONCRETE
- PROPOSED STREET LIGHTING SINGLE HEAD
- P XXX.XX = PROPOSED PAVEMENT ELEVATION
- P (XXX.XX) = EXISTING PAVEMENT ELEVATION
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- EXIST. POWER POLE
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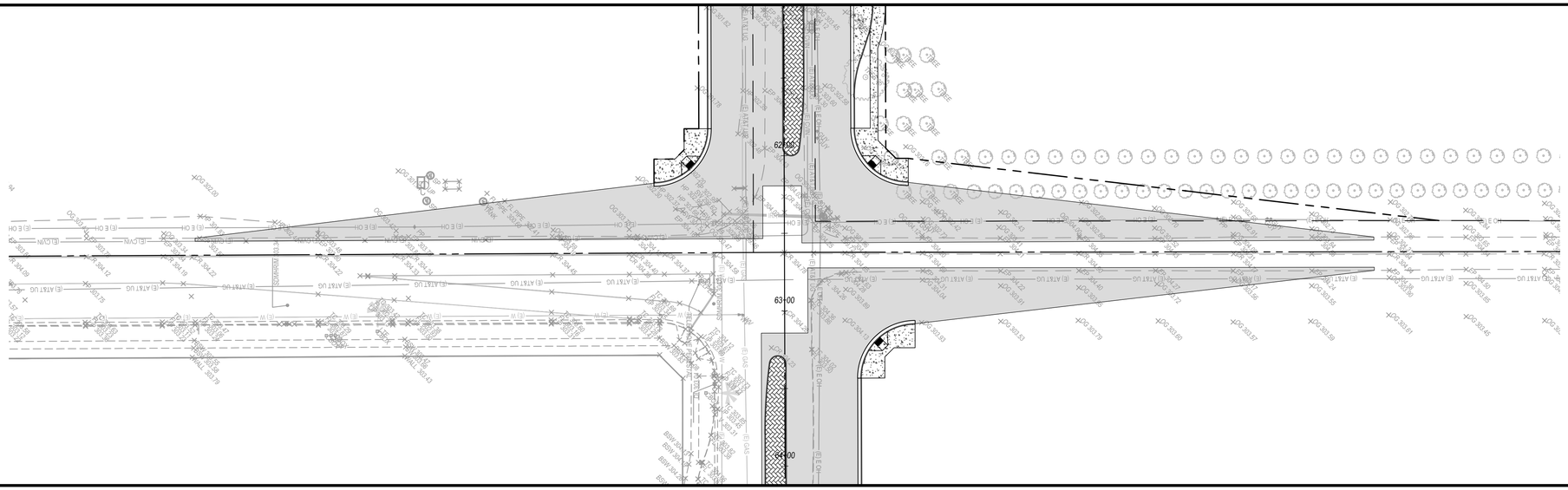


UTILITY ABBREVIATION LEGEND

DTT - DEPTH TO TOP
ATT - AT&T INC.
COM - COMCAST
CW - CALWATER
SCE - SOUTHERN CALIFORNIA EDISON
SCG - SOUTHERN CALIFORNIA GAS
CNTL - CENTURY LINK

SHIRK RD. STA: 5+00 – 15+00

EXISTING UTILITY LINE LEGEND

(E) AT&T UG	ATT UNDERGROUND	(E) E&C OH	SCE AND COM OVERHEAD
(E) COMCAST UG	COM UNDERGROUND	(E) E,T&C OH	SCE, ATT AND COM OVERHEAD
(E) W	CW	(E) GAS	SCG
(E) E OH	SCE OVERHEAD		

NO.	DATE	DESCRIPTION

324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

PREPARED BY: 4CREEKS | DRW BY: MH | CHK BY: KM

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE WIDENING & IMPROVEMENTS

UTILITY & POTHOLING PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 10 OF 61

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH
40' 0' 40'

2'
0'
VERTICAL SCALE

GENERAL CONSTRUCTION NOTES:

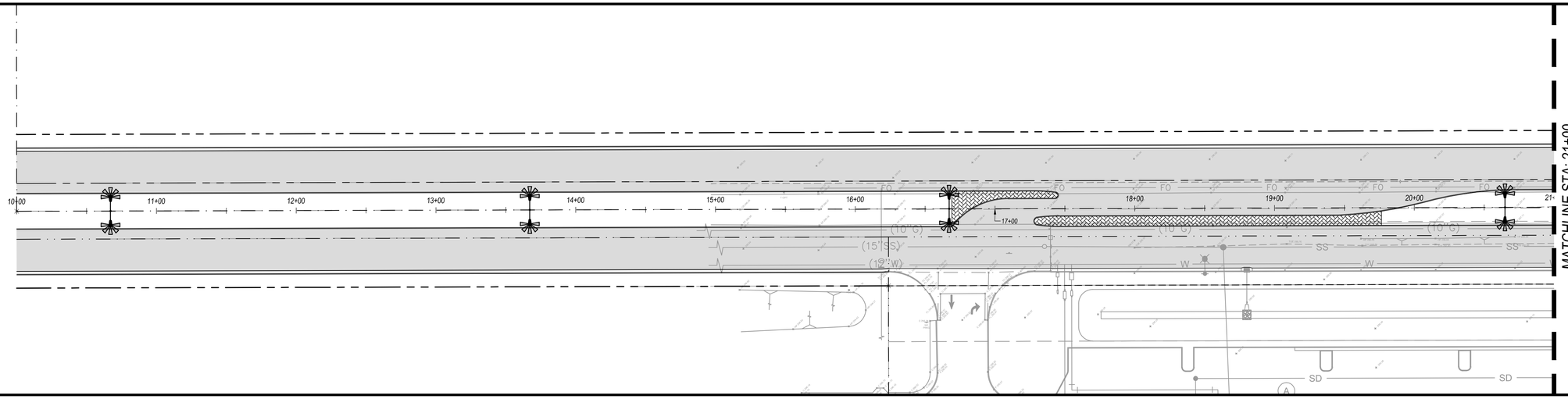
1. *ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.*
2. *ALL NEW CONCRETE IMPROVEMENTS SHALL BE DOWELED INTO EXIST. CONCRETE IMPROVEMENTS PER CITY STD. C-34, SHEET 29.*
3. *SEE SEWER & WATER PLANS FOR ADDITIONAL INFORMATION.*

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

1 *XXX*

LEGEND

- *DETAIL REFERENCE*
- *EXIST. ASPHALT CONCRETE*
- *EXIST. CONCRETE*
- *PROPOSED CONCRETE*
- *PROPOSED ASPHALT CONCRETE*
- *STAMPED MEDIAN (C-35)*



RIGGIN AVE. STA: 10+00 – 21+00

308 306 304 302 300 298 296 294 292 290

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00

NO.	DATE	DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7293
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IMPROVEMENT PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 11 OF 61

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

2' 0' VERTICAL SCALE

GENERAL CONSTRUCTION NOTES:

1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
2. ALL NEW CONCRETE IMPROVEMENTS SHALL BE DOWELED INTO EXIST. CONCRETE IMPROVEMENTS PER CITY STD. C-34, SHEET 29.
3. SEE SEWER & WATER PLANS FOR ADDITIONAL INFORMATION.

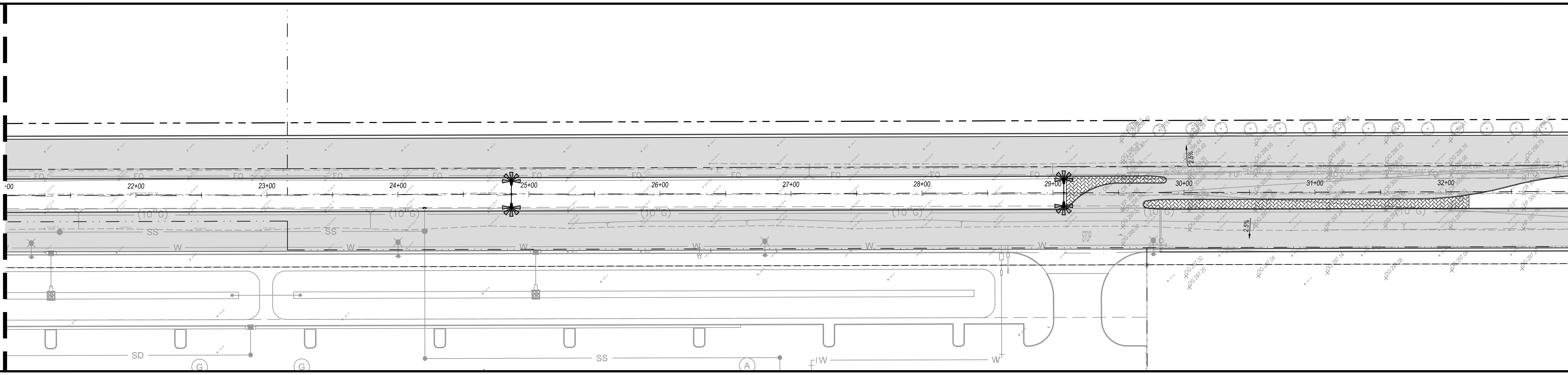
CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

1 XXX

LEGEND

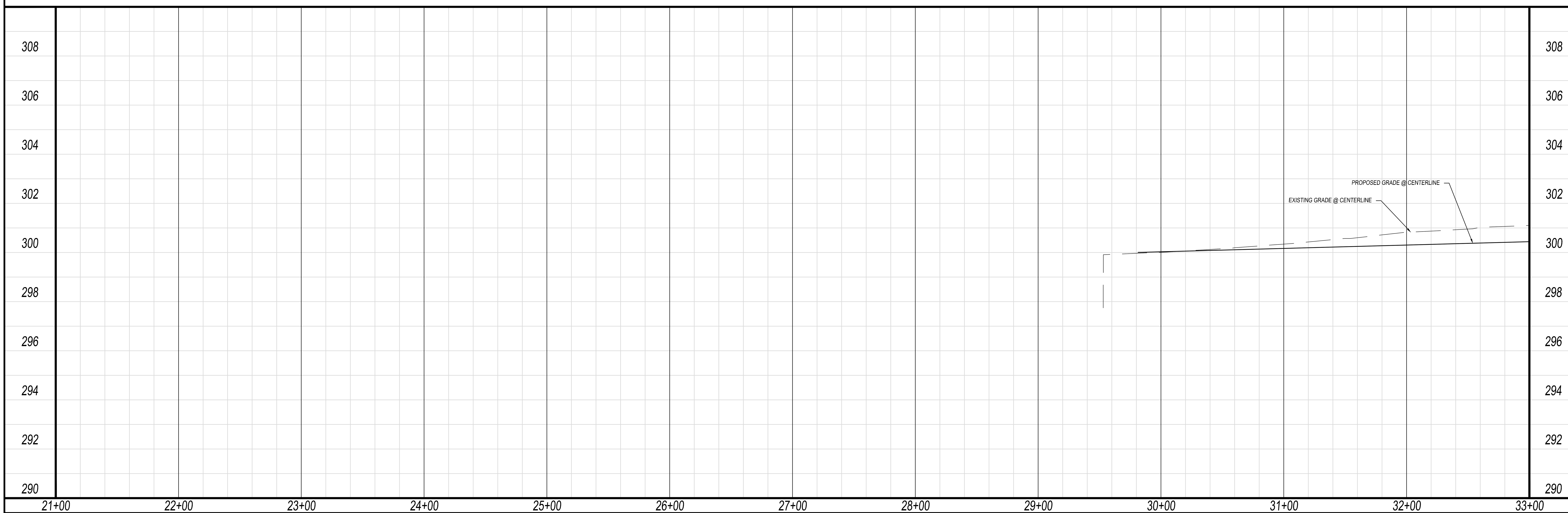
— — —	DETAIL REFERENCE
(hatch)	EXIST. ASPHALT CONCRETE
(stipple)	EXIST. CONCRETE
(stipple)	PROPOSED CONCRETE
(shaded)	PROPOSED ASPHALT CONCRETE
(cross-hatch)	STAMPED MEDIAN (C-35)

MATCHLINE STA: 21+00 SEE SHEET 11



MATCHLINE STA: 33+00 SEE SHEET 13

RIGGIN AVE. STA: 21+00 – 33+00



REGISTERED PROFESSIONAL ENGINEER KYLE J. McDONALD NO. 82531 Exp. 09/30/22 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IMROVEMENT PLAN

NO. | DATE | DESCRIPTION

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 12 OF 61

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH
40' 0' 40'

2'
0'
VERTICAL SCALE

GENERAL CONSTRUCTION NOTES:

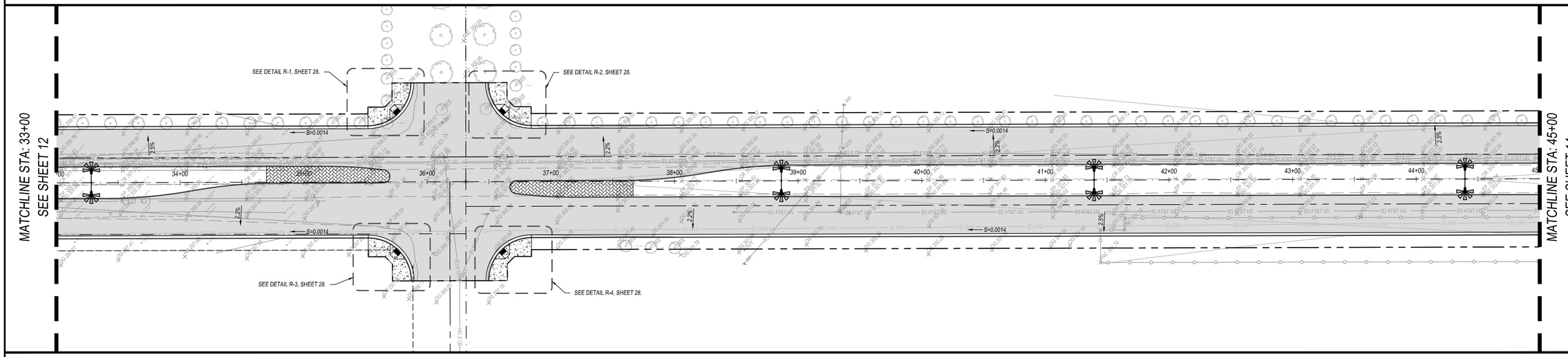
1. *ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.*
2. *ALL NEW CONCRETE IMPROVEMENTS SHALL BE DOWELED INTO EXIST. CONCRETE IMPROVEMENTS PER CITY STD. C-34, SHEET 29.*
3. *SEE SEWER & WATER PLANS FOR ADDITIONAL INFORMATION.*

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

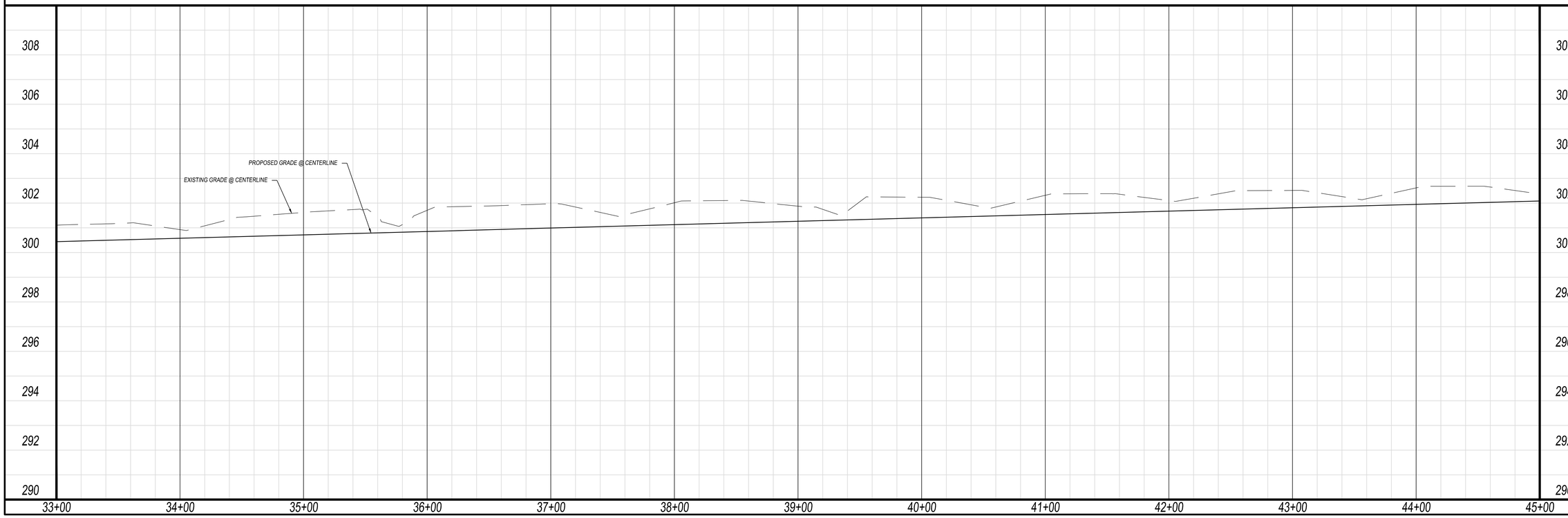
1 *XXX*

LEGEND

- *DETAIL REFERENCE*
- *EXIST. ASPHALT CONCRETE*
- *EXIST. CONCRETE*
- *PROPOSED CONCRETE*
- *PROPOSED ASPHALT CONCRETE*
- *STAMPED MEDIAN (C-35)*



RIGGIN AVE. STA: 33+00 – 45+00



NO.	DATE	DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IMROVEMENT PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 13 OF 61

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH
40' 0' 40'

2'
0'
VERTICAL SCALE

GENERAL CONSTRUCTION NOTES:

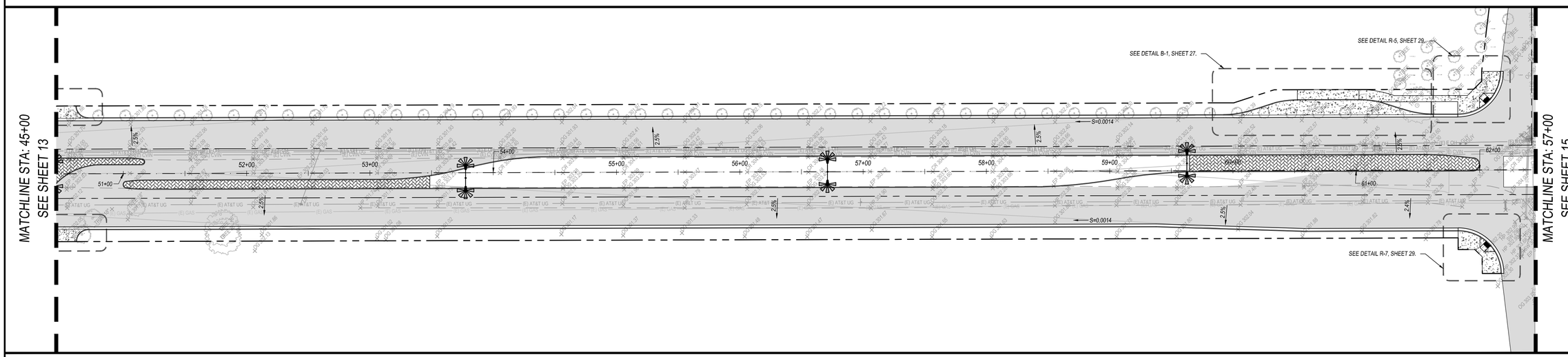
1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
2. ALL NEW CONCRETE IMPROVEMENTS SHALL BE DOWELED INTO EXIST. CONCRETE IMPROVEMENTS PER CITY STD. C-34, SHEET 29.
3. SEE SEWER & WATER PLANS FOR ADDITIONAL INFORMATION.

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

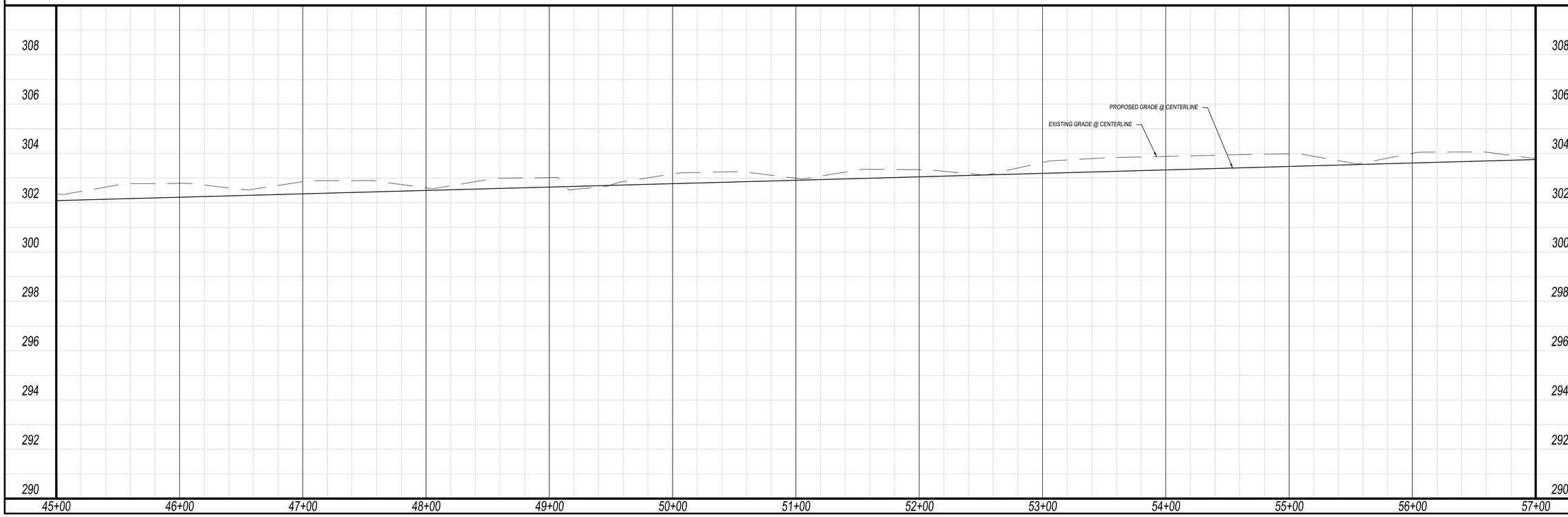
1 XXX

LEGEND

- DETAIL REFERENCE
- EXIST. ASPHALT CONCRETE
- EXIST. CONCRETE
- PROPOSED CONCRETE
- PROPOSED ASPHALT CONCRETE
- STAMPED MEDIAN (C-35)



RIGGIN AVE. STA: 45+00 – 57+00



NO.	DATE	DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7293
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IMROVEMENT PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 14 OF 61

811 Know what's **below.** **Call** before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

2' 0' VERTICAL SCALE

GENERAL CONSTRUCTION NOTES:

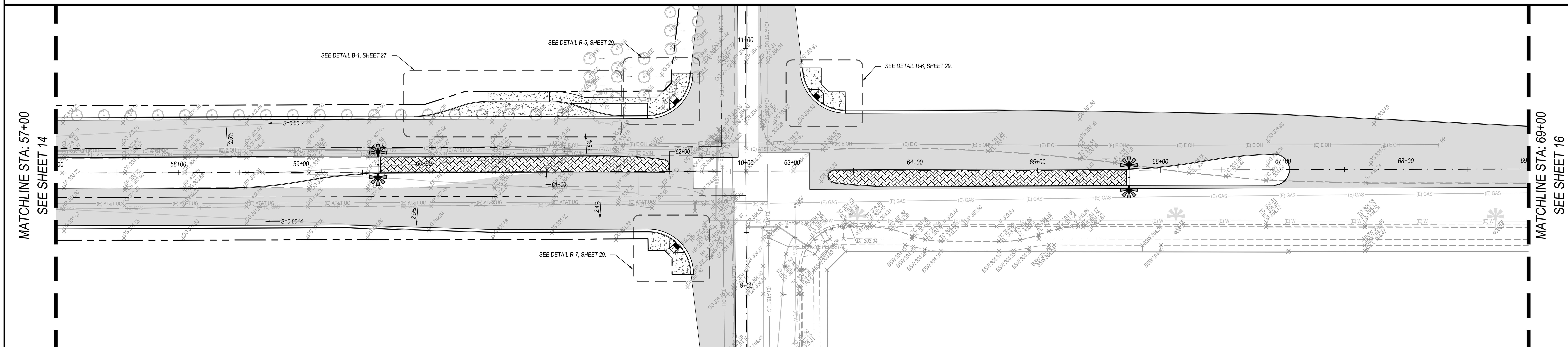
1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
2. ALL NEW CONCRETE IMPROVEMENTS SHALL BE DOWELED INTO EXIST. CONCRETE IMPROVEMENTS PER CITY STD. C-34, SHEET 29.
3. SEE SEWER & WATER PLANS FOR ADDITIONAL INFORMATION.

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

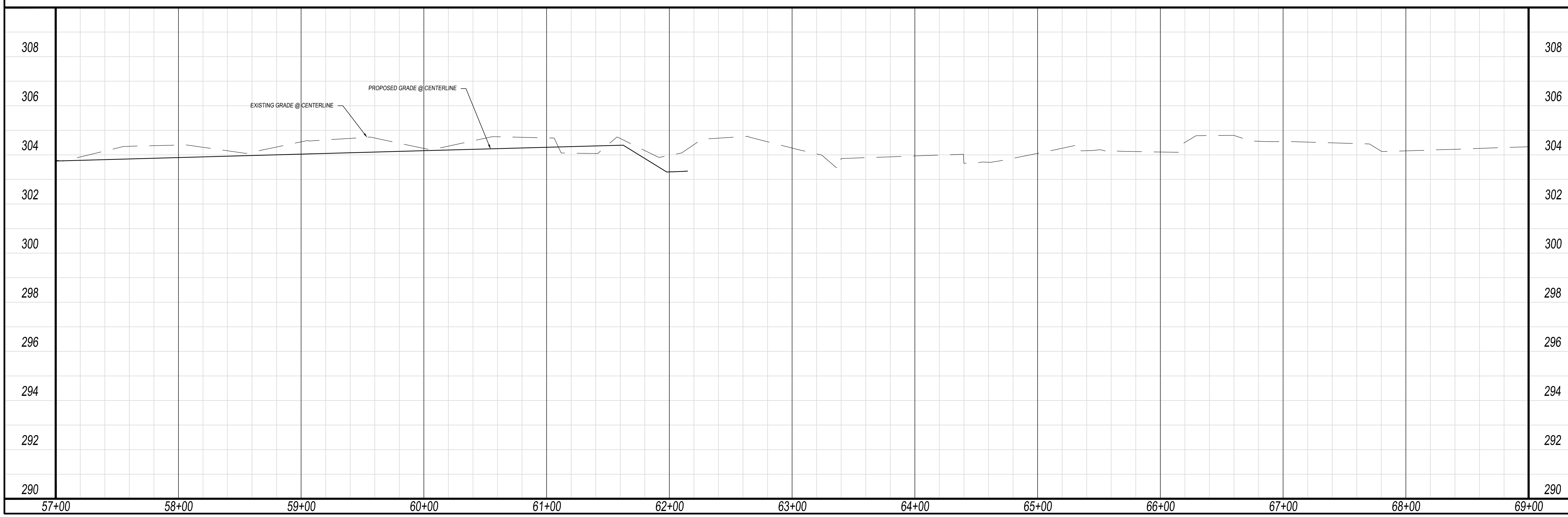
1 XXX

LEGEND

- DETAIL REFERENCE
- EXIST. ASPHALT CONCRETE
- EXIST. CONCRETE
- PROPOSED CONCRETE
- PROPOSED ASPHALT CONCRETE
- STAMPED MEDIAN (C-35)



RIGGIN AVE. STA: 57+00 – END



NO. DATE DESCRIPTION

PREPARED BY: 4CREEKS
324 S. SANTA FE, STE A
P.O. BOX 7593
VISALIA, CA 93292
TEL 559.802.3052
FAX 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IMROVEMENT PLAN

PROJ. NO. 20205
DATE: 3/8/2021
DESIGN BY: KM DRAWN BY: MH
SCALE: AS SHOWN
SHEET 15 OF 61

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

2' 0' VERTICAL SCALE

GENERAL CONSTRUCTION NOTES:

1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
2. ALL NEW CONCRETE IMPROVEMENTS SHALL BE DOWELED INTO EXIST. CONCRETE IMPROVEMENTS PER CITY STD. C-34, SHEET 29.
3. SEE SEWER & WATER PLANS FOR ADDITIONAL INFORMATION.

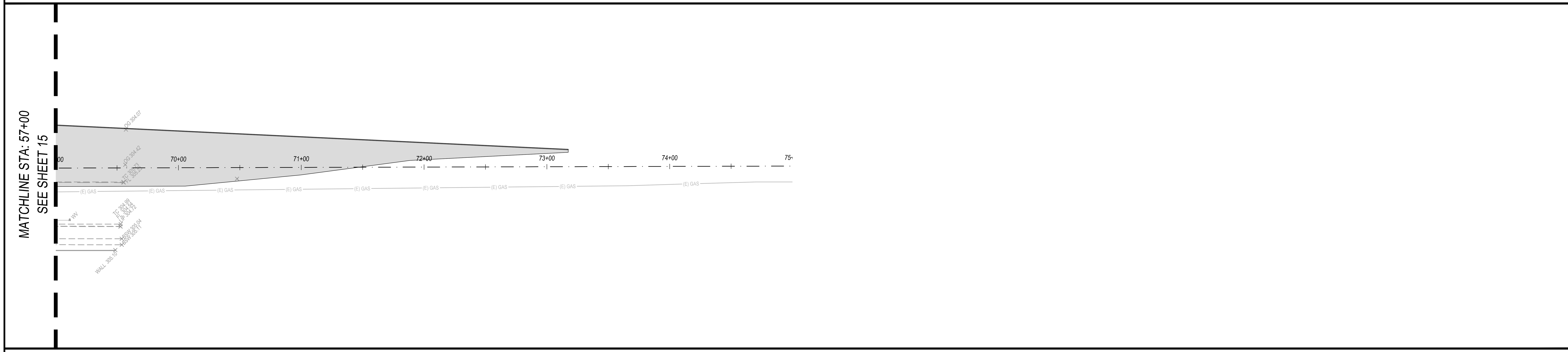
CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

1 XXX

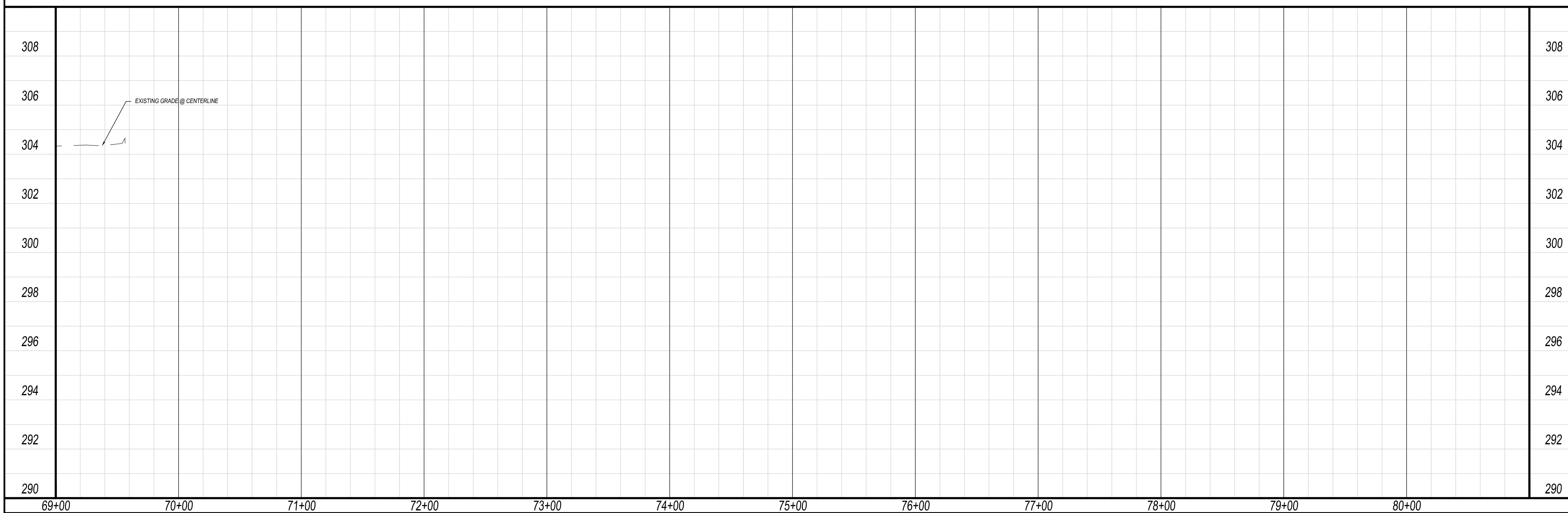
LEGEND

— — —	DETAIL REFERENCE
	EXIST. ASPHALT CONCRETE
	EXIST. CONCRETE
	PROPOSED CONCRETE
	PROPOSED ASPHALT CONCRETE
	STAMPED MEDIAN (C-35)

NO. DATE DESCRIPTION



RIGGIN AVE. STA: 69+00 – END



PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
DRW BY: MH
CHK BY: KM

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IMROVEMENT PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN

Know what's **below.** **Call** before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

2' 0' VERTICAL SCALE

GENERAL CONSTRUCTION NOTES:

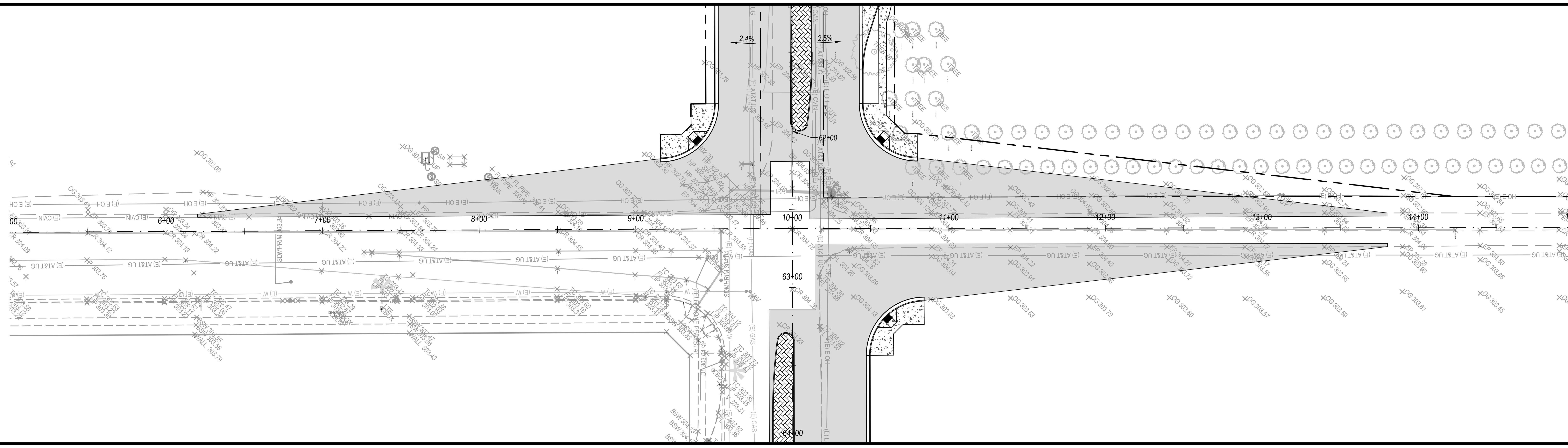
1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
2. ALL NEW CONCRETE IMPROVEMENTS SHALL BE DOWELED INTO EXIST. CONCRETE IMPROVEMENTS PER CITY STD. C-34, SHEET 29.
3. SEE SEWER & WATER PLANS FOR ADDITIONAL INFORMATION.

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

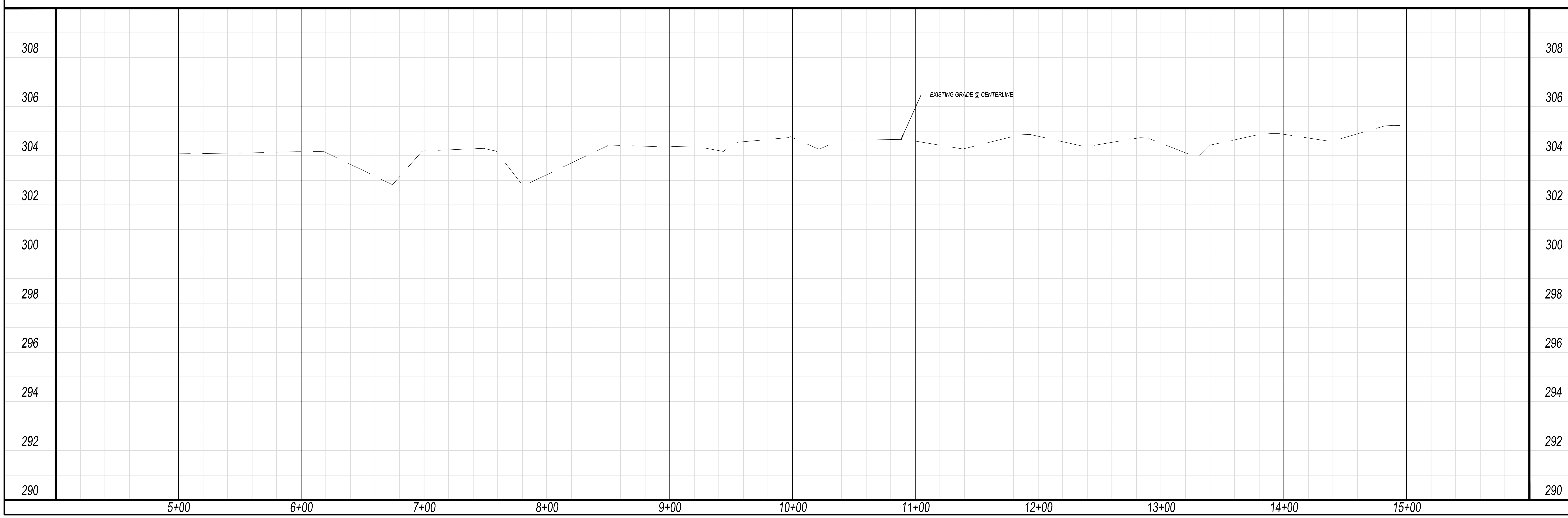
1 XXX

LEGEND

— — —	DETAIL REFERENCE
	EXIST. ASPHALT CONCRETE
	EXIST. CONCRETE
	PROPOSED CONCRETE
	PROPOSED ASPHALT CONCRETE
	STAMPED MEDIAN (C-35)



SHIRK RD. STA: 5+00 - 15+00



NO. DATE DESCRIPTION

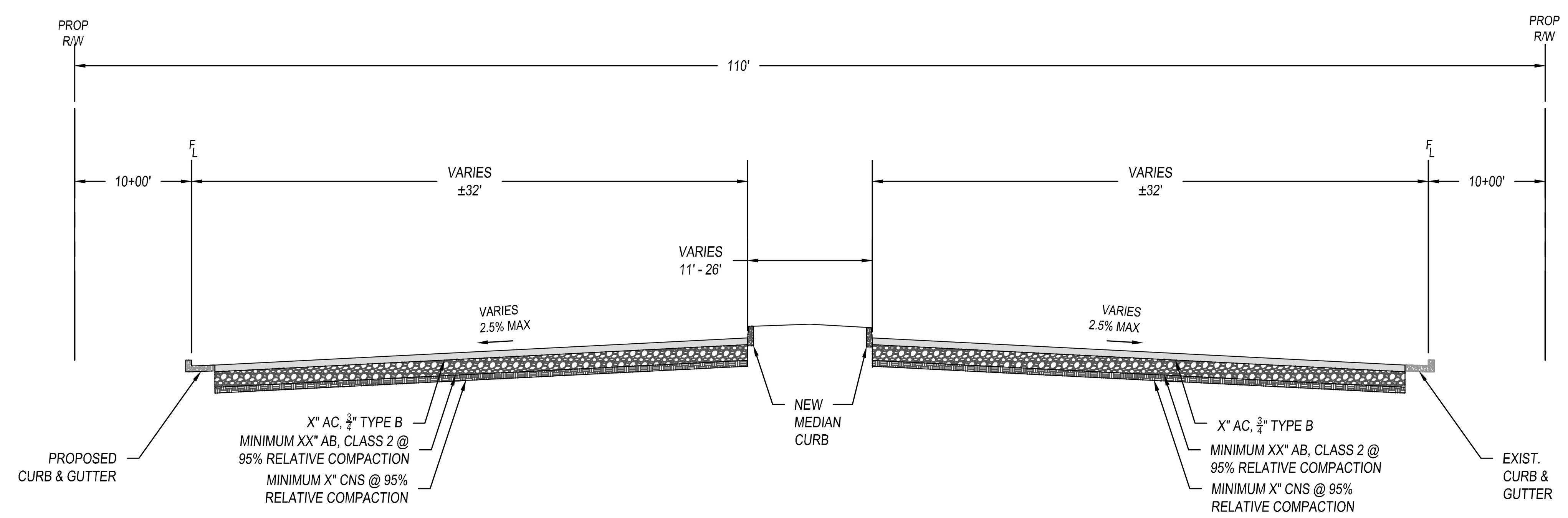
PREPARED BY:
4CREEKS
324 S. SANTA FE, STE A
P.O. BOX 7593
VISALIA, CA 93292
TEL 559.802.3052
FAX 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IMROVEMENT PLAN

PROJ. NO. 20205
DATE: 3/8/2021
DESIGN BY: KM DRAWN BY: MH
SCALE: AS SHOWN
SHEET 17 OF 61



RIGGIN AVENUE
STA. 10+00 - END
(LOOKING EAST)

NOTES:

1. ASPHALT CONCRETE SHALL BE TYPE A, WITH $\frac{3}{4}$" AGGREGATE GRADATION AND PG 64-10 LIQUID ASPHALT BINDER PER CITY OF VISALIA STANDARD SPECIFICATIONS.
2. TACK COAT IS REQUIRED AND SHALL BE APPLIED PER CITY STANDARD SPECIFICATIONS.
3. ASPHALT CONCRETE REQUIREMENTS SHALL BE AS STATED IN THE CITY OF VISALIA STANDARD SPECIFICATIONS.
4. ASPHALT CONCRETE SHALL BE PLACED ONLY WHEN THE ATMOSPHERIC TEMPERATURE IS 50° F AND RISING.

NO. | DATE | DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
CROSS SECTIONS

PROJ. NO. 20205
DATE: 3/8/2021
DESIGN BY: KM | DRAWN BY: MH
SCALE: AS SHOWN
SHEET 18 OF 61

Know what's **below.**
Call before you dig.

811

WARNING
POWER LINES OVERHEAD

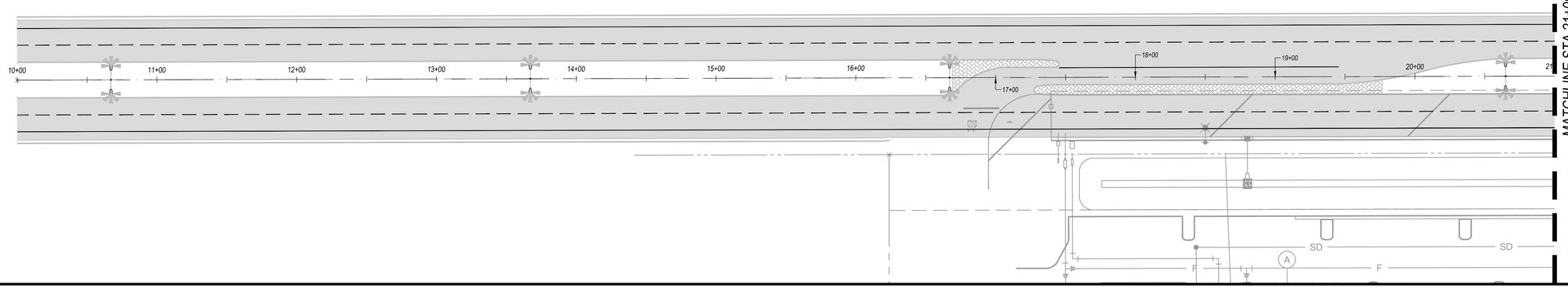
NORTH
40' 0' 40'

SINGING, STRIPING & PAVEMENT MARKING INSTALLATIONS QUANTITIES (THIS SHEET ONLY)

ROAD	ROADSIDE SIGNS						ROADWAY MARKING QUANTITIES				ROADWAY STRIPING QUANTITIES		
	CODE(S)	PANEL SIZE	SIGN MESSAGE	BACKGROUND COLOR	LEGEND COLOR(S)	No.	DESCRIPTION	NUMBER OF UNITS	AREA PER UNIT (FT^2)	TOTAL AREA (FT^2)	DETAIL NUMBER	DESCRIPTION	TOTAL LENGTH (LINEAR FEET)
RIGGIN AVE.													
TOTALS													

SIGNING AND STRIPING NOTES:

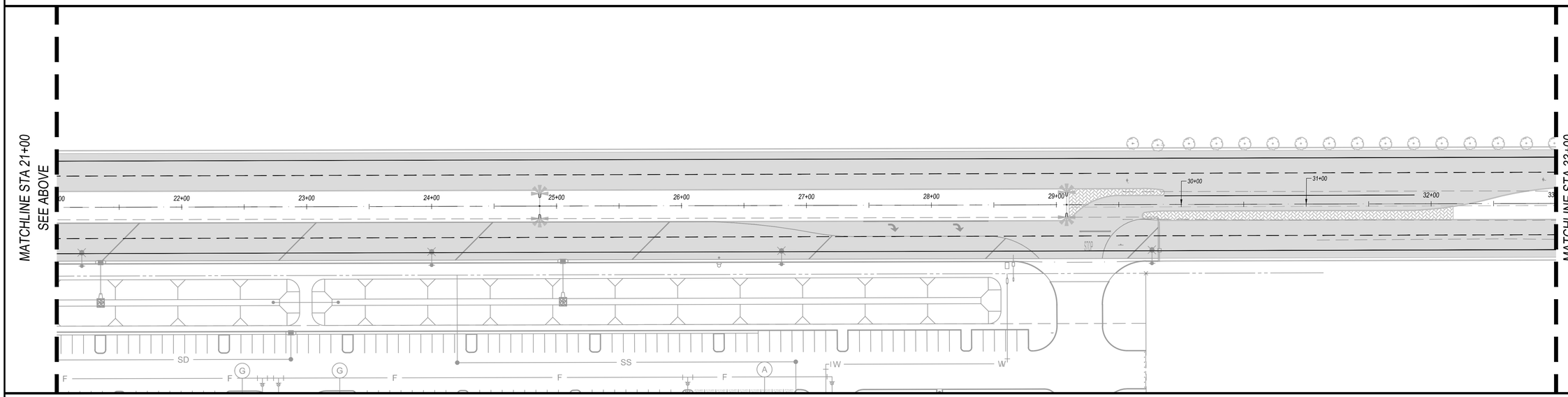
1. *ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS, SIGN SPECIFICATION SHEETS, THE 2014 CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (2014 CALIFORNIA MUTCD, LATEST EDITION), THE LATEST EDITION OF THE CITY OF VISALIA STANDARD SPECIFICATION AND DRAWINGS, AND THE SPECIAL PROVISIONS.*
2. *THESE PLANS ARE ACCURATE FOR STRIPING ONLY.*
3. *ALL EXISTING PAVEMENT DELINEATION IN CONFLICT WITH PROPOSED PAVEMENT DELINEATION SHALL BE REMOVED BY WET SANDBLASTING OR OTHER APPROVED METHODS WHICH WILL CAUSE THE LEAST POSSIBLE DAMAGE TO THE PAVEMENT.*
4. *THE CONTRACTOR IS RESPONSIBLE TO RECORD AND DOCUMENT AS NECESSARY EXISTING STRIPING, PAVEMENT MARKERS AND MARKINGS AND BLUE DOT MARKERS FOR FIRE HYDRANTS IN ORDER TO REPLACE THE STRIPING, PAVEMENT MARKERS AND MARKINGS PER CURRENT STANDARDS.*
5. *PERMANENT STRIPING, PAVEMENT MARKINGS, AND PAVEMENT MARKERS SHALL BE INSTALLED 7 DAYS AFTER NEW HMA IS PLACED.*
6. *ALL EXISTING SIGNS SHALL BE PROTECTED IN PLACE UNLESS NOTED OTHERWISE ON THE PLANS.*
7. *ALL NEW OR RELOCATED STREET SIGNS SHALL HAVE CONCRETE FOOTINGS AS SHOWN ON CITY STD. TS-1.*
8. *SIGNS TO BE INSTALLED ON STREET LIGHT POLES WHENEVER POSSIBLE.*
9. *ALL SIGNS THAT ARE TO BE SALVAGED SHALL BE BROUGHT TO THE CITY OF VISALIA'S CORPORATE YARD.*



RIGGIN AVE. STA: 10+00 – 21+00

LEGEND & KEYNOTES

- (X) — *INSTALL DETAIL NO. PER STATE STANDARD PLANS*
- *XX LF* — *LENGTH INDICATED*
- (X) — *NO. INDICATES WIDTH OF LANE*
- *INSTALL TYPE IV (L) PAVEMENT MARKING*
- *INSTALL TYPE IV (R) PAVEMENT MARKING*
- *INSTALL TYPE VI PAVEMENT MARKING*
- *INSTALL SHARROW*
- *INSTALL "STOP" PAVEMENT MARKING*
- *INSTALL "ONLY" PAVEMENT MARKING*
- *FURNISH & INSTALL SIGN AND POST AT THIS LOCATION*



RIGGIN AVE. STA: 21+00 – 33+00

NO.	DATE	DESCRIPTION

324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM

PREPARED BY:
4CREEKS

DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
SIGNING, STRIPING & MARKING PLAN

PROJ. NO. 20205	
DATE:3/8/2021	
DESIGN BY: KM	DRAWN BY:MH
SCALE: AS SHOWN	
SHEET 19 OF 61	

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH
40' 0' 40'

SINGING, STRIPING & PAVEMENT MARKING INSTALLATIONS QUANTITIES (THIS SHEET ONLY)

ROAD	ROADSIDE SIGNS						ROADWAY MARKING QUANTITIES				ROADWAY STRIPING QUANTITIES		
	CODE(S)	PANEL SIZE	SIGN MESSAGE	BACKGROUND COLOR	LEGEND COLOR(S)	No.	DESCRIPTION	NUMBER OF UNITS	AREA PER UNIT (FT^2)	TOTAL AREA (FT^2)	DETAIL	DESCRIPTION	TOTAL LENGTH (LINEAR FEET)
RIGGIN AVE.													
TOTALS													

SIGNING AND STRIPING NOTES:

1. *ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS, SIGN SPECIFICATION SHEETS, THE 2014 CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (2014 CALIFORNIA MUTCD, LATEST EDITION), THE LATEST EDITION OF THE CITY OF VISALIA STANDARD SPECIFICATION AND DRAWINGS, AND THE SPECIAL PROVISIONS.*
2. *THESE PLANS ARE ACCURATE FOR STRIPING ONLY.*
3. *ALL EXISTING PAVEMENT DELINEATION IN CONFLICT WITH PROPOSED PAVEMENT DELINEATION SHALL BE REMOVED BY WET SANDBLASTING OR OTHER APPROVED METHODS WHICH WILL CAUSE THE LEAST POSSIBLE DAMAGE TO THE PAVEMENT.*
4. *THE CONTRACTOR IS RESPONSIBLE TO RECORD AND DOCUMENT AS NECESSARY EXISTING STRIPING, PAVEMENT MARKERS AND MARKINGS AND BLUE DOT MARKERS FOR FIRE HYDRANTS IN ORDER TO REPLACE THE STRIPING, PAVEMENT MARKERS AND MARKINGS PER CURRENT STANDARDS.*
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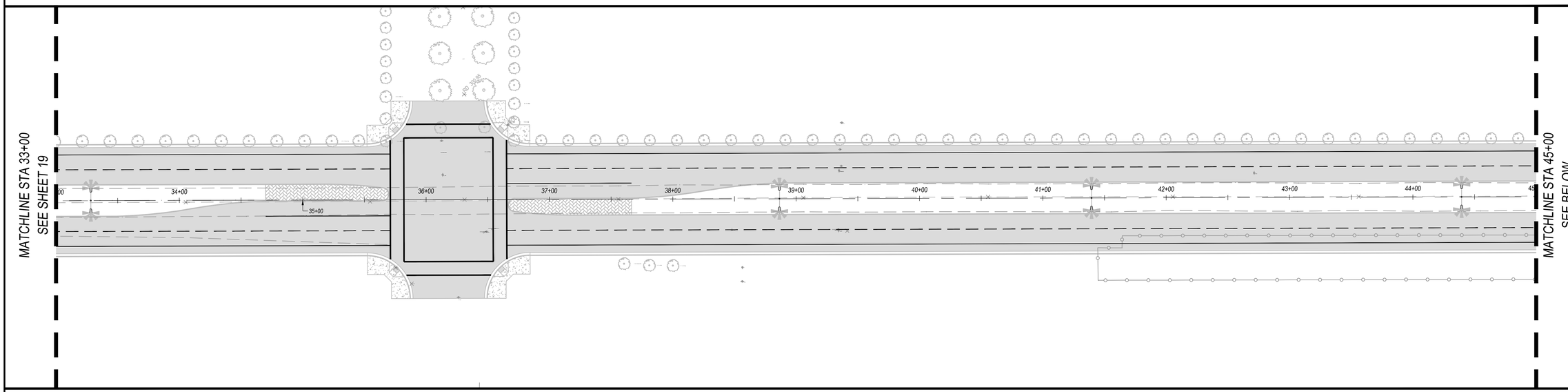
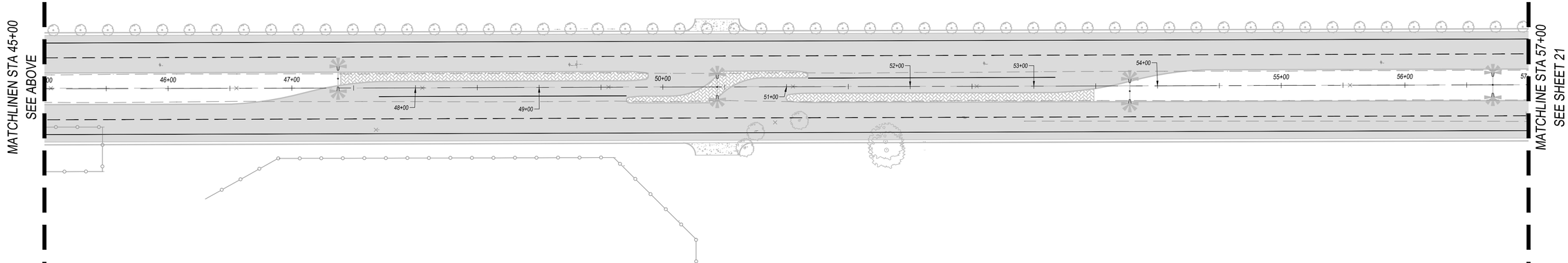
8. *SIGNS TO BE INSTALLED ON STREET LIGHT POLES WHENEVER POSSIBLE.*
9. *ALL SIGNS THAT ARE TO BE SALVAGED SHALL BE BROUGHT TO THE CITY OF VISALIA'S CORPORATE YARD.*



RIGGIN AVE. STA: 33+00 – 45+00

LEGEND & KEYNOTES

(X)	*INSTALL DETAIL NO. PER STATE STANDARD PLANS*
XX LF	*LENGTH INDICATED*
(X)	*NO. INDICATES WIDTH OF LANE*
	INSTALL TYPE IV (L) PAVEMENT MARKING
	INSTALL TYPE IV (R) PAVEMENT MARKING
	INSTALL TYPE VI PAVEMENT MARKING
	INSTALL SHARROW
STOP	*INSTALL "STOP" PAVEMENT MARKING*
ONLY	*INSTALL "ONLY" PAVEMENT MARKING*
	FURNISH & INSTALL SIGN AND POST AT THIS LOCATION



RIGGIN AVE. STA: 45+00 – 57+00

NO.	DATE	DESCRIPTION

PROFESSIONAL ENGINEER * REGISTERED * CIVIL * STATE OF CALIFORNIA

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
SIGNING, STRIPING & MARKING PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 20OF 61

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH
40' 0' 40'

SINGING, STRIPING & PAVEMENT MARKING INSTALLATIONS QUANTITIES (THIS SHEET ONLY)

ROAD	ROADSIDE SIGNS						ROADWAY MARKING QUANTITIES				ROADWAY STRIPING QUANTITIES		
	CODE(S)	PANEL SIZE	SIGN MESSAGE	BACKGROUND COLOR	LEGEND COLOR(S)	No.	DESCRIPTION	NUMBER OF UNITS	AREA PER UNIT (FT^2)	TOTAL AREA (FT^2)	DETAIL NUMBER	DESCRIPTION	TOTAL LENGTH (LINEAR FEET)
RIGGIN AVE.													
TOTALS													

SIGNING AND STRIPING NOTES:

1. *ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS, SIGN SPECIFICATION SHEETS, THE 2014 CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (2014 CALIFORNIA MUTCD, LATEST EDITION), THE LATEST EDITION OF THE CITY OF VISALIA STANDARD SPECIFICATION AND DRAWINGS, AND THE SPECIAL PROVISIONS.*
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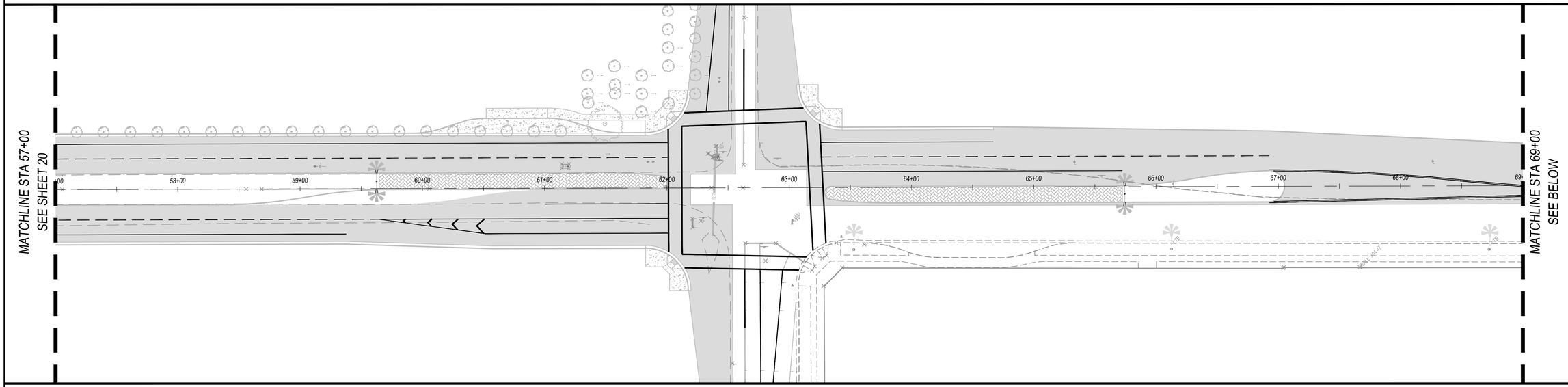
3. *ALL EXISTING PAVEMENT DELINEATION IN CONFLICT WITH PROPOSED PAVEMENT DELINEATION SHALL BE REMOVED BY WET SANDBLASTING OR OTHER APPROVED METHODS WHICH WILL CAUSE THE LEAST POSSIBLE DAMAGE TO THE PAVEMENT.*
4. *THE CONTRACTOR IS RESPONSIBLE TO RECORD AND DOCUMENT AS NECESSARY EXISTING STRIPING, PAVEMENT MARKERS AND MARKINGS AND BLUE DOT MARKERS FOR FIRE HYDRANTS IN ORDER TO REPLACE THE STRIPING, PAVEMENT MARKERS AND MARKINGS PER CURRENT STANDARDS.*
5. *PERMANENT STRIPING, PAVEMENT MARKINGS, AND PAVEMENT MARKERS SHALL BE INSTALLED 7 DAYS AFTER NEW HMA IS PLACED.*
6. *ALL EXISTING SIGNS SHALL BE PROTECTED IN PLACE UNLESS NOTED OTHERWISE ON THE PLANS.*
7. *ALL NEW OR RELOCATED STREET SIGNS SHALL HAVE CONCRETE FOOTINGS AS SHOWN ON CITY STD. TS-1.*
8. *SIGNS TO BE INSTALLED ON STREET LIGHT POLES WHENEVER POSSIBLE.*
9. *ALL SIGNS THAT ARE TO BE SALVAGED SHALL BE BROUGHT TO THE CITY OF VISALIA'S CORPORATE YARD.*

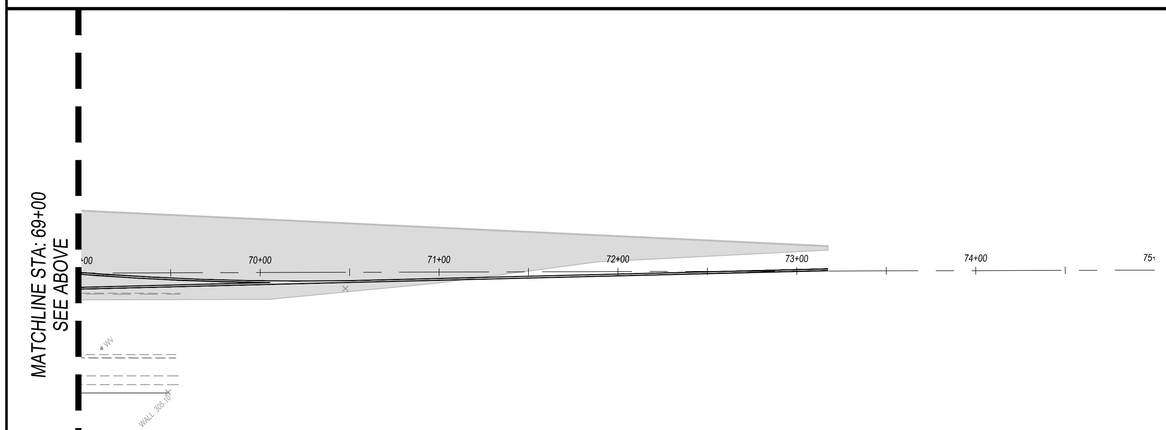


RIGGIN AVE. STA: 57+00 – END

LEGEND & KEYNOTES

(X)	*INSTALL DETAIL NO. PER STATE STANDARD PLANS*
XX LF	*LENGTH INDICATED*
(X)	*NO. INDICATES WIDTH OF LANE*

- *INSTALL TYPE IV (L) PAVEMENT MARKING*
- *INSTALL TYPE IV (R) PAVEMENT MARKING*
- *INSTALL TYPE VI PAVEMENT MARKING*
- *INSTALL SHARROW*
- *INSTALL "STOP" PAVEMENT MARKING*
- *INSTALL "ONLY" PAVEMENT MARKING*
- *FURNISH & INSTALL SIGN AND POST AT THIS LOCATION*



RIGGIN AVE. STA: 69+00 – END

NO.	DATE	DESCRIPTION

324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM

PREPARED BY: 4CREEKS

DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
SIGNING, STRIPING & MARKING PLAN

PROJ. NO. 20205	
DATE:3/8/2021	
DESIGN BY: KM	DRAWN BY:MH
SCALE: AS SHOWN	
SHEET 21 OF 61	

Know what's **below.**
Call before you dig.

811

WARNING
POWER LINES OVERHEAD

NORTH

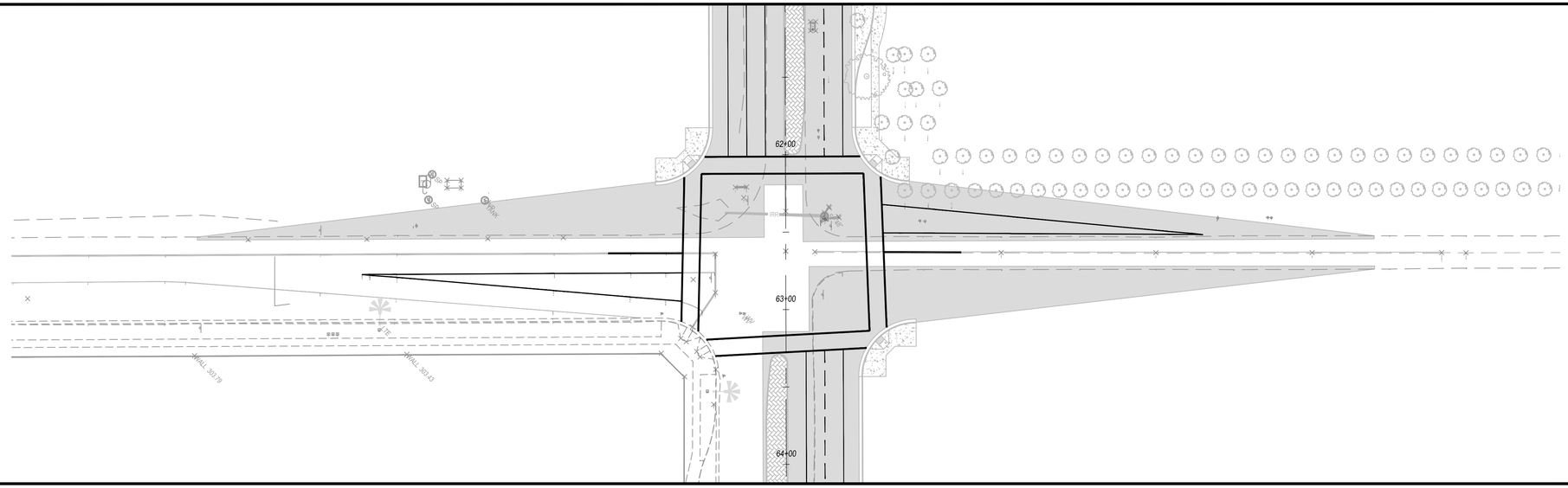
40' 0' 40'

SINGING, STRIPING & PAVEMENT MARKING INSTALLATIONS QUANTITIES (THIS SHEET ONLY)

ROAD	ROADSIDE SIGNS						ROADWAY MARKING QUANTITIES				ROADWAY STRIPING QUANTITIES		
	CODE(S)	PANEL SIZE	SIGN MESSAGE	BACKGROUND COLOR	LEGEND COLOR(S)	No.	DESCRIPTION	NUMBER OF UNITS	AREA PER UNIT (FT^2)	TOTAL AREA (FT^2)	DETAIL NUMBER	DESCRIPTION	TOTAL LENGTH (LINEAR FEET)
RIGGIN AVE.													
TOTALS													

SIGNING AND STRIPING NOTES:

1. *ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS, SIGN SPECIFICATION SHEETS, THE 2014 CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (2014 CALIFORNIA MUTCD, LATEST EDITION), THE LATEST EDITION OF THE CITY OF VISALIA STANDARD SPECIFICATION AND DRAWINGS, AND THE SPECIAL PROVISIONS.*
2. *THESE PLANS ARE ACCURATE FOR STRIPING ONLY.*
3. *ALL EXISTING PAVEMENT DELINEATION IN CONFLICT WITH PROPOSED PAVEMENT DELINEATION SHALL BE REMOVED BY WET SANDBLASTING OR OTHER APPROVED METHODS WHICH WILL CAUSE THE LEAST POSSIBLE DAMAGE TO THE PAVEMENT.*
4. *THE CONTRACTOR IS RESPONSIBLE TO RECORD AND DOCUMENT AS NECESSARY EXISTING STRIPING, PAVEMENT MARKERS AND MARKINGS AND BLUE DOT MARKERS FOR FIRE HYDRANTS IN ORDER TO REPLACE THE STRIPING, PAVEMENT MARKERS AND MARKINGS PER CURRENT STANDARDS.*
5. *PERMANENT STRIPING, PAVEMENT MARKINGS, AND PAVEMENT MARKERS SHALL BE INSTALLED 7 DAYS AFTER NEW HMA IS PLACED.*
6. *ALL EXISTING SIGNS SHALL BE PROTECTED IN PLACE UNLESS NOTED OTHERWISE ON THE PLANS.*
7. *ALL NEW OR RELOCATED STREET SIGNS SHALL HAVE CONCRETE FOOTINGS AS SHOWN ON CITY STD. TS-1.*
8. *SIGNS TO BE INSTALLED ON STREET LIGHT POLES WHENEVER POSSIBLE.*
9. *ALL SIGNS THAT ARE TO BE SALVAGED SHALL BE BROUGHT TO THE CITY OF VISALIA'S CORPORATE YARD.*



SHIRK RD. STA: 5+00 – 15+00

LEGEND & KEYNOTES

- (X) *INSTALL DETAIL NO. PER STATE STANDARD PLANS*
- *XX LF* *LENGTH INDICATED*
- (X) *NO. INDICATES WIDTH OF LANE*
- *INSTALL TYPE IV (L) PAVEMENT MARKING*
- *INSTALL TYPE IV (R) PAVEMENT MARKING*
- *INSTALL TYPE VI PAVEMENT MARKING*
- *INSTALL SHARROW*
- *INSTALL "STOP" PAVEMENT MARKING*
- *INSTALL "ONLY" PAVEMENT MARKING*
- *FURNISH & INSTALL SIGN AND POST AT THIS LOCATION*

NO.	DATE	DESCRIPTION

324 S. SANTA FE, STE A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM

PREPARED BY: 4CREEKS

DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
SIGNING, STRIPING & MARKING PLAN

PROJ. NO. 20205	
DATE:3/8/2021	
DESIGN BY: KM	DRAWN BY:MH
SCALE: AS SHOWN	
SHEET 22OF 61	

Know what's **below.** **Call** before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

STREET LIGHT FIXTURES

EX. SP1 - CIRCUIT 1

POLE # & PHASE	LUMEN	WATTS	VD% @ SL		POLE # & PHASE	LUMEN	WATTS	VD% @ SL
P1a	DBL 13400	DBL 133	1.64%		P2b	DBL 13400	DBL 133	2.83%
P3a	DBL 13400	DBL 133	3.64%		P4b	DBL 13400	DBL 133	4.01%

SP2 - CIRCUIT 1

POLE # & PHASE	LUMEN	WATTS	VD% @ SL		POLE # & PHASE	LUMEN	LUMEN	VD% @ SL
P5a	13400	133	0.20%		P6b	13400	133	1.09%
P7a	13400	133	1.75%		P8b	13400	133	2.20%
P9a	13400	133	2.47%					

SHEET NOTES

1. GENERAL: THE REQUIREMENTS OF THE SPECIFICATIONS, THE FOREGOING GENERAL NOTES AND MECHANICAL NOTES SHALL APPLY TO ALL WORK HEREUNDER.
2. SCOPE: THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE WORKING ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS. IT SHALL, AT PROJECT COMPLETION AND BEFORE FINAL ACCEPTANCE, BE DEMONSTRATED TO HAVE A COMPLETE AND WORKING FUNCTIONAL OPERATION.
3. CODE COMPLIANCE: ALL WORK AND MATERIALS SHALL COMPLY WITH THE CALIFORNIA ELECTRICAL CODE (CEC); CALIFORNIA CODE OF REGULATIONS (CCR); CALIFORNIA BUILDING CODE (CBC), CAL OSHA; AND ALL OTHER LAWS, ORDINANCES AND REGULATIONS HAVING JURISDICTION ON THIS WORK.
4. UL APPROVAL: ALL MATERIAL AND EQUIPMENT WITHIN THE SCOPE OF THE UL REEXAMINATION SERVICE SHALL BE APPROVED BY THE UNDERWRITERS LABORATORIES FOR THE PURPOSE FOR WHICH THEY ARE USED AND SHALL BEAR THEIR LABEL.
5. SUBMITTALS: SUBMIT MANUFACTURER'S DATA FOR LIGHTING FIXTURES, DEVICES, PANELBOARDS, ETC., TO BE USED ON THE PROJECT.
6. RECORD DRAWINGS: THE CONTRACTOR SHALL FURNISH TO THE ENGINEER, A COMPLETE SET OF "AS CONSTRUCTED" DRAWINGS WHICH CLEARLY INDICATE ALL DEVIATIONS FROM THE BASIC CONTRACT DOCUMENTS, INCLUDING LOCATION AND DEPTH FOR ALL STUBBED CONDUITS, LOCATION AND SIZE FOR ALL SPARE CONDUITS, CONDUIT ROUTING, AND CONDUCTORS. CIRCUIT NUMBERS FOR ALL DEVICES (NEW AND EXISTING) WITHIN THE AREA OF WORK SHALL BE VERIFIED AND INDICATED ON RECORD DRAWINGS.
7. POLES AND FIXTURES SHALL BE INSTALLED PER CURRENT CITY OF VISALIA STREET LIGHT STANDARDS.
8. STREET LIGHT FOUNDATIONS ARE TO BE INSTALLED AS SHOWN ON 2016 VISALIA STREET LIGHT STANDARDS SL-6. FOUNDATIONS SHALL BE INSTALLED 2' FROM CENTER OF FOUNDATION TO FACE OF CURB.
9. CONDUIT INSTALLED SHALL BE 1 ½" PVC SCHEDULE 40. CONDUIT DEPTH SHALL BE MINIMUM 36" OF COVER UNDER ROADWAYS AND 24" ELSEWHERE.
10. CONDUCTORS INSTALLED SHALL BE AS SHOWN ON 2016 VISALIA STREET LIGHT STANDARDS SL-8.
11. STREET LIGHT METER PEDESTAL SHALL BE INSTALLED PER MODIFIED 2016 VISALIA STREET LIGHT STANDARDS SL-9.
12. STUB CONDUIT AS SHOWN FOR FUTURE EXTENSION ON STREET LIGHTS. INSTALL PULL BOX AT END OF STUB.
13. AFTER CONDUCTOR INSTALLATION, ALL CONDUITS WILL BE SEALED WITH DUCTSEAL..
14. CONDUCTORS SHALL HAVE XHHW INSULATION TYPE.
15. ALL ELECTRICAL PEDESTALS ARE TO BE INSTALLED IN THE CITY RIGHT OF WAY.

LEGEND

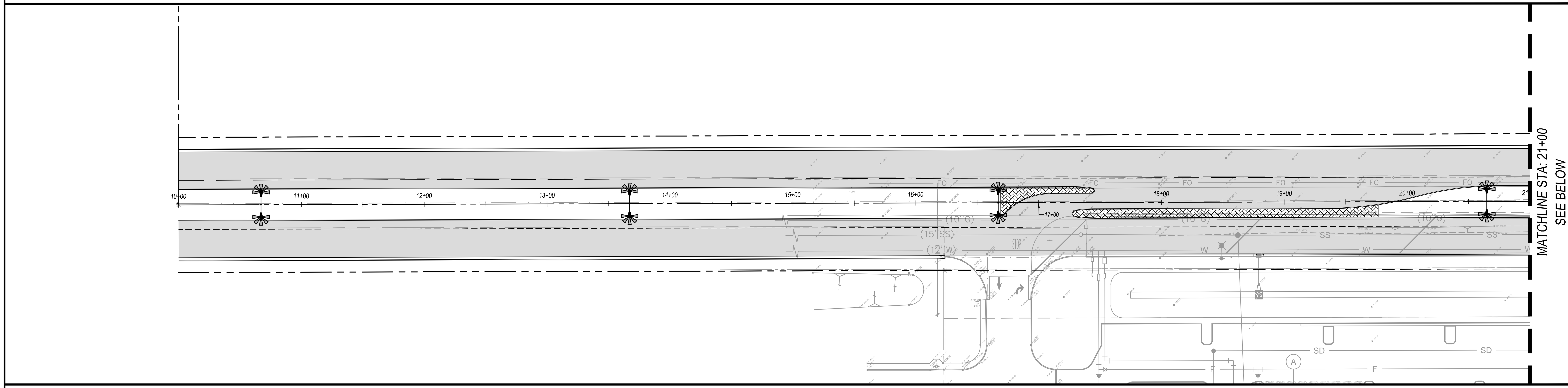
SL-5	26'(ARTERIAL/COLLECTOR) POLE W/ 8' ARM AND GREENCOBRA LED FIXTURE.
GR	5/8" x 8' COPPER CLAD GROUND ROD INSTALLED AT SERVICE PEDESTAL AND IN PULL BOXES AS DESIGNED ON THE PLANS. BOX LID TO BE GROUNDED
PC	POLE TOP MOUNTED PHOTOCELL
SP	SERVICE POINT. STREET LIGHT METER PEDESTAL INSTALLED PER SL-9
(symbol)	STREET LIGHT (ARTERIAL & MAJOR COLLECTOR)
(symbol)	STREET LIGHT (ARTERIAL & MAJOR COLLECTOR) - DOUBLE HEAD
(symbol)	STREETLIGHT PULL BOX - INSTALLED AS PER SL-7. BOX LID TO BE GROUNDED
(symbol)	120/240 METER PEDESTAL
(symbol)	STREET LIGHT CABLE IN 1-1/2" CONDUIT
(symbol)	EXISTING EMPTY 1-1/2" CONDUIT

FIXTURES

COUNT:
METER PEDESTAL = 1(NEW) & 1(EXISTING)
PULL BOXES = 13
SL-5 STREET LIGHTS W/ LEOTEK GC1-60F DOUBLE LED HEAD (13400 LUMEN EACH) = 4
GC1-60F-MV-NW-3-GY-700
SL-5 STREET LIGHTS W/ LEOTEK GC1-60F LED HEAD (13400 LUMEN) = 5
GC1-60F-MV-NW-3-GY-700

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

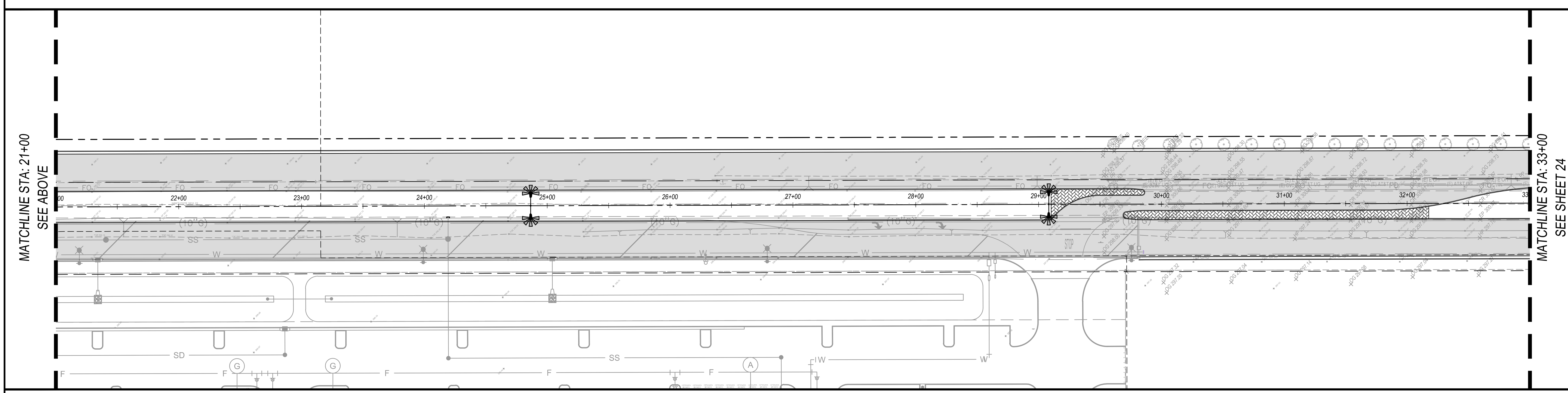
1 XXX



RIGGIN AVE. STA: 10+00 – 21+00

FIBER OPTIC CONDUIT / STREET LIGHT CONDUIT NOTES (THIS SHEET ONLY)

1. CONTRACTOR TO INSTALL FIBER OPTIC & STREET LIGHT CONDUIT PER CITY STD. TE-9, SHEET 35 (WHERE APPLICABLE).



RIGGIN AVE. STA: 21+00 – 33+00

NO. DATE DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
STREET LIGHTING & FIBER INTERCONNECT PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM DRAWN BY:MH
SCALE: AS SHOWN
SHEET 23 OF 61

Know what's **below.** **Call** before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

STREET LIGHT FIXTURES

EX. SP1 - CIRCUIT 1

POLE # & PHASE	LUMEN	WATTS	VD% @ SL	POLE # & PHASE	LUMEN	WATTS	VD% @ SL
P1a	DBL 13400	DBL 133	1.64%	P2b	DBL 13400	DBL 133	2.83%
P3a	DBL 13400	DBL 133	3.64%	P4b	DBL 13400	DBL 133	4.01%

SP2 - CIRCUIT 1

POLE # & PHASE	LUMEN	WATTS	VD% @ SL	POLE # & PHASE	LUMEN	LUMEN	VD% @ SL
P5a	13400	133	0.20%	P6b	13400	133	1.09%
P7a	13400	133	1.75%	P8b	13400	133	2.20%
P9a	13400	133	2.47%				

SHEET NOTES

1. GENERAL: THE REQUIREMENTS OF THE SPECIFICATIONS, THE FOREGOING GENERAL NOTES AND MECHANICAL NOTES SHALL APPLY TO ALL WORK HEREUNDER.
2. SCOPE: THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE WORKING ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS. IT SHALL, AT PROJECT COMPLETION AND BEFORE FINAL ACCEPTANCE, BE DEMONSTRATED TO HAVE A COMPLETE AND WORKING FUNCTIONAL OPERATION.
3. CODE COMPLIANCE: ALL WORK AND MATERIALS SHALL COMPLY WITH THE CALIFORNIA ELECTRICAL CODE (CEC); CALIFORNIA CODE OF REGULATIONS (CCR); CALIFORNIA BUILDING CODE (CBC), CAL OSHA; AND ALL OTHER LAWS, ORDINANCES AND REGULATIONS HAVING JURISDICTION ON THIS WORK.
4. UL APPROVAL: ALL MATERIAL AND EQUIPMENT WITHIN THE SCOPE OF THE UL REEXAMINATION SERVICE SHALL BE APPROVED BY THE UNDERWRITERS LABORATORIES FOR THE PURPOSE FOR WHICH THEY ARE USED AND SHALL BEAR THEIR LABEL.
5. SUBMITTALS: SUBMIT MANUFACTURER'S DATA FOR LIGHTING FIXTURES, DEVICES, PANELBOARDS, ETC., TO BE USED ON THE PROJECT.
6. RECORD DRAWINGS: THE CONTRACTOR SHALL FURNISH TO THE ENGINEER, A COMPLETE SET OF "AS CONSTRUCTED" DRAWINGS WHICH CLEARLY INDICATE ALL DEVIATIONS FROM THE BASIC CONTRACT DOCUMENTS, INCLUDING LOCATION AND DEPTH FOR ALL STUBBED CONDUITS, LOCATION AND SIZE FOR ALL SPARE CONDUITS, CONDUIT ROUTING, AND CONDUCTORS. CIRCUIT NUMBERS FOR ALL DEVICES (NEW AND EXISTING) WITHIN THE AREA OF WORK SHALL BE VERIFIED AND INDICATED ON RECORD DRAWINGS.
7. POLES AND FIXTURES SHALL BE INSTALLED PER CURRENT CITY OF VISALIA STREET LIGHT STANDARDS.
8. STREET LIGHT FOUNDATIONS ARE TO BE INSTALLED AS SHOWN ON 2016 VISALIA STREET LIGHT STANDARDS SL-6. FOUNDATIONS SHALL BE INSTALLED 2' FROM CENTER OF FOUNDATION TO FACE OF CURB.
9. CONDUIT INSTALLED SHALL BE 1 ½" PVC SCHEDULE 40. CONDUIT DEPTH SHALL BE MINIMUM 36" OF COVER UNDER ROADWAYS AND 24" ELSEWHERE.
10. CONDUCTORS INSTALLED SHALL BE AS SHOWN ON 2016 VISALIA STREET LIGHT STANDARDS SL-8.
11. STREET LIGHT METER PEDESTAL SHALL BE INSTALLED PER MODIFIED 2016 VISALIA STREET LIGHT STANDARDS SL-9.
12. STUB CONDUIT AS SHOWN FOR FUTURE EXTENSION ON STREET LIGHTS. INSTALL PULL BOX AT END OF STUB.
13. AFTER CONDUCTOR INSTALLATION, ALL CONDUITS WILL BE SEALED WITH DUCTSEAL..
14. CONDUCTORS SHALL HAVE XHHW INSULATION TYPE.
15. ALL ELECTRICAL PEDESTALS ARE TO BE INSTALLED IN THE CITY RIGHT OF WAY.

LEGEND

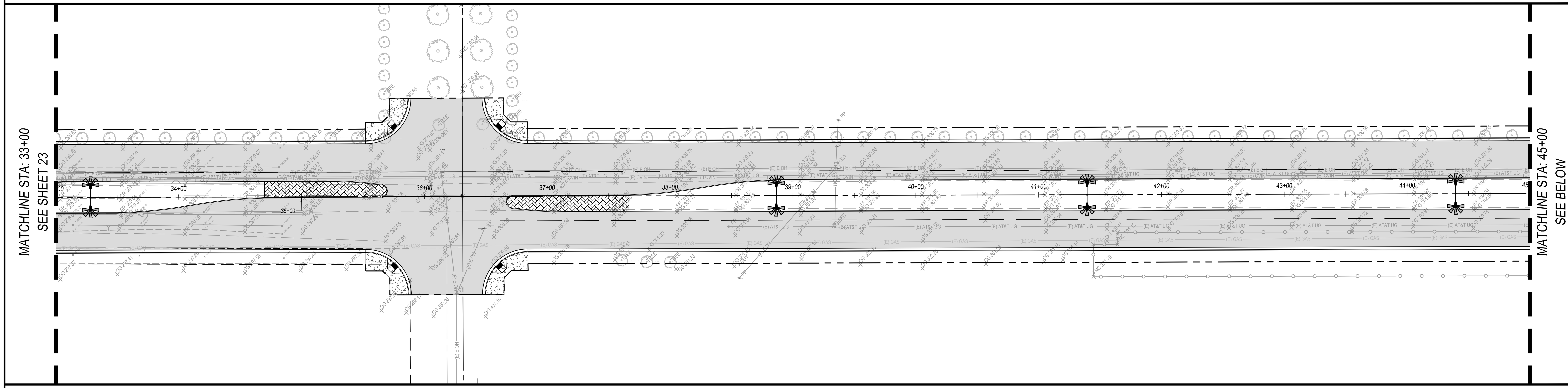
SL-5	26'(ARTERIAL/COLLECTOR) POLE W/ 8' ARM AND GREENCOBRA LED FIXTURE.
GR	5/8" x 8' COPPER CLAD GROUND ROD INSTALLED AT SERVICE PEDESTAL AND IN PULL BOXES AS DESIGNED ON THE PLANS. BOX LID TO BE GROUNDED
PC	POLE TOP MOUNTED PHOTOCELL
SP	SERVICE POINT. STREET LIGHT METER PEDESTAL INSTALLED PER SL-9
(symbol)	STREET LIGHT (ARTERIAL & MAJOR COLLECTOR)
(symbol)	STREET LIGHT (ARTERIAL & MAJOR COLLECTOR) - DOUBLE HEAD
▫	STREETLIGHT PULL BOX - INSTALLED AS PER SL-7. BOX LID TO BE GROUNDED
△	120/240 METER PEDESTAL
— — —	STREET LIGHT CABLE IN 1-1/2" CONDUIT
— — —	EXISTING EMPTY 1-1/2" CONDUIT

FIXTURES

COUNT:
METER PEDESTAL = 1(NEW) & 1(EXISTING)
PULL BOXES = 13
SL-5 STREET LIGHTS W/ LEOTEK GC1-60F DOUBLE LED HEAD (13400 LUMEN EACH) = 4
GC1-60F-MV-NW-3-GY-700
SL-5 STREET LIGHTS W/ LEOTEK GC1-60F LED HEAD (13400 LUMEN) = 5
GC1-60F-MV-NW-3-GY-700

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

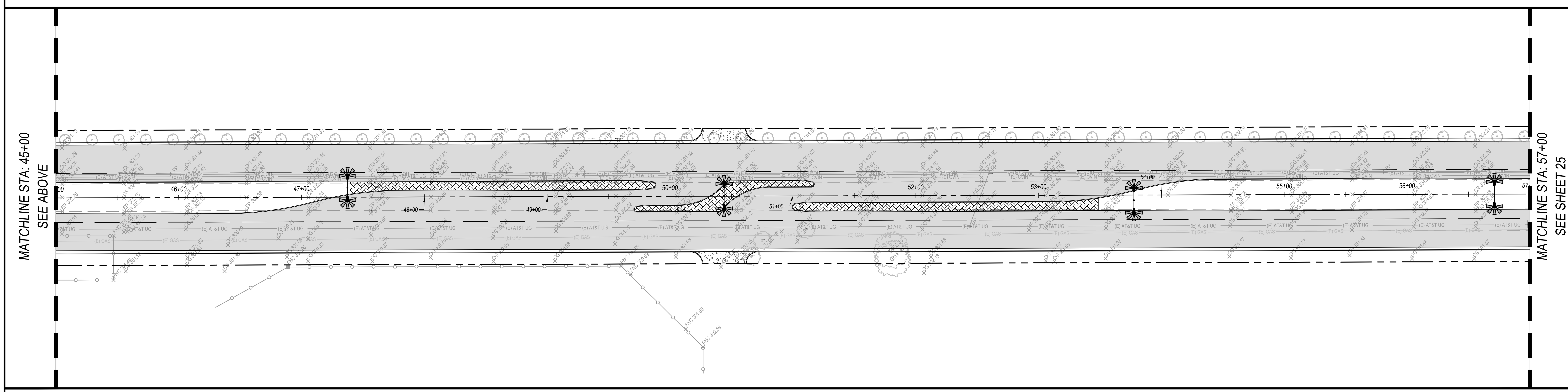
1 XXX



RIGGIN AVE. STA: 33+00 – 45+00

FIBER OPTIC CONDUIT / STREET LIGHT CONDUIT NOTES (THIS SHEET ONLY)

1. CONTRACTOR TO INSTALL FIBER OPTIC & STREET LIGHT CONDUIT PER CITY STD. TE-9, SHEET 35 (WHERE APPLICABLE).



RIGGIN AVE. STA: 45+00 – 57+00

NO.	DATE	DESCRIPTION

REGISTERED PROFESSIONAL ENGINEER KYLE J. McDONALD NO. 82531 Exp. 09/30/22 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
DRW BY: MH
CHK BY: KM

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
STREET LIGHTING & FIBER INTERCONNECT PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 24 OF 61

811
Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

NORTH

40' 0' 40'

STREET LIGHT FIXTURES

EX. SP1 - CIRCUIT 1

POLE # & PHASE	LUMEN	WATTS	VD% @ SL		POLE # & PHASE	LUMEN	WATTS	VD% @ SL
P1a	DBL 13400	DBL 133	1.64%		P2b	DBL 13400	DBL 133	2.83%
P3a	DBL 13400	DBL 133	3.64%		P4b	DBL 13400	DBL 133	4.01%

SP2 - CIRCUIT 1

POLE # & PHASE	LUMEN	WATTS	VD% @ SL		POLE # & PHASE	LUMEN	LUMEN	VD% @ SL
P5a	13400	133	0.20%		P6b	13400	133	1.09%
P7a	13400	133	1.75%		P8b	13400	133	2.20%
P9a	13400	133	2.47%					

SHEET NOTES

1. GENERAL: THE REQUIREMENTS OF THE SPECIFICATIONS, THE FOREGOING GENERAL NOTES AND MECHANICAL NOTES SHALL APPLY TO ALL WORK HEREUNDER.
2. SCOPE: THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE WORKING ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS. IT SHALL, AT PROJECT COMPLETION AND BEFORE FINAL ACCEPTANCE, BE DEMONSTRATED TO HAVE A COMPLETE AND WORKING FUNCTIONAL OPERATION.
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4. UL APPROVAL: ALL MATERIAL AND EQUIPMENT WITHIN THE SCOPE OF THE UL REEXAMINATION SERVICE SHALL BE APPROVED BY THE UNDERWRITERS LABORATORIES FOR THE PURPOSE FOR WHICH THEY ARE USED AND SHALL BEAR THEIR LABEL.
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7. POLES AND FIXTURES SHALL BE INSTALLED PER CURRENT CITY OF VISALIA STREET LIGHT STANDARDS.
8. STREET LIGHT FOUNDATIONS ARE TO BE INSTALLED AS SHOWN ON 2016 VISALIA STREET LIGHT STANDARDS SL-6. FOUNDATIONS SHALL BE INSTALLED 2' FROM CENTER OF FOUNDATION TO FACE OF CURB.
9. CONDUIT INSTALLED SHALL BE 1 ½" PVC SCHEDULE 40. CONDUIT DEPTH SHALL BE MINIMUM 36" OF COVER UNDER ROADWAYS AND 24" ELSEWHERE.
10. CONDUCTORS INSTALLED SHALL BE AS SHOWN ON 2016 VISALIA STREET LIGHT STANDARDS SL-8.
11. STREET LIGHT METER PEDESTAL SHALL BE INSTALLED PER MODIFIED 2016 VISALIA STREET LIGHT STANDARDS SL-9.
12. STUB CONDUIT AS SHOWN FOR FUTURE EXTENSION ON STREET LIGHTS. INSTALL PULL BOX AT END OF STUB.
13. AFTER CONDUCTOR INSTALLATION, ALL CONDUITS WILL BE SEALED WITH DUCTSEAL..
14. CONDUCTORS SHALL HAVE XHHW INSULATION TYPE.
15. ALL ELECTRICAL PEDESTALS ARE TO BE INSTALLED IN THE CITY RIGHT OF WAY.

LEGEND

SL-5	26'(ARTERIAL/COLLECTOR) POLE W/ 8' ARM AND GREENCOBRA LED FIXTURE.
GR	5/8" x 8' COPPER CLAD GROUND ROD INSTALLED AT SERVICE PEDESTAL AND IN PULL BOXES AS DESIGNED ON THE PLANS. BOX LID TO BE GROUNDED
PC	POLE TOP MOUNTED PHOTOCELL
SP	SERVICE POINT. STREET LIGHT METER PEDESTAL INSTALLED PER SL-9
(symbol)	STREET LIGHT (ARTERIAL & MAJOR COLLECTOR)
(symbol)	STREET LIGHT (ARTERIAL & MAJOR COLLECTOR) - DOUBLE HEAD
(symbol)	STREETLIGHT PULL BOX - INSTALLED AS PER SL-7. BOX LID TO BE GROUNDED
(symbol)	120/240 METER PEDESTAL
(line)	STREET LIGHT CABLE IN 1-1/2" CONDUIT
(line)	EXISTING EMPTY 1-1/2" CONDUIT

FIXTURES

COUNT:
METER PEDESTAL = 1(NEW) & 1(EXISTING)
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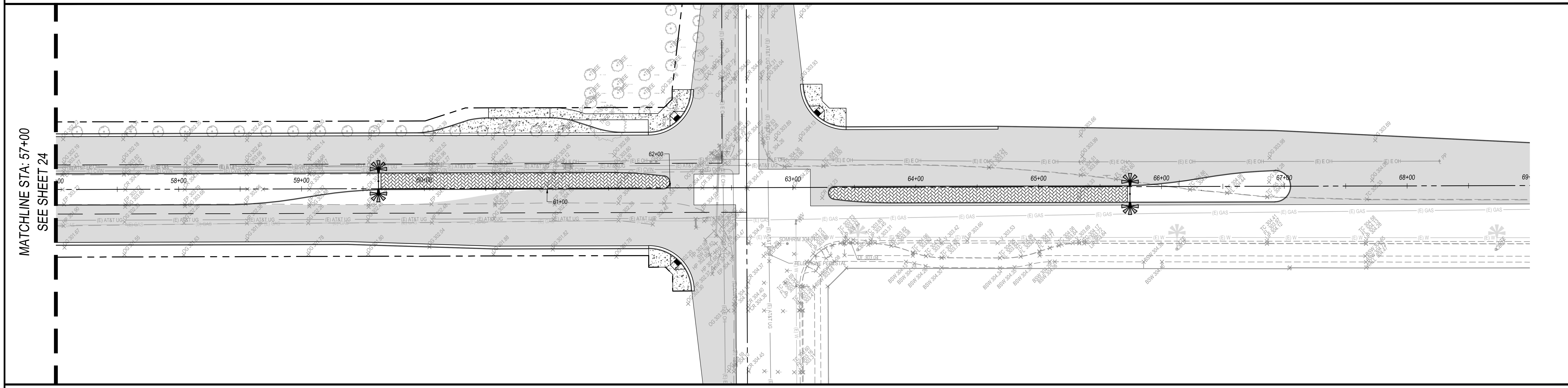
GC1-60F-MV-NW-3-GY-700
SL-5 STREET LIGHTS W/ LEOTEK GC1-60F LED HEAD (13400 LUMEN) = 5
GC1-60F-MV-NW-3-GY-700

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

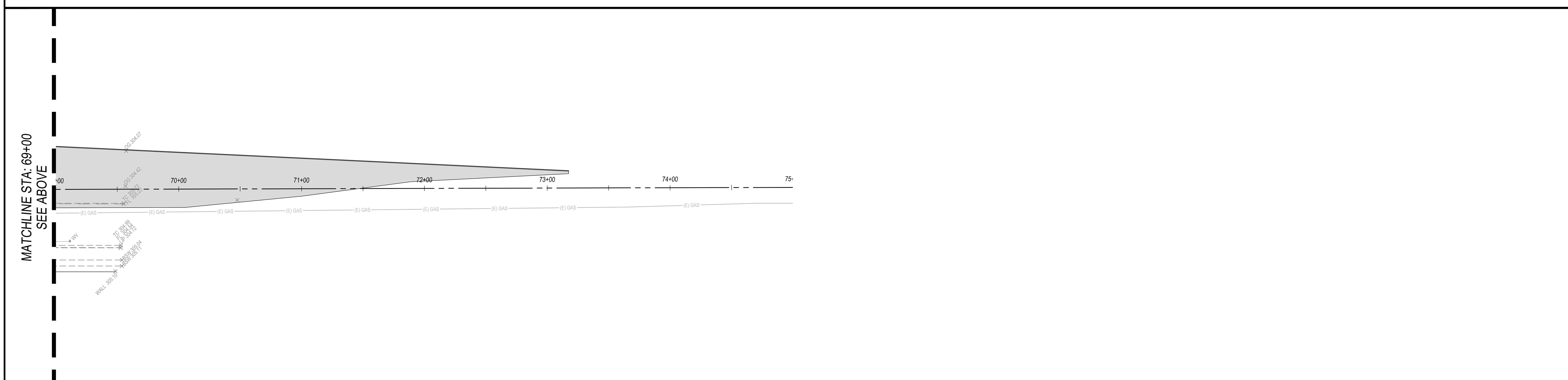
1 XXX



RIGGIN AVE. STA: 57+00 – END

FIBER OPTIC CONDUIT / STREET LIGHT CONDUIT NOTES (THIS SHEET ONLY)

1. CONTRACTOR TO INSTALL FIBER OPTIC & STREET LIGHT CONDUIT PER CITY STD. TE-9, SHEET 35 (WHERE APPLICABLE).



RIGGIN AVE. STA: 69+00 – END

NO. DATE DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
CHK BY: KM
DRW BY: MH

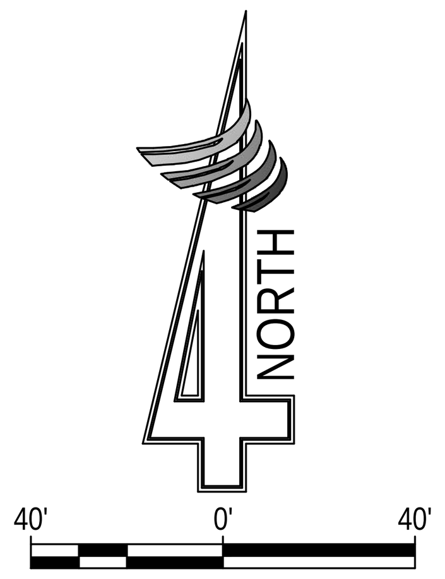
CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
STREET LIGHTING & FIBER INTERCONNECT PLAN

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN

811
Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD



STREET LIGHT FIXTURES

EX. SP1 - CIRCUIT 1

POLE # & PHASE	LUMEN	WATTS	VD% @ SL		POLE # & PHASE	LUMEN	WATTS	VD% @ SL
P1a	DBL 13400	DBL 133	1.64%		P2b	DBL 13400	DBL 133	2.83%
P3a	DBL 13400	DBL 133	3.64%		P4b	DBL 13400	DBL 133	4.01%

SP2 - CIRCUIT 1

POLE # & PHASE	LUMEN	WATTS	VD% @ SL		POLE # & PHASE	LUMEN	LUMEN	VD% @ SL
P5a	13400	133	0.20%		P6b	13400	133	1.09%
P7a	13400	133	1.75%		P8b	13400	133	2.20%
P9a	13400	133	2.47%					

SHEET NOTES

1. GENERAL: THE REQUIREMENTS OF THE SPECIFICATIONS, THE FOREGOING GENERAL NOTES AND MECHANICAL NOTES SHALL APPLY TO ALL WORK HEREUNDER.
2. SCOPE: THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE WORKING ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS. IT SHALL, AT PROJECT COMPLETION AND BEFORE FINAL ACCEPTANCE, BE DEMONSTRATED TO HAVE A COMPLETE AND WORKING FUNCTIONAL OPERATION.
3. CODE COMPLIANCE: ALL WORK AND MATERIALS SHALL COMPLY WITH THE CALIFORNIA ELECTRICAL CODE (CEC); CALIFORNIA CODE OF REGULATIONS (CCR); CALIFORNIA BUILDING CODE (CBC), CAL OSHA; AND ALL OTHER LAWS, ORDINANCES AND REGULATIONS HAVING JURISDICTION ON THIS WORK.
4. UL APPROVAL: ALL MATERIAL AND EQUIPMENT WITHIN THE SCOPE OF THE UL REEXAMINATION SERVICE SHALL BE APPROVED BY THE UNDERWRITERS LABORATORIES FOR THE PURPOSE FOR WHICH THEY ARE USED AND SHALL BEAR THEIR LABEL.
5. SUBMITTALS: SUBMIT MANUFACTURER'S DATA FOR LIGHTING FIXTURES, DEVICES, PANELBOARDS, ETC., TO BE USED ON THE PROJECT.
6. RECORD DRAWINGS: THE CONTRACTOR SHALL FURNISH TO THE ENGINEER, A COMPLETE SET OF "AS CONSTRUCTED" DRAWINGS WHICH CLEARLY INDICATE ALL DEVIATIONS FROM THE BASIC CONTRACT DOCUMENTS, INCLUDING LOCATION AND DEPTH FOR ALL STUBBED CONDUITS, LOCATION AND SIZE FOR ALL SPARE CONDUITS, CONDUIT ROUTING, AND CONDUCTORS. CIRCUIT NUMBERS FOR ALL DEVICES (NEW AND EXISTING) WITHIN THE AREA OF WORK SHALL BE VERIFIED AND INDICATED ON RECORD DRAWINGS.
7. POLES AND FIXTURES SHALL BE INSTALLED PER CURRENT CITY OF VISALIA STREET LIGHT STANDARDS.
8. STREET LIGHT FOUNDATIONS ARE TO BE INSTALLED AS SHOWN ON 2016 VISALIA STREET LIGHT STANDARDS SL-6. FOUNDATIONS SHALL BE INSTALLED 2' FROM CENTER OF FOUNDATION TO FACE OF CURB.
9. CONDUIT INSTALLED SHALL BE 1 ½" PVC SCHEDULE 40. CONDUIT DEPTH SHALL BE MINIMUM 36" OF COVER UNDER ROADWAYS AND 24" ELSEWHERE.
10. CONDUCTORS INSTALLED SHALL BE AS SHOWN ON 2016 VISALIA STREET LIGHT STANDARDS SL-8.
11. STREET LIGHT METER PEDESTAL SHALL BE INSTALLED PER MODIFIED 2016 VISALIA STREET LIGHT STANDARDS SL-9.
12. STUB CONDUIT AS SHOWN FOR FUTURE EXTENSION ON STREET LIGHTS. INSTALL PULL BOX AT END OF STUB.
13. AFTER CONDUCTOR INSTALLATION, ALL CONDUITS WILL BE SEALED WITH DUCTSEAL..
14. CONDUCTORS SHALL HAVE XHHW INSULATION TYPE.
15. ALL ELECTRICAL PEDESTALS ARE TO BE INSTALLED IN THE CITY RIGHT OF WAY.

LEGEND

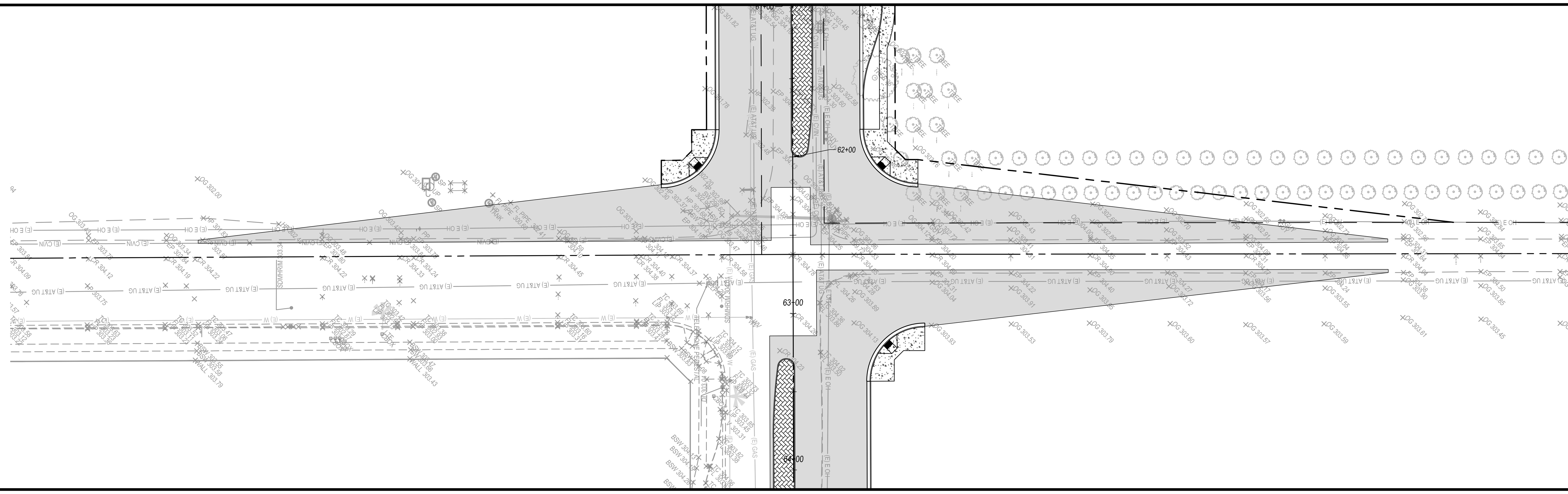
SL-5	26'(ARTERIAL/COLLECTOR) POLE W/ 8' ARM AND GREENCOBRA LED FIXTURE.
GR	5/8" x 8' COPPER CLAD GROUND ROD INSTALLED AT SERVICE PEDESTAL AND IN PULL BOXES AS DESIGNED ON THE PLANS. BOX LID TO BE GROUNDED
PC	POLE TOP MOUNTED PHOTOCELL
SP	SERVICE POINT. STREET LIGHT METER PEDESTAL INSTALLED PER SL-9
	STREET LIGHT (ARTERIAL & MAJOR COLLECTOR)
	STREET LIGHT (ARTERIAL & MAJOR COLLECTOR) - DOUBLE HEAD
	STREETLIGHT PULL BOX - INSTALLED AS PER SL-7. BOX LID TO BE GROUNDED
	120/240 METER PEDESTAL
	STREET LIGHT CABLE IN 1-1/2" CONDUIT
	EXISTING EMPTY 1-1/2" CONDUIT

FIXTURES

COUNT:
METER PEDESTAL = 1(NEW) & 1(EXISTING)
PULL BOXES = 13
SL-5 STREET LIGHTS W/ LEOTEK GC1-60F DOUBLE LED HEAD (13400 LUMEN EACH) = 4
GC1-60F-MV-NW-3-GY-700
SL-5 STREET LIGHTS W/ LEOTEK GC1-60F LED HEAD (13400 LUMEN) = 5
GC1-60F-MV-NW-3-GY-700

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

1 XXX



SHIRK RD. STA: 5+00 – 15+00

FIBER OPTIC CONDUIT / STREET LIGHT CONDUIT NOTES (THIS SHEET ONLY)

1. CONTRACTOR TO INSTALL FIBER OPTIC & STREET LIGHT CONDUIT PER CITY STD. TE-9, SHEET 35 (WHERE APPLICABLE).

NO. | DATE | DESCRIPTION

PREPARED BY: 4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
DRW BY: MH
CHK BY: KM

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
STREET LIGHTING & FIBER INTERCONNECT PLAN

PROJ. NO. 20205
DATE: 3/8/2021
DESIGN BY: KM | DRAWN BY: MH
SCALE: AS SHOWN
SHEET 26 OF 61

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

CONSTRUCTION AND GRADING KEYNOTES: (THIS SHEET ONLY)

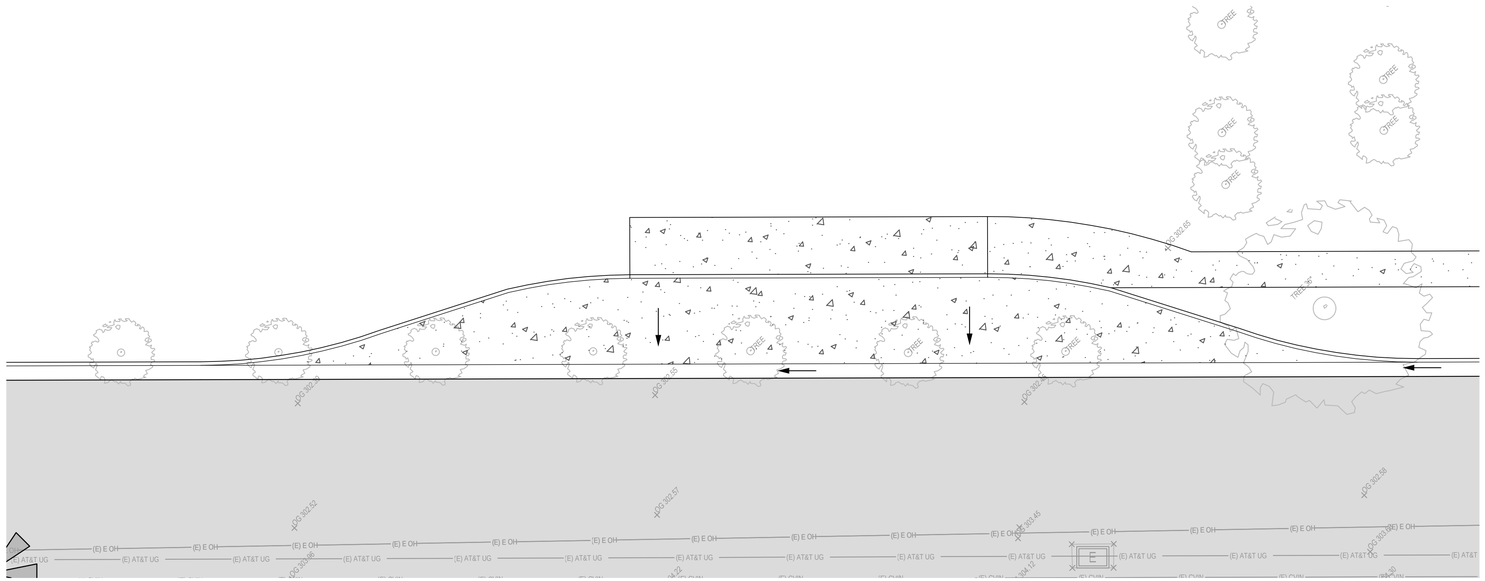
1. INSTALL CONCRETE COLD JOINT. SEE CITY STD. C-34, SHEET 25.
2. GUTTER PAN SHALL NOT EXCEED 5% IN THE PATH OF TRAVEL. ASPHALT TO BE FLUSH WITH LIP AT BOTTOM OF RAMPS.
3. PROVIDE 4'x4' MIN. ADA LANDING, SLOPE SHALL NOT EXCEED 2% IN ANY DIRECTION.
4. CONSTRUCT SIDEWALK PER CITY STD. C-9, SHEET 31.
5. CONSTRUCT DEPRESSED CURB WITH SMOOTH TRANSITION.
6. RE-GRADE LANDSCAPE AREAS TO MATCH NEW IMPROVEMENTS. ADJUST IRRIGATION TO PROVIDE FULLY FUNCTIONING SYSTEM & REPLACE LANDSCAPING IN KIND.
7. CONSTRUCT BUS TURNOUT PER THE DIMENSIONS ON THE PLANS. SEE DETAIL TR 5, SHEET 36.
8. CONSTRUCT COMMERCIAL DRIVE APPROACH PER THE DIMENSIONS ON THE PLANS. SEE DETAIL C-24, SHEET 31.

GENERAL NOTES

1. ALL CURBS AND CURB AND GUTTERS SHALL BE POURED PRIOR TO RAMPS AND SIDEWALKS, MONOLITHIC POURS WILL NOT BE ALLOWED.
2. CURBS AND GUTTER AT DRIVE APPROACHES SHALL BE PER CITY STD'S.
3. CROSS SLOPES PERPENDICULAR TO PATH OF TRAVEL ON ALL RAMPS AND SIDEWALKS TO BE 1.5% MAXIMUM
4. CONTRACTOR TO DAYLIGHT GRADE TO EXIST. AT A 4:1 MAX. SLOPE.

LEGEND

- DETECTABLE WARNING SURFACE
- PROPOSED CONCRETE
- PROPOSED ASPHALT SECTION
- EXISTING ASPHALT HATCH NOT SHOWN FOR CLARITY
- EXISTING CONCRETE
- EXIST. POWER POLE
- EXIST. UTILITY POLE
- SLOPE DIRECTION



NORTH
10' 0' 10'

BUS TURNOUT DETAIL - NORTH SIDE OF RIGGIN AVE. WEST OF SHIRK RD.

B-1

NO.	DATE	DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.2215

DRW BY: MH | CHK BY: KM

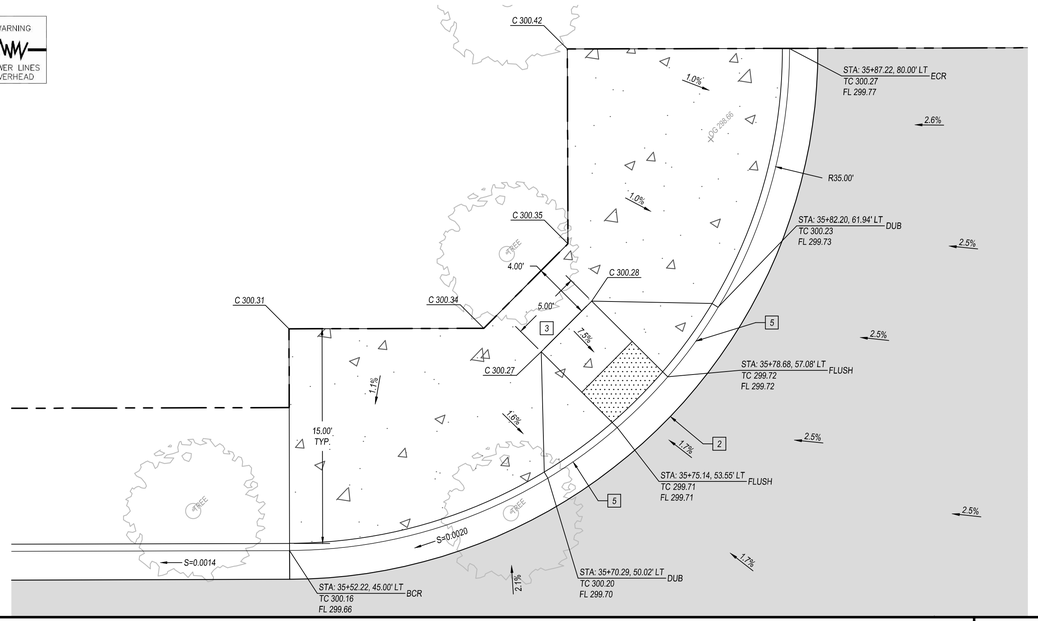
CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE WIDENING & IMPROVEMENTS
BUS TURNOUT DETAILS

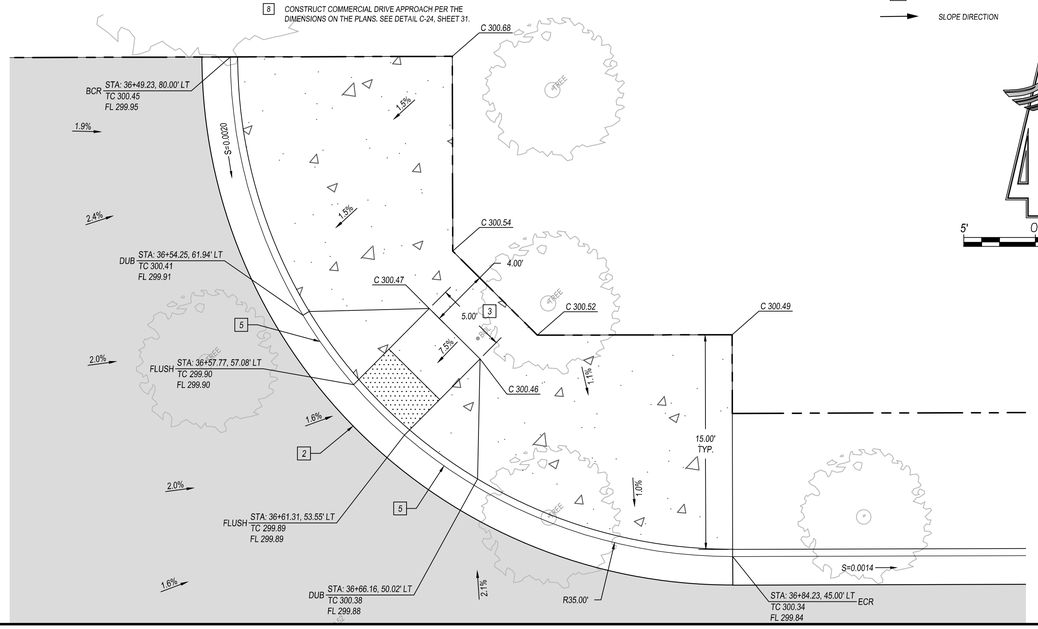
PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 27 OF 61

Know what's **below.**
Call before you dig.

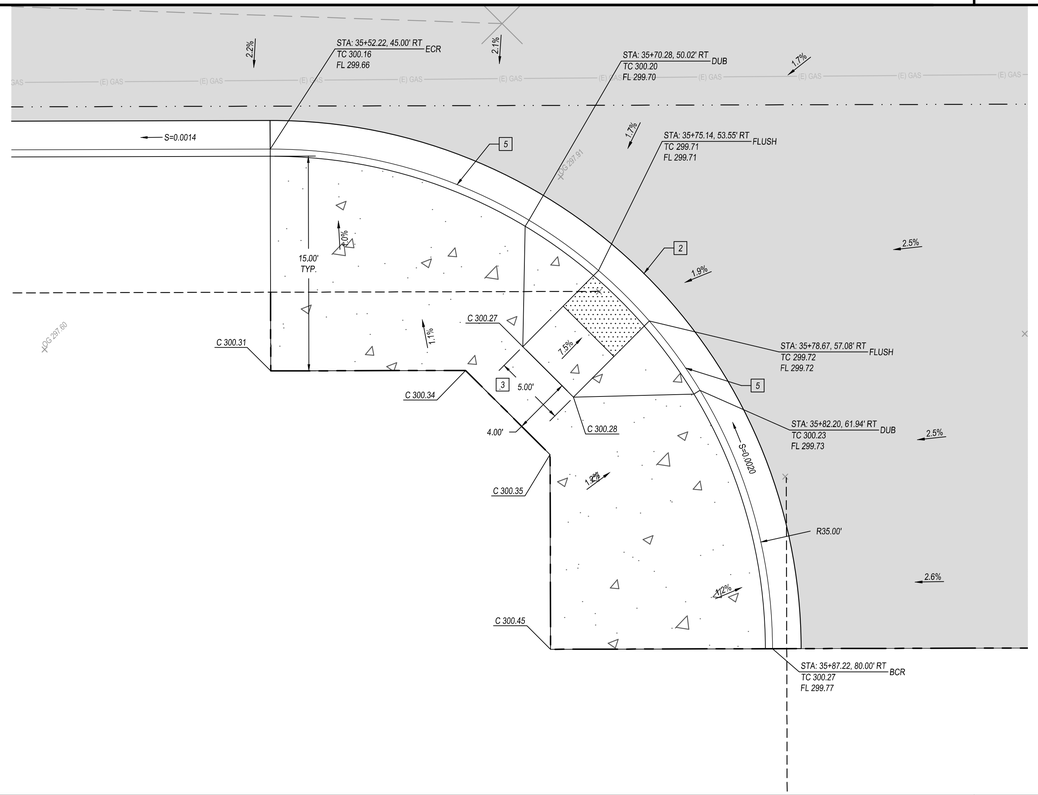
WARNING
POWER LINES OVERHEAD



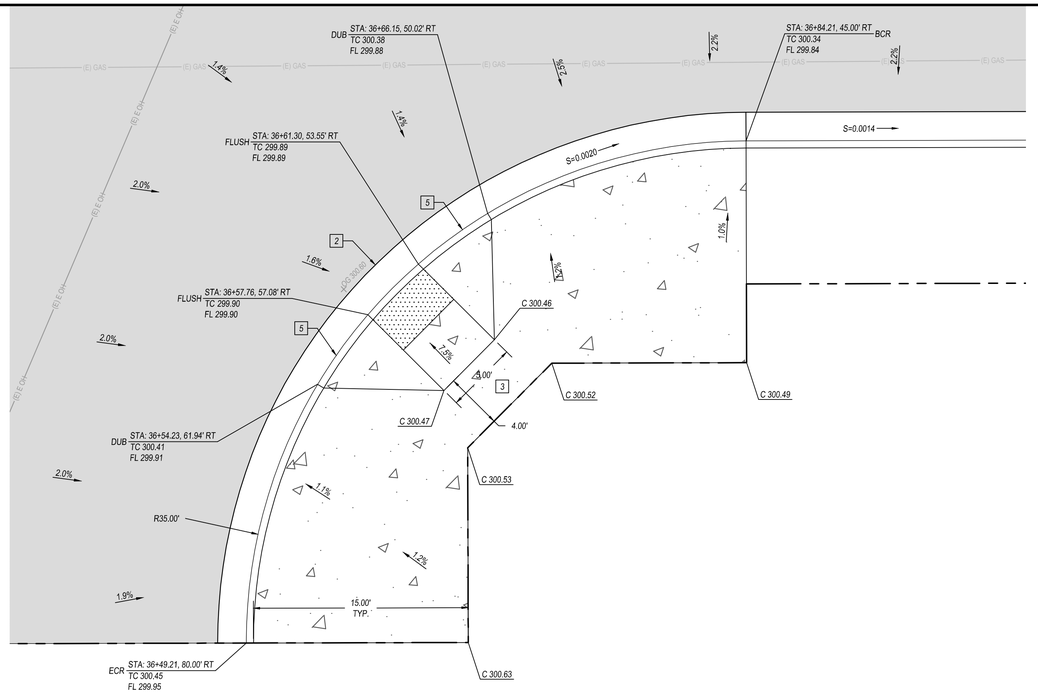
RAMP DETAIL - NW CORNER OF CLANCY ST & RIGGIN AVE | R-1



RAMP DETAIL - NE CORNER OF CLANCY ST & RIGGIN AVE | R-2



RAMP DETAIL - SW CORNER OF CLANCY ST & RIGGIN AVE | R-3



RAMP DETAIL - SE CORNER OF CLANCY ST & RIGGIN AVE | R-4

GENERAL NOTES

1. ALL CURBS AND CURB AND GUTTERS SHALL BE POURED PRIOR TO RAMPS AND SIDEWALKS, MONOLITHIC POURS WILL NOT BE ALLOWED.
2. CURBS AND GUTTER AT DRIVE APPROACHES SHALL BE PER CITY STD'S.
3. CROSS SLOPES PERPENDICULAR TO PATH OF TRAVEL ON ALL RAMPS AND SIDEWALKS TO BE 1.5% MAXIMUM
4. CONTRACTOR TO DAYLIGHT GRADE TO EXIST. AT A 4:1 MAX. SLOPE.

CONSTRUCTION AND GRADING KEYNOTES: (THIS SHEET ONLY)

1. INSTALL CONCRETE COLD JOINT. SEE CITY STD. C-34, SHEET 25.
2. GUTTER PAN SHALL NOT EXCEED 5% IN THE PATH OF TRAVEL, ASPHALT TO BE FLUSH WITH LIP AT BOTTOM OF RAMPS.
3. PROVIDE 4'x4' MIN. ADA LANDING, SLOPE SHALL NOT EXCEED 2% IN ANY DIRECTION.
4. CONSTRUCT SIDEWALK PER CITY STD. C-9, SHEET 31.
5. CONSTRUCT DEPRESSED CURB WITH SMOOTH TRANSITION.
6. RE-GRADE LANDSCAPE AREAS TO MATCH NEW IMPROVEMENTS. ADJUST IRRIGATION TO PROVIDE FULLY FUNCTIONING SYSTEM & REPLACE LANDSCAPING IN KIND.
7. CONSTRUCT BUS TURNOUT PER THE DIMENSIONS ON THE PLANS. SEE DETAIL TR-5, SHEET 36.
8. CONSTRUCT COMMERCIAL DRIVE APPROACH PER THE DIMENSIONS ON THE PLANS. SEE DETAIL C-24, SHEET 31.

LEGEND

- DETECTABLE WARNING SURFACE
- PROPOSED CONCRETE
- PROPOSED ASPHALT SECTION
- EXISTING ASPHALT HATCH NOT SHOWN FOR CLARITY
- EXISTING CONCRETE
- EXIST. POWER POLE
- EXIST. UTILITY POLE
- SLOPE DIRECTION

NORTH
5' 0' 5'

NO.	DATE	DESCRIPTION

324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

PREPARED BY: 4CREEKS

CHK BY: KM
DRW BY: MH

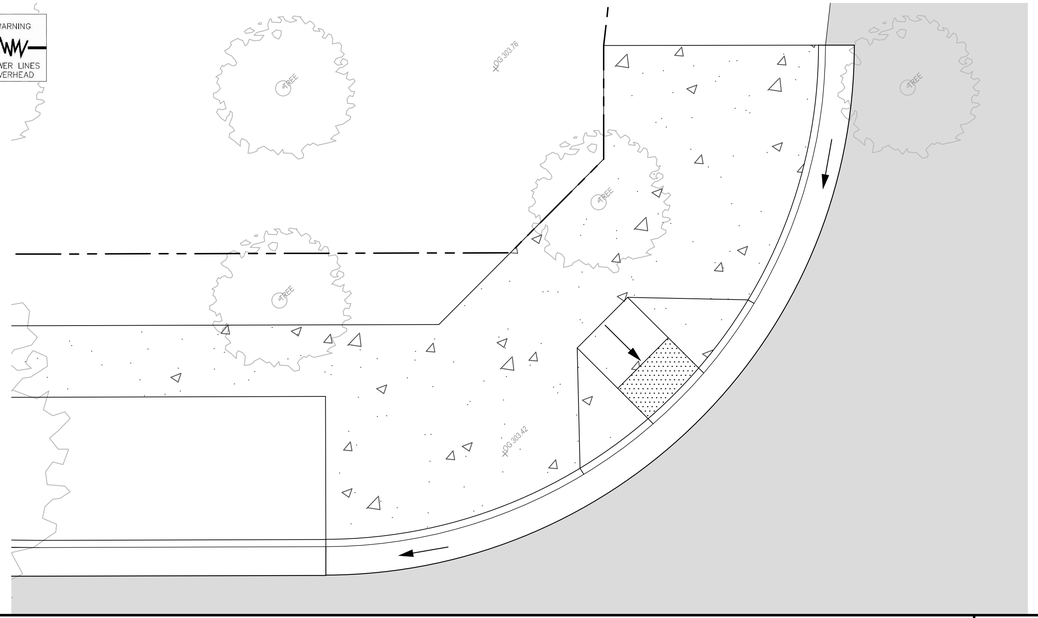
CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE WIDENING & IMPROVEMENTS
RAMP DETAILS

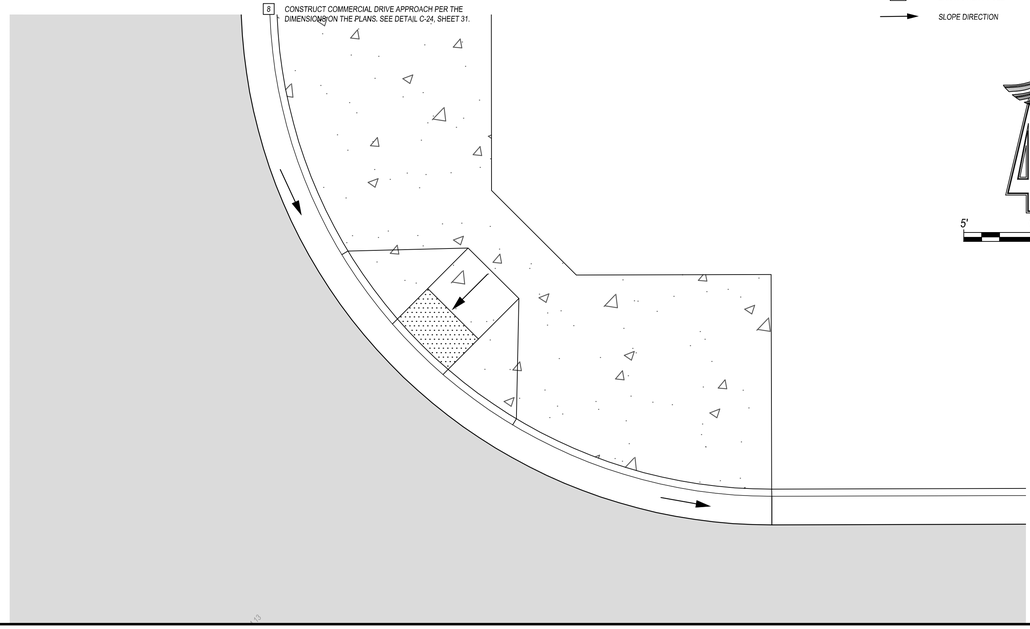
PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 28OF 61

Know what's **below.**
Call before you dig.

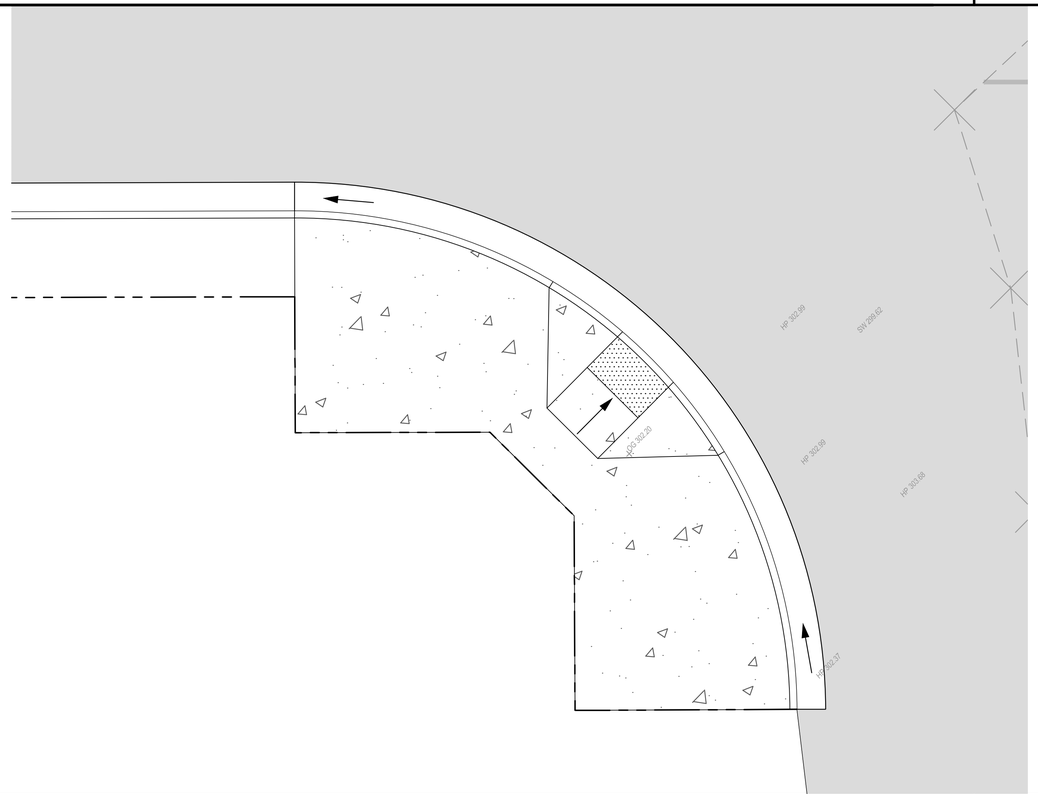
WARNING
POWER LINES OVERHEAD



RAMP DETAIL - NW CORNER OF SHIRK RD & RIGGIN AVE | R-5



RAMP DETAIL - NE CORNER OF SHIRK RD & RIGGIN AVE | R-6



RAMP DETAIL - SW CORNER OF SHIRK RD & RIGGIN AVE | R-7

CONSTRUCTION AND GRADING KEYNOTES: (THIS SHEET ONLY)

1. INSTALL CONCRETE COLD JOINT. SEE CITY STD. C-34, SHEET 25.
2. GUTTER PAN SHALL NOT EXCEED 5% IN THE PATH OF TRAVEL. ASPHALT TO BE FLUSH WITH LIP AT BOTTOM OF RAMPS.
3. PROVIDE 4'x4' MIN. ADA LANDING, SLOPE SHALL NOT EXCEED 2% IN ANY DIRECTION.
4. CONSTRUCT SIDEWALK PER CITY STD. C-9, SHEET 31.
5. CONSTRUCT DEPRESSED CURB WITH SMOOTH TRANSITION.
6. RE-GRADE LANDSCAPE AREAS TO MATCH NEW IMPROVEMENTS. ADJUST IRRIGATION TO PROVIDE FULLY FUNCTIONING SYSTEM & REPLACE LANDSCAPING IN KIND.
7. CONSTRUCT BUS TURNOUT PER THE DIMENSIONS ON THE PLANS. SEE DETAIL TR 5, SHEET 36.
8. CONSTRUCT COMMERCIAL DRIVE APPROACH PER THE DIMENSIONS ON THE PLANS. SEE DETAIL C-24, SHEET 31.

GENERAL NOTES

1. ALL CURBS AND CURB AND GUTTERS SHALL BE POURED PRIOR TO RAMPS AND SIDEWALKS, MONOLITHIC POURS WILL NOT BE ALLOWED.
2. CURBS AND GUTTER AT DRIVE APPROACHES SHALL BE PER CITY STD'S.
3. CROSS SLOPES PERPENDICULAR TO PATH OF TRAVEL ON ALL RAMPS AND SIDEWALKS TO BE 1.5% MAXIMUM
4. CONTRACTOR TO DAYLIGHT GRADE TO EXIST. AT A 4:1 MAX. SLOPE.

LEGEND

- DETECTABLE WARNING SURFACE
- PROPOSED CONCRETE
- PROPOSED ASPHALT SECTION
- EXISTING ASPHALT HATCH NOT SHOWN FOR CLARITY
- EXISTING CONCRETE
- EXIST. POWER POLE
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- SLOPE DIRECTION

NORTH
5' 0' 5'

NO.	DATE	DESCRIPTION

324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

PREPARED BY: 4CREEKS

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE WIDENING & IMPROVEMENTS
RAMP DETAILS

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 29 OF 61

Know what's **below.**
Call before you dig.

WARNING
POWER LINES OVERHEAD

CONSTRUCTION AND GRADING KEYNOTES: (THIS SHEET ONLY)

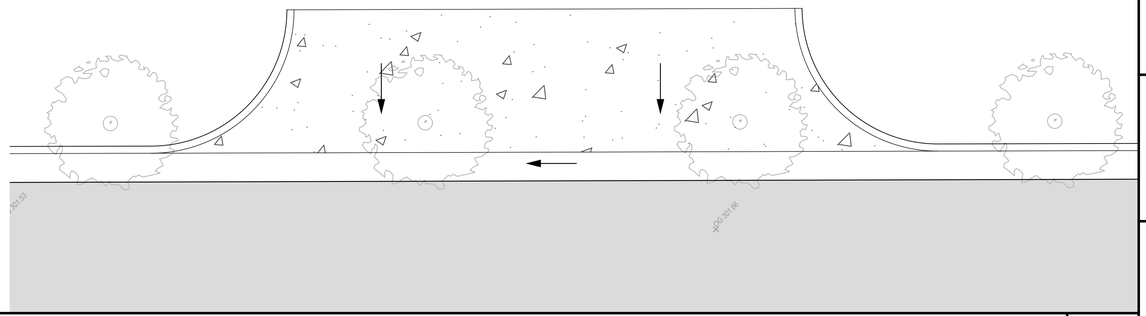
1. *INSTALL CONCRETE COLD JOINT. SEE CITY STD. C-34, SHEET 25.*
2. *GUTTER PAN SHALL NOT EXCEED 5% IN THE PATH OF TRAVEL. ASPHALT TO BE FLUSH WITH LIP AT BOTTOM OF RAMPS.*
3. *PROVIDE 4'x4' MIN. ADA LANDING, SLOPE SHALL NOT EXCEED 2% IN ANY DIRECTION.*
4. *CONSTRUCT SIDEWALK PER CITY STD. C-9, SHEET 31.*
5. *CONSTRUCT DEPRESSED CURB WITH SMOOTH TRANSITION.*
6. *RE-GRADE LANDSCAPE AREAS TO MATCH NEW IMPROVEMENTS. ADJUST IRRIGATION TO PROVIDE FULLY FUNCTIONING SYSTEM & REPLACE LANDSCAPING IN KIND.*
7. *CONSTRUCT BUS TURNOUT PER THE DIMENSIONS ON THE PLANS. SEE DETAIL TR-5, SHEET 36.*
8. *CONSTRUCT COMMERCIAL DRIVE APPROACH PER THE DIMENSIONS ON THE PLANS. SEE DETAIL C-24, SHEET 31.*

GENERAL NOTES

1. *ALL CURBS AND CURB AND GUTTERS SHALL BE POURED PRIOR TO RAMPS AND SIDEWALKS, MONOLITHIC POURS WILL NOT BE ALLOWED.*
2. *CURBS AND GUTTER AT DRIVE APPROACHES SHALL BE PER CITY STD'S.*
3. *CROSS SLOPES PERPENDICULAR TO PATH OF TRAVEL ON ALL RAMPS AND SIDEWALKS TO BE 1.5% MAXIMUM*
4. *CONTRACTOR TO DAYLIGHT GRADE TO EXIST. AT A 4:1 MAX. SLOPE.*

LEGEND

- *DETECTABLE WARNING SURFACE*
- *PROPOSED CONCRETE*
- *PROPOSED ASPHALT SECTION*
- *EXISTING ASPHALT HATCH NOT SHOWN FOR CLARITY*
- *EXISTING CONCRETE*
- *EXIST. POWER POLE*
- *EXIST. UTILITY POLE*
- *SLOPE DIRECTION*



DRIVE APPROACH DETAIL @ STA: XX+XX NORTH SIDE OF RIGGIN AVE. | DA-1

DRIVE APPROACH DETAIL @ STA: XX+XX SOUTH SIDE OF RIGGIN AVE. | DA-2

NO.	DATE	DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7293
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE WIDENING & IMPROVEMENTS
DRIVE APPROACH DETAILS

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 30 OF 61

GENERAL CONCRETE NOTES

1. ALL CONCRETE SHALL BE CLASS 3 CONCRETE UNLESS OTHERWISE SPECIFIED.
2. CLASS 2 CONCRETE SHALL CONTAIN NOT LESS THAN 590 POUNDS OF PORTLAND CEMENT PER CUBIC YARD WITH 1 INCH AGGREGATE. 5 INCH MAXIMUM SLUMP. 3000 P.S.I. AT 28 DAYS.
3. CLASS 3 CONCRETE SHALL CONTAIN NOT LESS THAN 505 POUNDS OF PORTLAND CEMENT PER CUBIC YARD WITH 1 INCH AGGREGATE. 5 INCH MAXIMUM SLUMP. 2500 P.S.I. AT 28 DAYS.
4. CLASS 4 CONCRETE SHALL CONTAIN NOT LESS THAN 420 POUNDS OF PORTLAND CEMENT PER CUBIC YARD WITH 1 INCH AGGREGATE. 5 INCH MAXIMUM SLUMP. 2500 P.S.I. AT 28 DAYS.
5. WHEN MAXIMUM DAYTIME TEMPERATURE EXCEEDS 50° F. ALL NEWLY PLACED CONCRETE SHALL BE SPRAYED UNIFORMLY WITH A CURING COMPOUND. CURING COMPOUND SHALL BE APPLIED AT A NOMINAL RATE OF ONE GALLON PER 150 SQUARE FEET, UNLESS OTHERWISE SPECIFIED.
6. ALL WORK CONSTRUCTED BY THESE STANDARDS SHALL BE IN COMPLIANCE WITH ALL CURRENT ADA REGULATIONS.
7. WHERE REBAR IS USED, CONTRACTOR SHALL INSTALL WIRE TIES SECURELY AT ALL REBAR CROSSINGS. CONCRETE BLOCK OR CHAIRS AS APPROVED BY THE CITY ENGINEER SHALL BE INSTALLED PRIOR TO CONCRETE INSTALLATION TO KEEP REBAR IN THE PROPER LOCATION.

CURBS AND GUTTERS

1. ALL CURB AND GUTTER, VEE GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL BE CLASS 3 CONCRETE.
2. BARRIER TYPE CURB AND GUTTER SHALL HAVE A MINIMUM GRADIENT OF 0.20 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
3. BARRIER TYPE CURB AND GUTTER ON THE CURVE OF CUL-DE-SACS AND STREET BULBS SHALL HAVE A MINIMUM GRADIENT OF 0.35 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
4. ROLL TYPE CURB AND GUTTER SHALL HAVE A MINIMUM GRADIENT OF 0.35 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
5. VEE GUTTER SHALL HAVE A MINIMUM GRADIENT OF 0.25 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
6. ALL CURB AND GUTTER, VEE GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED BASE MATERIALS. 95 PERCENT MINIMUM RELATIVE COMPACTION.
7. ALL CURB AND GUTTER, VEE GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL HAVE A LIGHT BROOM FINISH.
8. ALL CURB AND GUTTER AND VEE GUTTER SHALL HAVE WEAKENED PLANE JOINTS CONSTRUCTED AT 15 FOOT CENTERS. MEDIAN CURB AND LANDSCAPE CURB SHALL HAVE WEAKENED PLANE JOINTS CONSTRUCTED AT 8 FOOT CENTERS. WEAKENED PLANE JOINTS SHALL BE A MINIMUM OF 1-1/2 INCHES IN DEPTH AND SHALL BE FINISHED WITH A SCORING TOOL LEAVING THE EDGES ROUNDED.
9. ALL EXPOSED SURFACES OF CURB AND GUTTER, VEE GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL NOT VARY IN EXCESS OF 0.02 FEET WHEN A 10 FOOT STRAIGHT EDGE IS PLACED ON THE SURFACE, EXCEPT AT GRADE CHANGES OR CURVES.
10. ALL CURB AND GUTTER AND VEE GUTTER SHALL BE WATER TESTED FOR FLOW.
11. ALL CURB AND GUTTER, VEE GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL BE CURED IN ACCORDANCE WITH THE PROVISIONS IN THE GENERAL CONCRETE NOTES IN THESE IMPROVEMENT STANDARDS.

APPROVED BY: [signature] 09/16/16 CITY ENGINEER R.P.E. 81734 DATE
CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS
CONCRETE SPECIFICATIONS — REVISIONS 07/19/16 BK 2016 — C-1

CONCRETE SPECIFICATIONS 1 — C-1

SIDEWALKS AND RAMPS

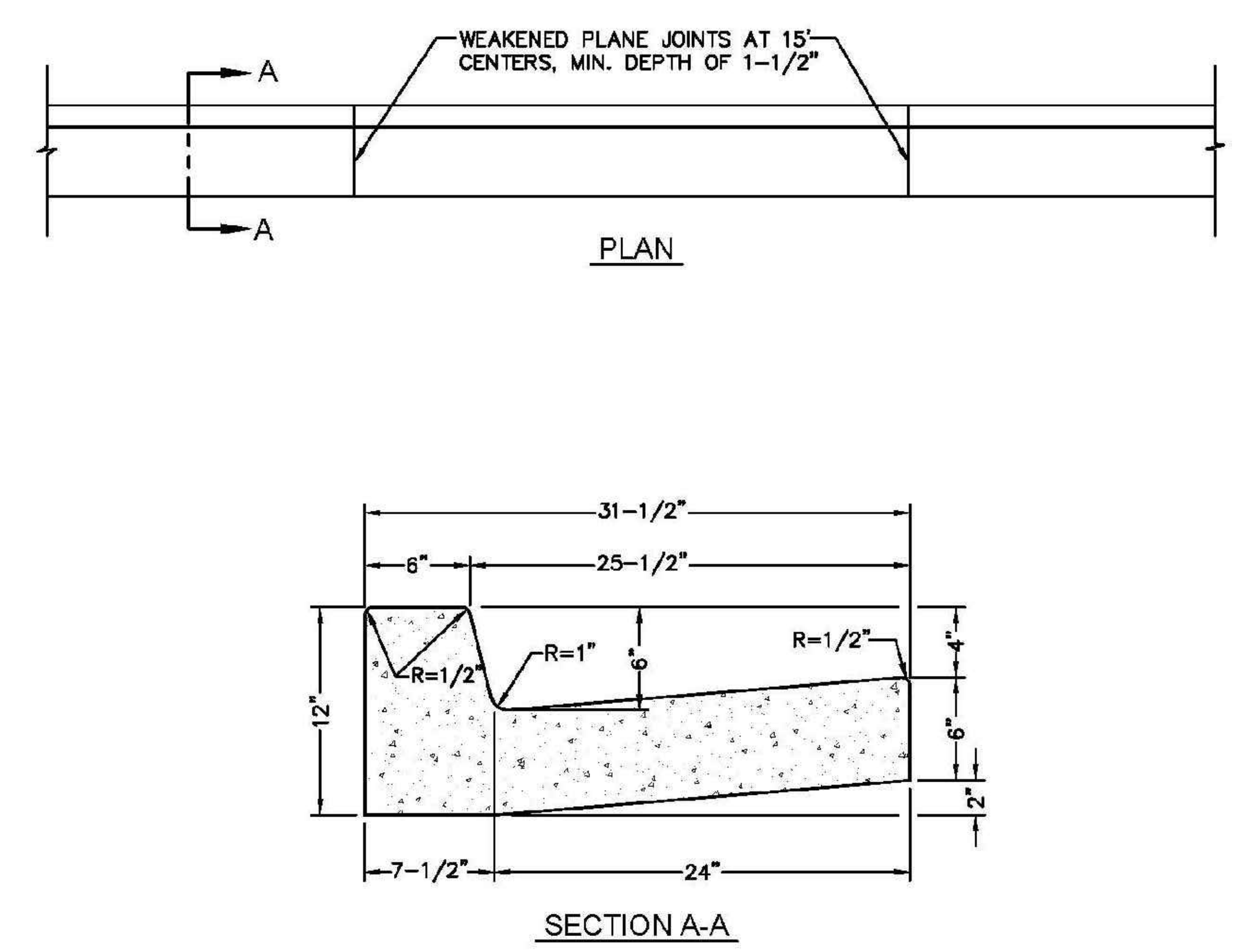
1. ALL SIDEWALKS AND RAMPS SHALL BE CLASS 3 CONCRETE.
2. SIDEWALKS AND RAMPS SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED BASE MATERIALS. 90 PERCENT RELATIVE COMPACTION UNDER SIDEWALKS. 95 PERCENT RELATIVE COMPACTION UNDER RAMPS AND SIDEWALKS AT CURB RETURNS.
3. SIDEWALKS AND RAMPS SHALL BE STEEL TROWELED AND HAVE A LIGHT BROOM FINISH UNLESS OTHERWISE NOTED. RAMPS SHALL HAVE A HEAVY BROOM FINISH ACROSS THE SLOPE OF THE RAMP.
4. SIDEWALKS AND RAMPS SHALL HAVE WEAKENED PLANE JOINTS CONSTRUCTED AT 15 FOOT CENTERS AND WHERE SHOWN IN THESE IMPROVEMENT STANDARDS. WEAKENED PLANE JOINTS SHALL BE A MINIMUM OF 1 INCH IN DEPTH AND SHALL BE FINISHED WITH A SCORING TOOL LEAVING THE EDGES ROUNDED.
5. ESTABLISHED SIDEWALK PATTERN IN BLOCK SHALL BE MATCHED.
6. SPECIAL SIDEWALK DESIGNS AND MATERIALS SHALL BE SUBJECT TO APPROVAL BY THE CITY ENGINEER.
7. SIDEWALK INSTALLED IN INFILL OR EXISTING AREAS SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.
8. ALL SIDEWALKS AND RAMPS SHALL BE CURED IN ACCORDANCE WITH THE PROVISIONS IN THE GENERAL CONCRETE NOTES OF THESE IMPROVEMENT STANDARDS.
9. DETECTABLE WARNING SURFACES SHALL BE INSTALLED PER THESE IMPROVEMENT STANDARDS AND AS REQUIRED BY THE CITY ENGINEER.

DRIVE APPROACHES

1. ALL DRIVE APPROACHES SHALL BE CLASS 3 CONCRETE UNLESS OTHERWISE NOTED.
2. SINGLE FAMILY RESIDENTIAL DRIVE APPROACHES SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED BASE MATERIALS. 95 PERCENT RELATIVE COMPACTION.
3. MULTI-FAMILY RESIDENTIAL, OFFICE AND COMMERCIAL DRIVE APPROACHES SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED BASE MATERIALS. 95 PERCENT RELATIVE COMPACTION.
4. MAJOR COMMERCIAL DRIVE APPROACHES SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED CLASS 2 AGGREGATE BASE OVER 6 INCH MOIST AND COMPACTED BASE MATERIALS. 95 PERCENT RELATIVE COMPACTION.
5. DRIVE APPROACHES SHALL BE STEEL TROWELED AND HAVE A LIGHT BROOM FINISH.
6. DRIVE APPROACHES SHALL HAVE A WEAKENED PLANE JOINT CONSTRUCTED AT EACH EDGE AND AT THE CENTERLINE. WEAKENED PLANE JOINTS SHALL BE A MINIMUM OF 1-1/2 INCH IN DEPTH AND SHALL BE FINISHED WITH A SCORING TOOL LEAVING THE EDGES ROUNDED.
7. NOT MORE THAN 50 PERCENT OF PROPERTY FRONTAGE SHALL BE USED AS DRIVE APPROACH.
8. DRIVE APPROACHES ON STATE ROUTES ARE SUBJECT TO APPROVAL BY CALTRANS.
9. ALL EXPOSED SURFACES OF DRIVE APPROACHES AND FLOW LINES SHALL NOT VARY IN EXCESS OF 0.02 FEET WHEN A 10 FOOT STRAIGHT EDGE IS PLACED ON THE SURFACE, EXCEPT AT GRADE CHANGES OR CURVES.
10. ALL DRIVE APPROACHES SHALL BE CURED IN ACCORDANCE WITH THE PROVISIONS IN THE GENERAL CONCRETE NOTES OF THESE IMPROVEMENT STANDARDS.

APPROVED BY: [signature] 09/16/16 CITY ENGINEER R.P.E. 81734 DATE
CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS
CONCRETE SPECIFICATIONS — REVISIONS 06/14/13 BK 2016 — C-2

CONCRETE SPECIFICATIONS 2 — C-2

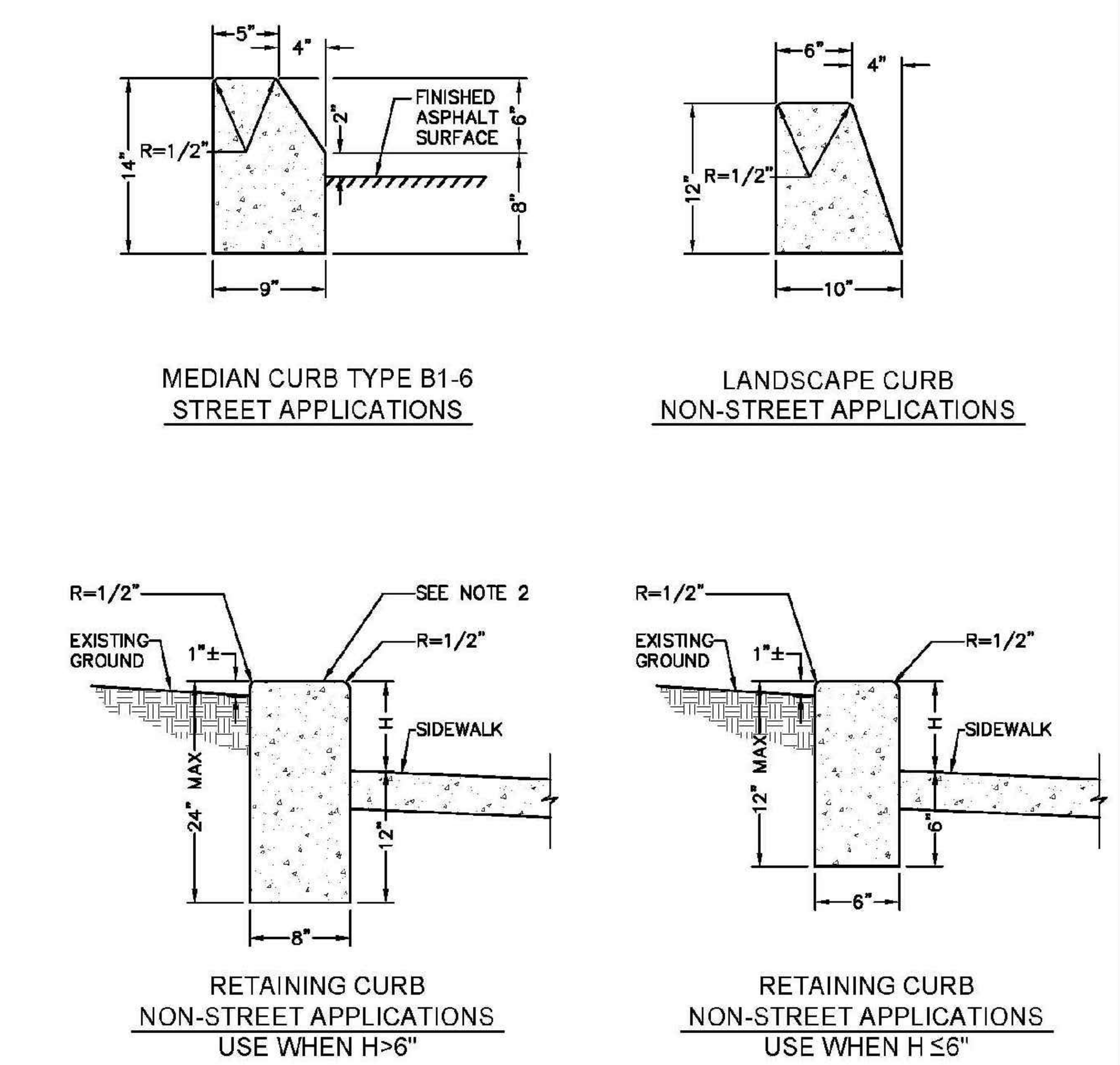


NOTES:

1. ALL CONCRETE SHALL BE CLASS 3 CONCRETE.
2. A WEAKENED PLANE JOINT OR COLD JOINT SHALL BE INSTALLED AT THE END OF CURB RETURNS AND AT THE CENTERLINE OF PROPOSED DRIVE APPROACHES.
3. CALTRANS FACILITIES REQUIRE STATE STANDARD CURB AND GUTTER.
4. WHERE ADA ACCESSIBLE PATH CROSSES GUTTER PAN, SLOPE IN THE DIRECTION OF TRAVEL SHALL BE 4% MININMUM AND 5% MAXIMUM.

APPROVED BY: [signature] 09/16/16 CITY ENGINEER R.P.E. 81734 DATE
CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS
BARRIER CURB AND GUTTER TYPE A2-6 — REVISIONS 06/30/16 BK 2016 — C-4

BARRIER CURB & GUTTER — C-4

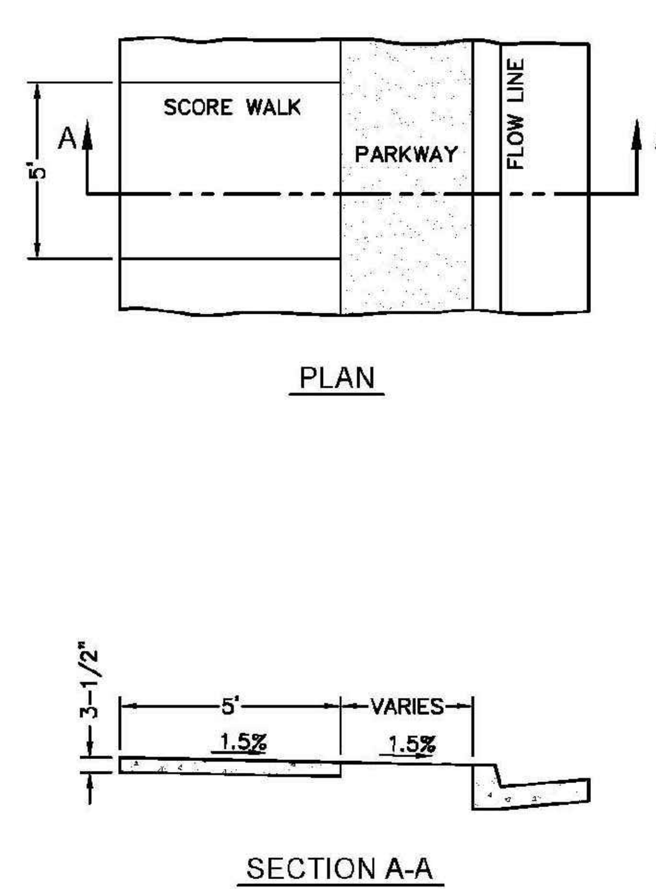


NOTES:

1. ALL CONCRETE SHALL BE CLASS 3 CONCRETE.
2. REBAR SHALL BE USED AT THE DISCRETION OF THE CITY ENGINEER.

APPROVED BY: [signature] 09/16/16 CITY ENGINEER R.P.E. 81734 DATE
CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS
MEDIAN CURB TYPE B1-6, RETAINING CURB AND LANDSCAPE CURB — REVISIONS 06/14/13 BK 2016 — C-8

MEDIAN CURB — C-8

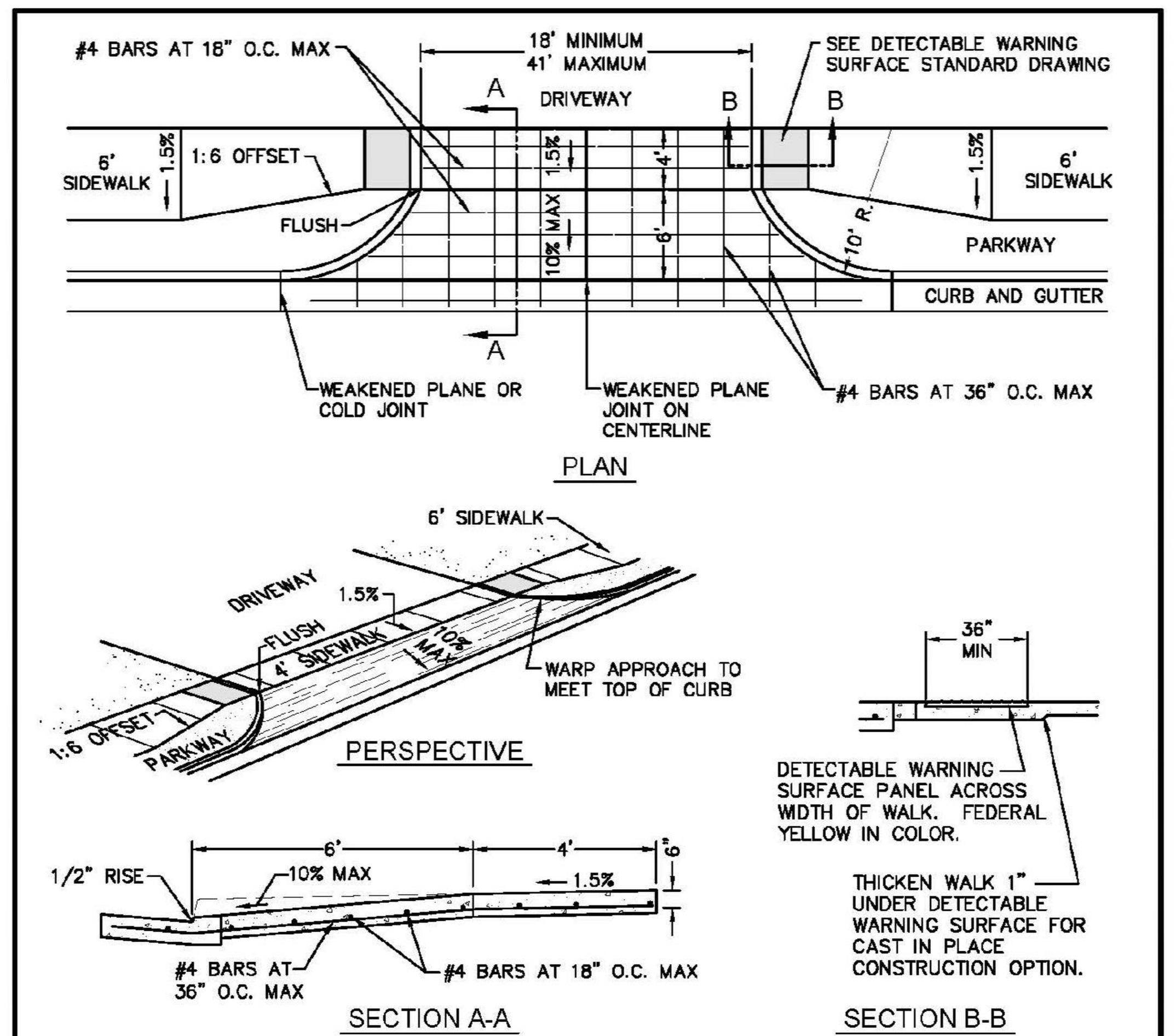


NOTES:

1. ALL CONCRETE SHALL BE CLASS 3 CONCRETE.

APPROVED BY: [signature] 09/16/16 CITY ENGINEER R.P.E. 81734 DATE
CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS
SIDEWALK – RESIDENTIAL WITH PARKWAY — REVISIONS 06/30/16 BK 2016 — C-9

SIDEWALKS - RESIDENTIAL W/ PARKWAY — C-9



NOTES:

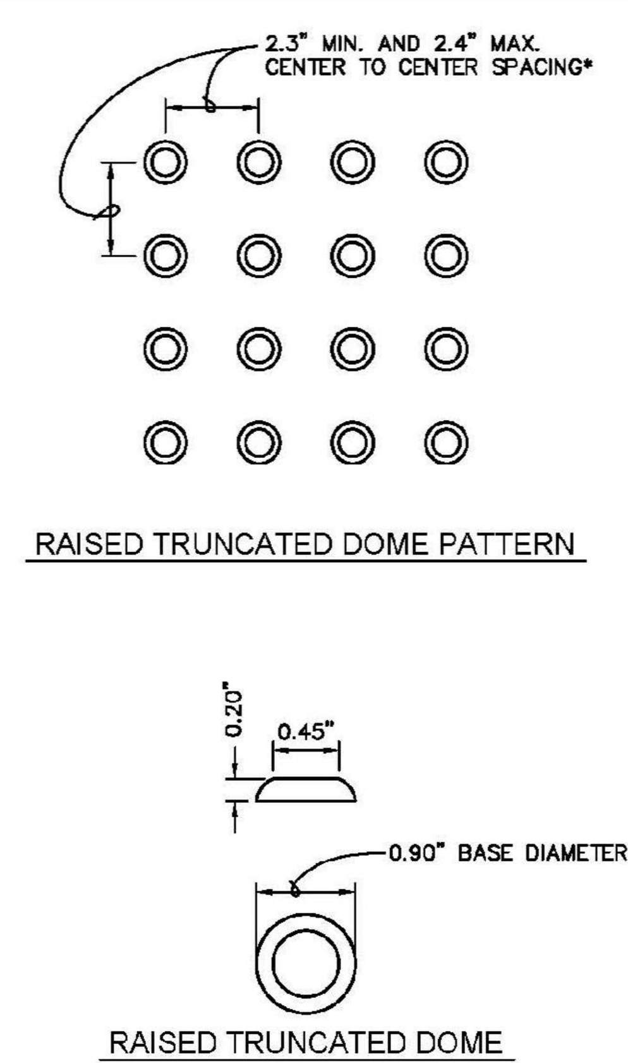
1. ALL CONCRETE SHALL BE CLASS 3 CONCRETE.
2. ON COLLECTOR AND ARTERIAL STREETS, THE MINIMUM DRIVE APPROACH WIDTH SHALL BE 21' FOR ONE-WAY DRIVE APPROACHES AND 36' FOR TWO-WAY DRIVE APPROACHES, OR AS APPROVED BY CITY ENGINEER.
3. REBAR SHALL BE DEFORMED STEEL BARS AND SHALL BE GRADE 40 MINIMUM. REBAR SHALL BE FREE OF RUST OR DIRT AND SHALL BE THOROUGHLY CLEANED BEFORE PLACEMENT.
4. REBAR SHALL HAVE A MINIMUM OF 2" OF CLEAR COVERAGE.
5. NOT MORE THAN 50% OF PROPERTY FRONTAGE SHALL BE USED AS DRIVE APPROACH.
6. WIDTH AND LOCATION OF DRIVE APPROACHES ON STATE ROUTES IS SUBJECT TO APPROVAL BY CALTRANS.

APPROVED BY: [signature] 09/16/16 CITY ENGINEER R.P.E. 81734 DATE
CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS
OFFICE/COMMERCIAL DRIVE APPROACH (ALTERNATIVE – WITH CURB RETURNS) — REVISIONS 09/15/16 BK 2016 — C-24

COMMERCIAL DRIVE APPROACH — C-24

NOTE:

* WHERE INSTALLED IN A RADIAL PATTERN, TRUNCATED DOMES SHALL HAVE A CENTER TO CENTER SPACING OF 1.6" MINIMUM TO 2.4" MAXIMUM OR AS INDICATED PER CURRENT CBC.

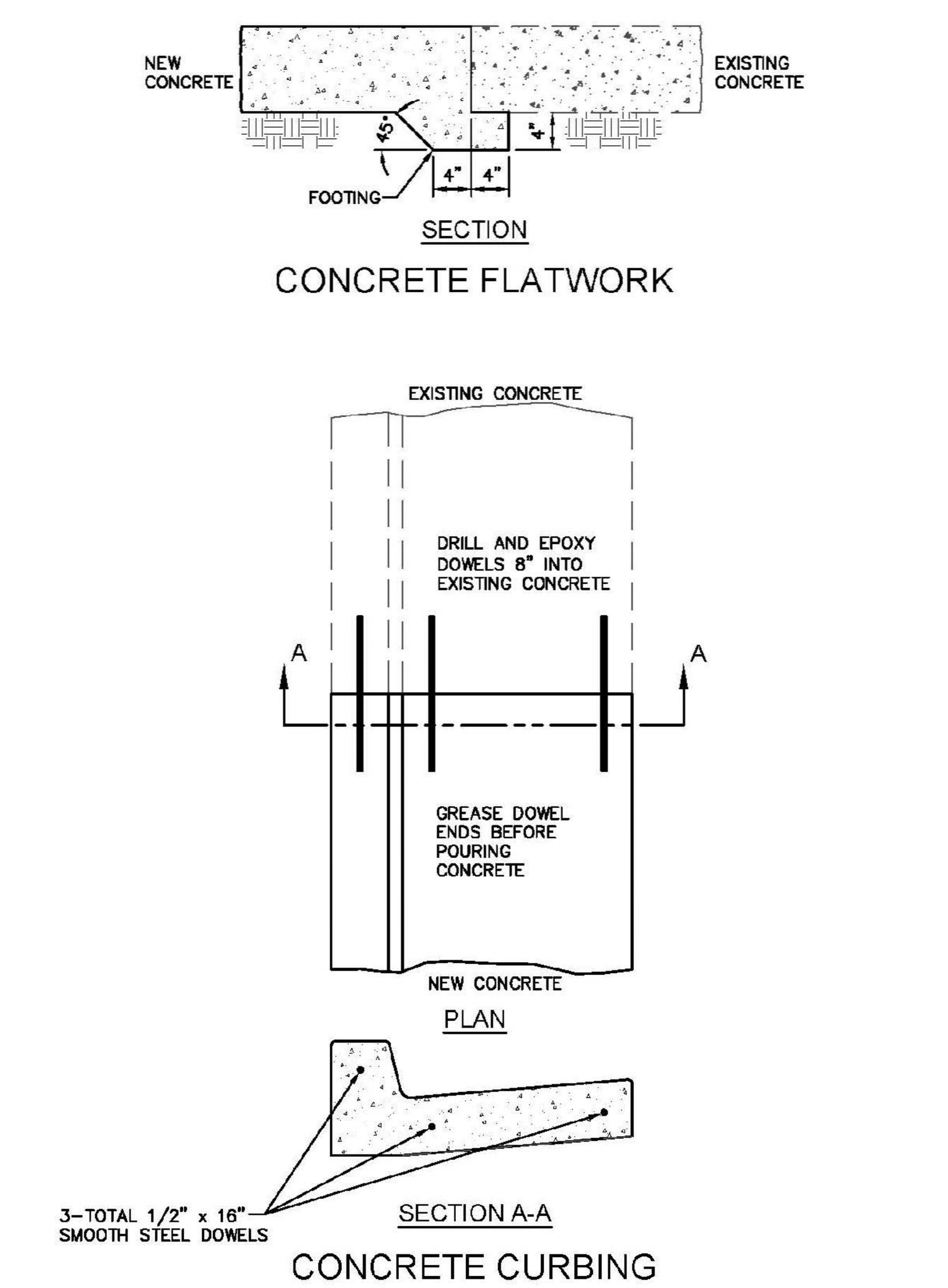


NOTES:

1. DETECTABLE WARNING SURFACE SHALL BE INSTALLED AT THE BOTTOM OF ALL CURB RAMPS.
2. DETECTABLE WARNING SHALL BE INSTALLED SO THAT IT BUTTS UP FLUSH AGAINST THE BACK OF ADJACENT CURB. WHERE CURBS ARE ON A CURVE, THE BACK OF CURB SHALL BE STRAIGHTENED AT THE DETECTABLE WARNING LOCATION SO THE WARNING BUTTS UP FLUSH AGAINST THE BACK OF CURB.
3. DETECTABLE WARNING SURFACE SHALL BE THE FULL WIDTH OF RAMP AND SHALL BE A MINIMUM OF 36" IN DEPTH.
4. DETECTABLE WARNING SURFACE SHALL BE PREMIXED FEDERAL YELLOW COLORED AND SHALL BE AN AUTHORIZED MATERIAL FROM THE CITY OF VISALIA DETECTABLE WARNING SURFACE AUTHORIZED MATERIAL LIST.
5. IN RETROFIT TYPE SITUATIONS ON EXISTING SURFACES THE CITY WILL ALLOW RETROFIT TYPE WARNING PANELS. RETROFIT PANEL MATERIALS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR ACCEPTANCE PRIOR TO CONSTRUCTION. PANELS SHALL BE GLUED AND BOLTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. BOTTOM OF PANELS SHALL BE FLUSH AGAINST THE ADJACENT CONCRETE SURFACE.

APPROVED BY: [signature] 09/16/16 CITY ENGINEER R.P.E. 81734 DATE
CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS
DETECTABLE WARNING SURFACE DETAIL — REVISIONS 09/15/16 BK 2016 — C-33

DETECTABLE WARNING SURFACE — C-33



APPROVED BY: [signature] 09/16/16 CITY ENGINEER R.P.E. 81734 DATE
CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS
CONCRETE COLD JOINTS — REVISIONS 10/23/12 BK 2016 — C-34

CONCRETE COLD JOINTS — C-34

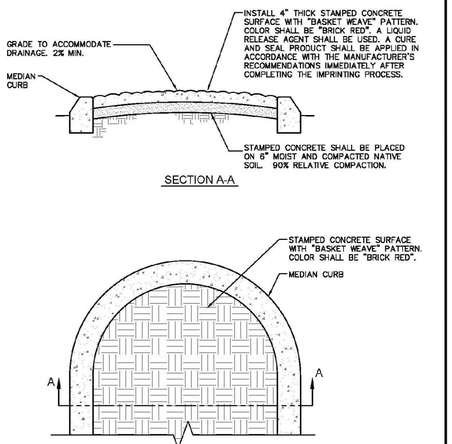
NO. | DATE | DESCRIPTION

PREPARED BY: 4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
DRW BY: MH CHK BY: KM

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
CIVIL DETAILS

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM DRAWN BY:MH
SCALE: AS SHOWN
SHEET 31 OF 61



NOTES:

1. WHEN MATCHING AN EXISTING COBBLESTONE MEDIAN, "RIVER ROCK" PATTERN WITH "COBBLESTONE GRAY" COLOR AND A LIQUID RELEASE AGENT SHALL BE USED.

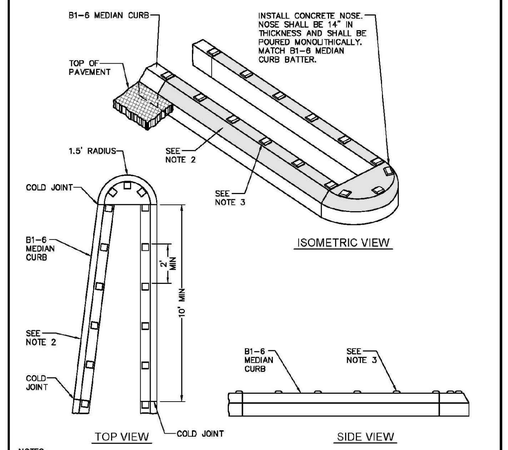
APPROVED BY: _____ CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

STAMPED CONCRETE MEDIAN

REVISIONS 07/19/16 BK 2016

C-35



NOTES:

1. ALL CONCRETE SHALL BE CLASS 3 CONCRETE.
2. THE TOP AND FACE OF THE CURB SHALL BE PAINTED WITH WHITE OR YELLOW WATERBORNE PAINT AND APPLY GLASS BEADS FOR RETROREFLECTIVITY IN ACCORDANCE TO CITY OF VISALIA STANDARD SPECIFICATIONS.
3. INSTALL TYPE G OR TYPE D RAISED PAVEMENT MARKERS PER CALTRANS STANDARD SPECIFICATIONS SECTION 81-3.02C. THE RAISED PAVEMENT MARKERS SHALL BE ATTACHED TO THE TOP OF THE CURB USING ADHESIVES PER CALTRANS STANDARD SPECIFICATIONS SECTIONS 81-3.02D AND 81-3.02E.

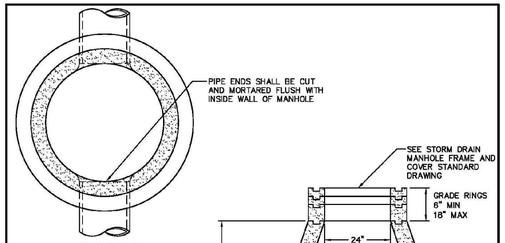
APPROVED BY: _____ CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

MEDIAN NOSE DETAIL

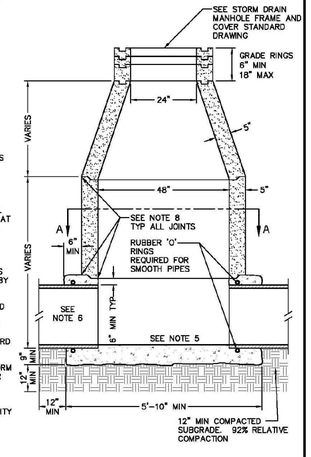
REVISIONS 09/08/16 BK 2016

C-36



NOTES:

1. ALL CONCRETE SHALL BE CLASS 2 CONCRETE.
2. MANHOLE PIPE, CONE AND GRADE RINGS SHALL BE PRECAST REINFORCED CONCRETE AS PER ASTM C478.
3. JOINTS SHALL BE RUBBER GASKET AS PER ASTM C443 OR JOINTS SHALL BE CONSTRUCTED WITH MASTIC (KENT SEAL NO. 2 OR EQUAL) AS PER ASTM C990 AT CONTRACTOR'S OPTION. MASTIC SHALL COVER A MINIMUM OF ONE-HALF THE COMPRESSED SURFACE. ALL JOINTS SHALL BE WATER TIGHT.
4. MAXIMUM DISTANCE BETWEEN MANHOLES SHALL BE 500 FEET OR AS REQUIRED BY THE CITY ENGINEER.
5. SUMP BOTTOM MANHOLES ARE REQUIRED ON ALL STORM DRAIN SYSTEMS WITH PUMPS. 18" SUMP BELOW PIPE INVERT WHERE REQUIRED. SEE STORM DRAIN MANHOLE SUMP REQUIREMENTS STANDARD DRAWING.
6. 48" MANHOLES ARE REQUIRED FOR STORM DRAIN PIPE SIZES FROM 12" TO 24" OR AS REQUIRED BY THE CITY ENGINEER.
7. EXFILTRATION TEST REQUIRED AS PER ASTM C969-02, AS IMPLEMENTED BY CITY OF VISALIA.
8. SEE STORM DRAIN MANHOLE JOINT FINISHING REQUIREMENTS STANDARD DRAWING.



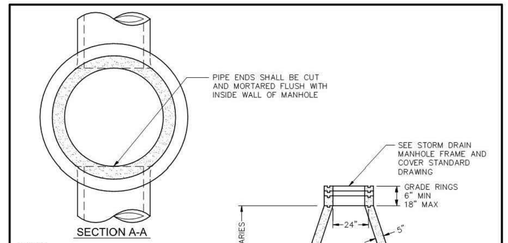
APPROVED BY: _____ CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

48" STORM DRAIN MANHOLE

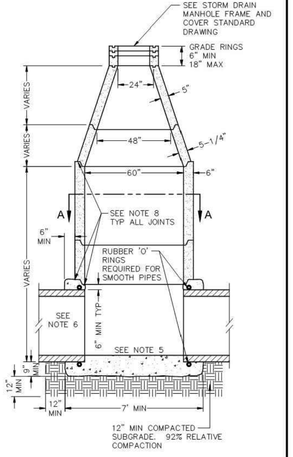
REVISIONS 06/14/13 BK 2016

D-1



NOTES:

1. ALL CONCRETE SHALL BE CLASS 2 CONCRETE.
2. MANHOLE PIPE, CONE AND GRADE RINGS SHALL BE PRECAST REINFORCED CONCRETE AS PER ASTM C478.
3. JOINTS SHALL BE RUBBER GASKET AS PER ASTM C443 OR JOINTS SHALL BE CONSTRUCTED WITH MASTIC (KENT SEAL NO. 2 OR EQUAL) AS PER ASTM C990 AT CONTRACTOR'S OPTION. MASTIC SHALL COVER A MINIMUM OF ONE-HALF THE COMPRESSED SURFACE. ALL JOINTS SHALL BE WATER TIGHT.
4. MAXIMUM DISTANCE BETWEEN MANHOLES SHALL BE 500 FEET OR AS REQUIRED BY THE CITY ENGINEER.
5. SUMP BOTTOM MANHOLES ARE REQUIRED ON ALL STORM DRAIN SYSTEMS WITH PUMPS. 18" SUMP BELOW PIPE INVERT WHERE REQUIRED. SEE STORM DRAIN MANHOLE SUMP REQUIREMENTS STANDARD DRAWING.
6. 60" MANHOLES ARE REQUIRED FOR STORM DRAIN PIPE SIZES FROM 27" TO 36" OR AS REQUIRED BY THE CITY ENGINEER.
7. EXFILTRATION TEST REQUIRED AS PER ASTM C969-02, AS IMPLEMENTED BY CITY OF VISALIA.
8. SEE STORM DRAIN MANHOLE JOINT FINISHING REQUIREMENTS STANDARD DRAWING.



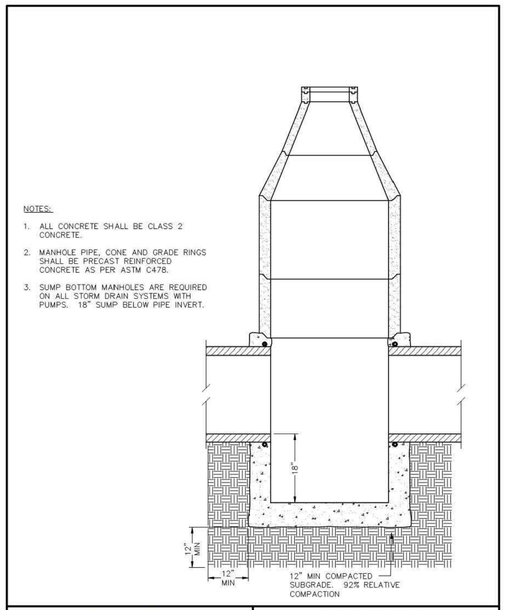
APPROVED BY: _____ CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

60" STORM DRAIN MANHOLE

REVISIONS 06/14/13 BK 2016

D-2



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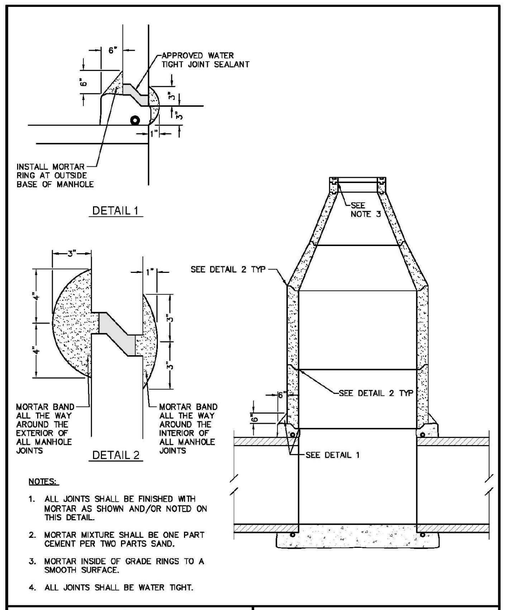
CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

STORM DRAIN MANHOLE
SUMP REQUIREMENTS

REVISIONS 06/14/13 BK 2016

D-6



NOTES:

1. ALL JOINTS SHALL BE FINISHED WITH MORTAR AS SHOWN AND/OR NOTED ON THIS DETAIL.
2. MORTAR MIXTURE SHALL BE ONE PART CEMENT PER TWO PARTS SAND.
3. MORTAR INSIDE OF GRADE RINGS TO A SMOOTH SURFACE.
4. ALL JOINTS SHALL BE WATER TIGHT.

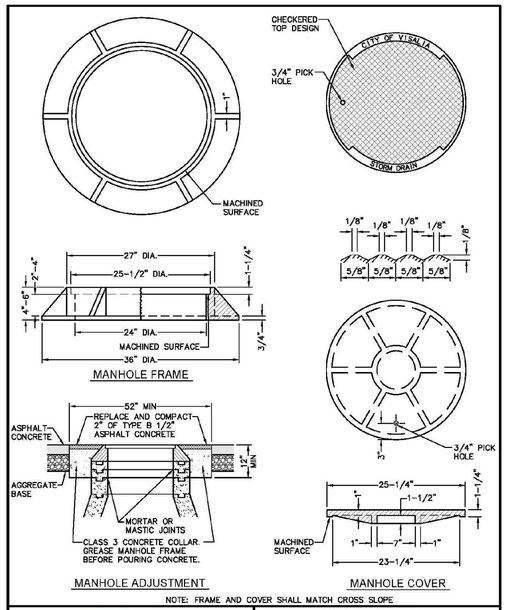
APPROVED BY: _____ CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

STORM DRAIN MANHOLE
JOINT FINISHING REQUIREMENTS

REVISIONS 06/14/13 BK 2016

D-7



NOTE: FRAME AND COVER SHALL MATCH CROSS SLOPE

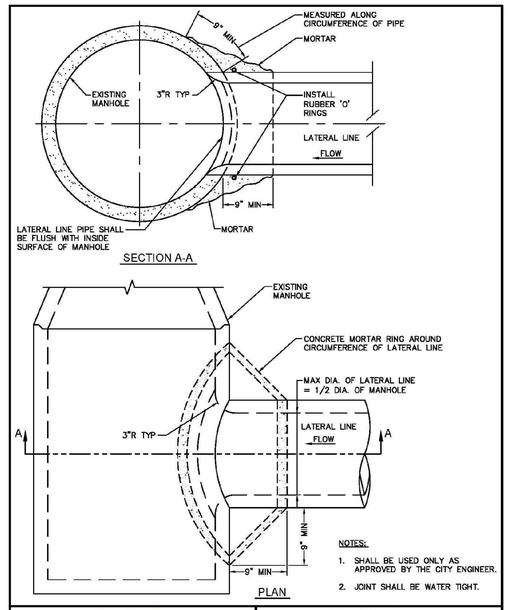
APPROVED BY: _____ CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

STORM DRAIN
MANHOLE FRAME AND COVER

REVISIONS 06/14/13 BK 2016

D-8



NOTES:

1. SHALL BE USED ONLY AS APPROVED BY THE CITY ENGINEER.
2. JOINT SHALL BE WATER TIGHT.

APPROVED BY: _____ CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

LATERAL LINE CONNECTION
AT EXISTING MANHOLE

REVISIONS 06/14/13 BK 2016

D-10

NO. DATE DESCRIPTION

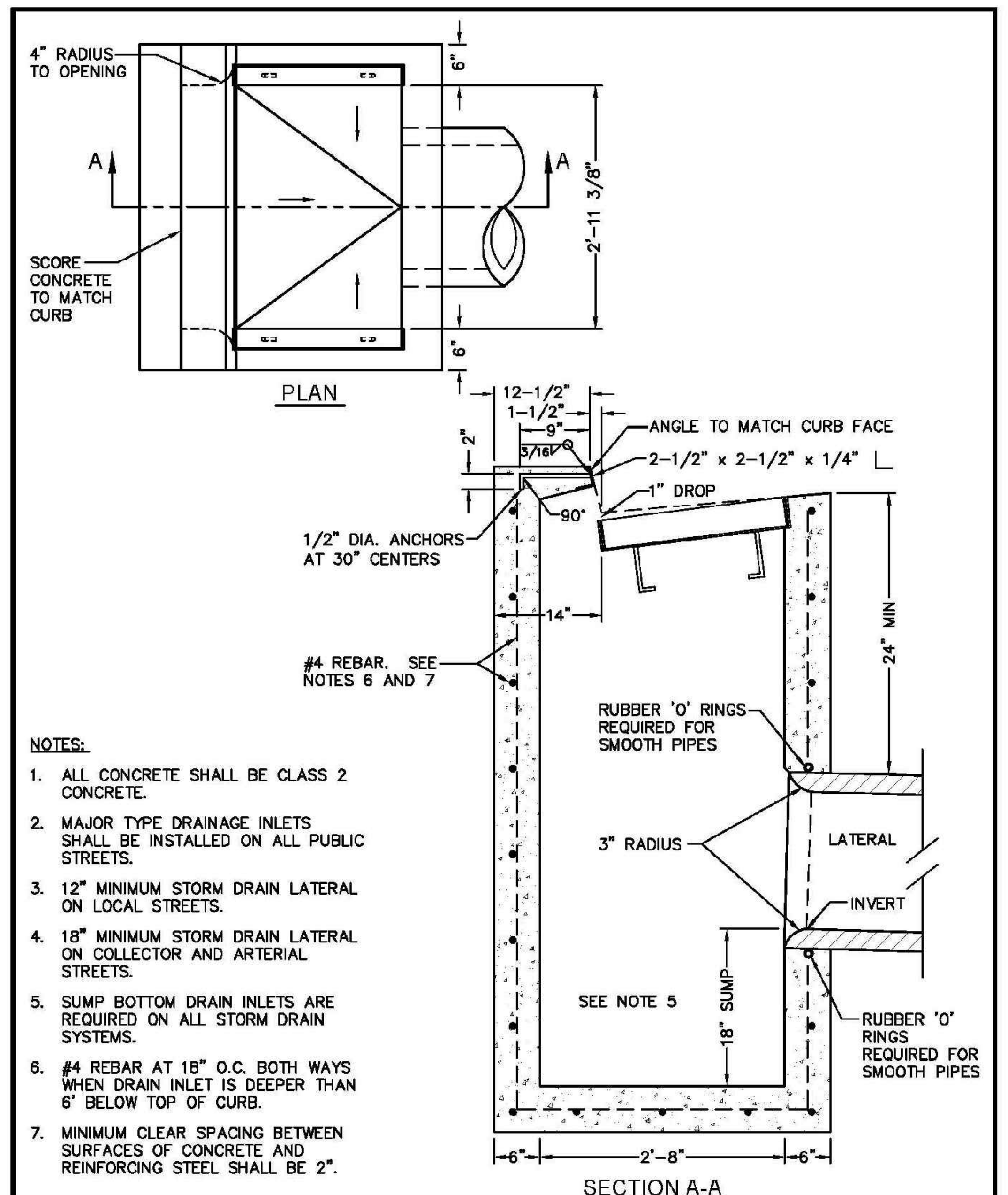
PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7293
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
CIVIL DETAILS

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM DRAWN BY:MH
SCALE: AS SHOWN
SHEET 32 OF 61



NOTES:

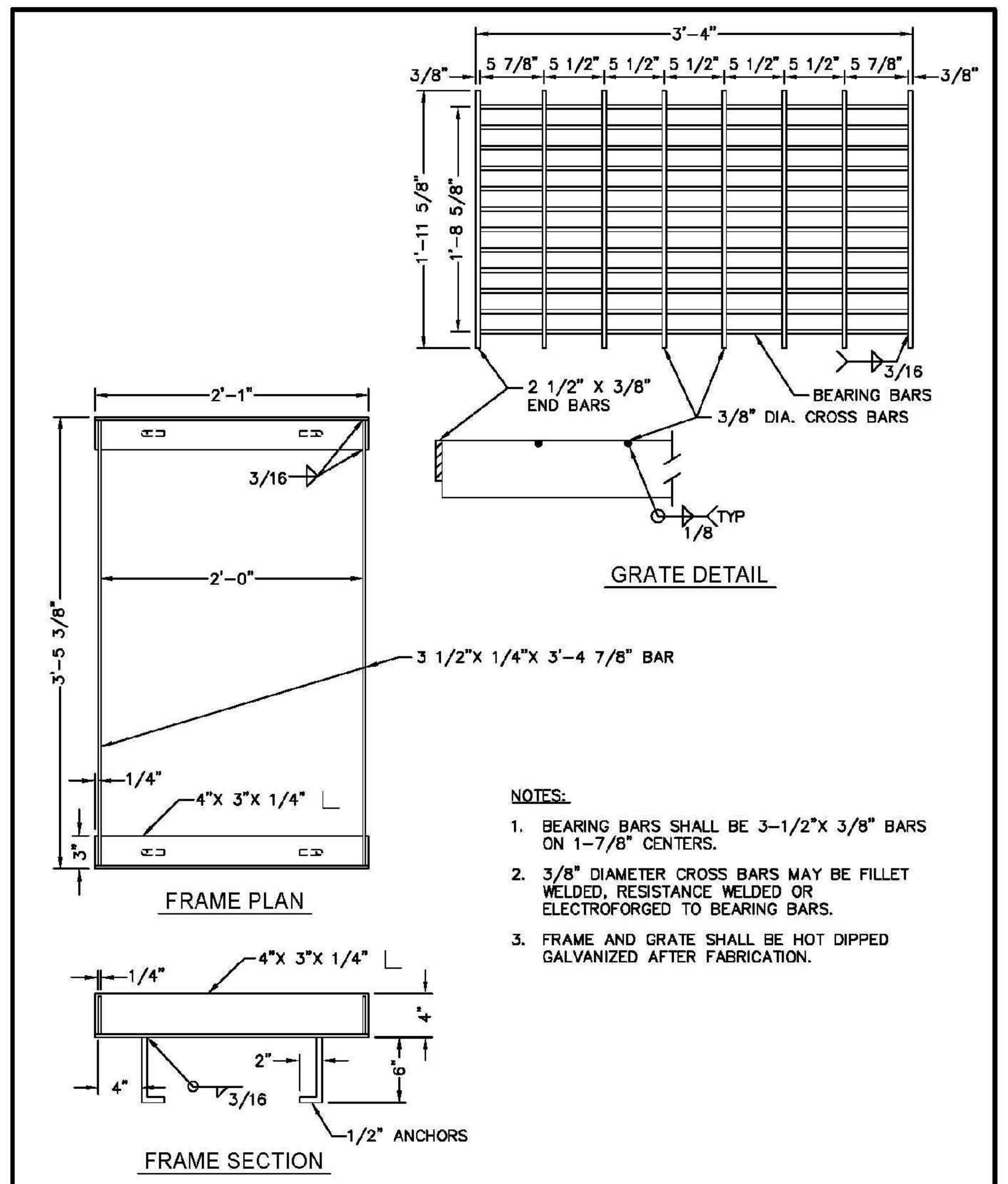
1. ALL CONCRETE SHALL BE CLASS 2 CONCRETE.
2. MAJOR TYPE DRAINAGE INLETS SHALL BE INSTALLED ON ALL PUBLIC STREETS.
3. 12" MINIMUM STORM DRAIN LATERAL ON LOCAL STREETS.
4. 18" MINIMUM STORM DRAIN LATERAL ON COLLECTOR AND ARTERIAL STREETS.
5. SUMP BOTTOM DRAIN INLETS ARE REQUIRED ON ALL STORM DRAIN SYSTEMS.
6. #4 REBAR AT 18" O.C. BOTH WAYS WHEN DRAIN INLET IS DEEPER THAN 6' BELOW TOP OF CURB.
7. MINIMUM CLEAR SPACING BETWEEN SURFACES OF CONCRETE AND REINFORCING STEEL SHALL BE 2".

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

DRAINAGE INLET – GO TYPE | REVISIONS 06/14/13 BK 2016 | D–12

DRAINAGE INLET | D-12



NOTES:

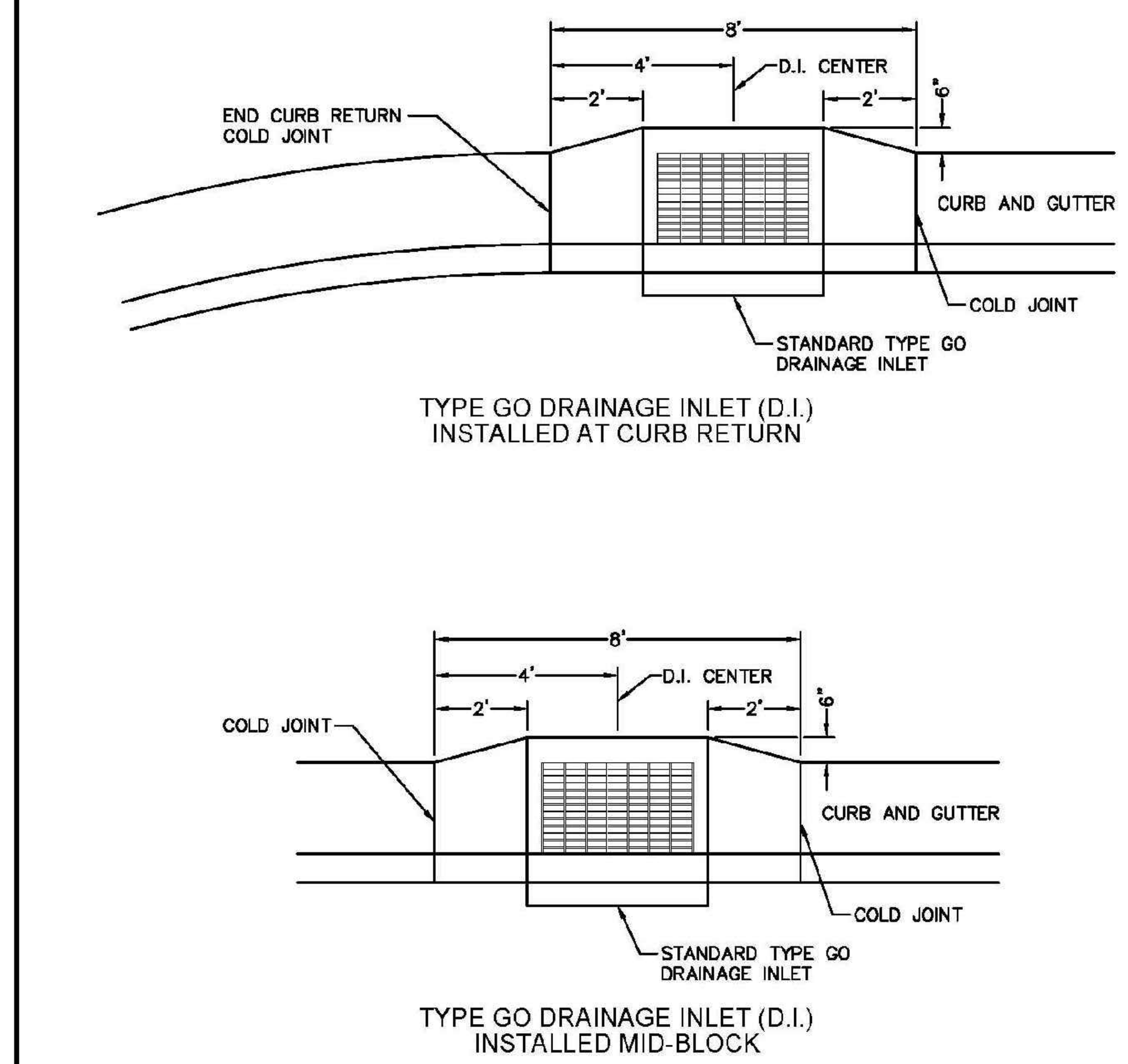
1. BEARING BARS SHALL BE 3-1/2"X 3/8" BARS ON 1-7/8" CENTERS.
2. 3/8" DIAMETER CROSS BARS MAY BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.
3. FRAME AND GRATE SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

DRAINAGE INLET – GO TYPE FRAME AND GRATE DETAIL | REVISIONS 06/17/04 BK 2016 | D–13

DRAINAGE INLET - FRAME & GRATE | D-13

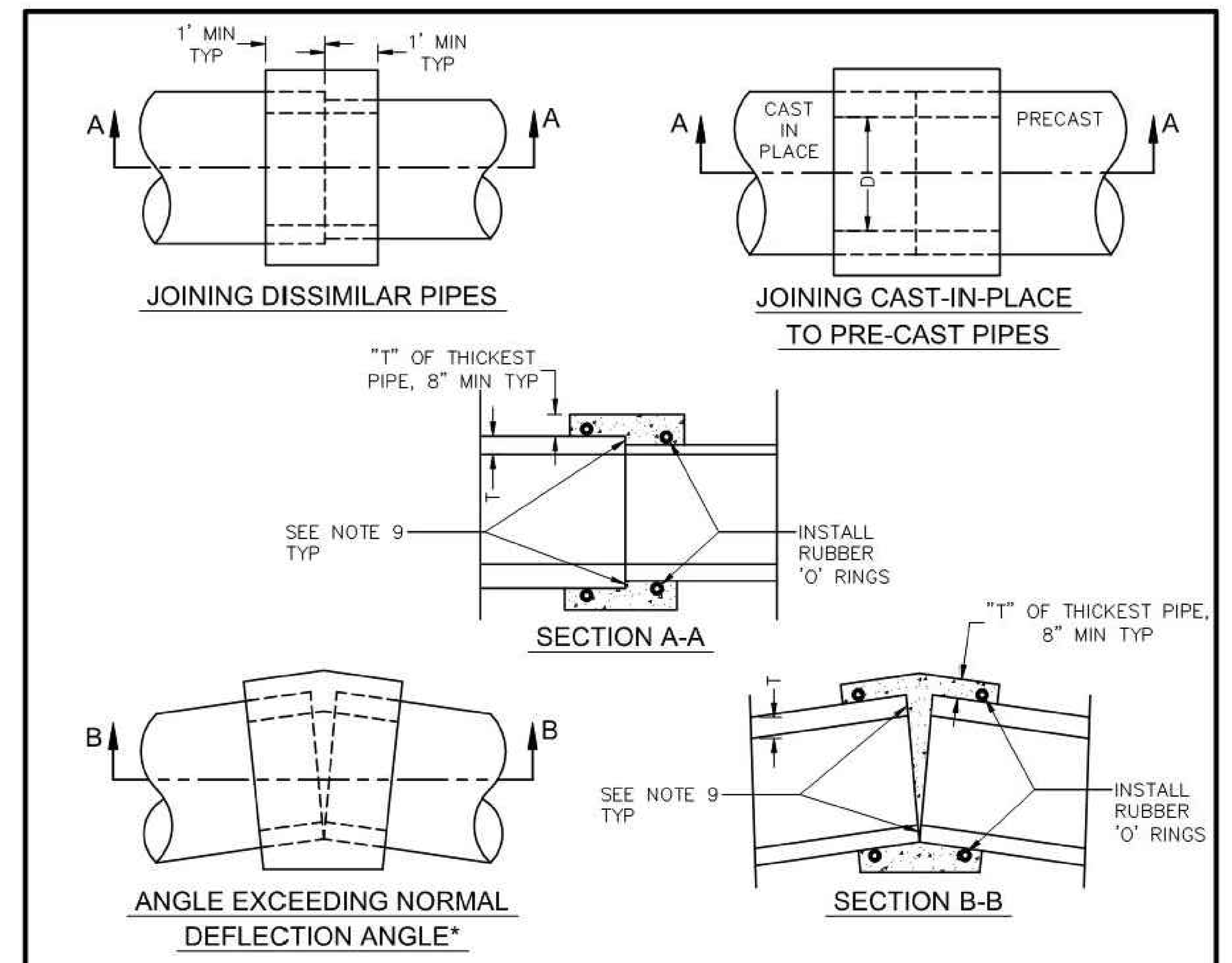


APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

MISCELLANEOUS DRAINAGE INLET DETAILS | REVISIONS 08/26/16 BK 2016 | D–14

MISCELLANEOUS DRAINAGE INLET DETAILS | D-14



NOTES:

1. CONCRETE COLLAR SHALL BE CLASS 2 CONCRETE.
2. INSIDE COLLAR SHALL MATCH PIPE DIAMETER, SMOOTH STEEL TROWEL FINISH.
3. ALLOW CONCRETE TO HARDEN BEFORE BACKFILLING.
4. WHEN FORMING ANGLES ENGINEER MAY REQUIRE CHAMFERING OF PIPE ENDS.
5. JOINTS SHALL BE WATER TIGHT.
6. THIS DETAIL IS NOT FOR USE WITH PVC/PLASTIC PIPES. JOINING OF PVC/PLASTIC PIPES SHALL BE AS APPROVED BY THE CITY ENGINEER.
7. THIS DETAIL MAY BE USED FOR PIPES UP TO 48" IN DIAMETER. COLLARS FOR PIPES LARGER THAN 48" SHALL BE AS APPROVED BY THE CITY ENGINEER.
8. EXFILTRATION TEST REQUIRED AS PER ASTM C969-02 AS IMPLEMENTED BY THE CITY OF VISALIA.
9. CONTRACTOR SHALL INSTALL A QUICK SETTING TYPE HYDRAULIC CEMENT TO ALL JOINTS PRIOR TO POURING CONCRETE COLLAR. HYDRAULIC CEMENT SHALL BE A NON-SHRINKING, NON-METALLIC AND NON-CORROSIVE TYPE WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5,000 P.S.I. HYDRAULIC CEMENT DATA SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. JOINT SEAL SHALL BE WATER TIGHT.

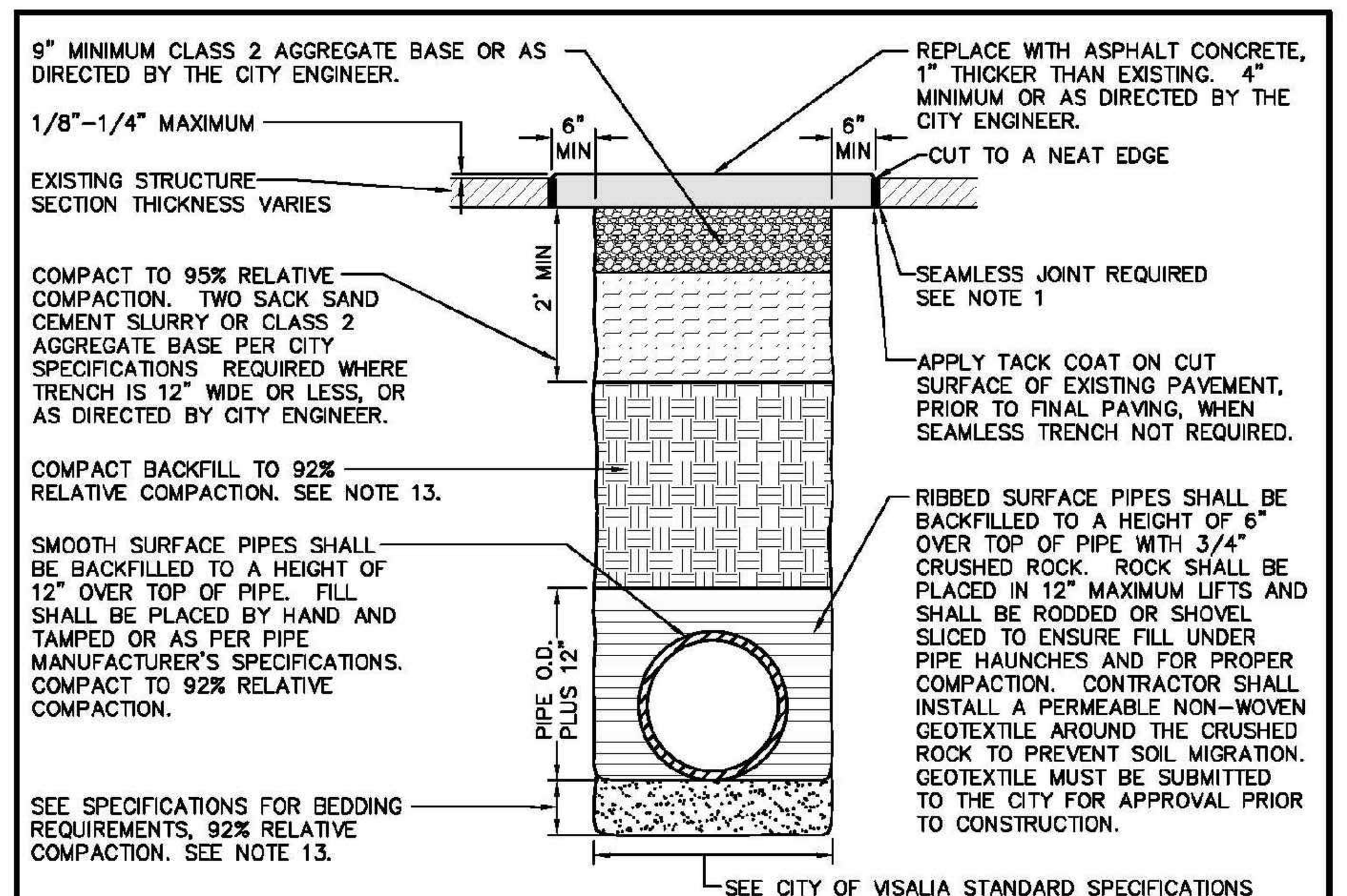
* THIS INSTALLATION METHOD SHALL ONLY BE USED WHERE APPROVED BY THE CITY ENGINEER IN WRITING. SEE NOTE 4.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

CONSTRUCTION JOINT CONCRETE FILLED COLLAR | REVISIONS 06/14/13 BK 2016 | D–37

CONSTRUCTION JOINT CONCRETE FILLED COLLAR | D-37



NOTES:

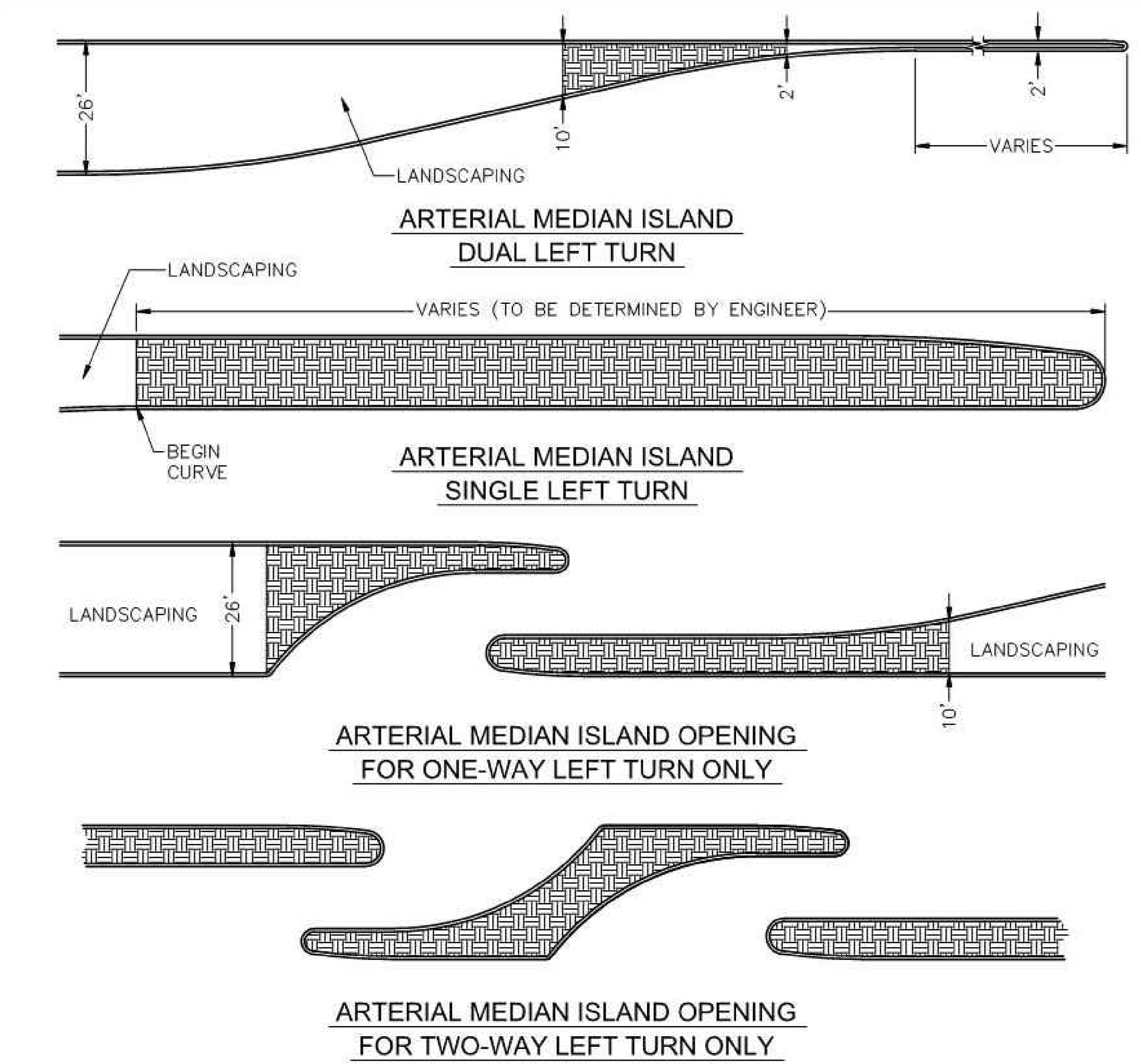
1. ALL CUTS IN EXISTING PAVEMENT THAT IS LESS THAN EIGHT YEARS OLD OR AS DIRECTED BY THE CITY ENGINEER SHALL BE REQUIRED TO HAVE SEAMLESS JOINTS WITH THE EXISTING PAVEMENT BY USING A HEATER-REMIX PROCESS.
2. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE CITY OF VISALIA STANDARD SPECIFICATIONS.
3. ALL PROVISIONS AND REQUIREMENTS OF THE CITY OF VISALIA MUNICIPAL CODE SHALL BE FOLLOWED.
4. STREET CUTS SHALL BE MADE PARALLEL OR AT RIGHT ANGLES TO THE CENTERLINE OF THE STREET.
5. ALL TRENCHES UNDER EXISTING CURB AND GUTTER OR OTHER CITY STRUCTURES SHALL REQUIRE A TWO SACK CEMENT SLURRY BACKFILL. CEMENT SLURRY BACKFILL SHALL HAVE NOT LESS THAN 188 POUNDS OF CEMENT PER CUBIC YARD OF MATERIAL PRODUCED.
6. MANHOLE AND WATER VALVE RAISING ASSOCIATED WITH NEW STREET CONSTRUCTION IS NOT REQUIRED TO FOLLOW NOTE 1.
7. MOISTURE CONDITION AND MIX BACKFILL MATERIAL PRIOR TO PLACEMENT.
8. TEMPORARY TRENCH RESURFACING SHALL CONSIST OF A MINIMUM OF 2" COLD MIX AND SHALL BE REQUIRED WHENEVER THE STREET IS TEMPORARILY OPENED TO TRAFFIC. ALL TEMPORARY MATERIAL SHALL BE COMPLETELY REMOVED PRIOR TO FINAL PAVING.
9. TRENCH RESURFACING STRUCTURAL SECTION IN OTHER THAN PERMANENTLY PAVED OR UNPAVED AREAS SHALL BE DETERMINED BY THE CITY ENGINEER.
10. NO JETTING OR FLOODING OF TRENCH BACKFILL WILL BE ALLOWED. BACKFILL IS TO BE PLACED IN MAXIMUM 8" LOOSE LIFTS, THEN COMPACTED AS DIRECTED BY THE CITY ENGINEER.
11. FOR UTILITY POTHOLES WITH DIAMETER 9" OR LESS OR MAXIMUM DIMENSION IN ANY DIRECTION OF 9" OR LESS, OR WHERE DIRECTED BY THE ENGINEER, BACKFILL SHALL COMPLY WITH THE STANDARD CITY DRAWING FOR UTILITY POTHOLE BACKFILL.
12. IF THERE IS LESS THAN 2 FEET BETWEEN THE EDGE OF A TRENCH CUT AND A CONCRETE IMPROVEMENT, OR EDGE OF PAVING, THEN REMOVE AND REPLACE THE A.C. PAVEMENT FROM THE EDGE OF THE TRENCH CUT TO THE CONCRETE IMPROVEMENT, OR EDGE OF PAVING.
13. UNLESS OTHERWISE NOTED BACKFILL AND BEDDING SHALL BE CLEAN GRANULAR NATIVE MATERIAL PER CITY SPECIFICATIONS.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

TRENCH BACKFILL/PATCH PAVING | REVISIONS 10/31/14 BK 2016 | E–1

TRENCH BACKFILL / PATCH PAVING | E-1



LEGEND:

STAMPED CONCRETE PER CITY STANDARD SPECIFICATIONS OR AS DIRECTED BY CITY ENGINEER

NOTES:

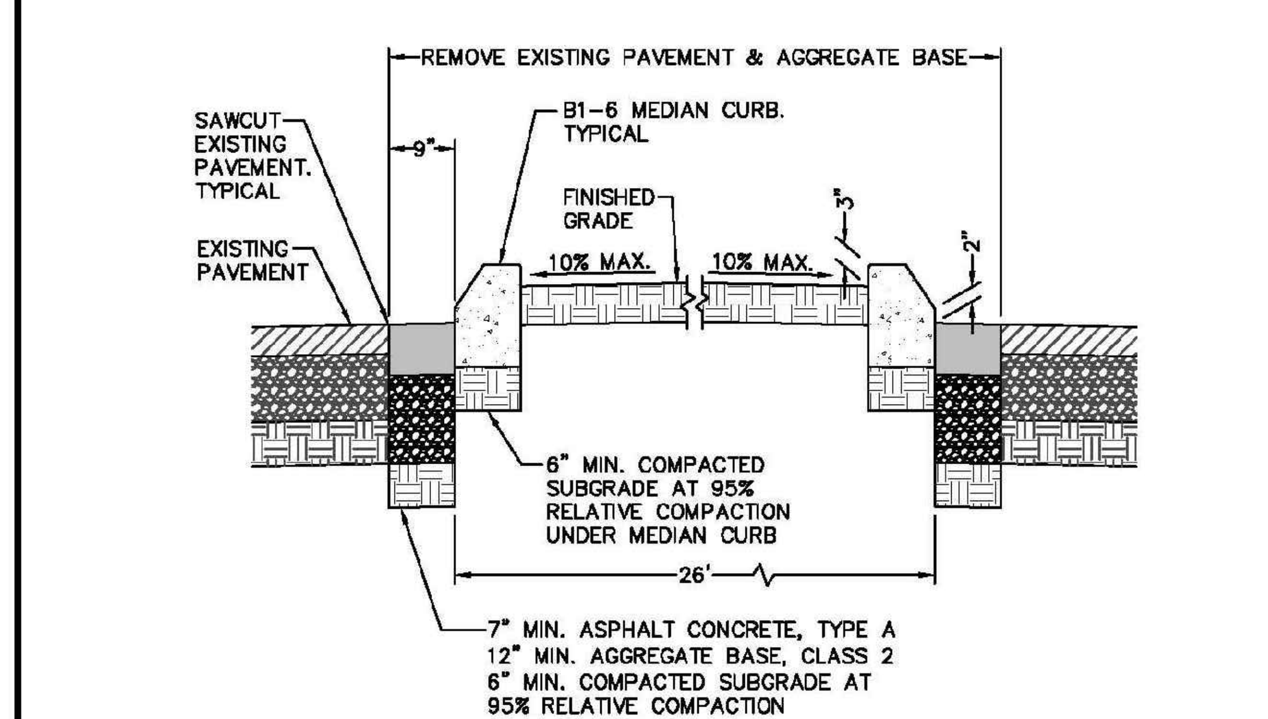
1. ANY MEDIAN SPACE LESS THAN 2' BACK OF CURB TO BACK OF CURB SHALL BE SOLID CONCRETE FINISH.
2. END STAMPED CONCRETE WHERE MEDIAN ISLAND WIDTH IS 10' BACK OF CURB TO BACK OF CURB.
3. SLEEVES SHALL BE PROVIDED THROUGH MEDIAN CONCRETE. IF CONDUIT OR OTHER IMPROVEMENT NEEDS TO RUN THROUGH MEDIAN CONCRETE IT SHALL BE DONE THROUGH BORING, NOT TRENCHING.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

STAMPED CONCRETE & LANSCAPING LOCATIONS IN ARTERIAL MEDIANS | REVISIONS 08/05/16 BK 2016 | P–13

STAMPED CONCRETE & LANDSCAPE LOATIONS | P-13



NOTE:

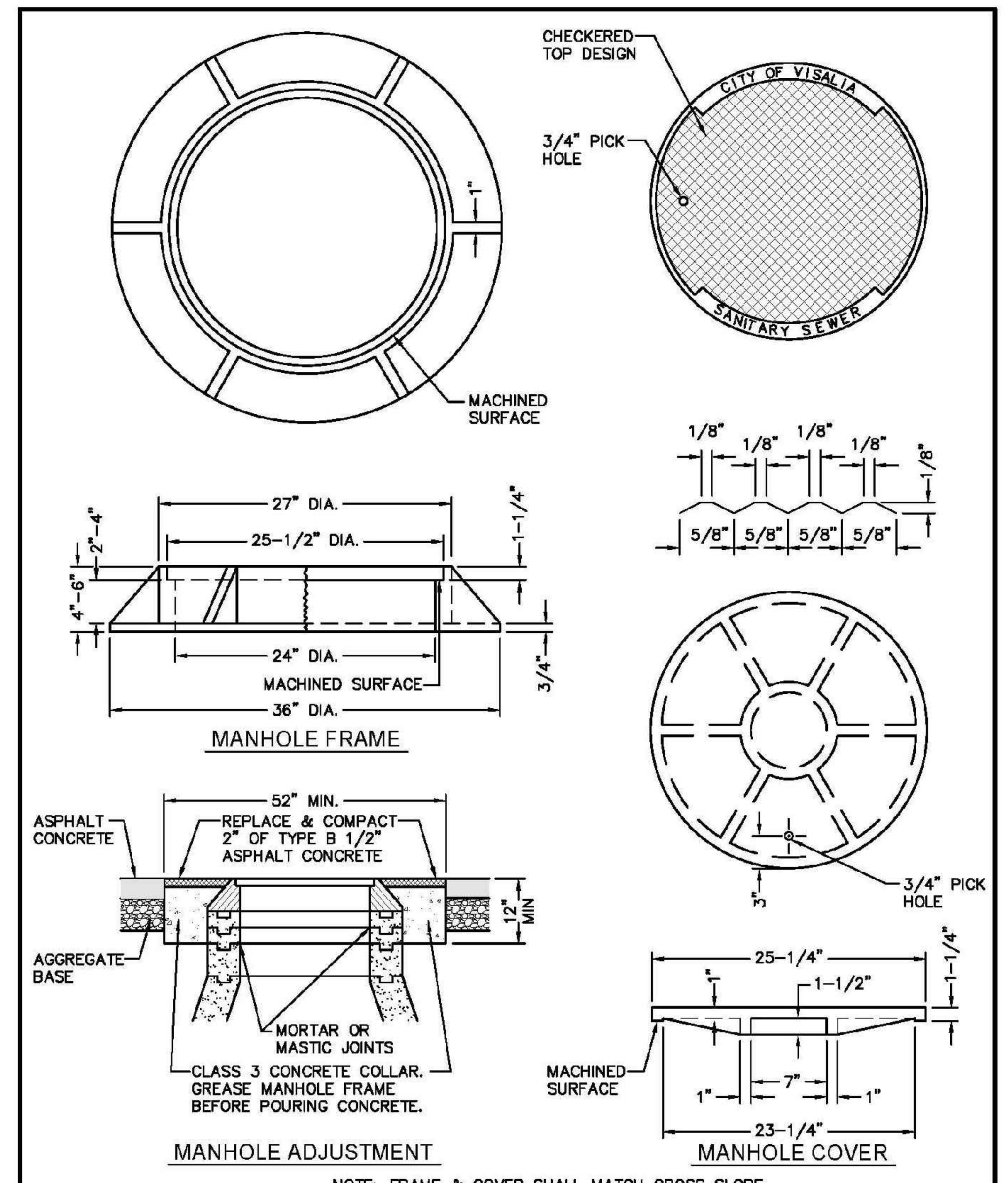
1. IF EXISTING PAVEMENT SECTION IS THICKER THAN SECTION THICKNESS MENTIONED ABOVE, THE PAVEMENT TO BE INSTALLED SHALL MATCH EXISTING.
2. IF MEDIAN WIDTH IS LESS THAN 6 FEET, THE MEDIAN SLOPE MAY BE INCREASED UP TO 25%.
3. MEDIAN IMPROVEMENTS, INCLUDING LANDSCAPING, SHALL NOT EXCEED 30" IN HEIGHT WITHIN THE SIGHT TRIANGLE AREA.
4. FULL DEPTH ASPHALT CONCRETE PLUG MAY BE ALLOWED WITH APPROVAL OF CITY ENGINEER.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

ARTERIAL MEDIAN INSTALLATION IN EXISTING PAVEMENT | REVISIONS 08/10/16 BK 2016 | P–14

ARTERIAL MEDIAN INSTALLATION IN EXISTING PAVEMENT | P-14



APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA
DESIGN & IMPROVEMENT STANDARDS

SANITARY SEWER MANHOLE FRAME AND COVER | REVISIONS 12/18/07 BK 2016 | S–6

SANITARY SEWER MANHOLE FRAME & COVER | S-6

NO. | DATE | DESCRIPTION

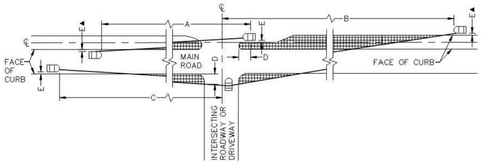
PREPARED BY: 4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
CIVIL DETAILS

PROJ. NO. 20205
DATE: 3/8/2021
DESIGN BY: KM | DRAWN BY: MH
SCALE: AS SHOWN
SHEET 33 OF 61



LEGEND:

▲ WHERE NO MEDIAN IS PRESENT USE CENTER OF ROADWAY AS A SUBSTITUTE FOR E

HEIGHT RESTRICTED AREA (SEE NOTE 4)

TABLE A

STREET	A	B*	C**	D	E
COLLECTOR	355'	500'	385'	18'	3'
ARTERIAL	480'	700'	480'	18'	3'

* REDUCE COLUMN "B" BY 165 FEET FOR SIGNALIZED INTERSECTIONS

** DIMENSION "C" IS FOR RIGHT-TURNS AT SIDE STREET APPROACHES PROVIDING ONLY RIGHT-IN/RIGHT-OUT MOVEMENTS. WHERE LEFT TURNS ARE ALLOWED, DIMENSION "C" SHALL EQUAL DIMENSION "B".

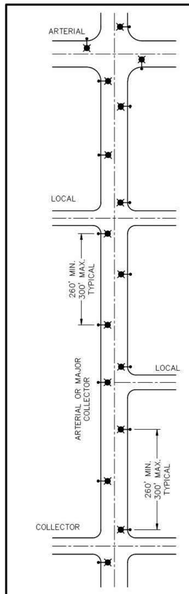
NOTES:

1. DIMENSIONS SHOWN IN TABLE "A" SHALL BE VERIFIED BASED ON AASHTO STANDARDS.
2. SIGHT DISTANCE FOR A COLLECTOR ROADWAY IS BASED ON A PASSENGER CAR ON A ROADWAY THAT PROVIDES 2-LANES IN EACH DIRECTION WITH A 14' RAISED MEDIAN, A DESIGN SPEED OF 40 MPH, AND AN APPROACH GRADE OF LESS THAN THREE PERCENT.
3. SIGHT DISTANCE FOR AN ARTERIAL ROADWAY IS BASED ON A PASSENGER CAR ON A ROADWAY THAT PROVIDES 3-LANES IN EACH DIRECTION WITH A 24' RAISED MEDIAN, A DESIGN SPEED OF 50 MPH, AND AN APPROACH GRADE OF LESS THAN THREE PERCENT.
4. NO SIGNS, FENCES, WALLS, UTILITY BOXES, STRUCTURES, SHRUBS, HEDGES, OR OTHER PLANTS, (EXCLUDING TREES), OVER 30 INCHES IN HEIGHT SHALL BE PERMITTED WITHIN THE RESTRICTED AREAS.
5. TREES ARE PERMITTED WITHIN THE RESTRICTED AREAS PROVIDED:
   A. NO LIMBS, LEAVES NEEDLES OR OTHER FOLIAGE ABOVE 30 INCHES OR BELOW 84 INCHES ARE PERMITTED.
   B. TREES ARE PLANTED SO AS NOT TO OBSTRUCT 20% OF THE VISIBILITY WHEN COMBINED WITH OTHER OBSTRUCTIONS PRESENT.
6. SIGHT DISTANCE FOR TYPICAL RIGHT ANGLE INTERSECTION ONLY. SKEWED INTERSECTIONS WILL REQUIRE ADDITIONAL DESIGN FOR REVIEW AND APPROVAL FROM CITY ENGINEER.

APPROVED BY: _____ CITY ENGINEER — R.P.E. 81734 — 09/16/16 DATE — CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

SIGHT DISTANCE REQUIREMENTS FOR ARTERIAL & COLLECTOR STREETS — REVISIONS 08/26/16 BK 2016 — SD-3

SIGHT DISTANCE REQUIREMENTS FOR ARTERIAL & COLLECTOR STREETS | SD-3



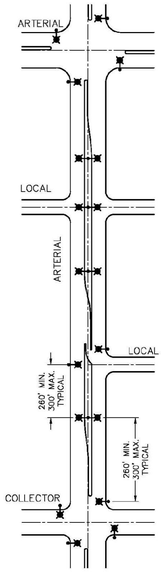
NOTES:

1. STREETLIGHTS ON ARTERIAL STREETS SHALL BE LED – MINIMUM 16,000 LUMEN WITH CUT-OFF LUMINAIRES, LUMINAIRE ELEVATION OF 29', MOUNTED ON MARBLELITE POLES WITH 8' ALUMINUM MAST ARMS.
2. STREETLIGHTS ON MAJOR COLLECTOR STREETS SHALL BE LED – MINIMUM 9,500 LUMEN WITH CUT-OFF LUMINAIRES, LUMINAIRE ELEVATION OF 29', MOUNTED ON MARBLELITE POLES WITH 8' ALUMINUM MAST ARMS.
3. STREETLIGHTS SHALL BE INSTALLED AT LOCATIONS AS DETERMINED BY THE CITY ENGINEER UPON REVIEW OF SUBMITTED IMPROVEMENT PLANS.
4. TWO STREETLIGHTS SHALL BE INSTALLED AT EACH INTERSECTION. STREETLIGHT SPACING SHALL BE 260' MINIMUM TO 300' MAXIMUM.
5. STREETLIGHTS SHALL BE INSTALLED ON BOTH SIDES OF THE STREET.
6. IF AN INTERSECTION IS SIGNALIZED, A STREETLIGHT SHALL BE INSTALLED ON EACH CORNER AS A PART OF THE TRAFFIC SIGNAL SYSTEM.
7. A STREETLIGHT PLAN PREPARED BY A LICENSED ENGINEER SHALL BE SUBMITTED TO THE CITY. THE PLAN SHALL INCLUDE LOCATIONS OF STREETLIGHTS, PULL BOXES, CONDUIT, METER PEDESTAL, POINT OF SERVICE, AND VOLTAGE DROP CALCULATIONS. THE LIGHTING SYSTEM MUST COMPLY WITH THE CURRENT NATIONAL ELECTRICAL CODE (NEC) AND THE CALIFORNIA ELECTRICAL CODE (CEC).
8. STREET LIGHTING SHALL BE DESIGNED TO MINIMIZE THE NUMBER OF METER PEDESTALS.
9. A "WILL SERVE" LETTER FROM SOUTHERN CALIFORNIA EDISON SHALL BE SUBMITTED TO THE CITY PRIOR TO APPROVAL OF STREET LIGHTING PLANS.
10. A MINIMUM SEPARATION OF 20' IS REQUIRED BETWEEN TREES AND STREETLIGHT POLES.
11. ALL STREETLIGHTS INSTALLED OR REPLACED IN THE CENTRAL BUSINESS DISTRICT ARE SUBJECT TO APPROVAL OF THE CITY ENGINEER.

APPROVED BY: _____ CITY ENGINEER — R.P.E. 81734 — 09/16/16 DATE — CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

ARTERIAL AND MAJOR COLLECTOR STREET LIGHTING — REVISIONS 04/29/16 BK 2016 — SL-3

ARTERIAL & MAJOR COLLECTOR STREET LIGHTING | SL-3



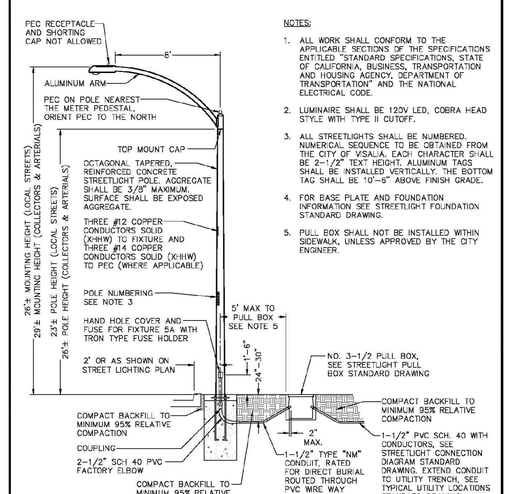
NOTES:

1. STREET LIGHTS SHALL BE INSTALLED IN MEDIAN. STREET LIGHTS INSTALLED IN MEDIAN SHALL BE INSTALLED ON SINGLE OCTAGONAL POLES WITH A POLE HEIGHT OF 25'-9" AND SHALL HAVE DUAL MAST ARMS WITH A LENGTH OF 8' EACH.
2. INTERSECTIONS MAY BE SUPPLEMENTED WITH LIGHTING BEHIND CURB AND GUTTER IF MEDIAN LIGHTING CANNOT BE POSITIONED TO PROVIDE ADEQUATE ILLUMINATION.
3. STREETLIGHTS ON ARTERIAL STREETS SHALL BE LED – MINIMUM 16,000 LUMEN WITH CUT-OFF LUMINAIRES, LUMINAIRE ELEVATION OF 29', MOUNTED ON MARBLELITE POLES WITH 8' ALUMINUM MAST ARMS.
4. STREETLIGHTS ON MAJOR COLLECTOR STREETS SHALL BE LED – MINIMUM 9,500 LUMEN WITH CUT-OFF LUMINAIRES, LUMINAIRE ELEVATION OF 29', MOUNTED ON MARBLELITE POLES WITH 8' ALUMINUM MAST ARMS.
5. STREETLIGHTS SHALL BE INSTALLED AT LOCATIONS AS DETERMINED BY THE CITY ENGINEER UPON REVIEW OF SUBMITTED IMPROVEMENT PLANS.
6. STREETLIGHT SPACING SHALL BE 260' MINIMUM TO 300' MAXIMUM.
7. IF AN INTERSECTION IS SIGNALIZED, A STREETLIGHT SHALL BE INSTALLED ON EACH CORNER AS A PART OF THE TRAFFIC SIGNAL SYSTEM.
8. A STREETLIGHT PLAN PREPARED BY A LICENSED ENGINEER SHALL BE SUBMITTED TO THE CITY. THE PLAN SHALL INCLUDE LOCATIONS OF STREETLIGHTS, PULL BOXES, CONDUIT, METER PEDESTAL, POINT OF SERVICE, AND VOLTAGE DROP CALCULATIONS. THE LIGHTING SYSTEM MUST COMPLY WITH THE CURRENT NATIONAL ELECTRICAL CODE (NEC) AND THE CALIFORNIA ELECTRICAL CODE (CEC).
9. STREET LIGHTING SHALL BE DESIGNED TO MINIMIZE THE NUMBER OF METER PEDESTALS.
10. A "WILL SERVE" LETTER FROM SOUTHERN CALIFORNIA EDISON SHALL BE SUBMITTED TO THE CITY PRIOR TO APPROVAL OF STREET LIGHTING PLANS.
11. A MINIMUM SEPARATION OF 20' IS REQUIRED BETWEEN TREES AND STREETLIGHT POLES.
12. ALL STREETLIGHTS INSTALLED OR REPLACED IN THE CENTRAL BUSINESS DISTRICT ARE SUBJECT TO APPROVAL OF THE CITY ENGINEER.

APPROVED BY: _____ CITY ENGINEER — R.P.E. 81734 — 09/16/16 DATE — CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

ARTERIAL STREET LIGHTING WITH MEDIAN CURB — REVISIONS 08/22/16 BK 2016 — SL-4

ARTERIAL STREET LIGHTING W/ MEDIAN CURB | SL-4



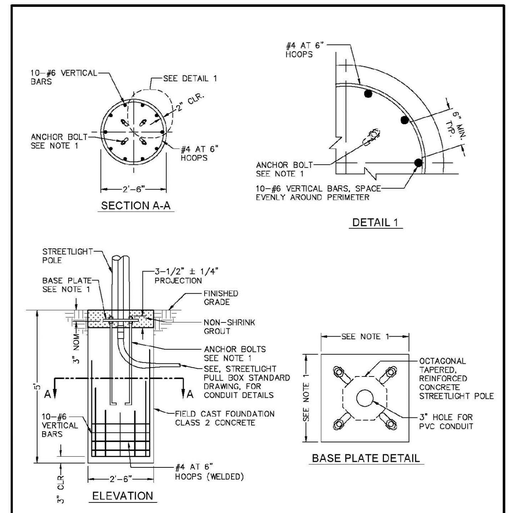
NOTES:

1. ALL WORK SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE SPECIFICATIONS ENTITLED "STANDARD SPECIFICATIONS, STATE OF CALIFORNIA, BUSINESS, TRANSPORTATION AND HOUSING AGENCY, DEPARTMENT OF TRANSPORTATION" AND THE NATIONAL ELECTRICAL CODE.
2. LUMINAIRE SHALL BE 120V LED, COBRA HEAD STYLE WITH TYPE II CUTOFF.
3. ALL STREETLIGHTS SHALL BE NUMBERED. NUMERICAL SEQUENCE TO BE OBTAINED FROM THE CITY OF VISALIA. EACH CHARACTER SHALL BE 2-1/2" TEXT HEIGHT. ALUMINUM TAGS SHALL BE INSTALLED VERTICALLY. THE BOTTOM TAG SHALL BE 10'-6" ABOVE FINISH GRADE.
4. FOR BASE PLATE AND FOUNDATION INFORMATION SEE STREETLIGHT FOUNDATION STANDARD DRAWING.
5. PULL BOX SHALL NOT BE INSTALLED WITHIN SIDEWALK, UNLESS APPROVED BY THE CITY ENGINEER.

APPROVED BY: _____ CITY ENGINEER — R.P.E. 81734 — 09/16/16 DATE — CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

STREETLIGHT POLE — REVISIONS 08/22/16 BK 2016 — SL-5

STREETLIGHT POLE | SL-5



CAST-IN-DRILLED HOLE PILE FOUNDATION REINFORCED PILE

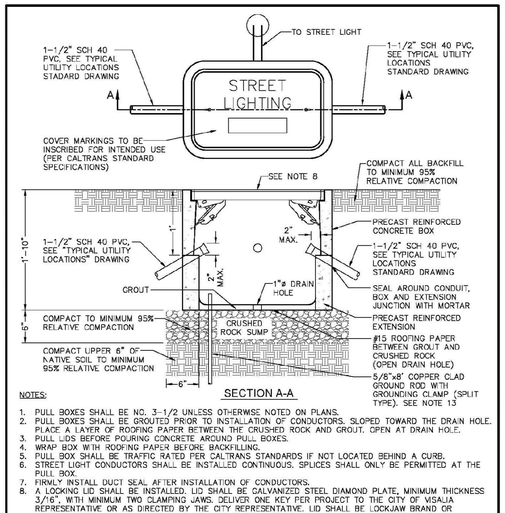
NOTE:

1. BASE PLATE AND ANCHOR BOLT DIMENSIONS PER MANUFACTURER SPECIFICATIONS. AT MINIMUM, ANCHOR BOLTS 1"ø x36"x4". INSTALL PER MANUFACTURERS RECOMMENDATION.

APPROVED BY: _____ CITY ENGINEER — R.P.E. 81734 — 09/16/16 DATE — CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

STREETLIGHT FOUNDATION — REVISIONS 08/22/16 BK 2016 — SL-6

STREETLIGHT FOUNDATION | SL-6



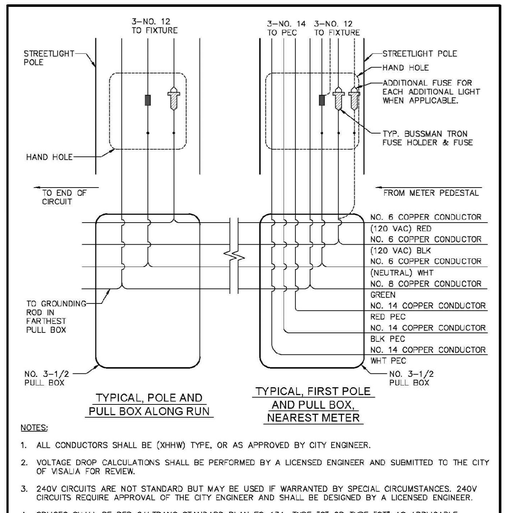
NOTES:

1. PULL BOXES SHALL BE NO. 3-1/2 UNLESS OTHERWISE NOTED ON PLANS.
2. PULL BOXES SHALL BE GROUTED PRIOR TO INSTALLATION OF CONDUCTORS. SLOPED TOWARD THE DRAIN HOLE. PLACE A LAYER OF ROOFING PAPER BETWEEN THE CRUSHED ROCK AND GROUT. OPEN AT DRAIN HOLE.
3. PULL LIDS BEFORE POURING CONCRETE AROUND PULL BOXES.
4. WRAP BOX WITH ROOFING PAPER BEFORE BACKFILLING.
5. PULL BOX SHALL BE TRAFFIC RATED PER CALTRANS STANDARDS IF NOT LOCATED BEHIND A CURB.
6. STREET LIGHT CONDUCTORS SHALL BE INSTALLED CONTINUOUS. SPLICES SHALL ONLY BE PERMITTED AT THE PULL BOX.
7. THROUGHLY INSTALL DUCT SEAL AFTER INSTALLATION OF CONDUCTORS.
8. A LOCKING LID SHALL BE INSTALLED. LID SHALL BE GALVANIZED STEEL DIAMOND PLATE, MINIMUM THICKNESS 3/16", WITH MINIMUM TWO CLAMPING JAWS. DELIVER ONE KEY PER PROJECT TO THE CITY OF VISALIA REPRESENTATIVE OR AS DIRECTED BY THE CITY REPRESENTATIVE. LID SHALL BE LOCKJAW BRAND OR APPROVED EQUAL. LID SHALL BE BONDED PER CALTRANS STANDARDS FOR TRAFFIC RATED LIDS.
9. A MINIMUM OF 2' OF SLACK IN EACH CONDUCTOR SHALL BE LEFT IN EACH PULL BOX. TWIST AND PUSH TO BOTTOM OF PULL BOX TO PREVENT WIRE FROM PULLING THROUGH.
10. CONDUIT SHALL HAVE BELL ENDS. EMPTY CONDUITS SHALL BE CAPPED WITHOUT GLUE.
11. CONDUIT SHALL BE MANDREL TESTED AFTER BACKFILL AND COMPACTION IN THE PRESENCE OF THE CITY OF VISALIA REPRESENTATIVE.
12. REFER TO TYPICAL UTILITY LOCATIONS STANARD DRAWING FOR PLACEMENT OF STREET LIGHTING CONDUIT IN UTILITY TRENCHES.
13. GROUND RODS REQUIRED ONLY IN PULL BOX FARTHEST FROM THE METER PEDESTAL AND IN THE METER PEDESTAL.

APPROVED BY: _____ CITY ENGINEER — R.P.E. 81734 — 09/16/16 DATE — CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

STREETLIGHT PULL BOX — REVISIONS 08/22/16 BK 2016 — SL-7

STREETLIGHT PULL BOX | SL-7



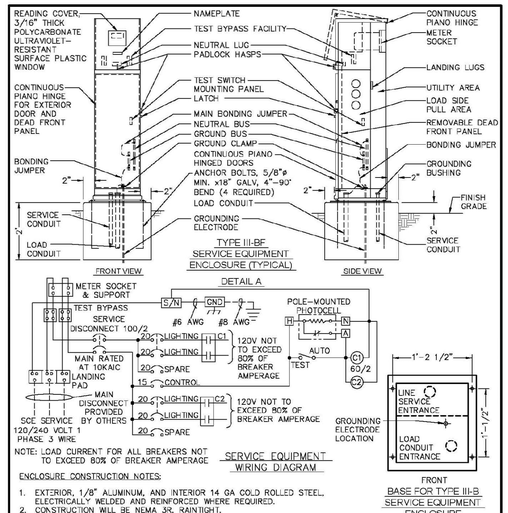
NOTES:

1. ALL CONDUCTORS SHALL BE (XHHW) TYPE, OR AS APPROVED BY CITY ENGINEER.
2. VOLTAGE DROP CALCULATIONS SHALL BE PERFORMED BY A LICENSED ENGINEER AND SUBMITTED TO THE CITY OF VISALIA FOR REVIEW.
3. 240V CIRCUITS ARE NOT STANDARD BUT MAY BE USED IF WARRANTED BY SPECIAL CIRCUMSTANCES. 240V CIRCUITS REQUIRE APPROVAL OF THE CITY ENGINEER AND SHALL BE DESIGNED BY A LICENSED ENGINEER.
4. SPLICES SHALL BE PER CALTRANS STANDARD PLAN ES-13A, TYPE "S" OR TYPE "ST" AS APPLICABLE. SPLICES SHALL BE INSULATED IN ACCORDANCE WITH METHOD "B".
5. SPLIT BOLT CONNECTOR (KEARNEY CONNECTORS, OR EQUAL), MAY BE USED TO SPLICE NO. 8 CONDUCTORS OR LARGER WITH METHOD "B" INSULATION.
6. WIRE NUTS ARE NOT ALLOWED FOR SPLICING.
7. THIS WIRING DIAGRAM DOES NOT SHOW THE SEPARATE GFI CIRCUIT REQUIRED IN THE DOWNTOWN AREA.

APPROVED BY: _____ CITY ENGINEER — R.P.E. 81734 — 09/16/16 DATE — CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

STREETLIGHT CONNECTION DIAGRAM — REVISIONS 08/22/16 BK 2016 — SL-8

STREETLIGHT CONNECTION DIAGRAM | SL-8



APPROVED BY: _____ CITY ENGINEER — R.P.E. 81734 — 09/16/16 DATE — CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

STREETLIGHT METER PEDESTAL TYPE III-BF — REVISIONS 08/22/16 BK 2016 — SL-9

STREETLIGHT METER PEDESTAL TYPE III - BF | SL-9

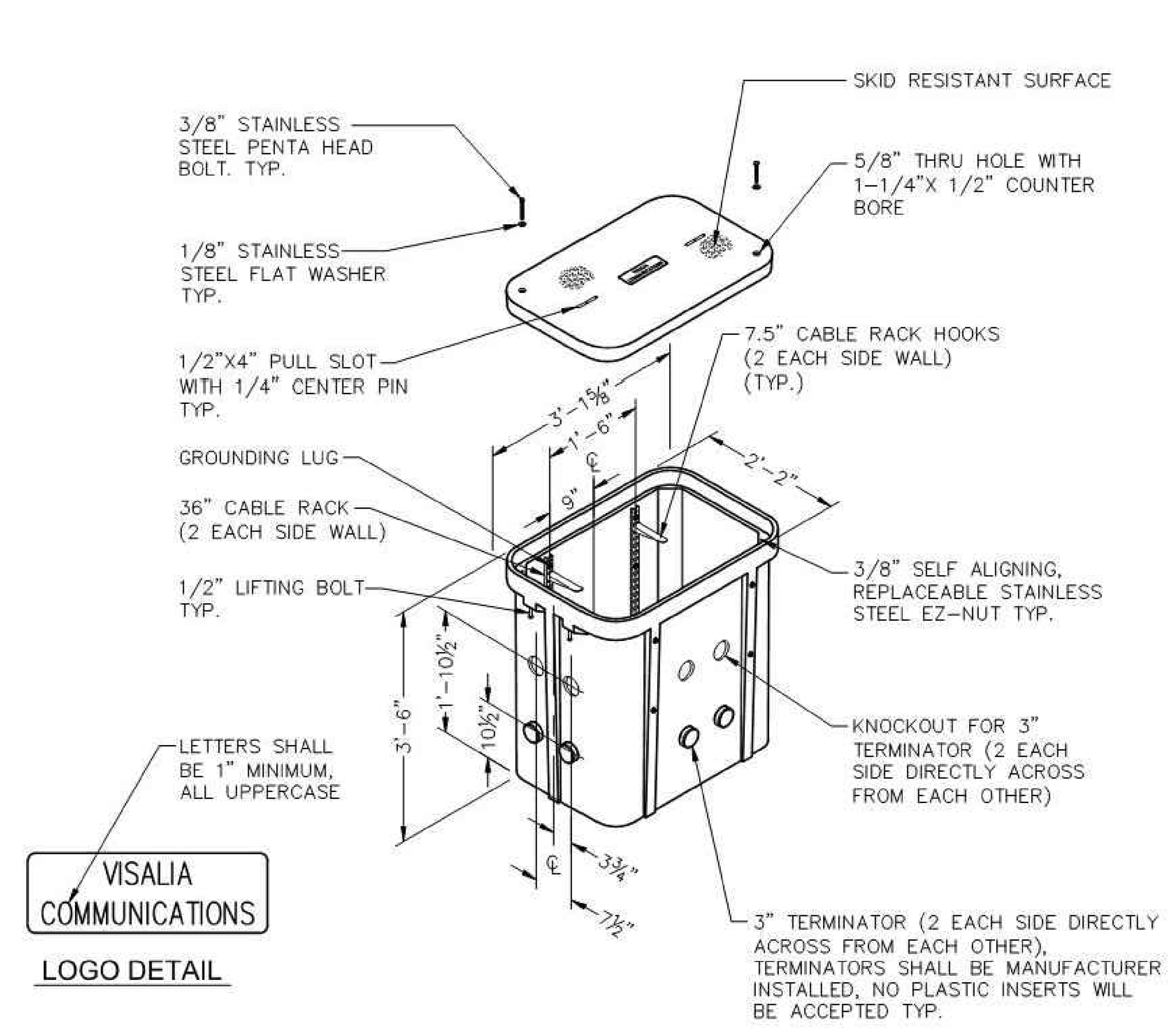
NO.	DATE	DESCRIPTION

4CREEKS
PREPARED BY:
324 S. SANTA FE, STE. A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
CHK BY: KM
DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
CIVIL DETAILS

PROJ. NO. 20205
DATE: 3/8/2021
DESIGN BY: KM | DRAWN BY: MH
SCALE: AS SHOWN
SHEET 34 OF 61



PLAN SYMBOL:

[C] NEW

[C] EXISTING

TYPICAL PULL BOX

NOTE:

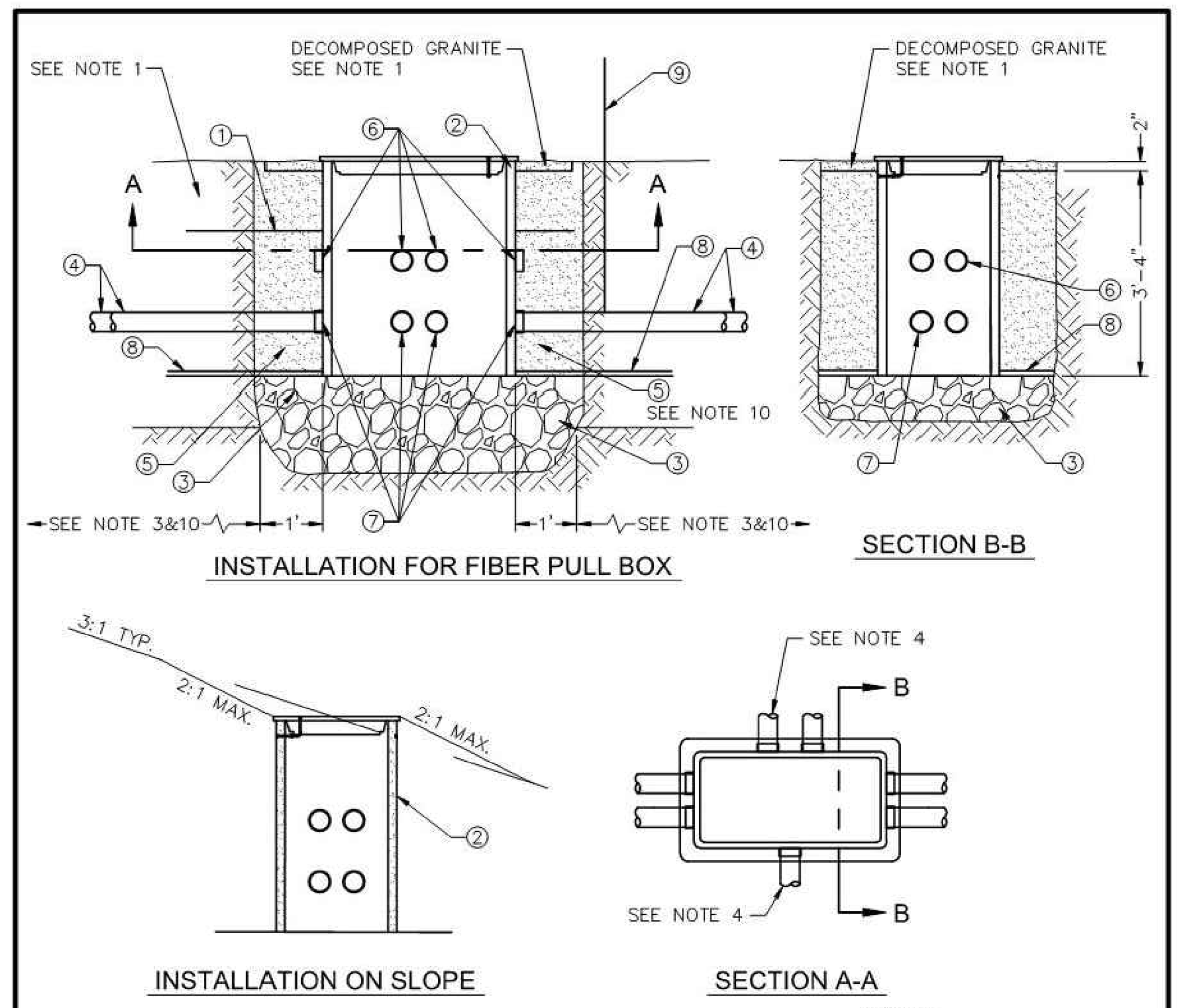
THE BOX OF THIS ASSEMBLY SHALL MEET BOTH PERFORMANCES AND TESTING OF ANSI/SCTE 77 TIER 15. INDEPENDENT THIRD PARTY VERIFICATION OF TEST REPORTS STAMPED BY A REGISTERED PROFESSIONAL ENGINEER CERTIFYING THAT ALL TEST PROVISIONS OF THIS SPECIFICATION HAVE BEEN MET ARE REQUIRED WITH EACH SUBMITTAL. SEE THE FOLLOWING TYPICAL FIBER PULL BOX STANDARD DRAWINGS FOR INSTALLATION INFORMATION.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

TYPICAL FIBER PULL BOX — REVISIONS 09/09/16 BK 2016 — TE–5

TYPICAL FIBER PULL BOX — TE-5



MATERIAL LIST	
ITEM	DESCRIPTION
①	WARNING TAPE–"CAUTION FIBER OPTIC LINE BURIED BELOW"
②	CITY OF VISALIA FIBER PULL BOX – SEE TYPICAL FIBER PULL BOX STANDARD DRAWINGS
③	3/4" CLEAN CRUSHED ROCK
④	3" DIAMETER SCHEDULE 40 PVC CONDUITS
⑤	CONTROLLED LOW STRENGTH MATERIAL–SEE NOTE 10
⑥	3" TERMINATOR KNOCK OUT – SEE TYPICAL FIBER PULL BOX STANDARD DRAWINGS
⑦	3" TERMINATOR
⑧	30# FELT PAPER & GALVANIZED STEEL SCREEN – SEE NOTE 8
⑨	PULL BOX DELINEATOR (FLEXIBLE IDENTIFICATION MARKER)–SEE NOTE 9

NOTES:

1. SEE TYPICAL FIBER TRENCH DETAILS STANDARD DRAWING AND TYPICAL FIBER TRENCH & STREET LIGHT JOINT TRENCH DETAIL STANDARD DRAWING FOR TRENCH REQUIREMENTS.
2. SEE TYPICAL FIBER PULL BOX INSTALLATION NOTES STANDARD DRAWING FOR ADDITIONAL NOTES.
3. STRICTER REQUIREMENTS AS DIRECTED BY THE CITY ENGINEER IF PULL BOX IS WITHIN ROADWAY.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

TYPICAL FIBER PULL BOX INSTALLATION 1 OF 2 — REVISIONS 09/13/16 BK 2016 — TE–6

TYPICAL FIBER PULL BOX INSTALLATION 1 OF 2 — TE-6

TYPICAL FIBER PULL BOX INSTALLATION NOTES:

1. BACKFILL WITH DESIGNATED 3/4" CLASS 2 AGGREGATE BASE TO SIX (6) INCHES BELOW FINISH GRADE. BACKFILL WITH FOUR (4) INCHES OF WITH SELECT EXCAVATED MATERIAL AND THOROUGHLY COMPACT. TWO (2) INCHES OF DECOMPOSED GRANITE SHALL BE USED TO MATCH SLOPES.
2. THIS PULL BOX IS DESIGNED FOR NON–TRAFFIC AREAS.
3. CONDUIT FROM THE TYPICAL TRENCH SECTION SHALL NOT DEFLECT BY MORE THAN ONE (1) INCHES PER FOOT FROM THE ALIGNMENT PRECEDING OR FOLLOWING THE PULL BOX.
4. LATERAL CONDUIT AS REQUIRED.
5. ALL POWER AND COMMUNICATIONS CABLE SHALL BE TAGGED WITH CABLE IDENTIFICATION.
6. "VISALIA COMMUNICATIONS" SHALL BE THE TITLE EMBOSSED ON THE LID.
7. PVC CONDUIT SHALL BE USED TO ATTACH TO PULL BOX TERMINATORS. SEE TYPICAL FIBER PULL BOX STANDARD DRAWING.
8. 30# FELT PAPER AND A GALVANIZED STEEL SCREEN WITH NO LARGER THAN THREE QUARTERS (3/4) OF AN INCH OPENINGS SHALL BE INSTALLED BETWEEN PULL BOX AND AGGREGATE.
9. INSTALL ORANGE FLEXIBLE IDENTIFICATION MARKERS TWELVE (12) INCHES IN FRONT OF EACH PULL BOX WITHOUT TOUCHING CONDUIT. MARKER HEIGHT SHALL BE THREE (3) FEET ABOVE GRADE AND LABELED "FIBER OPTIC CABLE". FLEXIBLE IDENTIFICATION MARKERS SHALL NOT BE INSTALLED AT PULL BOXES AT SIGNALIZED INTERSECTIONS.
10. POUR 2–SACK SLURRY, OR A CONTROLLED LOW STRENGTH MATERIAL THAT MEETS CALTRANS SPECIFICATIONS, WITHIN TWELVE (12) INCHES OF PULL BOX.
11. PULL BOX HEIGHT ABOVE FINISHED GRADE SHALL PERMIT TWO (2) INCHES OF DECOMPOSED GRANITE TO BE USED TO MATCH SLOPE.
12. REFER TO TYPICAL FIBER PULL BOX STANDARD DRAWING FOR PULL BOX DIMENSIONS.
13. EXISTING PULL BOX CONFIGURATIONS MAY VARY. LOCATIONS WHERE PULL BOXES ARE BEING REPLACED, FIBER PULL BOXES SHALL BE INSTALLED AS SHOWN ON THIS SHEET UNLESS DIRECTED OTHERWISE BY THE CITY ENGINEER OR DESIGNEE.
14. EXISTING CONDUIT ENTERING A PULL BOX MAY NOT BE CORRECTLY ALIGNED TO FACILITATE PULLING CABLES THROUGH THE PULL BOX BY USE OF A PULLING SHOE. THE FORCE ACCOUNT ITEM FOR CONDUIT RECONDITIONING DOES NOT COVER REALIGNMENT OF CONDUIT TO ALLOW FOR PULLING THROUGH AN EXISTING PULL BOX, THEREBY ELIMINATING IT AS A PULL POINT.
15. IN ALL LOCATIONS WHERE FIBER OPTIC CABLE ENTERS A PULL BOX, CABLE SLACK SHALL BE LOOSELY LOOPED USING THE RACK AND HOOK SYSTEM. THIRTY FOOT (30') OF SLACK SHALL BE LEFT WHERE THE FIBER OPTIC CABLE ENTERS/EXITS THE COMMUNICATION VAULT PROVIDING A SIXTY FOOT (60') COIL OF SLACK.
16. A GROUNDING ELECTRODE REQUIRED WHEN SPECIFIED.

INSTRUCTIONS:

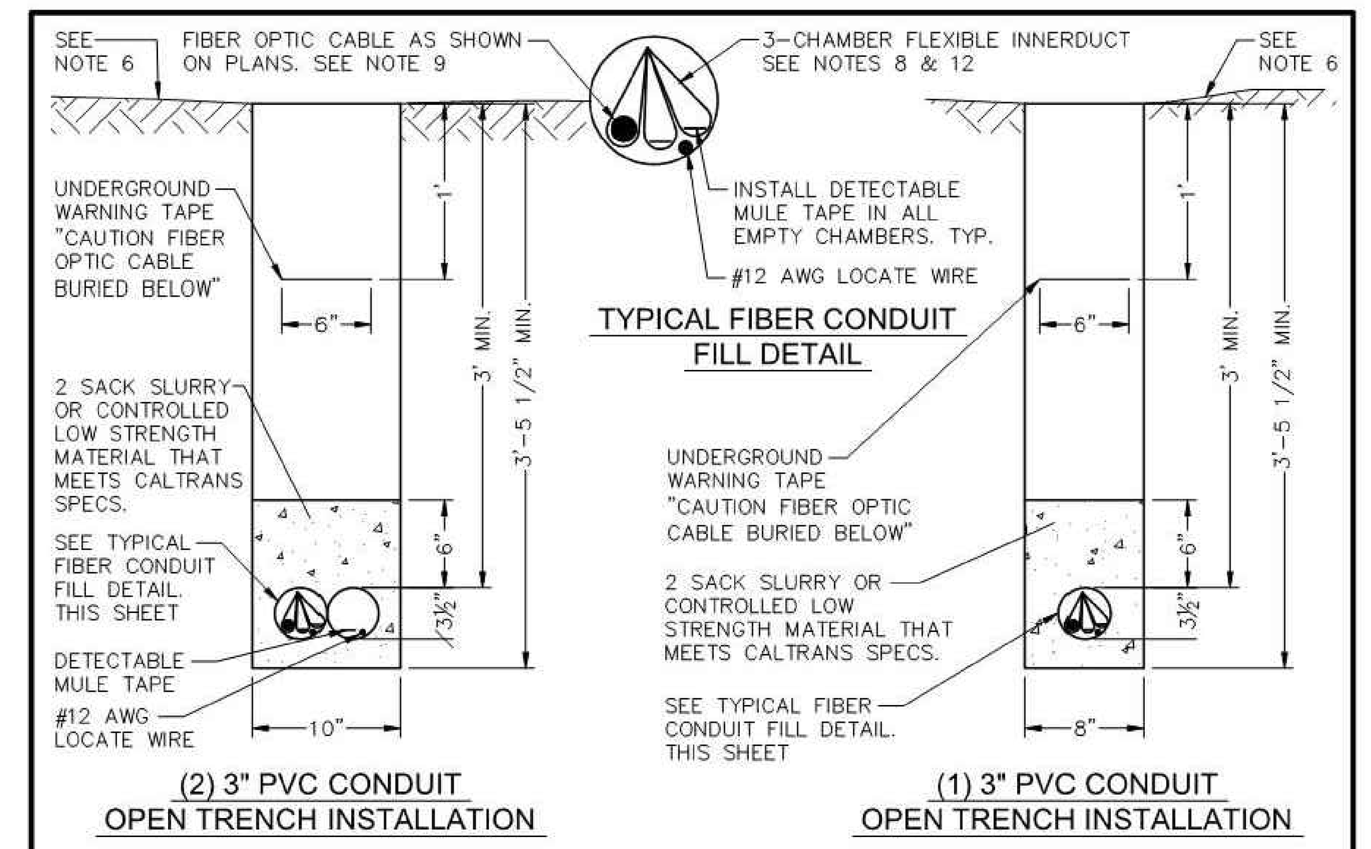
IT IS INTENDED THAT THESE NOTES SHALL BE PLACED ON THE PLANS WHERE APPROPRIATE TO FIT SPECIFIC PROJECT CONDITIONS. IF THEY ARE EDITED OR ALTERED, THESE NOTES SHALL REQUIRE APPROVAL BY THE CITY ENGINEER OR DESIGNEE.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

TYPICAL FIBER PULL BOX INSTALLATION 2 OF 2 — REVISIONS 09/15/16 BK 2016 — TE–7

TYPICAL FIBER PULL BOX INSTALLATION 2 OF 2 — TE-7



NOTES:

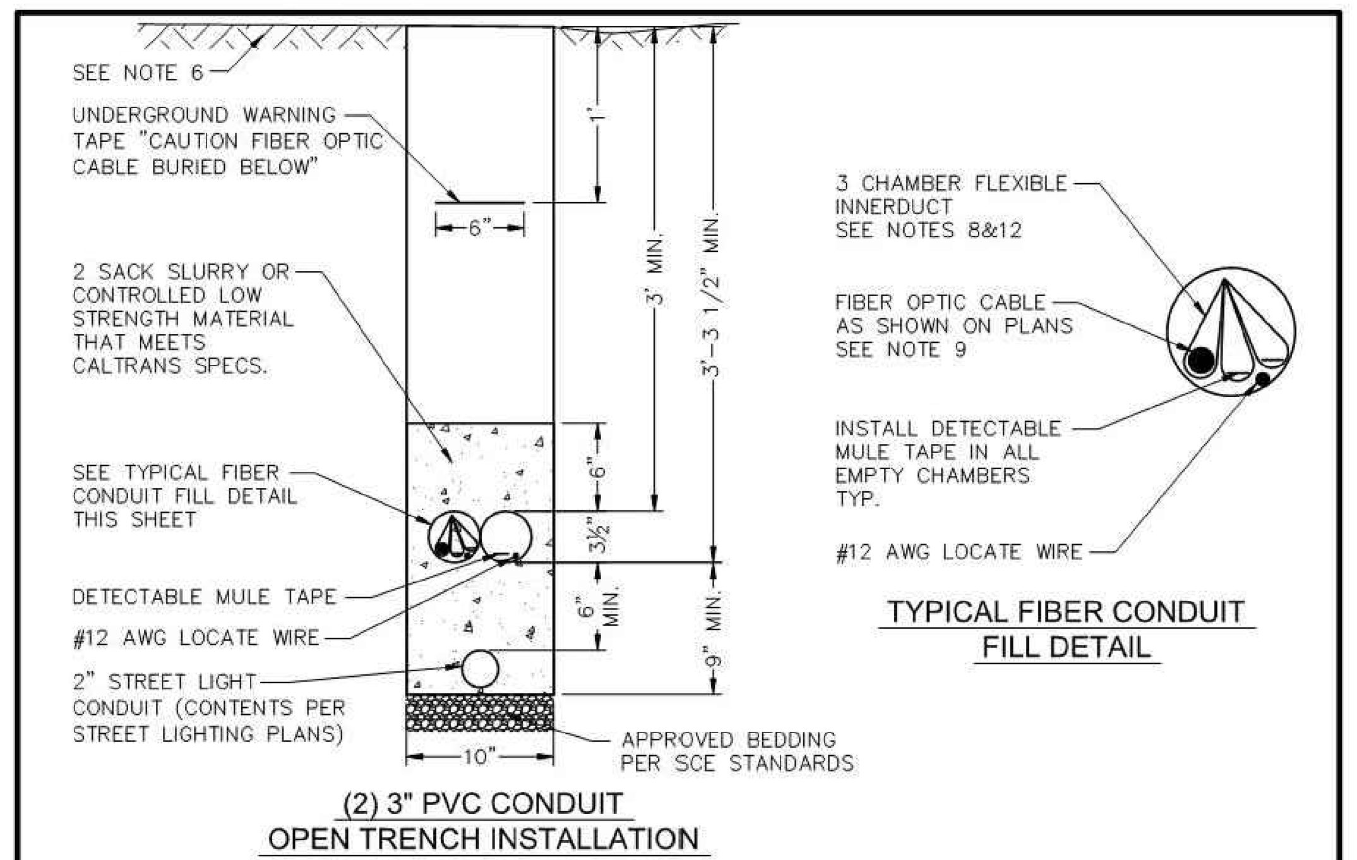
1. CONDUIT CONTENTS ARE ORIENTED ASSUMING THE SECTION FACING IN THE DIRECTION OF TRAVEL FOR THE MAJOR ARTERIAL.
2. ALL SPOIL MATERIAL SHALL BE REMOVED OFFSITE BY THE CONTRACTOR.
3. AREA SHALL BE RETURNED TO EXISTING GRADE.
4. CONDUIT COUPLINGS SHALL BE STAGGERED.
5. #12 AWG LOCATE WIRE SHALL BE INSTALLED IN ALL CONDUITS. DETECTABLE MULE TAPE SHALL BE INSTALLED IN ALL UNUSED CONDUITS AND FLEXIBLE INNERDUCT CHAMBERS. LEAVE A 10 FOOT LOOP OF WIRE IN A SMALL JUNCTION BOX WITHIN 5 FEET OF THE CONTROLLER CABINET, OR WITHIN THE CABINET.
6. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT TO 95% OF MAXIMUM DENSITY.
7. CONTROLLED LOW STRENGTH MATERIAL REQUIRED WHEN TRUNK AND/OR BRANCH FIBER–OPTIC CABLES INSTALLED IN CONDUIT (2–SACK SLURRY).
8. FLEXIBLE INNERDUCT, MULE TAPE, AND LOCATE WIRE SHALL BE INSTALLED AT TIME OF CONDUIT INSTALLATION AND SHALL TERMINATE AT EACH PULL BOX LOCATED ON PLANS.
9. IF FIBER IS BEING INSTALLED IN EXISTING CONDUIT AND INNERDUCT IS NOT PRESENT, THE 3 CHAMBER FLEXIBLE INNERDUCT SHALL BE INSTALLED PRIOR TO FIBER INSTALLATION.
10. TRENCH UNDER PAVEMENT OR SIDEWALK SHALL REQUIRE MINIMUM ONE–SACK SLURRY (DIRECTED BY CITY ENGINEER OR DESIGNEE) AND BACKFILL PER CITY OF VISALIA EXCAVATION STANDARD DRAWINGS.
11. FIBER INSTALLATION AND TESTING SHALL CONFORM TO THE CITY OF VISALIA STANDARDS AND SPECIFICATIONS.
12. IN CASES WHERE FIBER IS NOT BEING INSTALLED (I.E., CONDUIT ONLY INSTALLATIONS), THE FLEXIBLE INNERDUCT SHALL NOT BE INSTALLED.
13. WHERE CONDUIT IS PLACED IN AN OPEN TRENCH, IT SHALL NOT DEVIATE MORE THAN ONE INCH PER FOOT (1":12" MAX.) IN EITHER THE HORIZONTAL OR VERTICAL PLANES.
14. CONDUIT RUNS SHALL FOLLOW THE MOST DIRECT ROUTE POSSIBLE WITH NO MORE THAN TWO 90° BENDS BETWEEN PULL POINTS AND NO MORE THAN A TOTAL OF 270° OF BEND BETWEEN PULL POINTS.
15. NO MORE THAN ONE WEEK PRIOR TO THE INSTALLATION OF ANY CABLE, ALL NEW AND EXISTING CONDUIT RUNS IN WHICH CABLE IS TO BE INSTALLED SHALL BE CLEARED BY PULLING A METAL–DISC MANDREL OF 90% DIAMETER OF THE CONDUIT.
16. WHEN CONDUIT IS TRENCHED UNDER ROADWAY PAVEMENT, THERE SHALL BE SUFFICIENT VERTICAL CLEARANCE BETWEEN CONDUIT AND PAVEMENT STRUCTURAL SECTION AS DIRECTED BY THE CITY ENGINEER.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

TYPICAL FIBER TRENCH DETAILS — REVISIONS 08/24/16 BK 2016 — TE–8

TYPICAL FIBER TRENCH DETAILS — TE-8



NOTES:

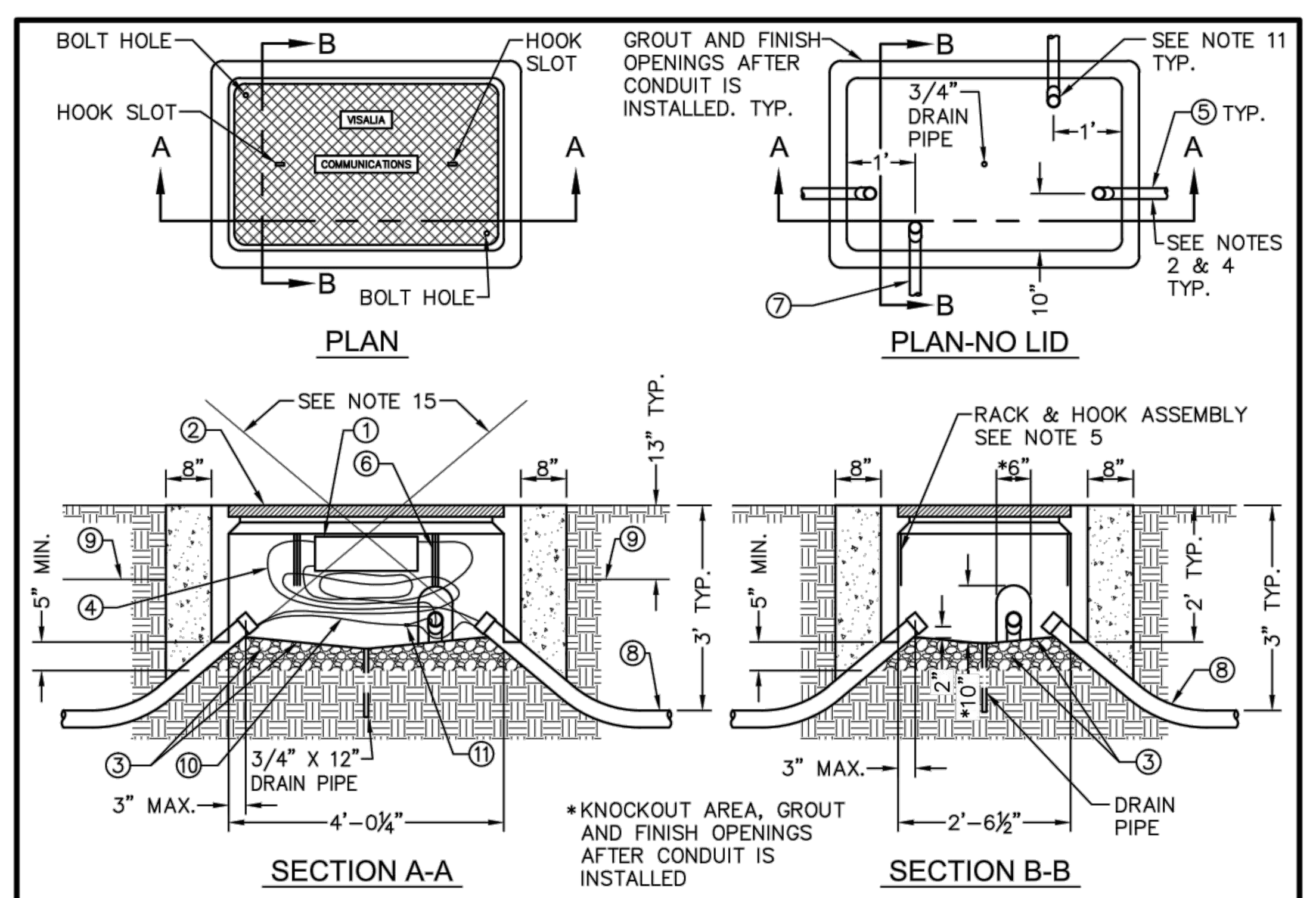
1. CONDUIT CONTENTS ARE ORIENTED ASSUMING THE SECTION FACING IN THE DIRECTION OF TRAVEL FOR THE MAJOR ARTERIAL.
2. ALL SPOIL MATERIAL SHALL BE REMOVED OFFSITE BY THE CONTRACTOR.
3. AREA SHALL BE RETURNED TO EXISTING GRADE.
4. CONDUIT COUPLINGS SHALL BE STAGGERED.
5. #12 AWG LOCATE WIRE SHALL BE INSTALLED IN ALL CONDUITS. LEAVE A 10 FOOT LOOP OF WIRE IN A SMALL JUNCTION BOX (CHRISTY FIBERLYTE FL9 OR APPROVED EQUAL) WITHIN 5 FEET OF THE CONTROLLER CABINET. DETECTABLE MULE TAPE SHALL BE INSTALLED IN ALL UNUSED CONDUITS AND FLEXIBLE INNERDUCT CHAMBERS.
6. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT TO 95% OF MAXIMUM DENSITY.
7. CONTROLLED LOW STRENGTH MATERIAL REQUIRED WHEN TRUNK AND/OR BRANCH FIBER–OPTIC CABLES INSTALLED IN CONDUIT.
8. FLEXIBLE INNERDUCT, MULE TAPE, AND LOCATE WIRE SHALL BE INSTALLED AT TIME OF CONDUIT INSTALLATION AND SHALL TERMINATE AT EACH PULL BOX LOCATED ON PLANS.
9. IF FIBER IS BEING INSTALLED IN EXISTING CONDUIT AND INNERDUCT IS NOT PRESENT, THE 3 CHAMBER FLEXIBLE INNERDUCT SHALL BE INSTALLED PRIOR TO FIBER INSTALLATION.
10. TRENCH UNDER PAVEMENT OR SIDEWALK SHALL REQUIRE MINIMUM ONE–SACK SLURRY (DIRECTED BY CITY ENGINEER OR DESIGNEE) BACKFILL PER CITY OF VISALIA EXCAVATION STANDARD DRAWINGS.
11. FIBER INSTALLATION AND TESTING SHALL CONFORM TO THE CITY OF VISALIA STANDARDS AND SPECIFICATIONS.
12. IN CASES WHERE FIBER IS NOT BEING INSTALLED (I.E., CONDUIT ONLY INSTALLATIONS), THE FLEXIBLE INNERDUCT SHALL NOT BE INSTALLED.
13. WHERE CONDUIT IS PLACED IN AN OPEN TRENCH, IT SHALL NOT DEVIATE MORE THAN ONE INCH PER FOOT (1":12" MAX.) IN EITHER THE HORIZONTAL OR VERTICAL PLANES.
14. CONDUIT RUNS SHALL FOLLOW THE MOST DIRECT ROUTE POSSIBLE WITH NO MORE THAN TWO 90° BENDS BETWEEN PULL POINTS AND NO MORE THAN A TOTAL OF 270° OF BEND BETWEEN PULL POINTS.
15. NO MORE THAN ONE WEEK PRIOR TO THE INSTALLATION OF ANY CABLE, ALL NEW AND EXISTING CONDUIT RUNS IN WHICH CABLE IS TO BE INSTALLED SHALL BE CLEARED BY PULLING A METAL–DISC MANDREL OF 90% DIAMETER OF THE CONDUIT.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

TYPICAL FIBER AND STREET LIGHTING JOINT TRENCH DETAIL — REVISIONS 08/24/16 BK 2016 — TE–9

TYPICAL FIBER & STREET LIGHTING JOINT TRENCH DETAIL — TE-9



NOTE: STRICTER REQUIREMENTS AS DIRECTED BY THE CITY ENGINEER IF PULL BOX IS WITHIN ROADWAY.

LEGEND:

① FIBER OPTIC CABLE SPLICE CLOSURE.

② FIBER OPTIC SPLICE VAULT LID.

③ 1.5 INCH MAXIMUM COARSE AGGREGATE WITH 2 INCHES GROUT COVER OVER THE AGGREGATE. THE GROUT COVER SHALL BE SLOPED TOWARD THE DRAIN FOR DRAINAGE.

④ FIBER OPTIC CABLE. COIL AS REQUIRED.

⑤ PROPOSED SMFO BRANCH OR TRUNKLINE CONDUIT, IF NEEDED SEE PLANS

⑥ RACK & HOOK ASSEMBLY. SEE NOTE 5 ON TYPICAL COMMUNICATIONS VAULT INSTALLATION NOTES STANDARD DRAWING

⑦ TRAFFIC SIGNAL CONDUIT TYP. IF NEEDED. SEE PLANS.

⑧ 45 DEGREE ELBOW, 36" RADIUS MIN. ELBOW AND COUPLING MAY NOT BE NECESSARY FOR NEW CONDUIT INSTALLED BY DIRECTIONAL BORING. NEW CONDUIT INSTALLED BY DIRECTIONAL DRILLING SHALL ENTER SPLICE VAULT WITH BENDING RADIUS OF 36" MIN. SEE NOTE 15.

⑨ WARNING TAPE. FOR NEW CONDUIT INSTALLED BY TRENCHING

⑩ COIL 3 FEET OF TRACER WIRE.

⑪ SPLICE TRACER WIRE PER CALTRANS STANDARD SPECIFICATIONS FOR CONDUCTOR SPLICING.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

TYPICAL COMMUNICATIONS VAULT INSTALLATION 1 OF 2 — REVISIONS 09/13/16 BK 2016 — TE–10

TYPICAL COMMUNICATIONS VAULT INSTALLATION 1 OF 2 — TE-10

TYPICAL COMMUNICATIONS VAULT INSTALLATION NOTES:

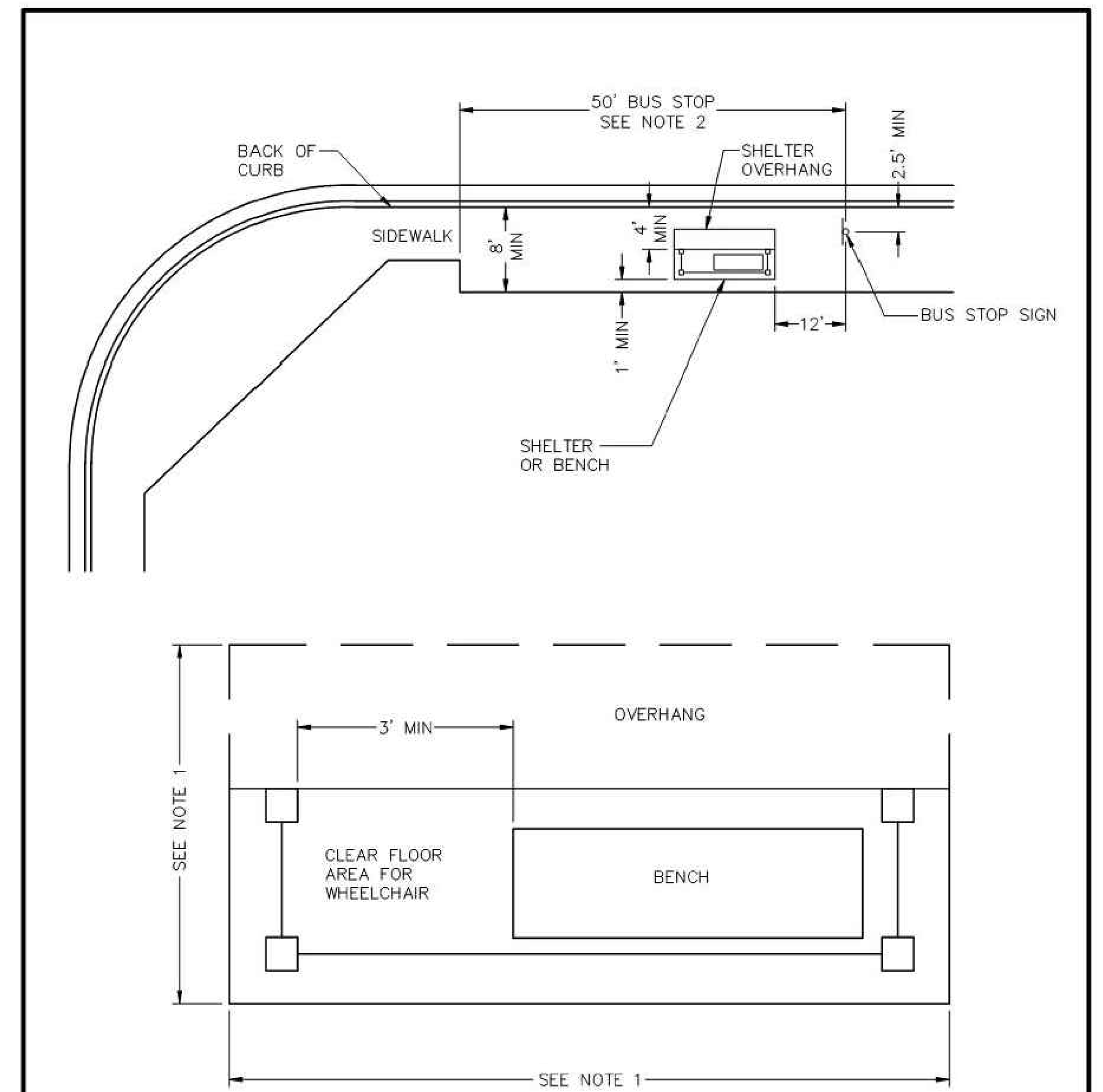
1. TRUNKLINE CONDUIT(S) FROM THE TYPICAL BORE OR TRENCH SECTION SHOULD NOT DEFLECT BY MORE THAN ONE FOOT PER 10 FEET FROM THE ALIGNMENT PRECEDING OR FOLLOWING PULL BOX/SPLICE VAULT ENTRANCE/EXIT.
2. EXCESS CONDUIT FOR ALL CONDUIT ENDS SHALL BE CUT BACK TO PROVIDE STUB ENDS OF 1" MINIMUM TO 2" MAXIMUM.
3. SEE PLAN SHEETS FOR NUMBER AND SIZE OF CONDUIT.
4. IF MORE THAN 3 CONDUITS ARE REQUIRED IN SAME KNOCKOUT, KNOCKOUT SHALL BE WIDENED TO 1/2" MORE THAN THE COMBINED CONDUIT WIDTH.
5. ALL SPLICE VAULTS SHALL BE FURNISHED WITH TWO RACKS AND HOOKS INSTALLED ON EACH OF THE TWO LONG SIDES.
6. TRUNKLINE CONDUITS SHALL ENTER THROUGH KNOCKOUTS.
7. SPLICE VAULTS, VAULT EXTENSION, AND VAULT LIDS SHALL BE CHRISTY N48 UTILITY BOX OR APPROVED EQUIVALENT, AND SUPPORT MINIMUM TEST LOAD OF 12,500 LBS. IF SPLICE VAULT IS LOCATED IN TRAVEL WAY, SPLICE VAULT AND LID SHALL CONFORM VERTICAL PROOF LOAD STRENGTH REQUIREMENT AS PER CALTRANS STANDARD SPECIFICATIONS, SECTION 86–2.07.
8. LOCKING MECHANISM SHALL BE PROVIDED FOR VAULT LID. TWO 3/8" PENTA HEAD BOLTS AT 90° SHALL BE USED, ONE 3/8" PENTA HEAD SOCKET AND RATCHET SHALL BE PROVIDED TO CITY OF VISALIA FOR EVERY 10 SPLICE VAULTS.
9. "VISALIA COMMUNICATIONS" SHALL BE CASTED ON THE TOP FACE OF ALL VAULT LIDS.
10. CUT CONDUIT, DE–BURR, AND RE–THREAD PRIOR TO INSTALLING FIBER OPTIC CABLE AND/OR OTHER CABLES/CONDUCTORS. ALL METALLIC CONDUITS SHALL HAVE THREADED METALLIC BUSHINGS. ALL PVC AND HDPE CONDUITS SHALL HAVE BELL ENDS.
11. FURNISH AND INSTALL CAPS OR DUCT PLUGS FOR ALL UNUSED CONDUIT.
12. SPLICE CLOSURE SHALL BE ATTACHED TO THE RACK AND HOOK SYSTEM ON THE SAME SIDE AS THE FIBER OPTIC CABLE. THE SPLICE CLOSURE SHALL BE ANGLED TO FACILITATE MINIMUM BENDING RADIUS IN THE CABLE.
13. IF APPLICABLE, SPLICE VAULT HEIGHT ABOVE EXISTING DIRT GRADE SHALL PERMIT 1" OF FUTURE SURFACE LANDSCAPING. WHEN SPLICE VAULT IS INSTALLED IN EXISTING SIDEWALK, SPLICE VAULT LID SHALL SIT FLUSH WITH THE SIDEWALK. COORDINATE WITH ENGINEER WHERE THIS APPLIES.
14. EACH FIBER OPTIC SPLICE VAULT SHALL BE EQUIPPED WITH 50' MIN. OF SLACK IN THE TRUNKLINE CABLE AND 25' MIN. OF SLACK IN THE BRANCH CABLE ON EACH SIDE OF FIBER OPTIC SPLICE CLOSURE. (I.E. THE TRUNKLINE CABLE TYPICALLY WILL HAVE 50' OF SLACK AND THE BRANCH CABLE WILL TYPICALLY HAVE 25' OF SLACK.)
15. BOTTOM OF CONDUIT CENTERLINE SHALL BE ALIGNED TO EXIT TOP OF SPLICE VAULT TO FACILITATE CABLE PULLING.
16. MINIMUM SPLICE VAULT DEPTH SHALL BE 2'. IF NECESSARY, AN EXTENSION MAY BE USED TO MEET THIS REQUIREMENT.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

TYPICAL COMMUNICATIONS VAULT INSTALLATION 2 OF 2 — REVISIONS 09/15/16 BK 2016 — TE–11

TYPICAL COMMUNICATIONS VAULT INSTALLATION 2 OF 2 — TE-11



NOTES:

1. ALL SHELTERS SHALL BE PROPERLY CONSTRUCTED ACCORDING TO THE CITY'S ENGINEERED PLANS. CONTACT THE TRANSIT DEPARTMENT TO OBTAIN THE STRUCTURAL ENGINEERING PLANS FOR THE SHELTER. SIZE OF SHELTER SHALL BE VERIFIED WITH THE TRANSIT DEPARTMENT PRIOR TO CONSTRUCTION.
2. 8' MIN SIDEWALK DEPTH MUST EXTEND AT LEAST 25' ENDING AT BUS STOP SIGN POLE. DESIRABLE LENGTH IS 50'.

APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

BUS SHELTER AND SIGN LOCATION WITH WHEELCHAIR AREA — REVISIONS 09/27/13 BK 2016 — TR–1

BUS SHELTER & SIGN LOCATION W/ WHEELCHAIR AREA — TR-1

NO.	DATE	DESCRIPTION

PREPARED BY: 4CREEKS

324 S SANTA FE, STE A
P.O. BOX 7593
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215

CHK BY: KM

DRW BY: MH

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE WIDENING & IMPROVEMENTS

CIVIL DETAILS

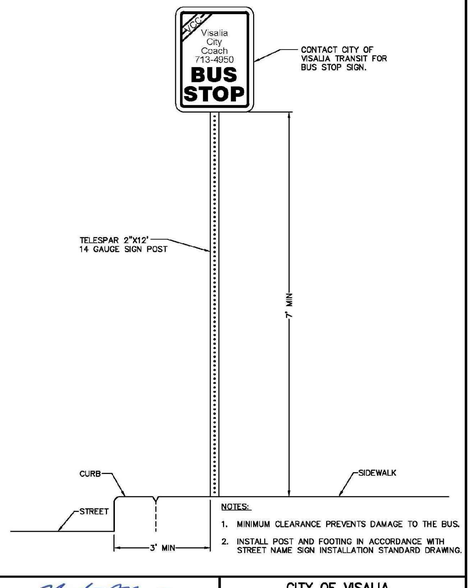
PROJ. NO. 20205

DATE:3/8/2021

DESIGN BY: KM DRAWN BY:MH

SCALE: AS SHOWN

SHEET 35 OF 61



NOTES:

1. MINIMUM CLEARANCE PREVENTS DAMAGE TO THE BUS.
2. INSTALL POST AND FOOTING IN ACCORDANCE WITH STREET NAME SIGN INSTALLATION STANDARD DRAWING.

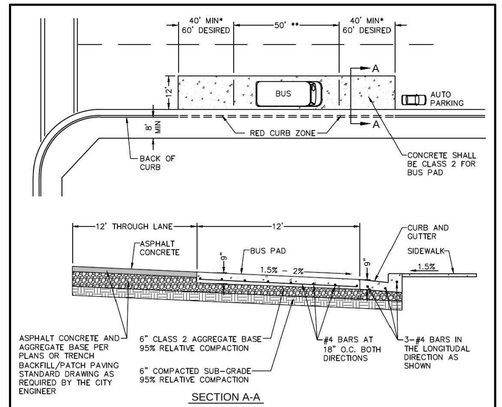
APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

BUS STOP SIGN

REVISIONS 09/15/16 BK 2016

TR-2



SECTION A-A

NOTES:

1. CONCRETE FOR BUS PAD SHALL BE CLASS 2.
2. CONCRETE FOR SIDEWALK AND CURB AND GUTTER SHALL BE CLASS 2 OR CLASS 3.
3. REINFORCING BARS SHALL BE DEFORMED STEEL BARS AND SHALL BE GRADE 40 MINIMUM. REINFORCING BARS SHALL BE FREE OF RUST OR DIRT AND SHALL BE THOROUGHLY CLEANED BEFORE PLACEMENT.
4. REINFORCING BARS SHALL HAVE A MINIMUM OF 3" OF CLEAR COVERAGE.
5. WEAKEND PLANE JOINTS SHALL BE PLACED IN THE BUS PAD AT 10'–15' CENTERS, MINIMUM DEPTH OF 2". JOINTS IN CURB AND GUTTER SHALL ALIGN WITH JOINTS IN BUS PAD WHERE POSSIBLE.

* 40' MINIMUM FOR SPEED LIMIT 30 MPH AND UNDER. 60' DESIRABLE FOR SPEED LIMIT ABOVE 30 MPH.

** FOR EACH ADDITIONAL PASS THROUGH BUS BERTH ADD 50', AND FOR EACH ADDITIONAL LAYOVER BUS BERTH ADD 80'.

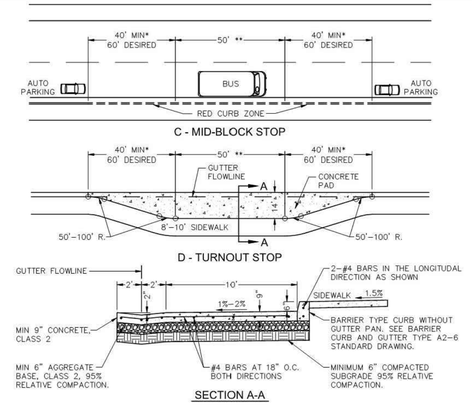
APPROVED BY: CITY ENGINEER R.P.E. 76065 09/27/13 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

BUS PAD

REVISIONS 09/27/13 BK 2013

TR-3



C - MID-BLOCK STOP

D - TURNOUT STOP

SECTION A-A

NOTES:

1. CONCRETE FOR VEE GUTTER AND BUS PAD SHALL BE CLASS 2.
2. CONCRETE FOR SIDEWALK AND CURB AND GUTTER SHALL BE CLASS 2 OR CLASS 3.
3. REINFORCING BARS SHALL BE DEFORMED STEEL BARS AND SHALL BE GRADE 40 MINIMUM. REINFORCING BARS SHALL BE FREE OF RUST OR DIRT AND SHALL BE THOROUGHLY CLEANED BEFORE PLACEMENT.
4. REINFORCING BARS SHALL HAVE A MINIMUM OF 3" OF CLEAR COVERAGE.
5. WEAKEND PLANE JOINTS SHALL BE PLACED IN THE BUS PAD AT 12'–15' CENTERS; MINIMUM DEPTH OF 2". JOINTS IN CURB AND GUTTER SHALL ALIGN WITH JOINTS IN BUS PAD WHERE POSSIBLE.

* 40' MINIMUM FOR SPEED LIMIT 30 MPH AND UNDER. 60' DESIRABLE FOR SPEED LIMIT ABOVE 30 MPH.

** FOR EACH ADDITIONAL PASS THROUGH BUS BERTH ADD 50', AND FOR EACH ADDITIONAL LAYOVER BUS BERTH ADD 80'.

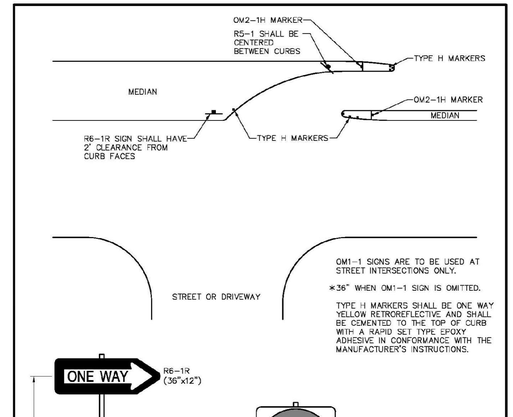
APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

BUS STOPS C & D

REVISIONS 09/27/13 BK 2016

TR-5



APPROVED BY: CITY ENGINEER R.P.E. 81734 09/16/16 DATE

CITY OF VISALIA DESIGN & IMPROVEMENT STANDARDS

MEDIAN ISLAND OPENING SIGNING

REVISIONS 08/25/16 BK 2016

TS-8

NO.	DATE	DESCRIPTION

PREPARED BY:
4CREEKS
324 S. SANTA FE, STE. A
P.O. BOX 7293
VISALIA, CA 93292
TEL: 559.802.3052
FAX: 559.802.3215
CHK BY: KM
DRW BY: MH

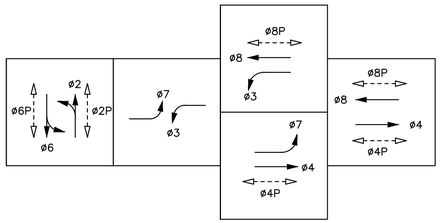
CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
CIVIL DETAILS

PROJ. NO. 20205
DATE:3/8/2021
DESIGN BY: KM | DRAWN BY:MH
SCALE: AS SHOWN
SHEET 36 OF 61

Know what's **below.**
Call before you dig.

STEADY DEMAND SEQUENCE



PROPOSED PHASE DIAGRAM

EMERGENCY VEHICLE PREEMPT (EVP)

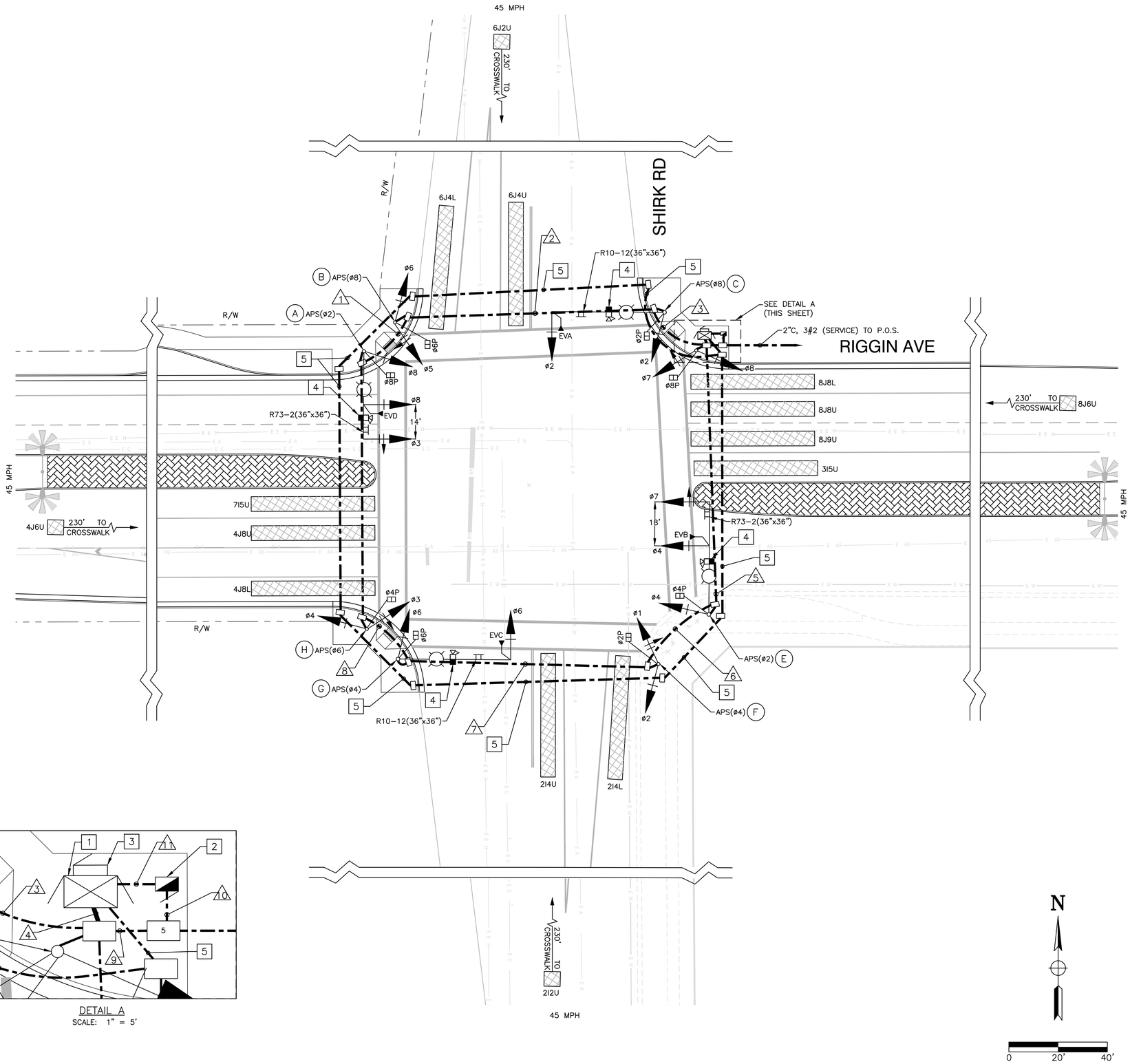
CHANNEL A = ø2
CHANNEL B = ø4 + ø7
CHANNEL C = ø6
CHANNEL D = ø8 + ø3

PROJECT NOTES (THIS SHEET ONLY):

1. FURNISH AND INSTALL TYPE 170E CONTROLLER IN NEW TYPE 332L CABINET WITH ALL EQUIPMENT NECESSARY FOR A FULLY FUNCTIONING SIGNAL AS SHOWN ON THIS PLAN. FRONT DOOR OF CABINET SHALL FACE EAST.
2. FURNISH AND INSTALL TYPE III-CF SERVICE PEDESTAL PER CALTRANS STD PLANS ES-2F. POINT OF SERVICE TO BE DETERMINED.
3. FURNISH AND INSTALL BATTERY BACKUP SYSTEM, PER SPECIAL PROVISIONS. BATTERY BACKUP SYSTEM SHALL BE ATTACHED TO 332L CABINET.
4. FURNISH AND INSTALL VIDEO/RADAR DETECTION CAMERA ON SMA. THE MOUNTING LOCATION SHALL BE VERIFIED BY THE CITY PRIOR TO THE INSTALLATION OF THE EQUIPMENT.
5. FURNISH AND INSTALL 3" CONDUIT WITH TRACER WIRE.

LEGEND

- EXISTING PEDESTRIAN HEAD
- EXISTING LUMINAIRE
- EXISTING EVP
- EXISTING SIGNAL HEAD
- EXISTING SIGNAL MAST ARM SIGN
- EXISTING PULL BOX
- EXISTING SERVICE CABINET
- EXISTING CONTROLLER CABINET
- EXISTING SIGNAL MAST ARM AND POLE
- FURNISH AND INSTALL EVP
- FURNISH AND INSTALL SIGNAL HEAD
- FURNISH AND INSTALL LEFT TURN SIGNAL HEAD
- FURNISH AND INSTALL SIGNAL MAST ARM SIGN
- FURNISH AND INSTALL SIGNAL MAST ARM
- FURNISH AND INSTALL CONDUIT
- EXISTING CONDUIT
- VIDEO DETECTION ZONE



DETAIL A
SCALE: 1" = 5'

N

0 20' 40'

SCALE: 1"=20'

NO.	DATE	DESCRIPTION

PREPARED BY:
TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
(925) 463-0611
Fax (925) 463-3690
tjkm@tjkm.com

CHK BY: RP
DRW BY: MM

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
TRAFFIC SIGNAL INSTALLATION

PROJ. NO. 20205	
DATE:3/8/2021	
DESIGN BY: MM	DRAWN BY:MM
SCALE: AS SHOWN	
SHEET 37 OF 61	

Know what's below. Call before you dig.

CONDUCTOR SCHEDULE

AWG OR CABLE	POLE	ø	CONDUIT 1	CONDUIT 2	CONDUIT 3	CONDUIT 4	CONDUIT 5	CONDUIT 6	CONDUIT 7	CONDUIT 8
12 COND. CABLE (VEH.–PED) / 3 COND. CABLE (PED)	A	ø3,ø8,ø8P / ø6P			1 / 1	1 / 1	1 / 1	1 / 1	1 / [illegible]	
	B	ø5,ø6,ø6P / ø8P			1 / 1	1 / 1	1 / 1	1 / 1	[illegible] / 1	1 / 1
	C	ø2,ø5,ø2P / ø8P	1 / 1	1 / 1	1 / 1					
	D	ø7,ø8,ø8P / ø2P		1 / 1	1 / 1					
	E	ø4,ø7,ø4P / ø2P			1					
	F	ø1,ø2,ø2P / ø4P			1 / 1	1 / [illegible]				
	G	ø1,ø6,ø6P / ø4P			1 / [illegible]	[illegible] / 1	1 / 1			
	H	ø3,ø4,ø4P / ø6P			[illegible] / 1	1 / 1	1 / 1	1 / 1		
	TOTAL CABLES		1 / 1	2 / 2	8 / 8	5 / 5	4 / 4	3 / 3	2 / 2	1 / 1
#8	LIGHTING		2	2	2	2	2	2	2	
#8	NEUTRAL		1	1	1	1	1	1	1	1
VIDEO DETECTION	VIDEO/POWER CABLE									
DLC	ø1				2	2	2	2	2	2
	ø2				5	5				
	ø3				2					
	ø5				2	2				
	ø6				5	5	5	5	5	5
	ø8				2					
	TOTAL DLC				21	17	10	10	7	7
EVP	CHANNEL A		1	1	1					
	CHANNEL B				1					
	CHANNEL C				1	1	1			
	CHANNEL D				1	1	1	1	1	
	TOTAL EVP		1	1	4	2	2	1	1	
CONDUIT SIZE (INCHES)			3"	3"	2–4"	2–3.5"	4"	4"	4"	3"
% FILL			7%	11%	17%	15%	17%	14%	10%	12%

TO BE COMPLETED NEXT SUBMITTAL

NOTES:

ALL CONDUCTORS ARE NEW UNLESS NOTED OTHERWISE

EQUIPMENT SCHEDULE - RIGGIN AVE AT SHIRK RD

NO.	STANDARD			VEH SIG MTG		PED SIGNAL		PPB		LUMINAIRE (WATTS)	SPECIAL REQUIREMENTS
	TYPE	SIG. M.A.	LUM. M.A.	MAST ARM	POLE	ø	MTG	ø	ARROW		
A	24–4–100	35'	15'	MAT MAS	SV–1–T	8	SP–1–T	6	LEFT	200W	FURNISH AND INSTALL STREET NAME SIGN "SHIRK RD" ON SIGNAL POLE. FURNISH AND INSTALL R73–2 (36"x36") SIGN, EMERGENCY VEHICLE PREEMPTION CHANNEL D, AND VIDEO DETECTION CAMERA ON SMA.
B	1–A	–	–	–	TV–2–T	6	SP–1–T	8	RIGHT	–	
C	26–4–100	45'	15'	MAT	SV–1–T	2	SP–1–T	8	LEFT	200W	FURNISH AND INSTALL STREET NAME SIGN "RIGGIN AVE" ON SIGNAL POLE. FURNISH AND INSTALL R10–12 (36"x36") SIGN, EMERGENCY VEHICLE PREEMPTION CHANNEL A, AND VIDEO DETECTION CAMERA ON SMA.
D	1–A	–	–	–	TV–2–T	8	SP–1–T	2	RIGHT	–	
E	26–4–100	45'	15'	MAT MAS	SV–1–T	4	SP–1–T	2	LEFT	200W	FURNISH AND INSTALL STREET NAME SIGN "SHIRK RD" ON SIGNAL POLE. FURNISH AND INSTALL R73–2 (36"x36") SIGN, EMERGENCY VEHICLE PREEMPTION CHANNEL B, AND VIDEO DETECTION CAMERA ON SMA.
F	1–A	–	–	–	TV–2–T	2	SP–1–T	4	RIGHT	–	
G	26–4–100	45'	15'	MAT	SV–1–T	6	SP–1–T	4	LEFT	200W	FURNISH AND INSTALL STREET NAME SIGN "RIGGIN AVE" ON SIGNAL POLE. FURNISH AND INSTALL R10–12 (36"x36") SIGN, EMERGENCY VEHICLE PREEMPTION CHANNEL C, AND VIDEO DETECTION CAMERA ON SMA.
H	1–A	–	–	–	TV–2–T	4	SP–1–T	6	RIGHT	–	

NOTES:

ALL LEFT TURN SIGNAL HEADS SHALL BE MAT TYPE FOR SIGNAL MAST ARM.

ALL EQUIPMENT IS NEW UNLESS NOTED OTHERWISE

GENERAL NOTES

1. THE CONTRACTOR SHALL REFER TO THE 2018 CALTRANS STANDARD PLANS & SPECIFICATIONS, INCLUDING ANY AND ALL STANDARD PLAN AND SPECIFICATIONS REVISIONS ADOPTED BY CALTRANS FOR TRAFFIC SIGNAL POLES, FOUNDATIONS, VEHICLE SIGNALS, SIGNAL MAST ARMS, PEDESTRIAN SIGNALS AND LUMINAIRE ARMS AS SHOWN ON THE PROJECT PLANS.
2. THESE PLANS ARE ACCURATE FOR ELECTRICAL WORK ONLY.
3. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL EXISTING UTILITIES, WHETHER OR NOT THEY ARE SHOWN ON THESE PLANS, AND SHALL PROVIDE PROTECTION PRIOR TO, DURING AND AFTER TRENCHING, JACKING AND/OR BORING. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (USA) AT LEAST 48 HOURS BEFORE BEGINNING WORK.
4. THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES FOR ALL REQUIRED UTILITY RELOCATIONS, INCLUDING OVERHEAD CONFLICTS.
5. ALL TRAFFIC SIGNAL AND LIGHTING FACILITIES, INCLUDING CABINET, STANDARDS, PULL BOXES, CONDUITS, AND LOOP DETECTORS, ARE SHOWN IN THEIR APPROXIMATE LOCATIONS.
6. ALL SALVAGED MATERIALS SHALL BE DELIVERED TO THE CITY OF VISALIA CORPORATION YARD LOCATED AT 336 N. BEN MADDOX WAY, VISALIA, CA. COORDINATE WITH PUBLIC WORKS INSPECTOR 48 HOURS IN ADVANCE.
7. ALL VEHICLE SIGNAL SECTIONS SHALL UTILIZE LIGHT EMITTING DIODE (LED) SIGNAL MODULES. VEHICLE SIGNAL SECTIONS SHALL HAVE 12" DIAMETER LENSES.
8. THE EXISTING STREET LIGHTING SYSTEM SHALL REMAIN OPERATIONAL DURING CONSTRUCTION, UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER.
9. PULL BOXES SHALL BE NO. 6(E), UNLESS OTHERWISE NOTED.
10. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL PERPHIRAL VIDEO DETECTION EQUIPMENT REQUIRED SUCH AS CABLING, DETECTION CARDS, BRACKETS, WIRING AND OTHER INCIDENTALS ARE INCLUDED WITH THE VIDEO DETECTION SYSTEM. AS REQUIRED BY THE CITY OF VISILIA.

NO. | DATE | DESCRIPTION

30%

PREPARED BY:

TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
tjkm@tjkm.com
(925) 463-0611
Fax (925) 463-3690

CHK BY: RP

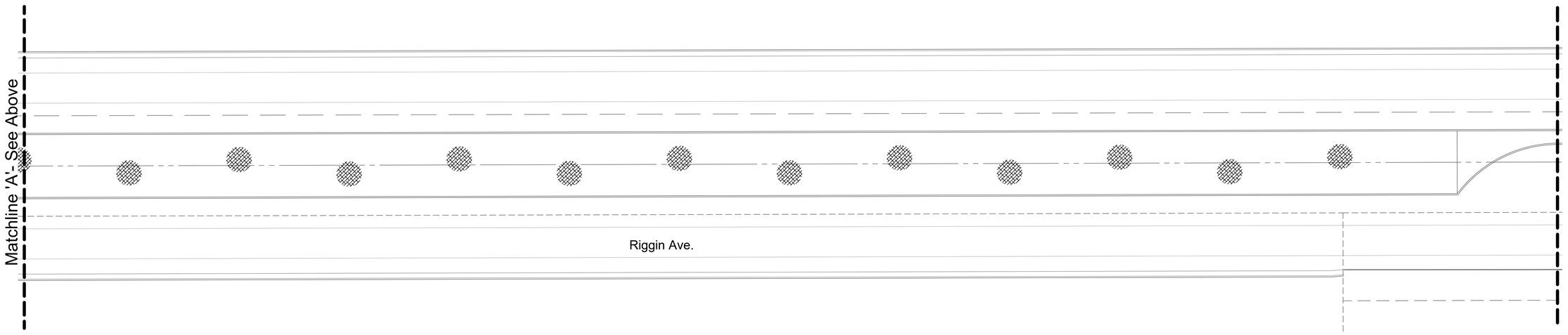
DRW BY: MM

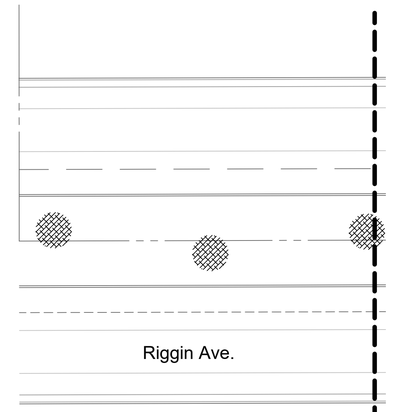
VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
TRAFFIC SIGNAL INSTALLATION

PROJ. NO. 20205
DATE: 3/8/2021
DESIGN BY: MM | DRAWN BY: MM
SCALE: AS SHOWN
SHEET 38 OF 61





Planting Soils Legend

SYMBOL	DESCRIPTION	QTY
PS-101	Certified Compost: 2" thick layer of compost shall be applied in all planting areas. Compost shall be certified by the U.S. Composting Council`s STA Program. See specifications for further information.	37.33 cy
PS-102	Modified Existing Soil - Compacted sub soil: Trenching For planting areas greater than eight feet with soil compaction greater than 85% of Standard Proctor Method. See detail and specifications for further information.	5,576 sf

Notes:
1 - All quantities and amounts shown on the plans are best estimates for the benefit of the contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the contractor 's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

0 20 40 60 80 feet
1" = 20'

Know what's below.
Call before you dig.

NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION

NORTH

LANDSCAPE ARCHITECT
LICENSED
TYSON TAGRILL
No. 5803
STATE OF CALIFORNIA
Signature
1-30-22
Renewal date

1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@lwoodarchitecture.com

CHK BY: TC

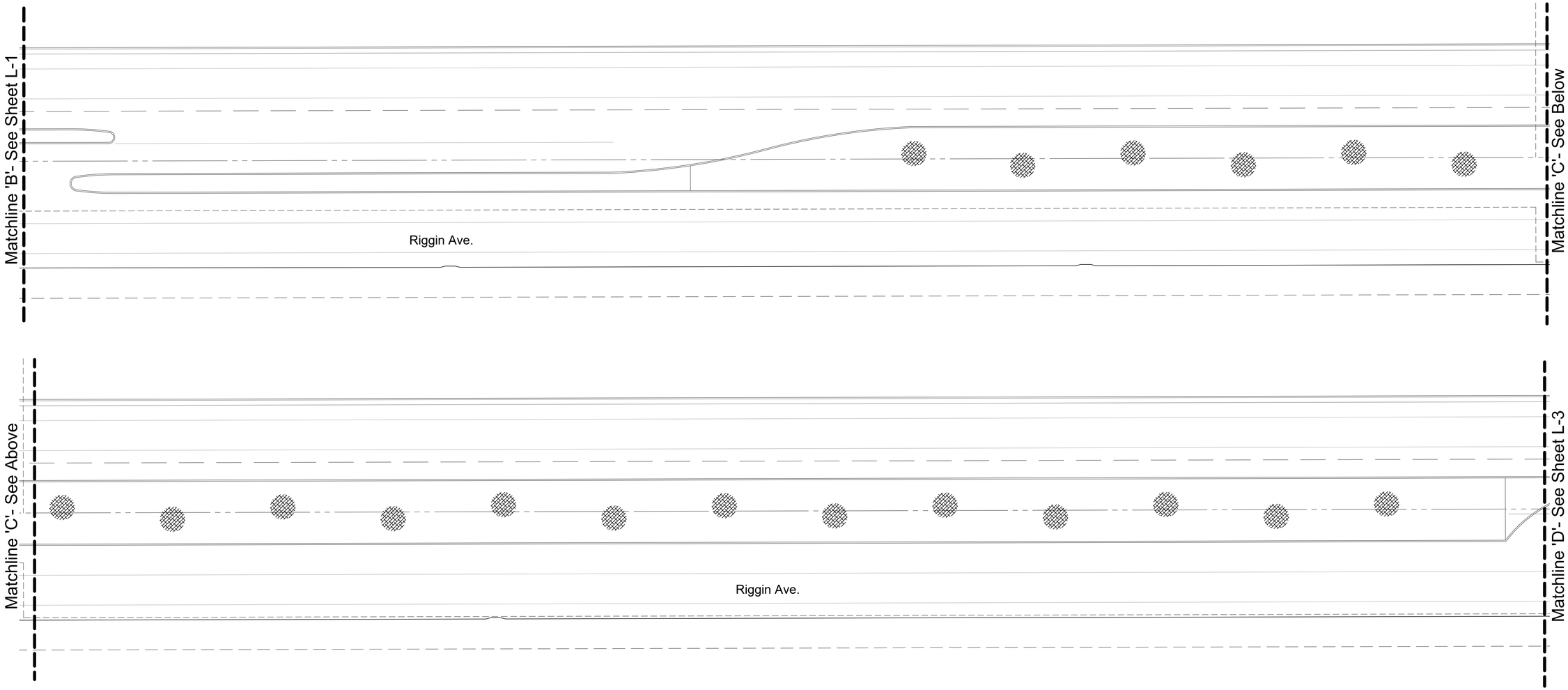
PREPARED BY: WOOD ARCHITECTURE

DRW BY: TC

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
PLANTING SOILS PLAN

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 39 OF 61



Planting Soils Legend

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NO. | DATE | DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT
TYSON TAGRILL NO. 5803
STATE OF CALIFORNIA
Signature
1-30-22
Renewal Date

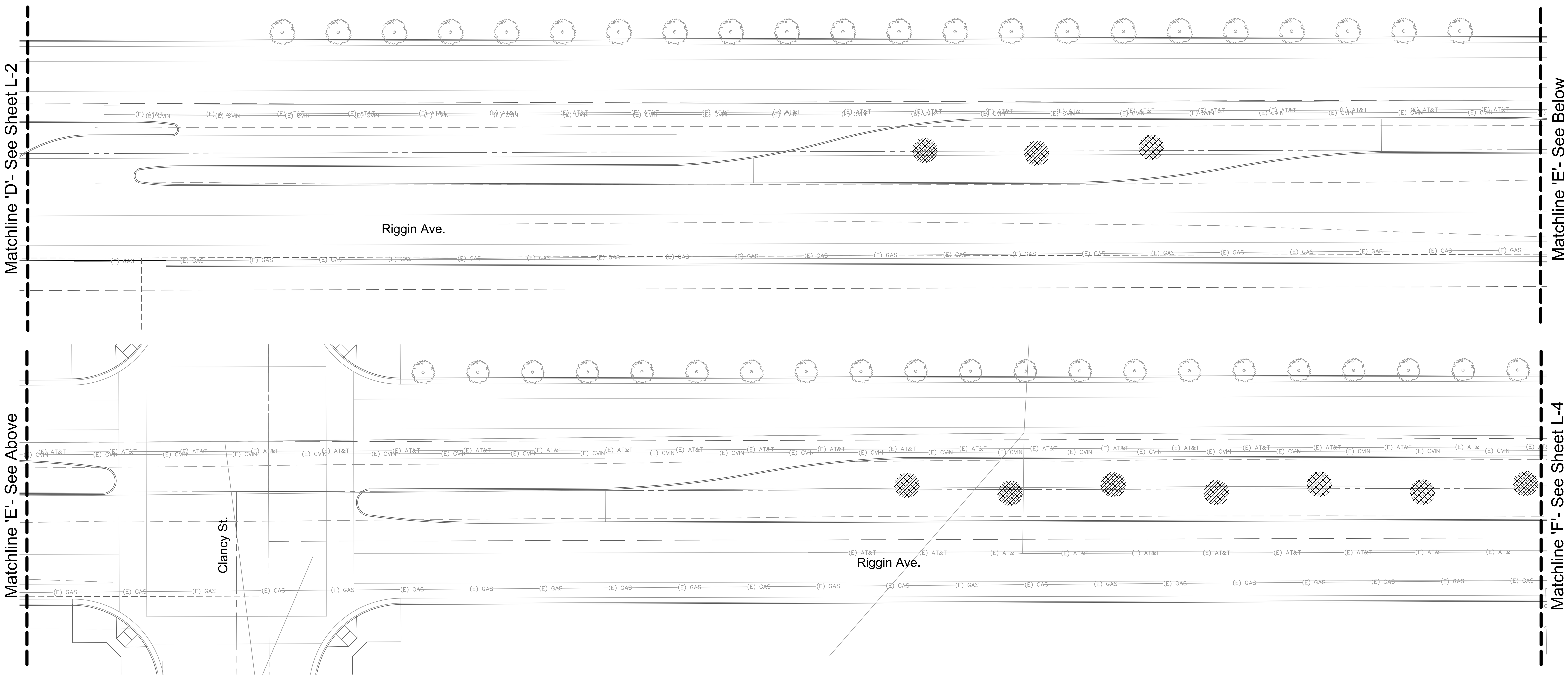
PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@lkwoodarchitecture.com

CHK BY: TC
DRW BY: TC

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
PLANTING SOILS PLAN

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 40 OF 61



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0 20 40 60 80 feet
1" = 20'

811
Know what's below. Call before you dig.

NOT FOR CONSTRUCTION

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No 5803
STATE OF CALIFORNIA

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@woodarchitecture.com

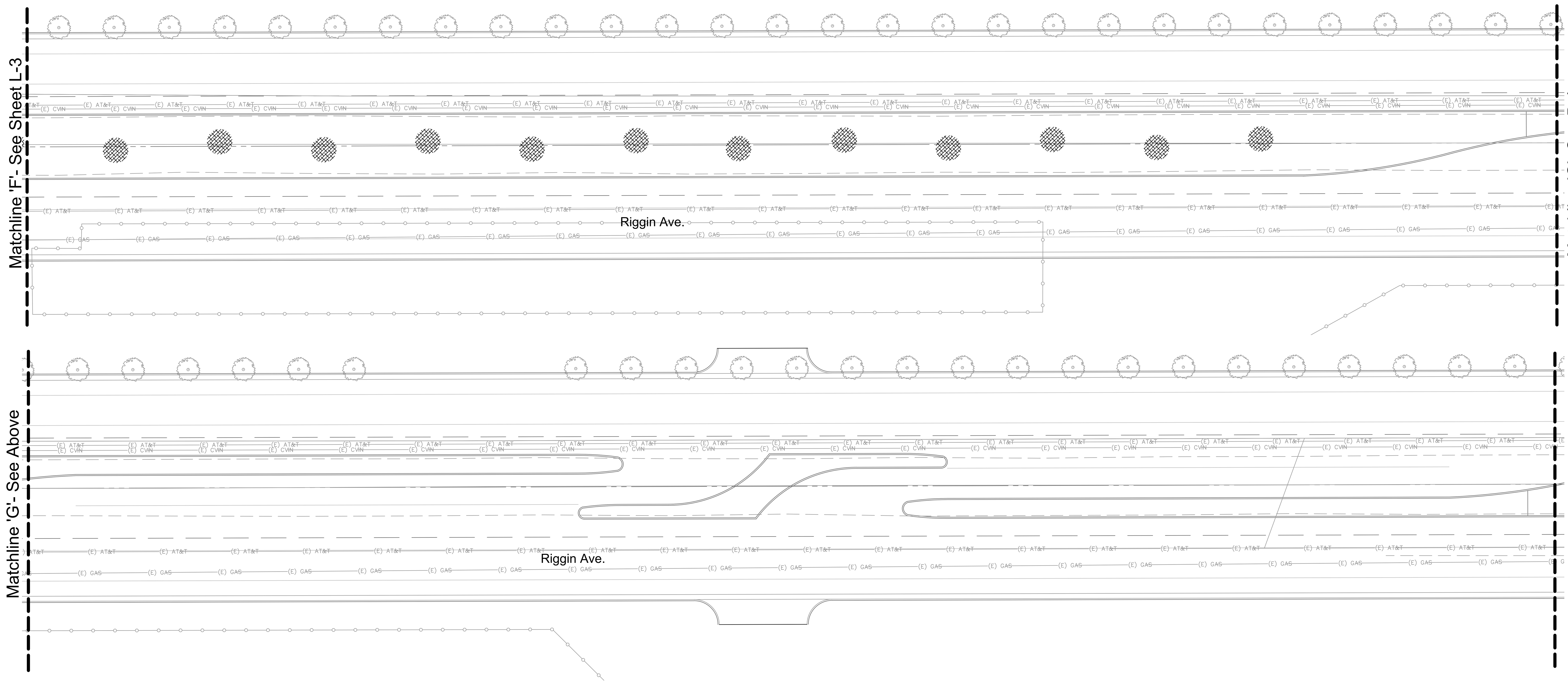
CHK BY: TC
DRW BY: TC

NO. | DATE | DESCRIPTION

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
PLANTING SOILS PLAN

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 41 OF 61



Planting Soils Legend

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Notes:
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GENERAL PLANTING SOIL NOTES

1. Existing utilities- information on the drawings relating to existing utility lines and services from the best sources available. All such information is furnished only for information and is not guaranteed. The Contractor shall excavate test pits as required to determine the exact location of existing utilities.

Call utility locating service for precise utility locations before beginning of any work. DIG ALERT, 811

2. Utility Requirements- The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below shall be contacted.
- Gas Company
- Telephone Company
- Electrical Power Company
- Cable Television Company
- Water Supply Company

The California Public Utilities Commission mandates that in, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the gas company's headquarters planning office 48 hours prior to the start of construction.

3. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

4. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

5. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of conduct of the work as drawn and specified. If the contractor observes that a conflict exist between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

6. Wherever references are made to standards or coded in accordance with which works is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless expressly set forth.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.
.

8. Comply with the requirements for the California code of Regulation title 23 waters, division 2 department of water resources chapter 2.7 model water efficient landscape ordinance, 492.5 soil management report.
   a. Where the requirements of specification section Planting Soil are more stringent than the California code, the more stringent requirements shall prevail.

9. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

10. The Contractor shall be responsible for any coordination with subcontractors as requiring to accomplish the soil preparation operations.

11. Top soil, existing site soil and Planting Soil Mix testing; Submit soil test analysis report for each sample of Topsoil, existing site soil and Planting Soil from an approved soil testing laboratory.

12. Submit all testing required by California code of Regulation title 23 waters, division 2 department of water resources chapter 2.7 model efficient landscape ordinance, 492.5 soil management report.

13. Soil testing shall be at the expense of the Contractor. Copies of the soil test analysis along with receipts and delivery slips of recommended amendments shall be provided to the Owner's Representative.

14. Contractor shall be aware of all surface and subsurface conditions, and to notify the Owner's Representative, in writing of any circumstances that would negatively impact the health of plantings. Contractor shall not proceed with work until corrected.
   a. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering the cost of corrections. If the contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for the plant material under the warrantee clause of the specifications.

15. Imported top soil shall be fertile, friable soil containing less than 5% total volume of the combination of subsoil, refuse, roots larger than 1" diameter, heavy or stiff clay, stones larger than 2 inches in diameter, noxious seeds, sticks, brush, litter, or any substances deleterious to planter growth. The % of the above objects shall be controlled by source selection not by screening the soil. Topsoil shall be suitable for the germination of seeds and the support of vegetative growth. Imported Topsoil shall not contain weed seeds in quantities that cause noticeable weed infestation in the final planting beds.

16. Compost shall be organic blended material, composted for a minimum of 9 months and at temperatures sufficient to break down all woody fibers, seeds and leaf structures, free of toxic and non-organic matter. Source material shall be yard waste trimmings blended with other organic material designed to produce Compost high in fungal material.
   a. Organic matter shall be commercially prepared compost and meet US Composting Council STA/TMECC.
.

17. The Owner's Representative shall approve all rough grading prior to the installation of organic matter, fine grading, and mulching.

18. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements in the plans, details and specifications.
   a. Pre - Construction meeting
   b. Existing soil conditions review
   c. Completion of site preparation review
   d. Completion of finished grading and surface soil modification review.

19. If the work fails to pass inspection, any subsequent inspections must be rescheduled as required in the specifications. The cost to the Owner for additional inspections will be charged to the Contractor at the prevailing hourly rate of the inspector.

20. Contractor shall include in the bid continued maintenance (warranty) period of 1 year after completion of construction and acceptance in writing by the City of Visalia.

0 20 40 60 80 feet
1" = 20'

811 Know what's below. Call before you dig.

NOT FOR CONSTRUCTION

NO. | DATE | DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT TYSON CARROLL No. 5803 STATE OF CALIFORNIA

PREPARED BY: WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@woodarchitecture.com

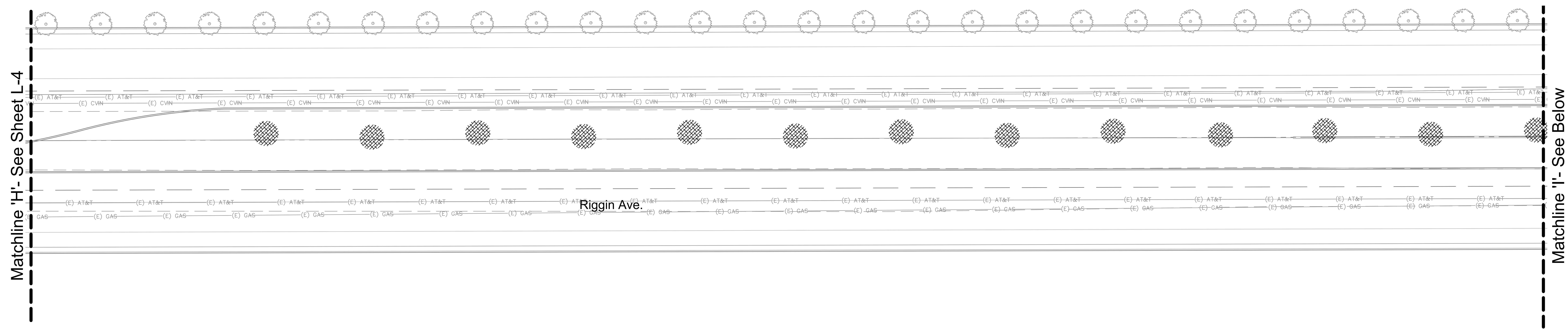
CHK BY: TC
DRW BY: TC

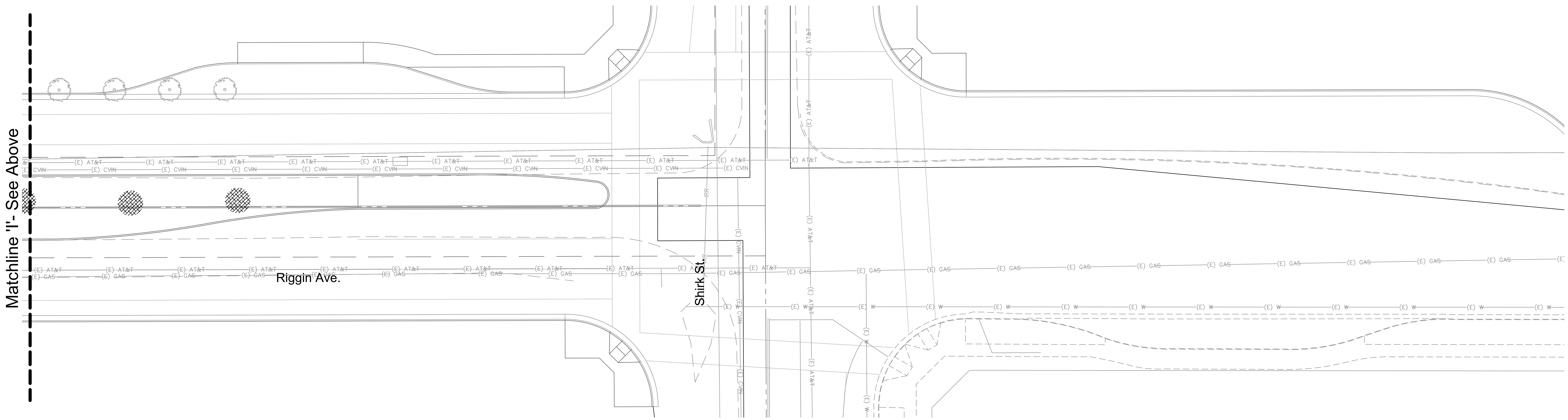
VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
PLANTING SOILS PLAN

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 42 OF 61





Planting Soils Legend

SYMBOL	DESCRIPTION	QTY
PS-101	Certified Compost: 2" thick layer of compost shall be applied in all planting areas. Compost shall be certified by the U.S. Composting Council's STA Program. See specifications for further information.	37.33 cy
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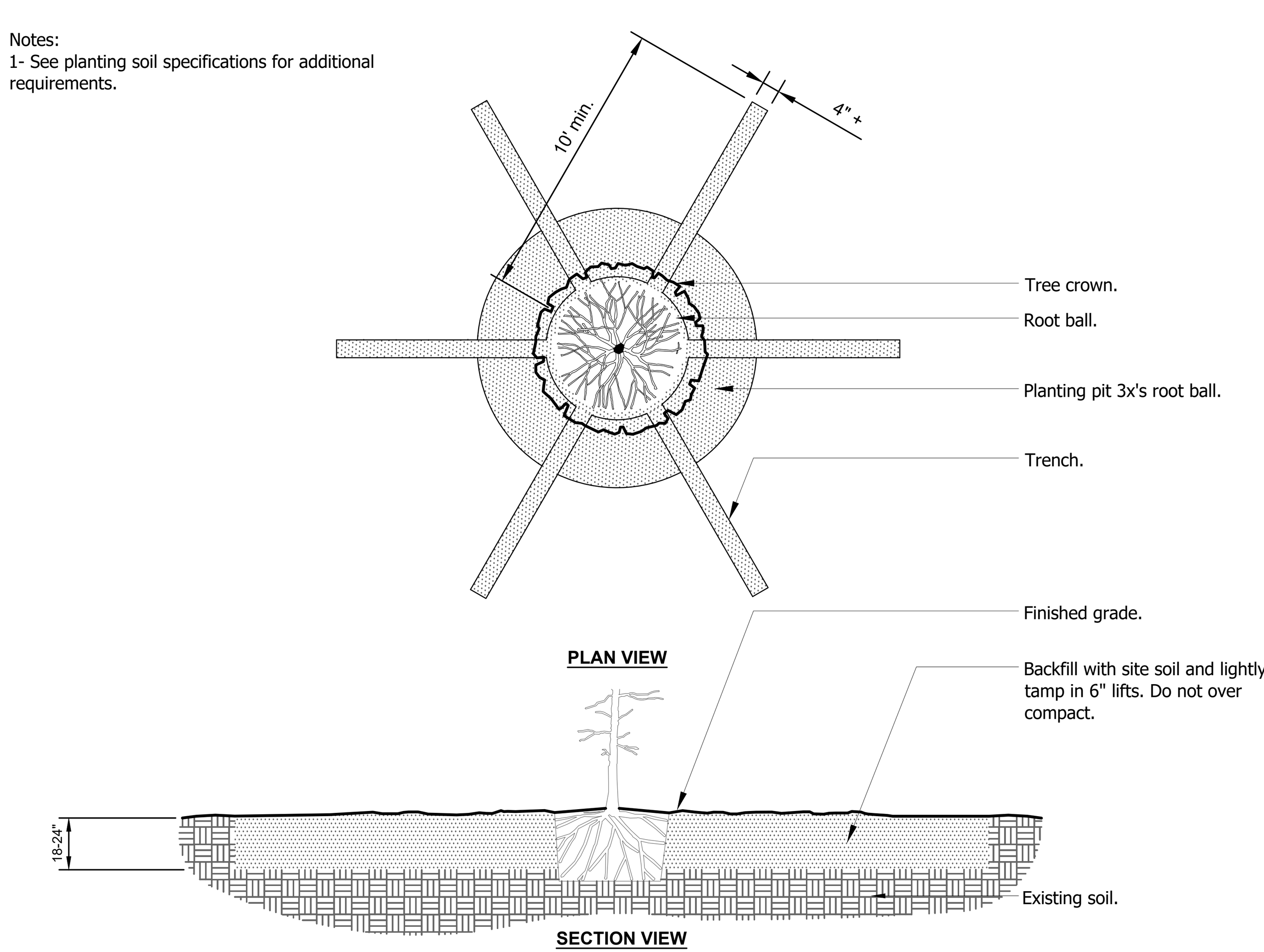
Notes:
1 - All quantities and amounts shown on the plans are best estimates for the benefit of the contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the contractor 's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

Notes:
1- See planting soil specifications for additional requirements.



1 SOIL MODIFICATION - RADIAL TRENCHING

P-IN-20124_WA-08

0 20 40 60 80 feet
1" = 20'

Know what's below.
Call before you dig.

NOT FOR CONSTRUCTION

NO. | DATE | DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No. 5803
Signature
Renewal Date
STATE OF CALIFORNIA

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
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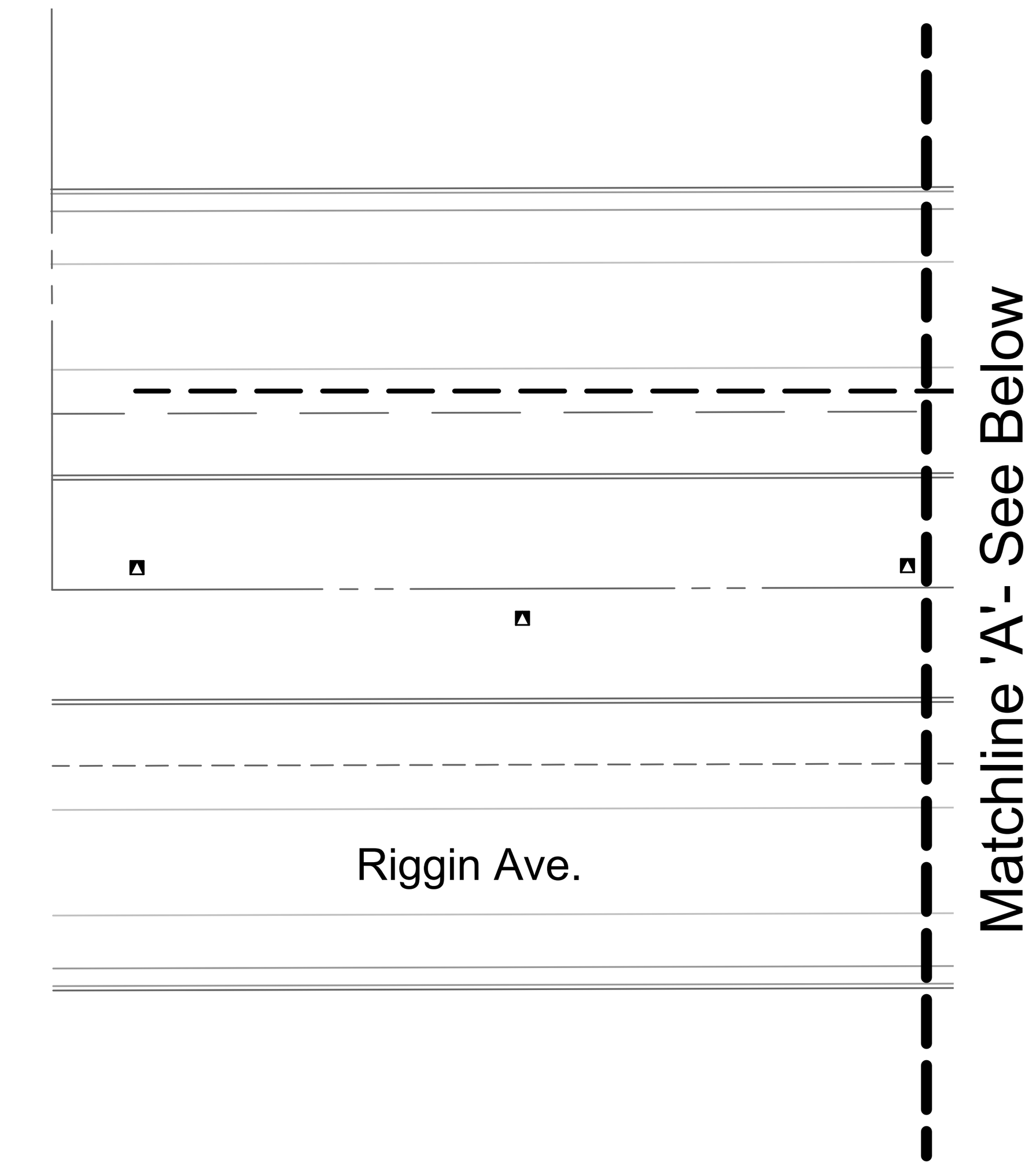
CHK BY: TC
DRW BY: TC

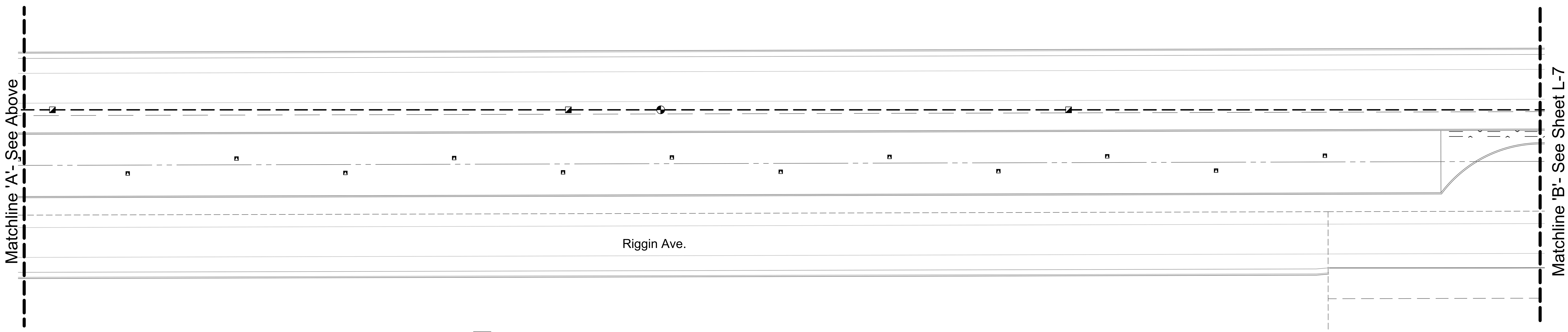
VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
PLANTING SOILS PLAN

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 43 OF 61





Irrigation Legend

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI
25 50 10 20	Hunter PCB Flood Bubbler, 1/2" FIPT. See irrigation detail.	71	15

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Hunter ICV-G 1" 1", 1-1/2", 2", and 3" Plastic Electric Remote Control Valves, Globe Configuration, with NPT Threaded Inlet/Outlet, for Commercial/Municipal Use. Install each remote control irrigation valve with a Rainbird PRB-QKCHK-100: 1" Basket Filter with built-in Pressure Regulator (40 psi) and 200 mesh (75 micron) stainless steel screen. See irrigation detail.	4
	Hunter HQ-5LRC 1" Quick coupler valve, yellow locking rubber cover, red brass and stainless steel, with 1" NPT inlet, 1-piece body. Install a minimum of 18" off of the mainline. See irrigation detail.	15
MS	Baseline BL-5315 biSensor Soil Moisture Sensor. Install per manufacturer`s specifications and recommendations. See irrigation detail.	2
	Irrigation Mainline: PVC Schedule 40 (Mainline) See irrigation detial.	4,269 l.f.
	Pipe Sleeve: PVC Schedule 40 (Mainline) See irrigation detail.	1,507 l.f.

Valve Callout
Valve Number
Valve Flow
Valve Size

Notes:

1- The system indicated on the drawing is diagrammatic. All equipment shown in paved areas is diagrammatic. All equipment shall be located in planting areas. Avoid any conflicts between the irrigation system, planting, or architectural features.

2- All quantities and amounts shown on the plans are best estimates for the benefit of the Contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the Contractor's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

3- Contractor shall verify point of connection and minimum static pressure prior to commencing of work. Any discrepancies shall be brought to the attention of the Owner and Landscape Architect prior to starting work.

4- All irrigation wire shall be installed in a minimum 1.5" Sch. 40 electrical conduit.

5- Baseline Controllers

a. Certificate of Installation (Certified Start Up) shall be required for the irrigation controller system. It is the responsibility of the Contractor to coordinate the certification and inspections with Ewing Irrigation.Contractor is responsible for any and all fees necessary to receive a Certificate of Installation. Copies of the Certificate of Installation shall be provided to the Owner's Representative and the Owner.

b. Contractor shall provide as a part of the project five (5) years of cell service to be purchased by the Contractor prior to the beginning of the maintenance period.

c. Contractor shall provide as a part of the project five (5) years of Base Manager Mobile Plus Access to be purchased by the Contractor prior to the beginning of the maintenance period.

d. The Contractor shall program the irrigation schedule to run off of the moisture sensors prior to the ending of the maintenance period and receiving the Notice of Completion by the Owner. Each valve shall be assigned to the respective moisture sensor. For example, tree valves shall be assigned to the tree moisture sensor, shrub valves shall be assigned to the shrub moisture sensor, and turf valves shall be assigned to the turf moisture sensor. Irrigation scheduling for valves shall occur before the moisture level in the soil reaches wilting point at the lower limit and stop prior to the soil reaching field capacity.

e. The Contractor shall be responsible for gpsing each remote control irrigation valve, ball valve, controller quick coupler valve, mainline sleeving under pavement, irrigation controller, backflow prevention device, booster pump and moisture sensors.

f. The Contractor shall label each valve in Base Manager indicating the valve type, emitter type and location on the site. For instance a tree valve in parkway would be labeled as Tree Bubbler Valve in Parkway (Bubblers).

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811
Know what's below.
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NOT FOR CONSTRUCTION

NO. DATE DESCRIPTION

NORTH

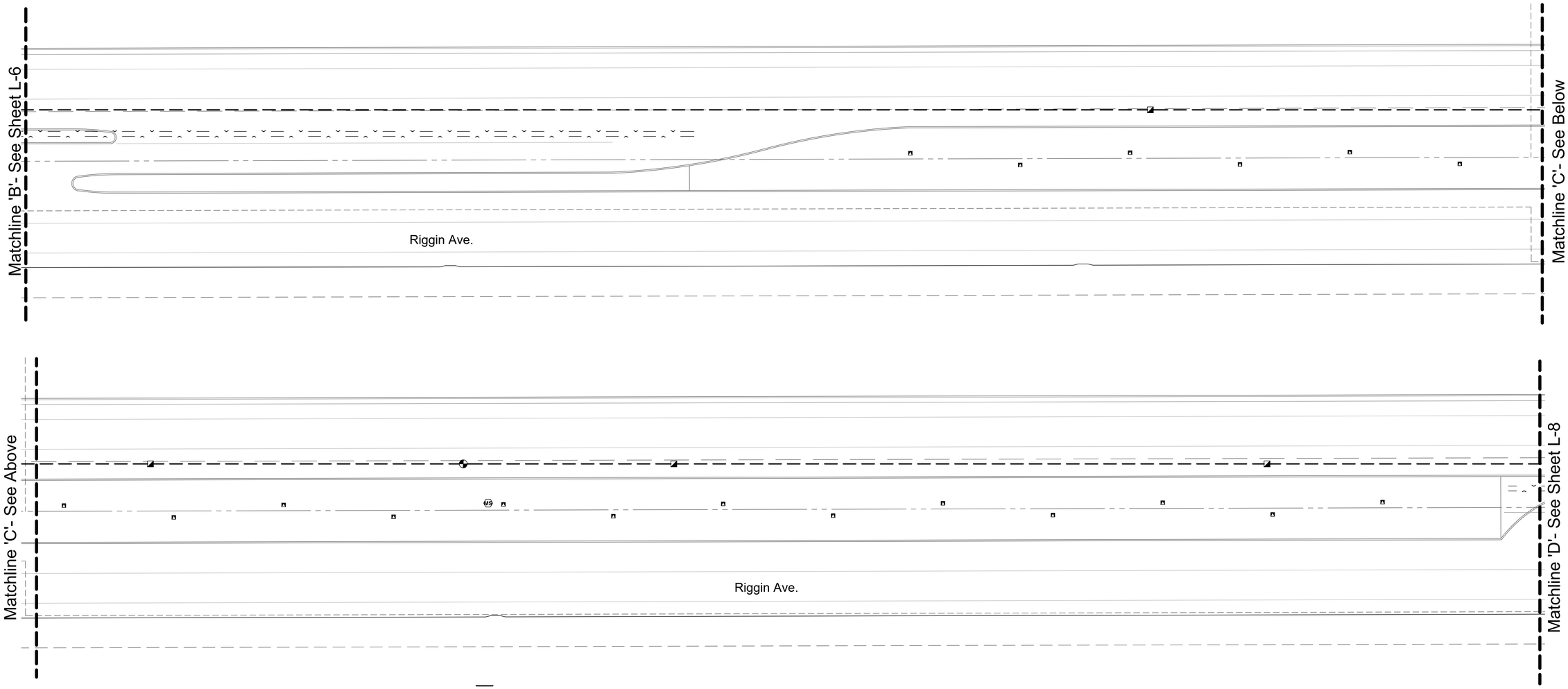
PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@woodarchitecture.com

CHK BY: TC
DRW BY: TC

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IRRIGATION PLANS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 44 OF 61



Irrigation Legend

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI
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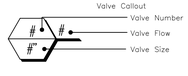

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NO.	DATE	DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT TYSON TEAGRILL NO. 5803 STATE OF CALIFORNIA
Signature
1-30-22
Renewal Date

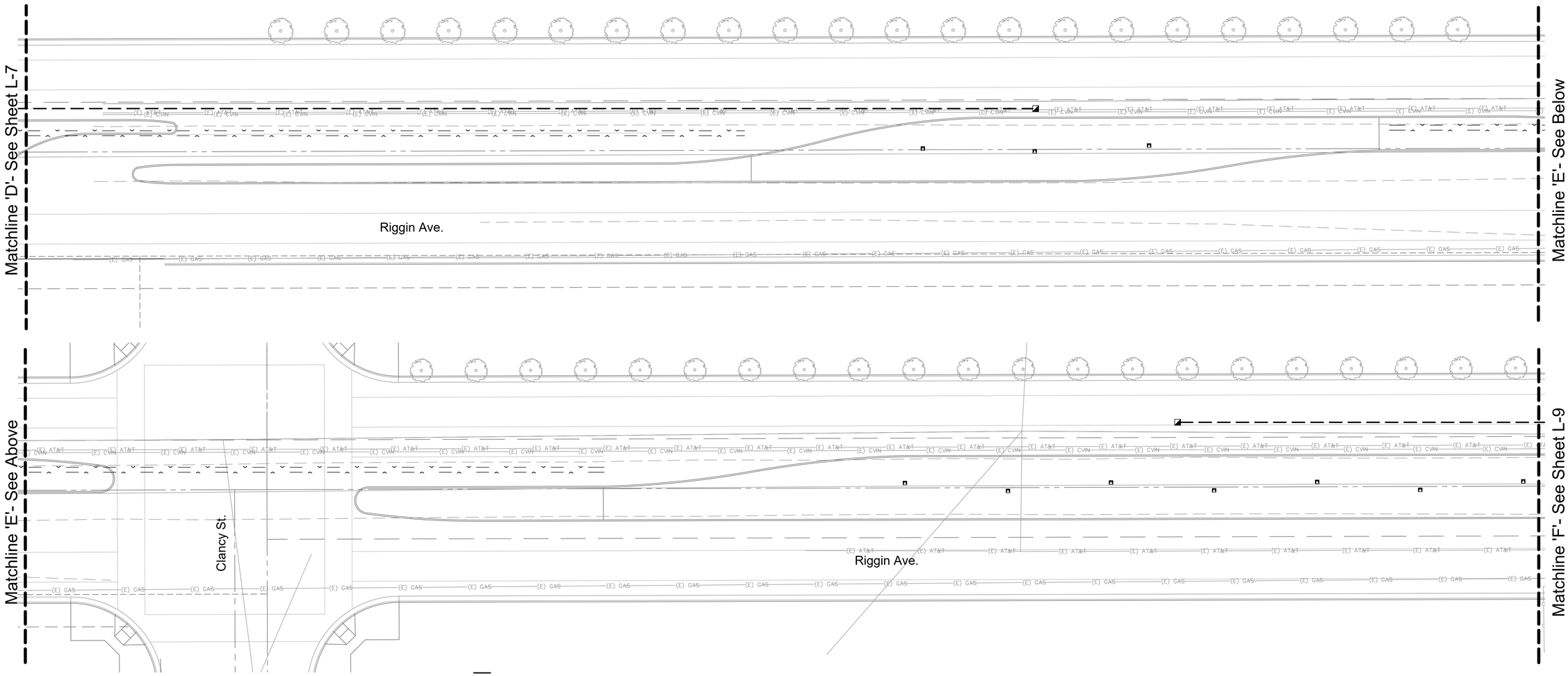
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@lkwoodarchitecture.com

PREPARED BY: WOOD ARCHITECTURE
CHK BY: TC
DRW BY: TC

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IRRIGATION PLANS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 45 OF 61



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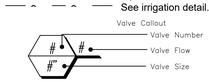
Valve Callout



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Signature
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Renewal date

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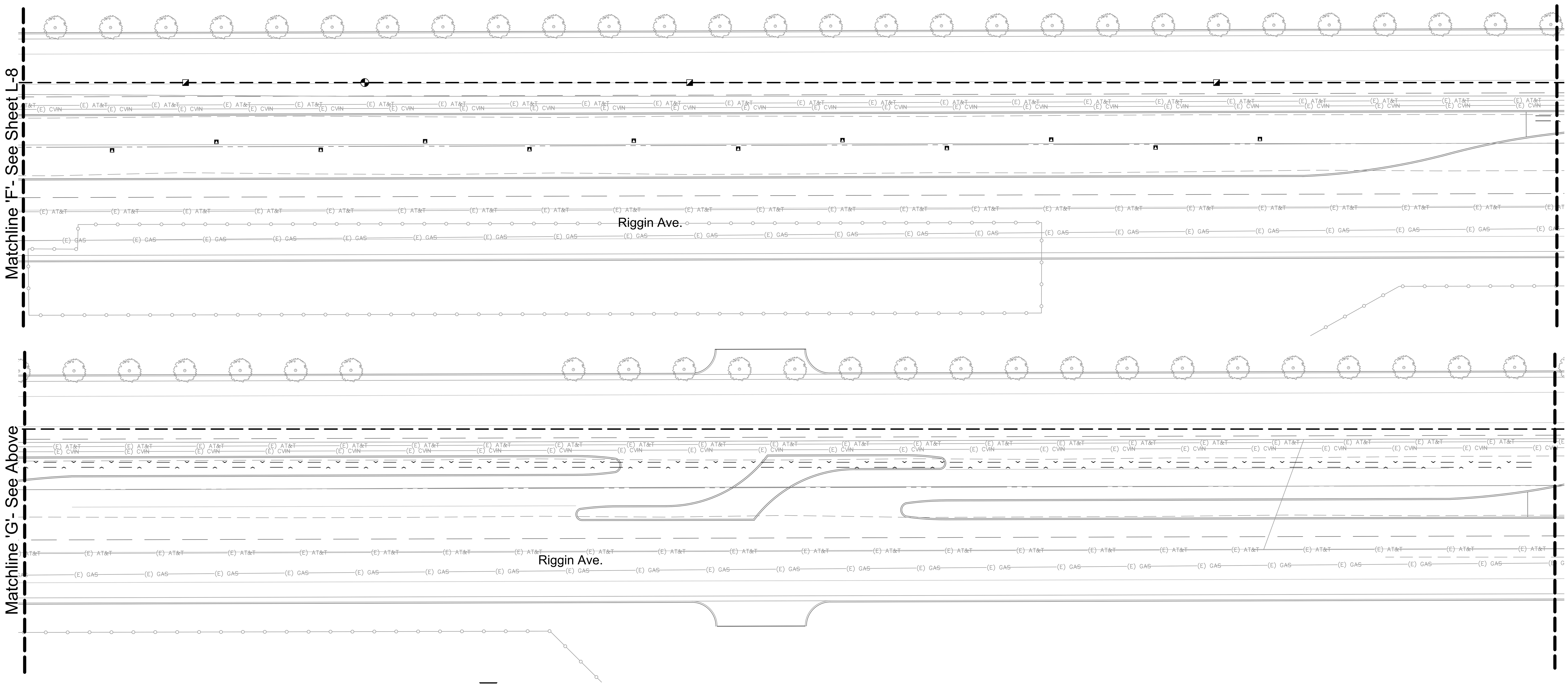
PREPARED BY: WOOD ARCHITECTURE
CHK BY: TC
DRW BY: TC

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE WIDENING & IMPROVEMENTS IRRIGATION PLANS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 46 OF 61



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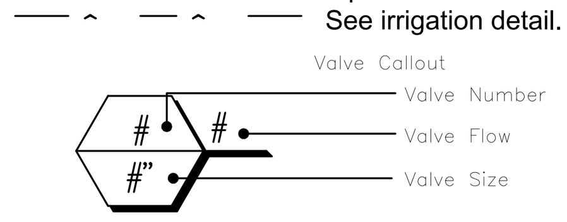

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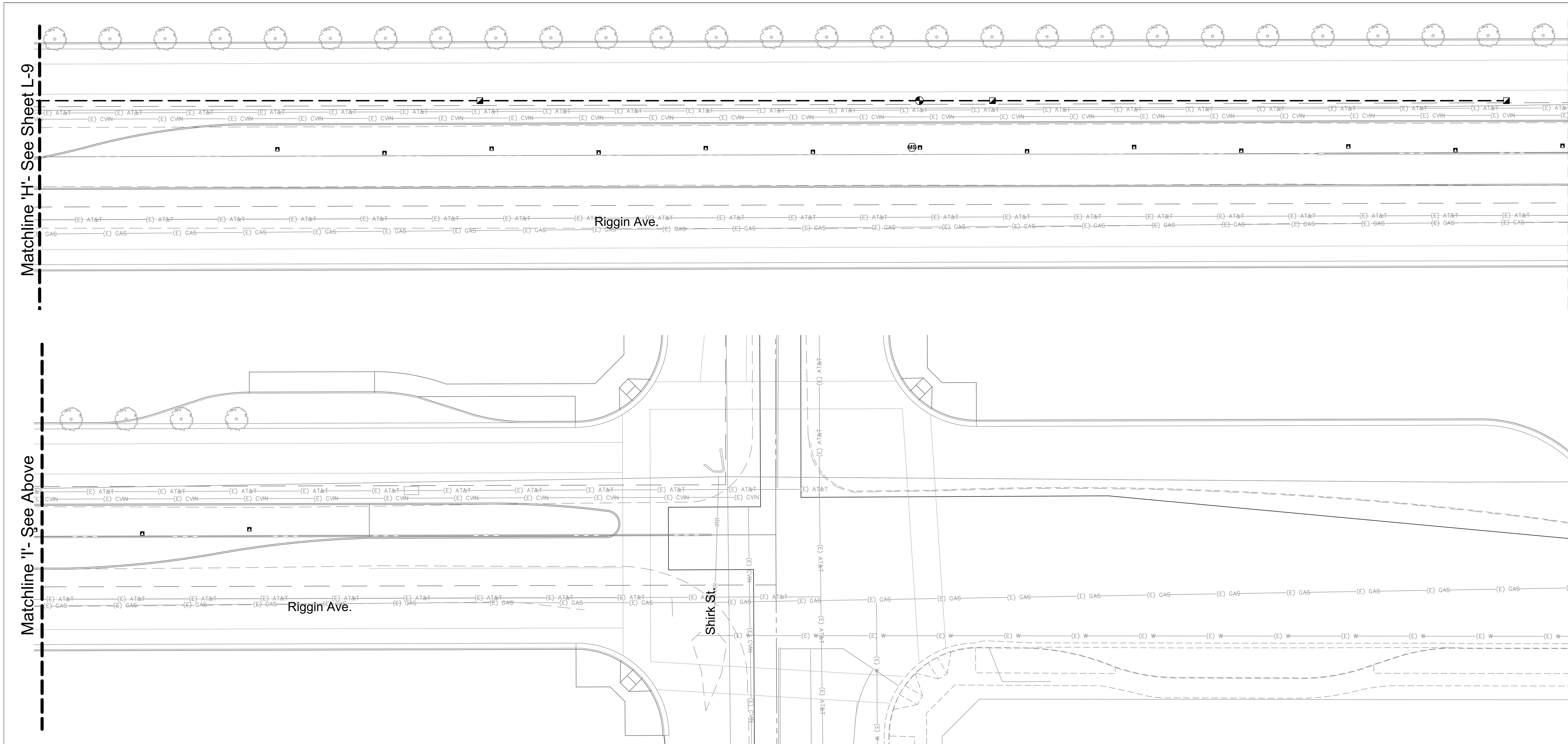

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RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IRRIGATION PLANS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 48 OF 61

GENERAL IRRIGATION NOTES

1. Existing utilities- information on the drawings relating to existing utility lines and services from the best sources available. All such information is furnished only for information and is not guaranteed. The Contractor shall excavate test pits as required to determine the exact location of existing utilities.

Call utility locating service for precise utility locations before beginning of any work. DIG ALERT, 811.

2. Utility Requirements- The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below shall be contacted.
- Gas Company
- Telephone Company
- Electrical Power Company
- Cable Television Company
- Water Supply Company

The California Public Utilities Commission mandates that in, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the gas company's headquarters planning office 48 hours prior to the start of construction.

3. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

4. Irrigation piping and related equipment are drawn diagrammatically. Scaled dimensions are approximate only. Before proceeding with work, carefully check and verify dimensions and immediately notify the Owner's Representative of discrepancies between the drawings or specifications and the actual conditions. Although sites and locations of plants and or irrigation equipment are drawn to scale wherever possible, it is not within the scope of the drawings to show all necessary offsets, obstructions, or site conditions. The Contractor shall be responsible to install the work in such a manner that it will be in conformance to site conditions, complete, and in good working order.

5. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of conduct of the work as drawn and specified. If the contractor observes that a conflict exist between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

6. Wherever references are made to standards or coded in accordance with which works is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless expressly set forth.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

8. Comply with the requirements for the California code of Regulation title 23 waters, division 2 department of water resources chapter 2.7 model water efficient landscape ordinance, 492.3 water efficient landscape worksheet, 492.7 irrigation design plan and irrigation scheduling.
   a. Where the requirements of specification section Irrigation are more stringent than the California code, the more stringent requirements shall prevail.

9. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

10. The Contractor shall be responsible for any coordination with subcontractors as requiring to accomplish the irrigation installation operations.

11. It is the responsibility of the Contractor to be aware of all surface and sub - surface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the installation of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

12. Before final acceptance of work, the Contractor shall provide a record set of drawing showing the irrigation system works as built. The drawings shall be transmitted to the Owner's Representative in paper format and as a pdf file of each document on compact disk or flash drive. The drawing shall include all of the information on the original document and revised to reflect all changes in the work. See specification section Irrigation for further information.

13. Contractor shall prepare and deliver to the Owner's Representative within ten calendar days prior to completion of construction, two 3 - ring binders, of Operation & Maintenance manuals. See specification section Irrigation for further information.

14. Existing trees shall be protected and cared for as required in the details and specifications.

15. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relive the Contractor from meeting all the requirements in the plans, details and specifications.
   a. Pre - Construction meeting.
   b. Trenching and sleeving review.
   c. Pressure mainline test.
   d. Adjustment and coverage test.
   e. Pre - maintenance observation.
   f. Final site observation and acceptance.

16. If the work fails to pass inspection, any subsequent inspections must be rescheduled as required in the specifications. The cost to the Owner for additional inspections will be charged to the Contractor at the prevailing hourly rate of the inspector.

17. Contractor shall include in the bid continued maintenance (warranty) period of 1 year after completion of construction and acceptance in writing from the City of Visalia.

18. Pipe sizes shall conform to those shown on the plans with no smaller substitutions. Larger size pipe substitutions may be approved.

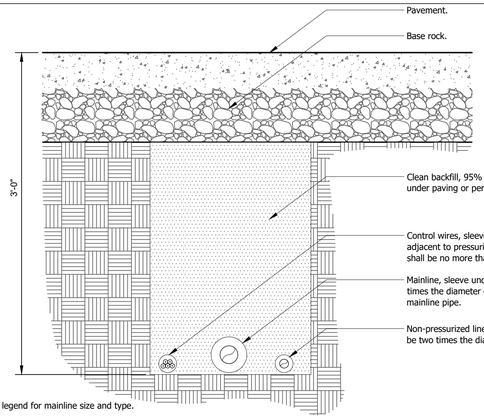
19. After completion and prior to the installation of any terminal fittings, the entire pipeline system shall be thoroughly flushed to remove dirt, debris, and other material.

20. The irrigation design is based on a minimum operating pressure of 60 PSI and a maximum demand of xx GPM on valve # xx for the point of connection on Riggin Ave. and Shirk St. The Contractor shall verify water pressure prior to installation. Any difference between the pressure indicated on the plans and that at the actual point of connection shall be brought to the attention of the Owner's Representative immediately.

21. A 120 volt electrical power outlet at the irrigation controller location shall be provided by the Contractor. It shall be the responsibility of the Contractor to make the final hook up from the electrical outlet to the irrigation controller.

22. Irrigation between the hours of 10:00 pm and 6:00 am only. Watering outside this time frame must be done manually with qualified supervisory personnel on-site. No system shall be left unattended during use outside the normal schedule.

23.The irrigation plans have designed in accordance with the state model water efficient landscape ordinance (MWELO). It is the Contractors responsibility to adhere to the requirements and regulations of that ordinance during the installation of the landscape design plan. During the installation of the irrigation design plans, any portion which comes into conflict with MWELO shall be brought to the attention of the Owner/Owner's Representative. In the event that notification does not take place, the Contractor assumes responsibility for all necessary changes and work in order to meet compliance.



Notes:
1- See irrigation legend for mainline size and type.

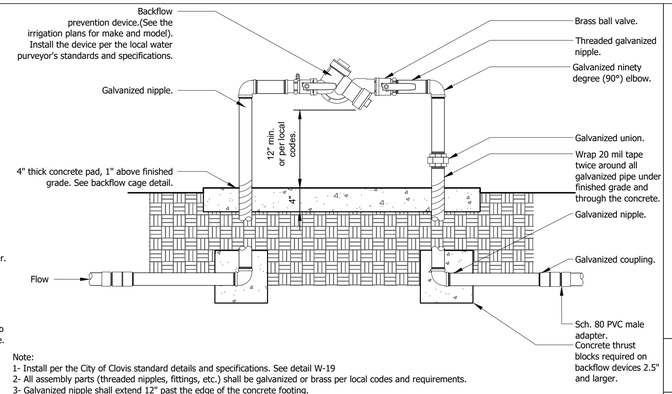
2- All sleeves shall be Sch. 40 PVC pipe.

3- All sleeves shall extend 12" beyond the edge of pavement.

4- End of sleeves shall be located with a wooden stake or PVC pipe. Locators shall run continuously from the end of the sleeve to finished grade.

4 PIPE AT PAVEMENT

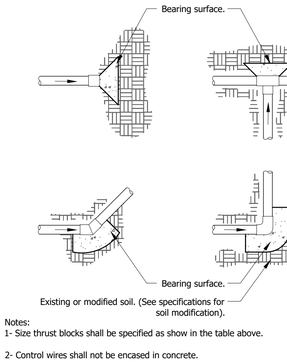
P-IN-20124_WA-09



Note:
1- Install per the City of Clovis standard details and specifications. See detail W-19
2- All assembly parts (threaded nipples, fittings, etc.) shall be galvanized or brass per local codes and requirements.
3- Galvanized nipple shall extend 12" past the edge of the concrete footing.
4- Sch. 80 PVC male adapter shall be used in connection from galvanize to the mainline.
5- Backflow prevention device shall be located as close as possible to the landscape meter.
6- Backflow prevention device shall be located in planting area unless approved by Owner's Representative.
7- See detail for backflow cage installation.
8- All backflow prevention devices shall have freeze blanket included upon installation.
9- All galvanized connections shall to be made using pipe thread sealant. All Sch. 80 PVC to galvanized connections to be made using teflon tape.

1 BACKFLOW PREVENTION DEVICE

P-IN-20124_WA-01



MINIMUM BEARING SURFACE AREA

PIPE SIZE	TEE AND PLUG	90° BEND	45° BEND
1-1/2"	0.45 FEET ²	0.63 FEET ²	0.34 FEET ²
2"	0.69 FEET ²	0.97 FEET ²	0.53 FEET ²
2-1/2"	1.0 FEET ²	1.41 FEET ²	0.77 FEET ²
3"	1.48 FEET ²	2.10 FEET ²	1.14 FEET ²
4"	2.43 FEET ²	3.45 FEET ²	1.87 FEET ²
6"	5.25 FEET ²	7.41 FEET ²	4.02 FEET ²
8"	9.08 FEET ²	12.83 FEET ²	6.96 FEET ²
10"	14.93 FEET ²	21.07 FEET ²	11.44 FEET ²

Notes:
1- Size thrust blocks shall be specified as show in the table above.

2- Control wires shall not be encased in concrete.

3- All fittings shall be wrapped with polyethylene to prevent concrete from adhering to pipe, fittings or bolts.

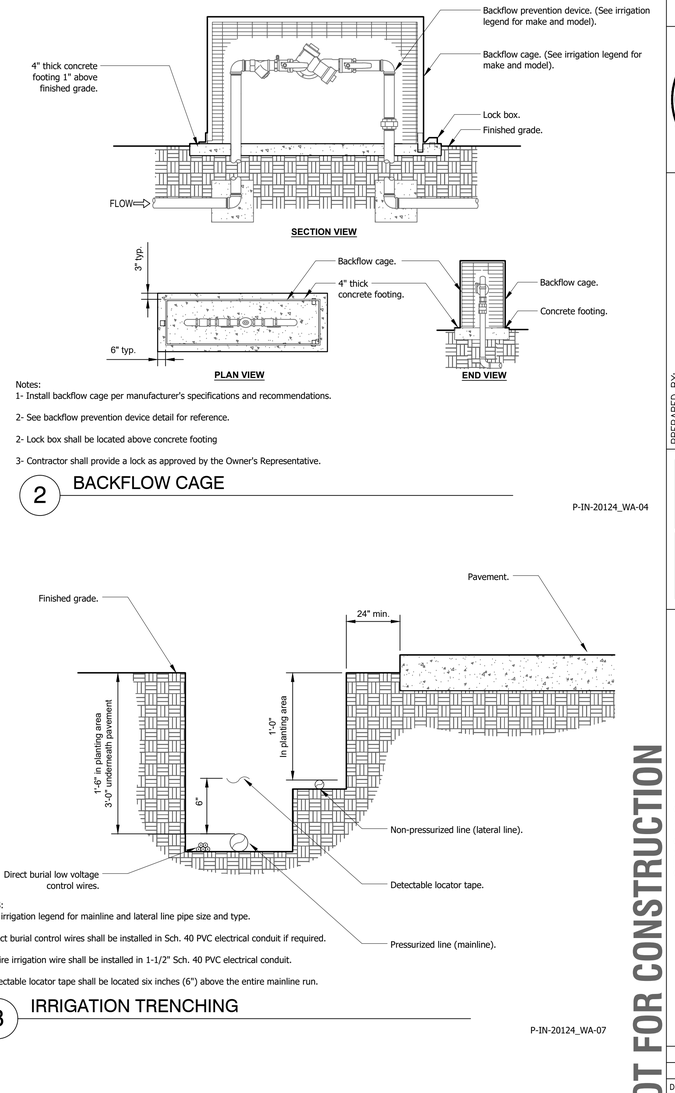
4- Joints and bolts shall be accessible for repairs.

5- Thrust blocks shall be a minimum of 6" thick.

6- One 80 lbs. sack of concrete shall cover .6 ft.³

5 THRUST BLOCKS

P-IN-20124_WA-10



Notes:
1- Install backflow cage per manufacturer's specifications and recommendations.

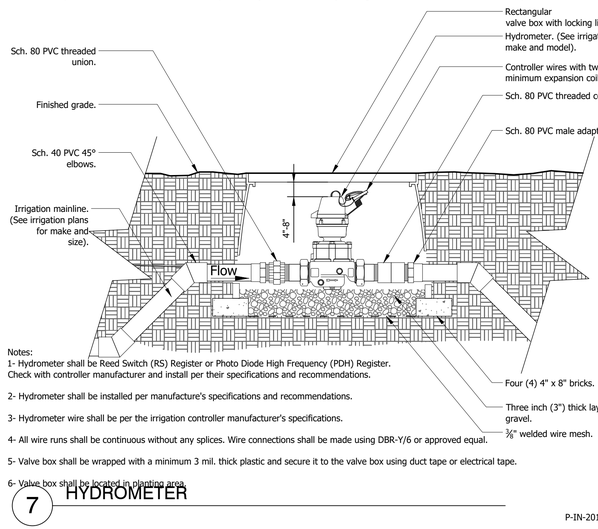
2- See backflow prevention device detail for reference.

2- Lock box shall be located above concrete footing

3- Contractor shall provide a lock as approved by the Owner's Representative.

2 BACKFLOW CAGE

P-IN-20124_WA-04



Notes:
1- Hydrometer shall be Reed Switch (RS) Register or Photo Diode High Frequency (PDH) Register. Check with controller manufacturer and install per their specifications and recommendations.

2- Hydrometer shall be installed per manufacture's specifications and recommendations.

3- Hydrometer wire shall be per the irrigation controller manufacturer's specifications.

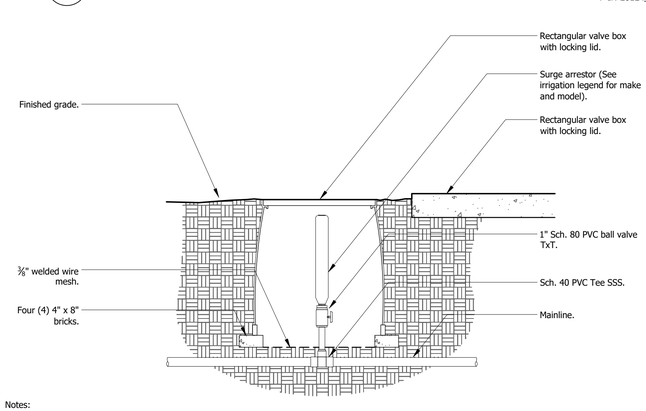
4- All wire runs shall be continuous without any splices. Wire connections shall be made using DBR-Y/6 or approved equal.

5- Valve box shall be wrapped with a minimum 3 mil. thick plastic and secure it to the valve box using duct tape or electrical tape.

6- Valve box shall be located in planting area.

7 HYDROMETER

P-IN-20124_WA-14



Notes:

1- Locate valve boxes in planting areas.

2- Wrap valve box with a minimum of 3 mil thick plastic and secure it using duct tape or electrical tape.

3- All threaded connection to be made using teflon tape or pipe dope.

6 SURGE ARRESTOR

I-MI-07

NOTES:
1- See irrigation legend for mainline and lateral line pipe size and type.

2- Direct burial control wires shall be installed in Sch. 40 PVC electrical conduit if required.

3- 2-wire irrigation wire shall be installed in 1-1/2" Sch. 40 PVC electrical conduit.

4- Detectable locator tape shall be located six inches (6") above the entire mainline run.

3 IRRIGATION TRENCHING

P-IN-20124_WA-07

NO. | DATE | DESCRIPTION

NORTH

LANDSCAPE ARCHITECT LICENSED LANDSCAPE ARCHITECT No. 5803 Signature 1-30-22 Renewal Date STATE OF CALIFORNIA

1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@woodarchitecture.com

CHK BY: TC

PREPARED BY: WOOD ARCHITECTURE

DRW BY: TC

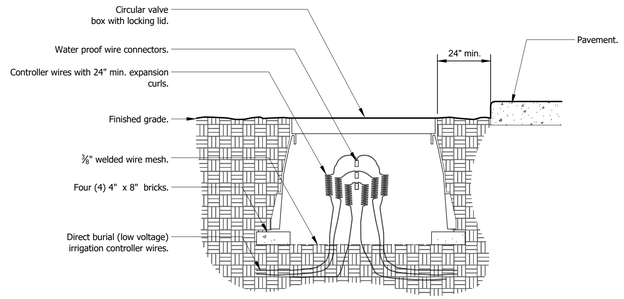
VISALIA Founded 1852

NOT FOR CONSTRUCTION

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IRRIGATION DETAILS & NOTES

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 49 OF 61



Note:
1- Valve boxes shall be located in planting areas.

2- Splices shall only be made at electrical pull boxes.

3- Low voltage wires under roadways must be in continuous conduit with 90° Sch. 40 PVC sweeps terminating in pull boxes.

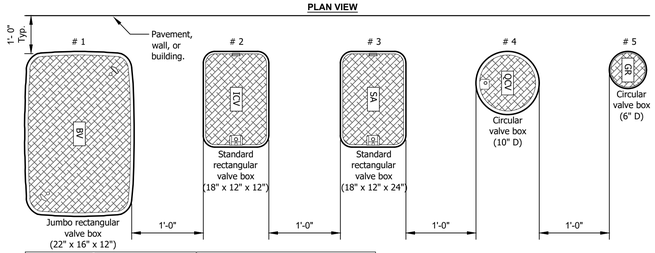
4- All wire connections shall be made using DBR/Y-6 connectors or approved equal.

5- Valve box shall be wrapped with minimum 3 mil. thick plastic and secure it using duct tape or electrical tape.

7 SPLICE BOX

P-IN-20124_WA-12

PLAN VIEW



Water type	Controller	Designation	Box size	Lid Color	Identification Guide
PW	A	MV	# 2	Green	Master valve
PW	A	FS	# 2	Green	Flow sensor
PW	A	HM	# 2	Green	Hydrometer
PW	A	BV	# 2	Green	Ball valve 3" or less
PW	A	BV	# 1	Green	Ball valve 4" or more
PW	A	GV	# 2	Green	Gate valve
PW	A	ARV	# 2	Green	Air release valve
PW	A	QCV	# 4	Green	Quick coupler valve
PW	A	RCV	# 2	Green	Remote control valve
PW	A	MS	# 2	Green	Moisture sensor
PW	A	GR	# 5	Green	Grounding rod
PW	A	SB	# 4	Green	Splice box
PW	A	FC	# 2	Green	Future connection
PW	A	SA	# 3	Green	Surge Arrestor

EXAMPLE

Potable water system on Controller 'A', Remote control valve station # 3.

Notes:

1- Valve box # 1 thru # 4 shall have stainless steel locking hardware.
2- Valve boxes shall be labeled by hot iron branding or aluminum asphaltic base water proof paint.
3- Locate valve assemblies in planting area.
4- Valve locations shall be approved by the Owner's Representative prior to installation.
5- Valve boxes shall be centered above valve assemblies to facilitate access and maintenance.
6- Valve boxes shall be flush with finished grade.
7- Valve boxes shall be set parallel to each other and perpendicular to the edge of pavement.
8- See other irrigation details for further information.

8 VALVE BOX LAYOUT

P-IN-20124_WA-11

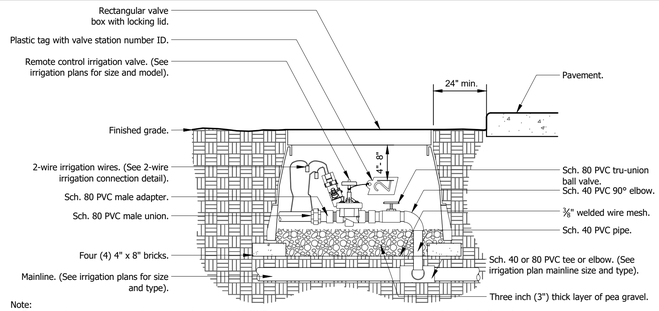
Notes:
1- All irrigation fittings shall be Sch. 40 PVC unless specified otherwise.

2- All threaded connections from Sch. 40 to Sch. 80 PVC shall be made using teflon tape.

3- Contractor shall settle the area around the bubbler and edge of the root ball so that all irrigation flows through the root ball.

9 BUBBLER/EMITTER ON ROOT BALL LAYOUT

P-IN-20124_WA-06



Note:
1- Common wire and controller wire shall be direct burial 14 AWG or larger controller manufacturer approved 2-wire irrigation wire .

2- All wire runs shall be continuous without any splices unless approved by the Owner's Representative. See splice box detail. Wire connections shall be made using DBR/Y-6 connectors or approved equal.

3- Contractor shall coil and additional five feet (5') of 2-wire irrigation wire at each valve for future use and secure it below the valve using black zip ties.

4-Valve box shall be wrapped with min. 3 mil thick plastic and secured using duct tape or electrical tape.

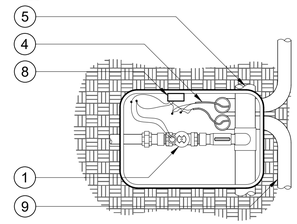
5- Mainlines 4" or larger shall use saddles at the connection points to the irrigation valve. (See specifications for irrigations saddles).

6- All Sch. 80 PVC to Sch. 40 PVC threaded connections shall be made using teflon tape.

7- Valve boxes shall be located in planting areas.

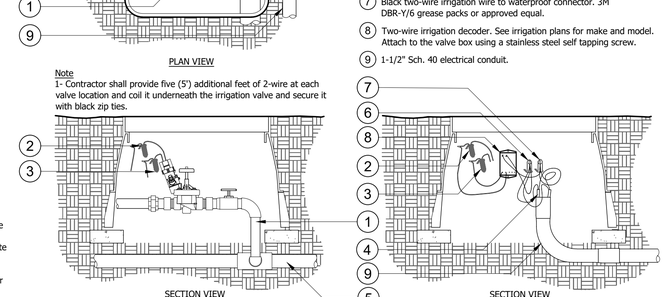
4 2- WIRE REMOTE CONTROL VALVE

P-IN-20124_WA-18



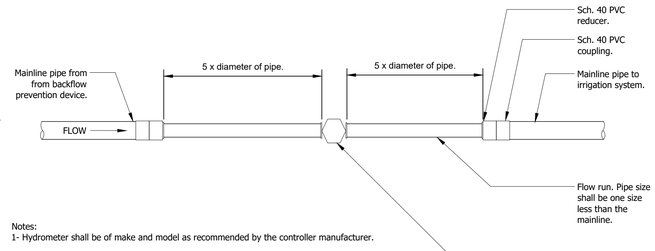
1. See detail for irrigation valve. See irrigation plans for piping.
2. Waterproof connections to valve. 3M DBR-Y/6 grease packs or approved equal.
3. Waterproof connection for common wire to valve. 3M DBR-Y/6 grease packs or approved equal.
4. Two-wire irrigation wire. (See specifications for further information.)
5. Irrigation mainline. See irrigation plans for further information.
6. Two-wire red wire to red biCoder wire with a waterproof connector. 3M DBR-Y/6 grease packs or approved equal.
7. Black two-wire irrigation wire to waterproof connector. 3M DBR-Y/6 grease packs or approved equal.
8. Two-wire irrigation decoder. See irrigation plans for make and model. Attach to the valve box using a stainless steel self tapping screw.
9. 1-1/2" Sch. 40 electrical conduit.

Note
1- Contractor shall provide five (5') additional feet of 2-wire at each valve location and coil it underneath the irrigation valve and secure it with black zip ties.



5 2-WIRE IRIGATION CONNECTIONS

P-IN-20124_WA-17



Notes:
1- Hydrometer shall be of make and model as recommended by the controller manufacturer.

2- Hydrometer wire shall be per manufacturer's specifications.

3- All wire runs shall be continuous without any splices.

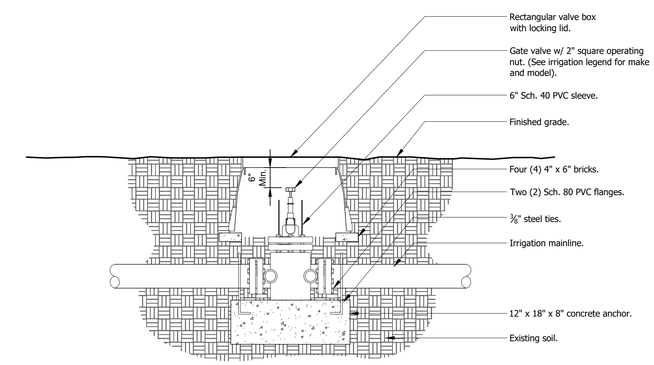
4- All wire shall be placed in 1-1/2" Sch. 40 electrical conduit.

5- See hydrometer detail for further information.

6- Flow run pipe shall be reduced down one (1) pipe size as indicated.
Example
3" mainline = 2-1/2" flow run
2-1/2" mainline = 2" flow run
2" mainline = 1-1/2" flow run

1 HYDROMETER LAYOUT

P-IN-20124_WA-19



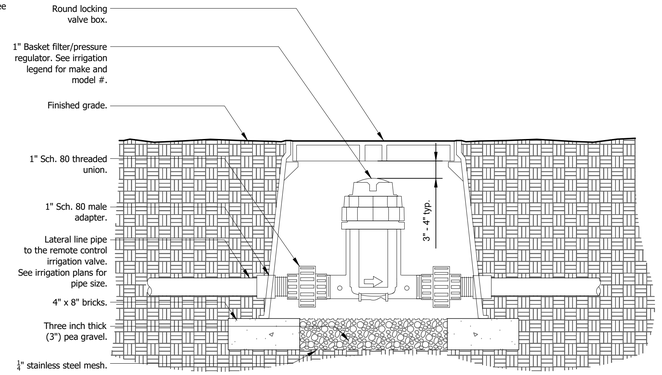
Notes:
1- Install gate valve per manufacturer's specifications and recommendations.

2- Valve box shall be wrapped with minimum 3 mil thick plastic and secure it to valve box using duct tape or electrical tape.

3- Valve box shall be located in planting area.

2 GATE VALVE W/ FLANGED ENDS

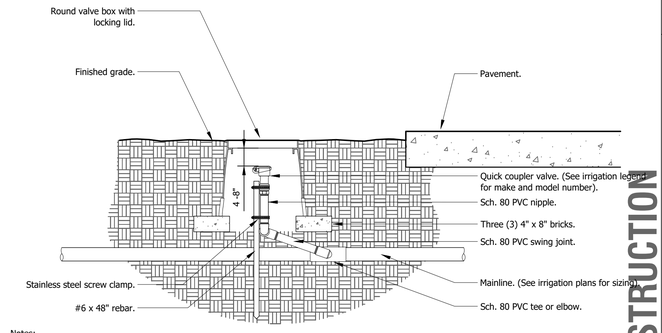
P-IN-20124_WA-16



Notes:
1- Contractor shall threaded fittings with no more than two (2) wraps of teflon tape or monster tape.
2- Prior to the installation of the drip filter/pressure regulator, the Contractor shall flush the lines a minimum of two (2) times to remove all glue, tape and/or debris from the mainline and lateral lines.
3- After the installation of the drip filter/pressure regulator, the Contractor shall cap all lateral lines downstream of the filter and pressurize the irrigation system and verify there are no leaks or breaks.

6 1" BASKET DRIP FILTER/PRESSURE REGULATOR

P-IN-20124_WA-02



Notes:
1- All threaded connections shall be installed using teflon tape.

2- Valve box shall be wrapped with a minimum 3 mil thick plastic and secured to the valve box using duct tape or electrical tape.

3- All quick couplers shall be installed a minimum of 18" off of the mainline.

4- Valve boxes shall be located in planting areas.

3 QUICK COUPLER VALVE

P-IN-20124_WA-

NORTH

LICENSED LANDSCAPE ARCHITECT TYSON YAGHILL No. 5803 STATE OF CALIFORNIA
Signature
1-30-22
Renewal Date

NO.	DATE	DESCRIPTION

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@woodarchitecture.com

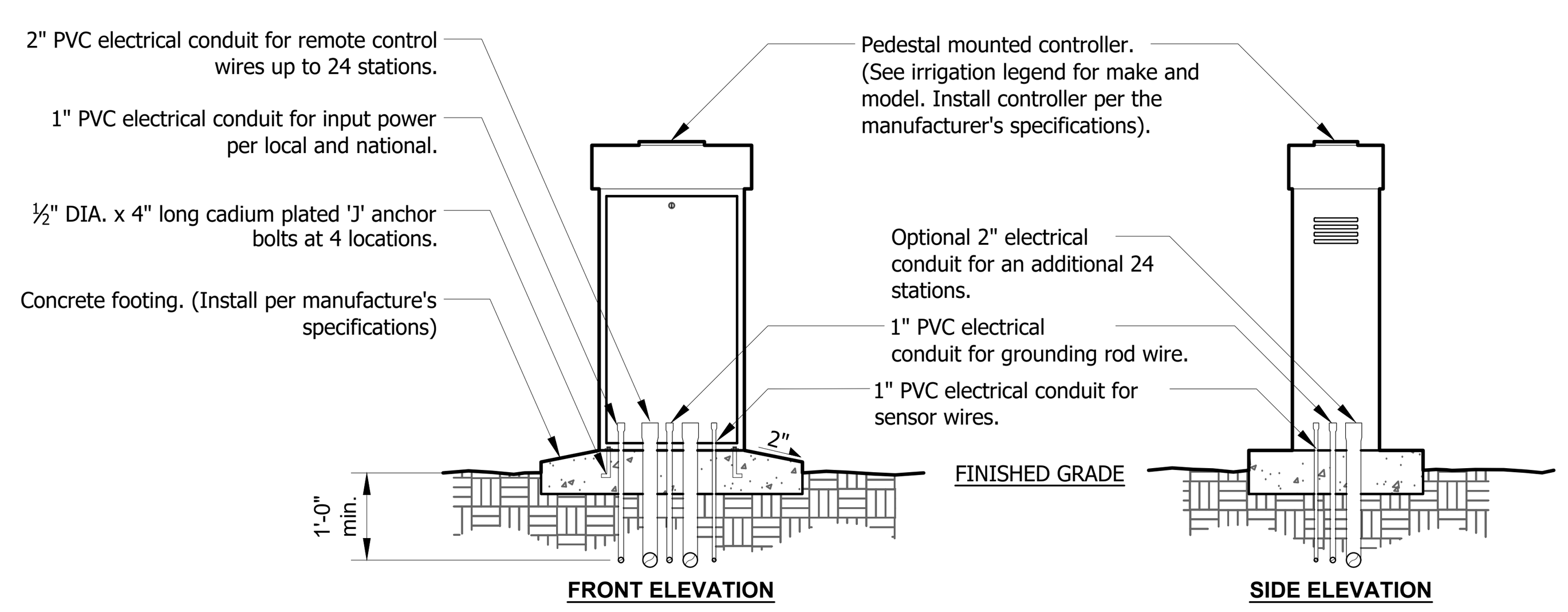
DRW BY: TC CHK BY: TC

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE WIDENING & IMPROVEMENTS IRRIGATION DETAILS & NOTES

NOT FOR CONSTRUCTION

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 50 OF 61



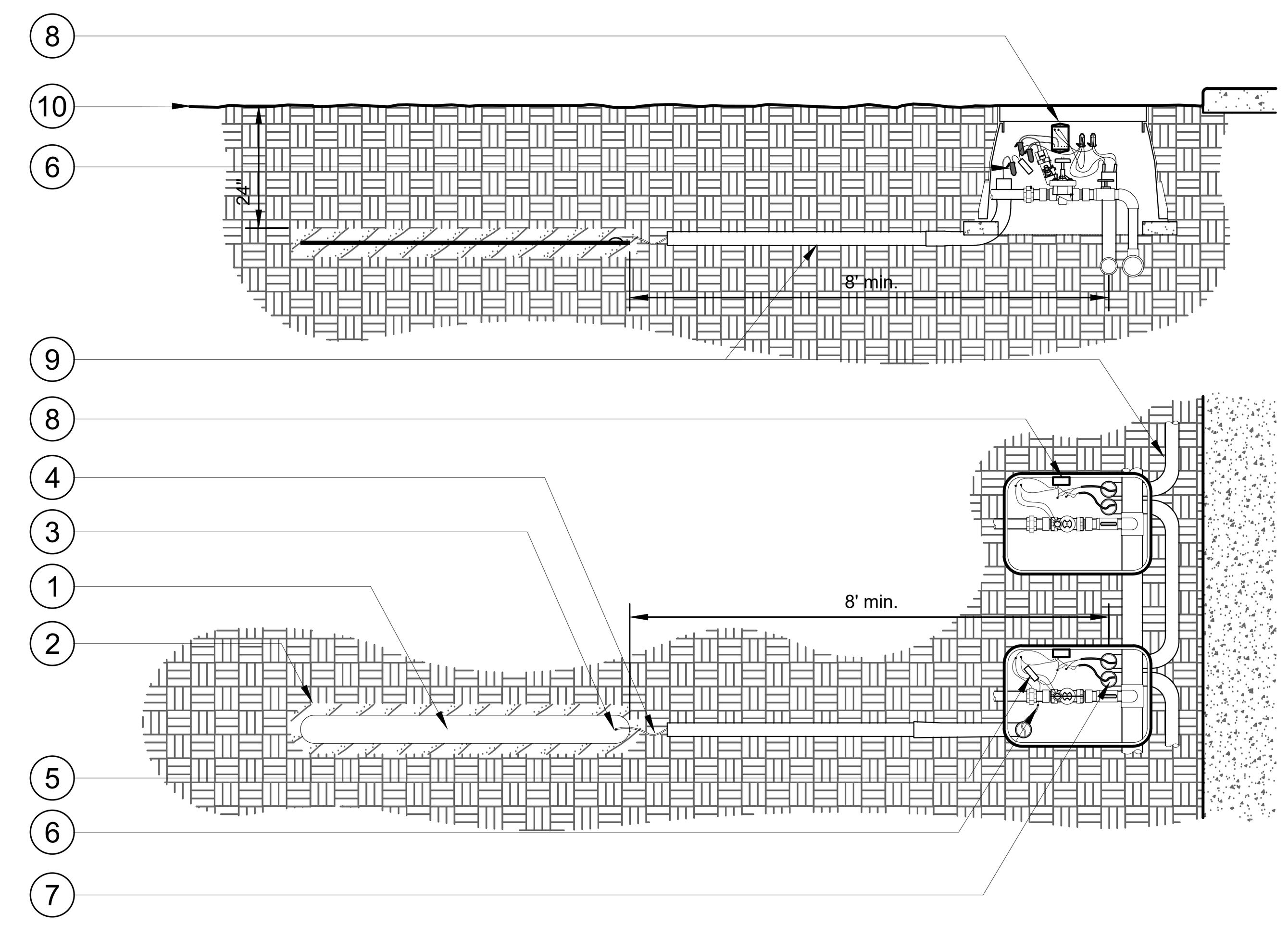
Notes:
1- Common and controller wire to be bundled using electrical tape at 10'-0" on center.

2- Grounding rods shall be located between 8'-0" and 12'-0" away from the controller. Grounding rods shall be ⅝" in diameter x 8' in length. Connect the grounding rod to the controller using 6 gauge bare copper wire or per the manufacturer's specifications.See grounding rod detail.

3- ET Station to be installed no further than 90' away from the controller and a minimum of 15' off of the ground, out from under any overhead obstructions such as, but not limited to building overhangs, trees, or utilities.

3 PEDESTAL MOUNTED CONTROLLER

P-IN-20124_WA-05



1. Paige Electric 4" x 36" copper grounding plate, pre-connected to ten feet (10') of #6 AWG bare copper wire. Install grounding plate perpindicular to the wire run and a minimum of eight (8') from the wire path.
2. Paige electric 'Power Set' contact enhancement material. Apply fifty pounds (50 lbs.) to the immediate area surrounding all sides of the grounding plate.
3. Groundwire pre-connected to the grounding plate or use CAD WELD to connect to the plate.
4. #6 AWG bare copper wire.
5. Lightning arrestor.
6. DBR/Y-6 waterproof greas packs.
7. 2-wire irrigation path.
8. Controller decoder.
9. 1-1/2" Sch. 40 electrical conduit.
10. Finished grade.

Notes:
- Decoder system grounding shall be per the controller manufacturer's specifications and recommendations or at a minimum of every five hundred feet (500') of the irrigation 2-wire path run and irrigation 2-wire path spurs of fifty feet (50') or greater.

- All Sch. 40 electrical conduit openings shall be filled with a foam sealant after grounding installation prior to backfilling.

- Acceptable earth ground shall not exceed 10 ohms.

- Grounding testing shall be performed by a certified 3rd party and documentation of grounding certification shall be provided to the Owner and Owner's Representative prior to project acceptance and beginning of the maintenance period.

- See 2-wire irrigation connection detail for further information.

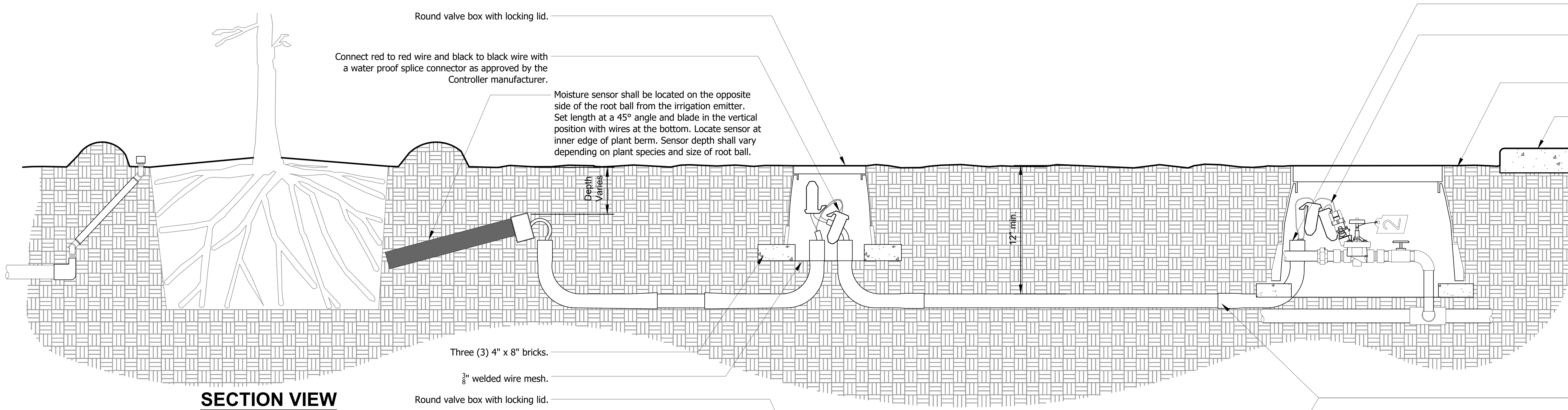
- See 2-wire remote control irrigation valve detail for further information.

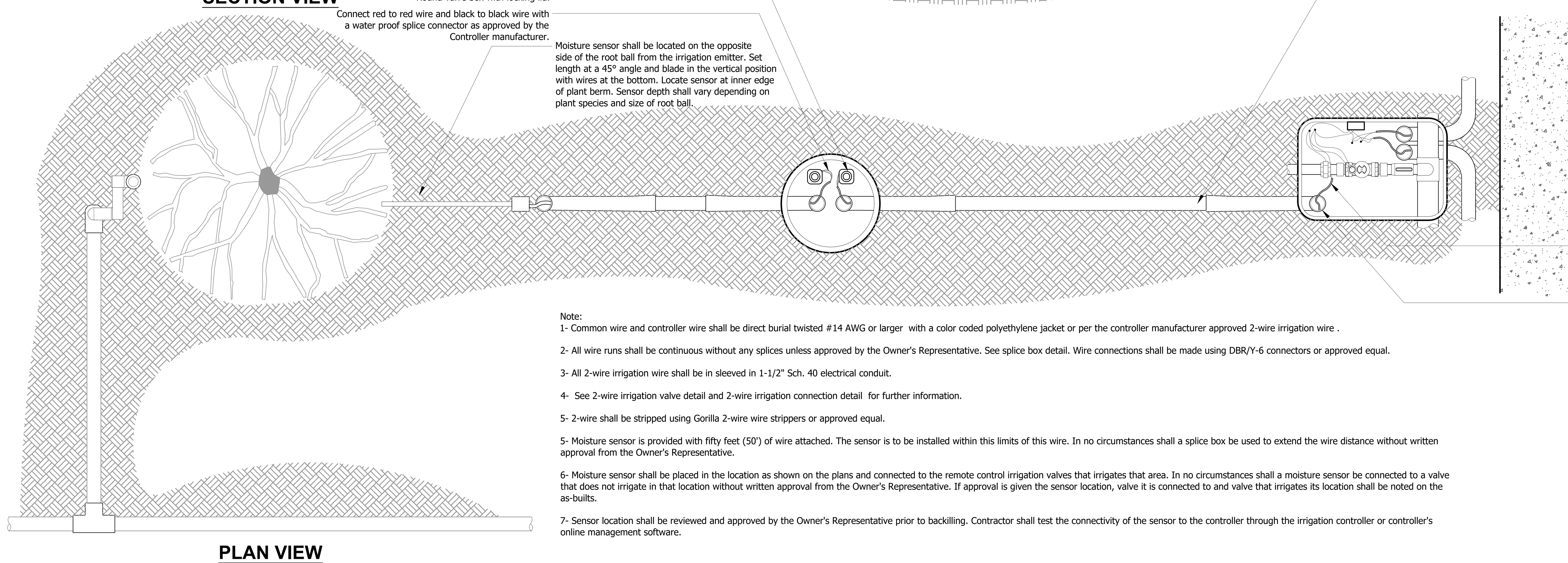
- Contractor shall include in their bid the addition of one (1) copper grounding plate and #6 AWG bare copper wire for controller grounding as necessary.

1 GROUNDING PLATE AND LIGHTNING ARRESTOR

3/4" = 1'-0"

P-IN-20124_WA-03





Note:
1- Common wire and controller wire shall be direct burial twisted #14 AWG or larger with a color coded polyethylene jacket or per the controller manufacturer approved 2-wire irrigation wire .

2- All wire runs shall be continuous without any splices unless approved by the Owner's Representative. See splice box detail. Wire connections shall be made using DBR/Y-6 connectors or approved equal.

3- All 2-wire irrigation wire shall be in sleeved in 1-1/2" Sch. 40 electrical conduit.

4- See 2-wire irrigation valve detail and 2-wire irrigation connection detail for further information.

5- 2-wire shall be stripped using Gorilla 2-wire wire strippers or approved equal.

5- Moisture sensor is provided with fifty feet (50') of wire attached. The sensor is to be installed within this limits of this wire. In no circumstances shall a splice box be used to extend the wire distance without written approval from the Owner's Representative.

6- Moisture sensor shall be placed in the location as shown on the plans and connected to the remote control irrigation valves that irrigates that area. In no circumstances shall a moisture sensor be connected to a valve that does not irrigate in that location without written approval from the Owner's Representative. If approval is given the sensor location, valve it is connected to and valve that irrigates its location shall be noted on the as-builts.

7- Sensor location shall be reviewed and approved by the Owner's Representative prior to backilling. Contractor shall test the connectivity of the sensor to the controller through the irrigation controller or controller's online management software.

2 MOISTURE SENSOR WITH SINGLE EMITTER

P-IN-20124_WA-13

NO.	DATE	DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT TYSON CARROLL No. 5803 Signature Renewal Date STATE OF CALIFORNIA

PREPARED BY: WOOD ARCHITECTURE
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tyson@woodarchitecture.com

CHK BY: TC
DRW BY: TC

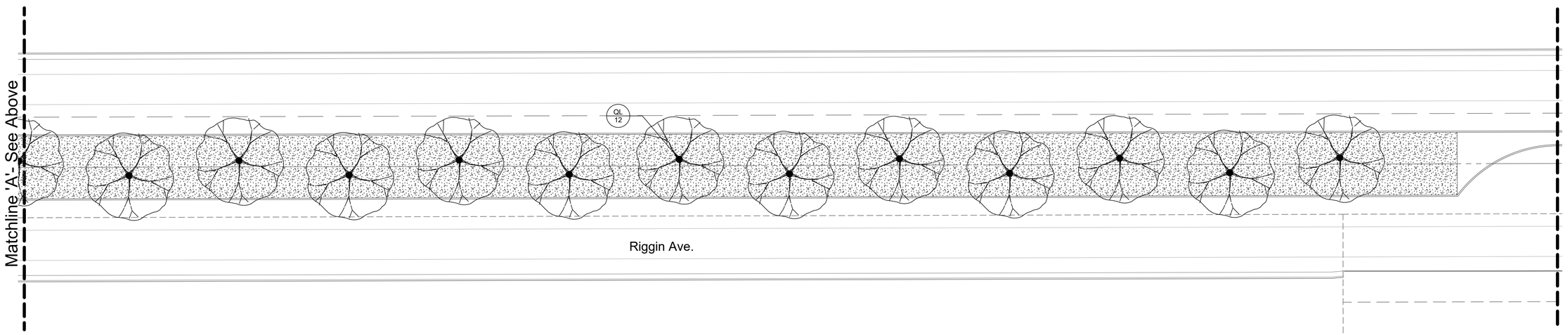
VISALIA Founded 1852

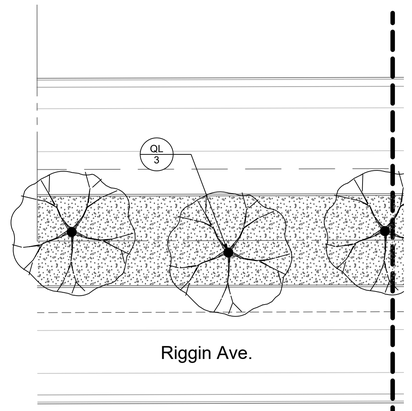
NOT FOR CONSTRUCTION

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
IRRIGATION DETAILS & NOTES

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 51 OF 61





Tree Legend

TREES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	USE	WUCOLS	STYLE	CA NATIVE	QTY
	QL	Quercus lobata	Valley Oak	15 gal	Deciduous	Street Tree	Low	Standard	Yes	71

Groundcover Legend

SYMBOL	PLANTING DESCRIPTION	QTY
32-93-03	5" thick layer or RECYCLED LANDSCAPE MULCH. Contact West Coast Sand & Gravel at 559. 801. 1150 for further information. See specifications for further information	82,447 sf

Notes:
1 - Graphic quantities take precedence over written quantities
2 - All trees shall be of quality as prescribed in the details and specifications.
Any tree not meeting such requirements shall be removed from the site and replaced at no cost to the owner.
3 - Trees shall not be planted within:
a. 6'-0" of drive approaches
b. 6'-0" of sewer lines
c. 6'-0" of water lines
d. 10'-0" of fire hydrants
e. 20'-0" of light standards
4 - All quantities and amounts shown on the plans are best estimates for the benefit of the contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the Contractor 's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

0 20 40 60 80 feet
1" = 20'

Know what's below.
Call before you dig.

NOT FOR CONSTRUCTION

NORTH

NO.	DATE	DESCRIPTION

LICENSED LANDSCAPE ARCHITECT
TYSON TAGRILL No. 5803
STATE OF CALIFORNIA
Signature
1-30-22
Renewal date

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
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CHK BY: TC
DRW BY: TC

CITY OF VISALIA
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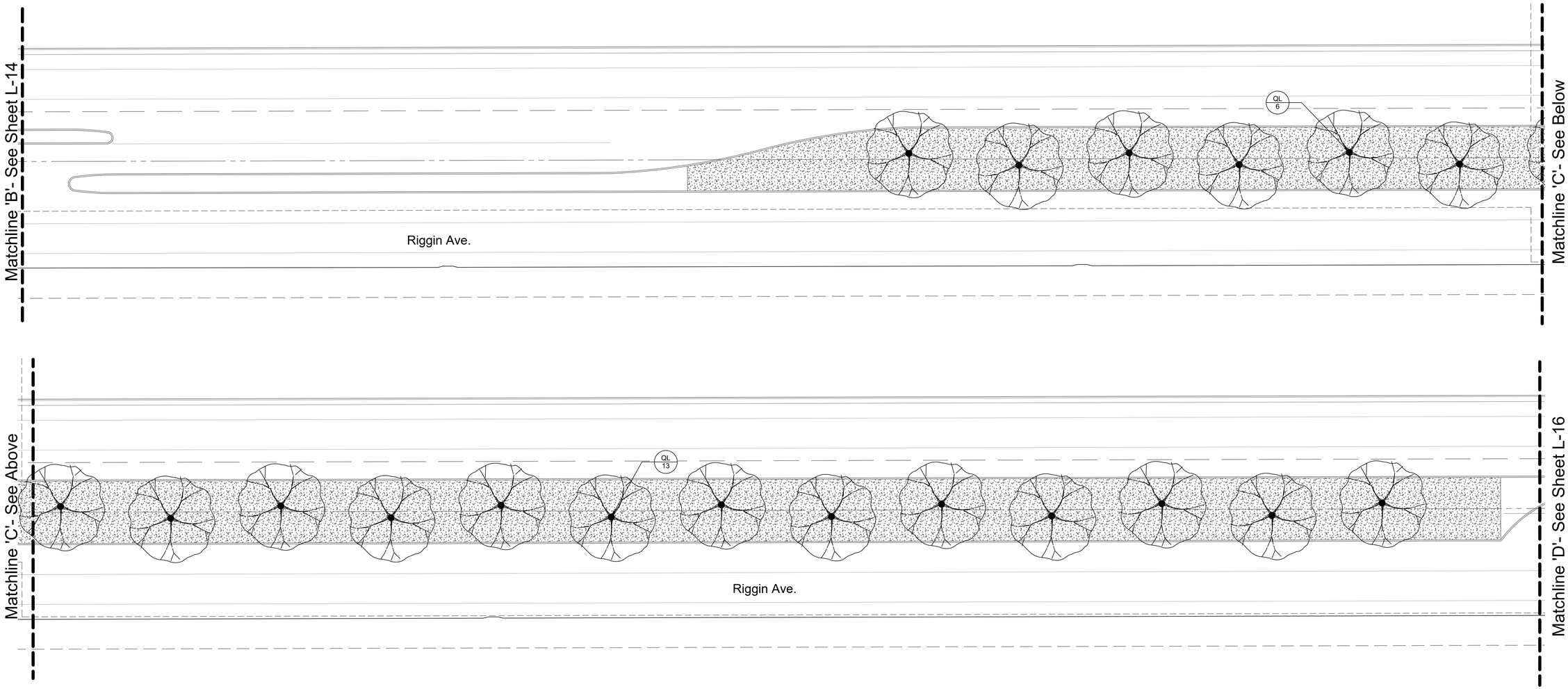
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
TREE & GROUNDCOVER PLANS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 52 OF 61



Tree Legend

TREES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	USE	WUCOLS	STYLE	CA NATIVE	QTY
	QL	Quercus lobata	Valley Oak	15 gal	Deciduous	Street Tree	Low	Standard	Yes	71

Groundcover Legend

SYMBOL	PLANTING DESCRIPTION	QTY
32-93-03	5" thick layer or RECYCLED LANDSCAPE MULCH. Contact West Coast Sand & Gravel at 559. 801. 1150 for further information. See specifications for further information	82,447 sf

Notes:
1 - Graphic quantities take precedence over written quantities
2 - All trees shall be of quality as prescribed in the details and specifications.
Any tree not meeting such requirements shall be removed from the site and replaced at no cost to the owner.
3 - Trees shall not be planted within:
a. 6'-0" of drive approaches
b. 6'-0" of sewer lines
c. 6'-0" of water lines
d. 10'-0" of fire hydrants
e. 20'-0" of light standards
4 - All quantities and amounts shown on the plans are best estimates for the benefit of the contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the Contractor 's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

0 20 40 60 80 feet
1" = 20'

811 Know what's below. Call before you dig.

NOT FOR CONSTRUCTION

NO. | DATE | DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT TYSON TAGHILL NO. 5803 STATE OF CALIFORNIA
Signature
1-30-22
Renewal Date

1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@woodarchitecture.com

CHK BY: TC

PREPARED BY: WOOD ARCHITECTURE

DRW BY: TC

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
TREE & GROUNDCOVER PLANS

PROJ. NO. 20124_WA
DATE:2/16/2021
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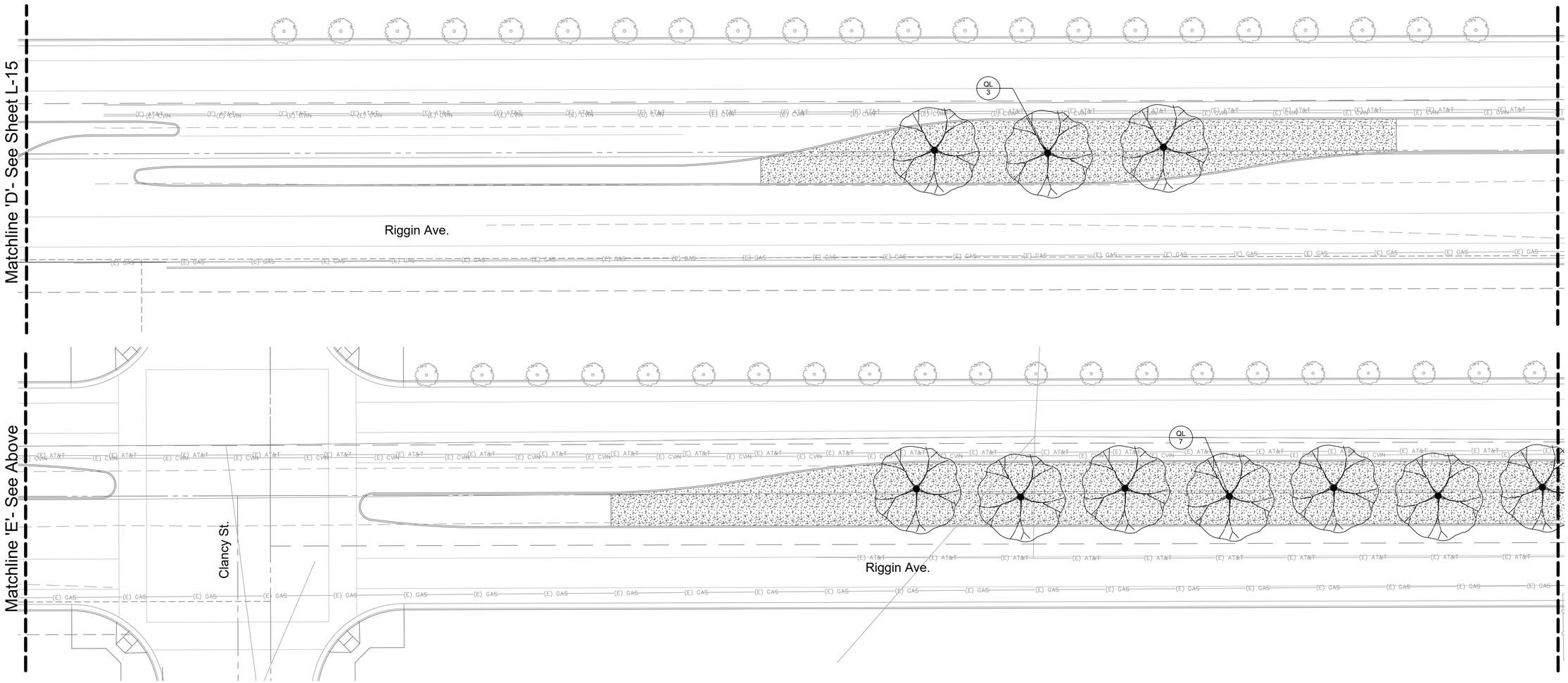
SHEET 53 OF 61



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Signature
1-30-22
Renewal Date

1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@woodarchitecture.com

CHK BY: TC

PREPARED BY: WOOD ARCHITECTURE

DRW BY: TC

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

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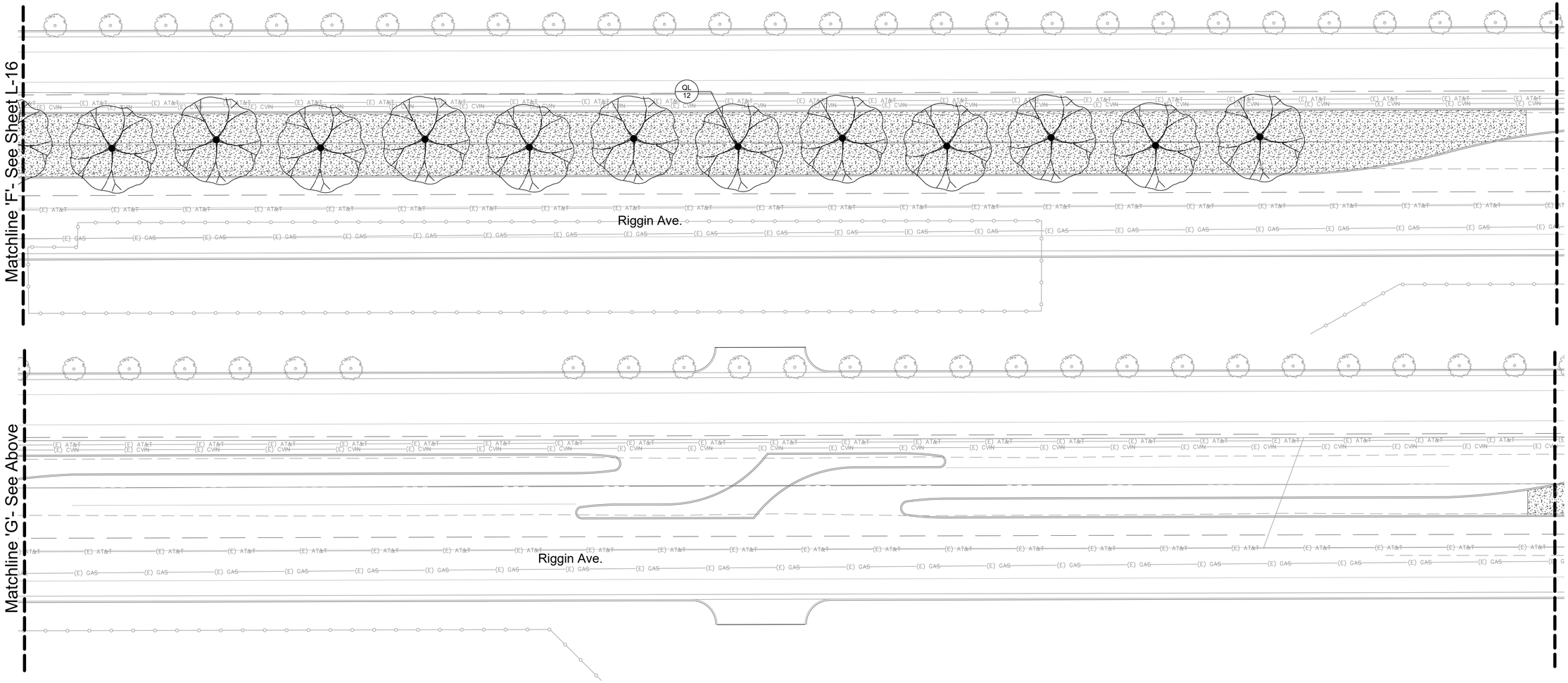

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LICENSED LANDSCAPE ARCHITECT
TYSON TAGHILL NO. 5803
STATE OF CALIFORNIA
Signature
1-30-22
Renewal date

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@woodarchitecture.com

CHK BY: TC
DRW BY: TC

CITY OF VISALIA
315 E. ACEQUIA AVE.
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RIGGIN AVENUE
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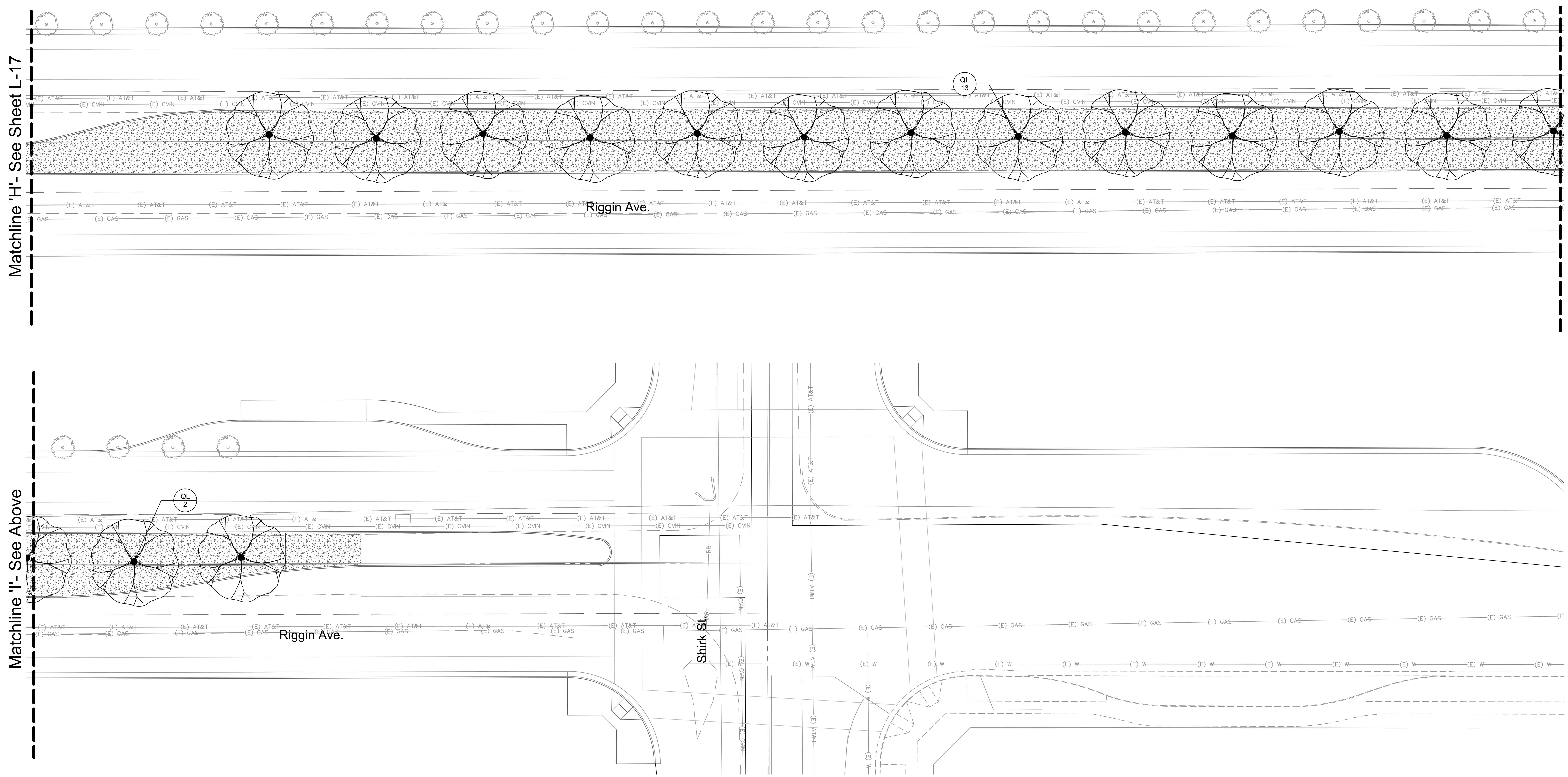

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NO.	DATE	DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT TYSON CARROLL No 5803 Signature 4-30-22 Renewal Date Date STATE OF CALIFORNIA

PREPARED BY: WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@iwoodarchitecture.com
DRW BY: TC CHK BY: TC

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
TREE & GROUNDCOVER PLANS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC DRAWN BY:TC
SCALE: AS SHOWN
SHEET 56 OF 61

GENERAL PLANTING NOTES

1. Existing utilities- information on the drawings relating to existing utility lines and services from the best sources available. All such information is furnished only for information and is not guaranteed. The Contractor shall excavate test pits as required to determine the exact location of existing utilities.

Call utility locating service for precise utility locations before beginning of any work. DIG ALERT, 811.

2. Utility Requirements- The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below shall be contacted.
- Gas Company
- Telephone Company
- Electrical Power Company
- Cable Television Company
- Water Supply Company

The California Public Utilities Commission mandates that in, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the gas company's headquarters planning office 48 hours prior to the start of construction.

3. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

4. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

5. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of conduct of the work as drawn and specified. If the contractor observes that a conflict exist between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

6. Wherever references are made to standards or coded in accordance with which works is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless expressly set forth.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

8. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

9. The Contractor shall be responsible for any coordination with subcontractors as requiring to accomplish the planting operations.

10. Contractor shall be aware of all surface and subsurface conditions, and to notify the Owner's Representative, in writing of any circumstances that would negatively impact the health of plantings. Contractor shall not proceed with work until corrected.
    a. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering the cost of corrections. If the contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for the plant material under the warrantee clause of the specifications.

11. Irrigation and site preparation work shall be completed and accepted prior to the installation of any plants.
    a. Planting operations shall not begin until such time that the irrigation system is completely operational for the areas to be planted, and the irrigation system for that area has been preliminarily inspected and approved by the Owner's Representative.

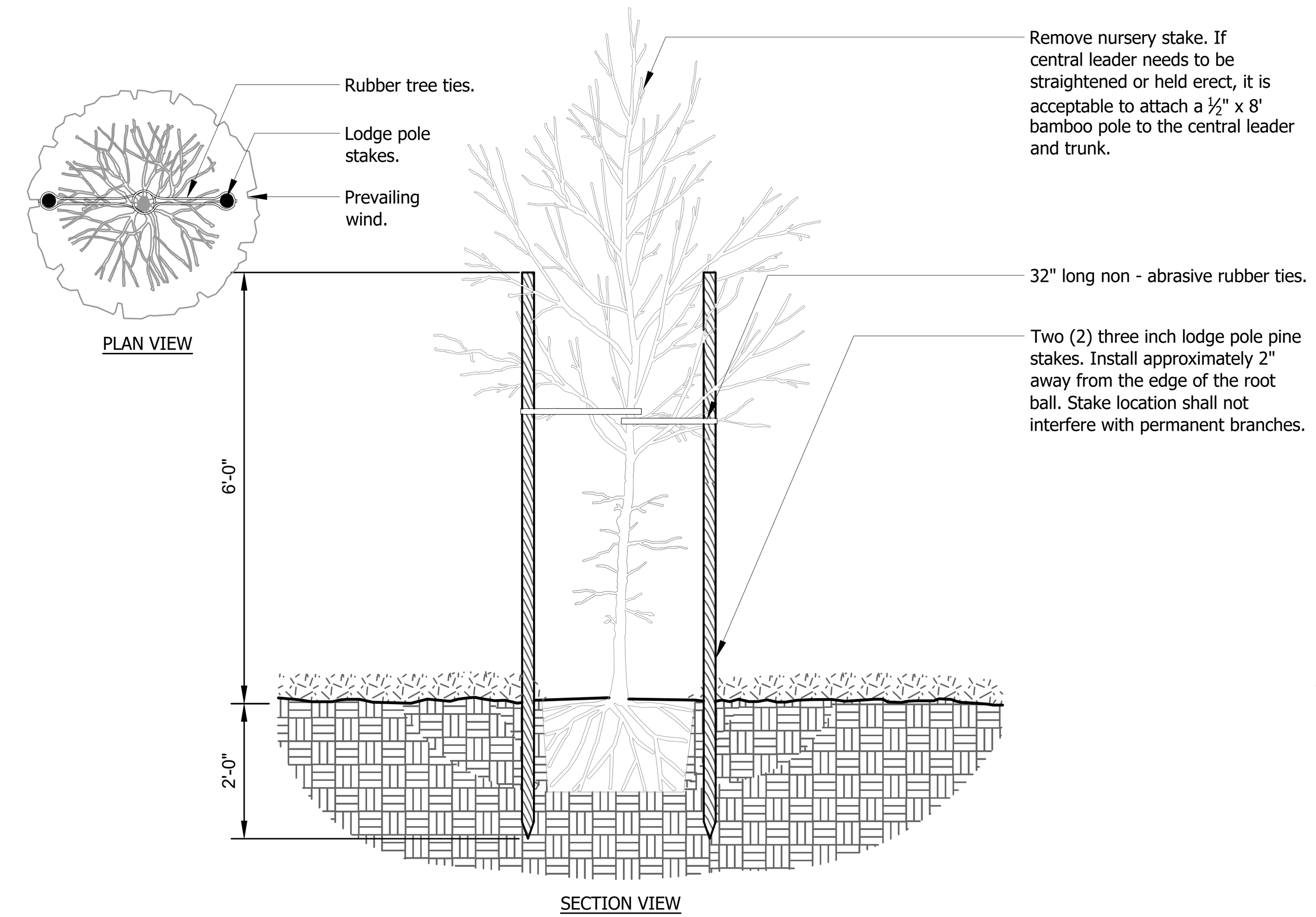
12. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relive the Contractor from meeting all the requirements in the plans, details and specifications.
    a. Pre - Construction meeting.
    b. Site conditions prior to the start of planting.
    c. Plant quality.
    d. Completion of planting.

13. If the work fails to pass inspection, any subsequent inspections must be rescheduled as required in the specifications. The cost to the Owner for additional inspections will be charged to the Contractor at the prevailing hourly rate of the inspector.

14. Contractor shall include in the bid continued maintenance (warranty) period of 1 year after completion of construction and acceptance of the project in writing by the City of Visalia.

15. Submit to the Owner's representative, for approval, plant sources including the names and locations of nurseries proposed as sources of acceptable plants, and a list of the plants they will provide. The plant list shall include the botanical and common name and the size at the time of selection. Inspect all nursery materials to determine that the materials meet the requirements of the specification.

16. The landscape plans have designed in accordance with the state model water efficient landscape ordinance (MWELO). It is the Contractors responsibility to adhere to the requirements and regulations of that ordinance during the installation of the landscape design plan. Any portion which comes into conflict with MWELO shall be brought to the attention of the Owner/Owner's Representative. In the even that notification does not take place, the Contractor assumes responsibility for all necessary changes and work in order to meet compliance.



4 TREE STAKING - LODGEPOLES (2)

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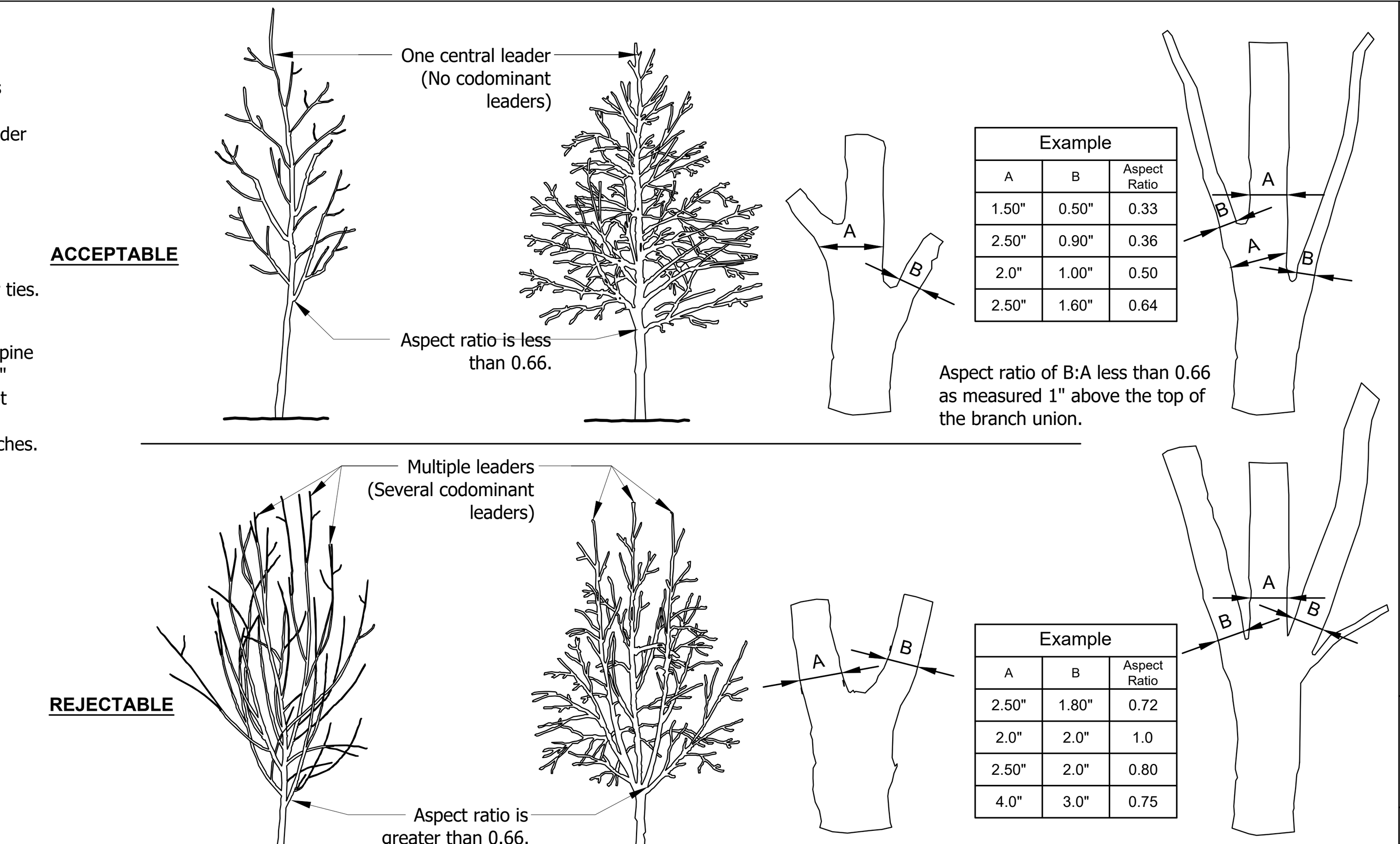
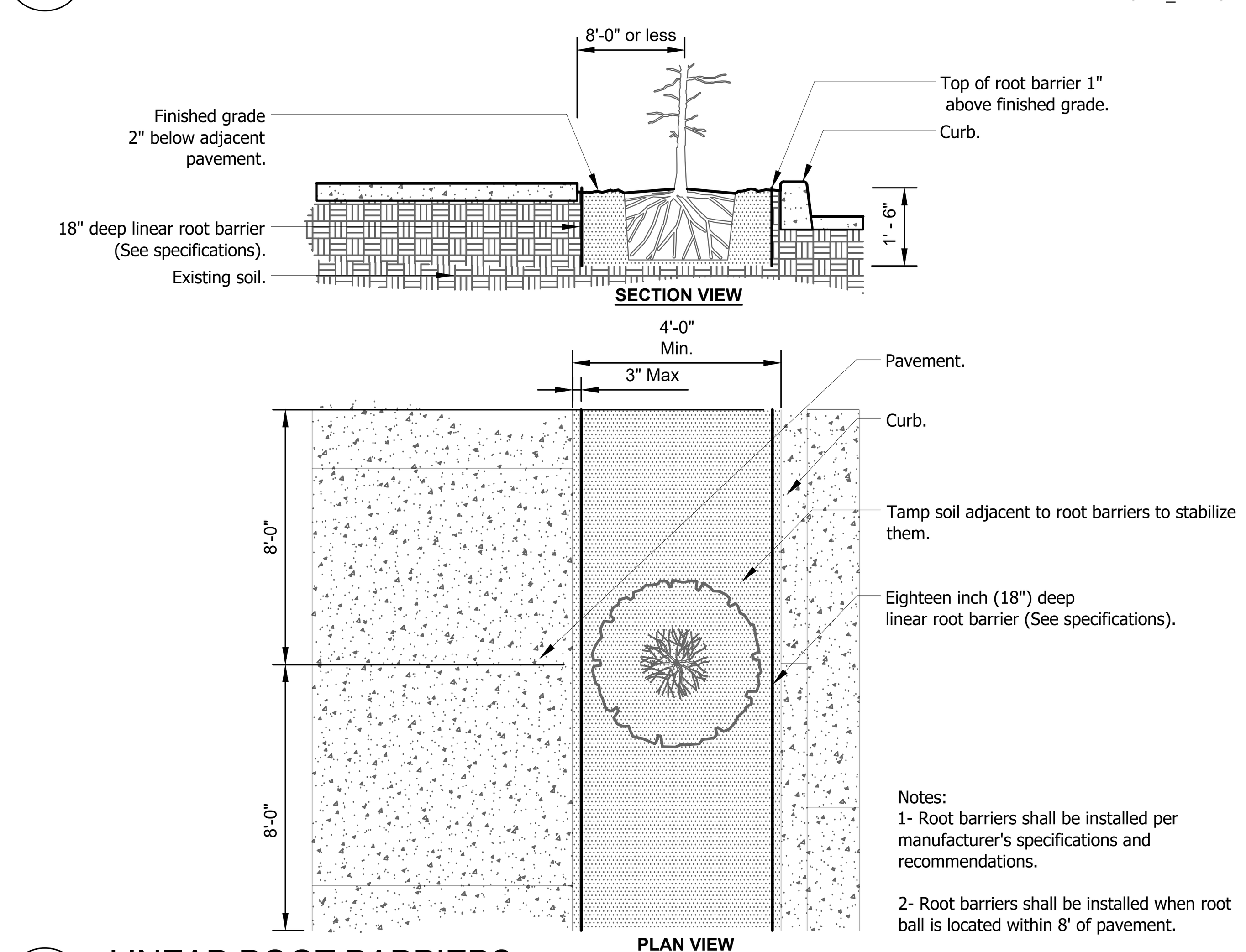


Notes:
1- Aspect ratio shall be less than 0.66 on all branch unions. Aspect ratio is the diameter of branch (B) divided by the diameter of the trunk (A) as measured 1" above the top of the branch union.

2- Any tree not meeting the crown observations detail may be rejected.

1 CROWN OBSERVATION DETAIL - HIGH BRANCHED

P-IN-20124_WA-20

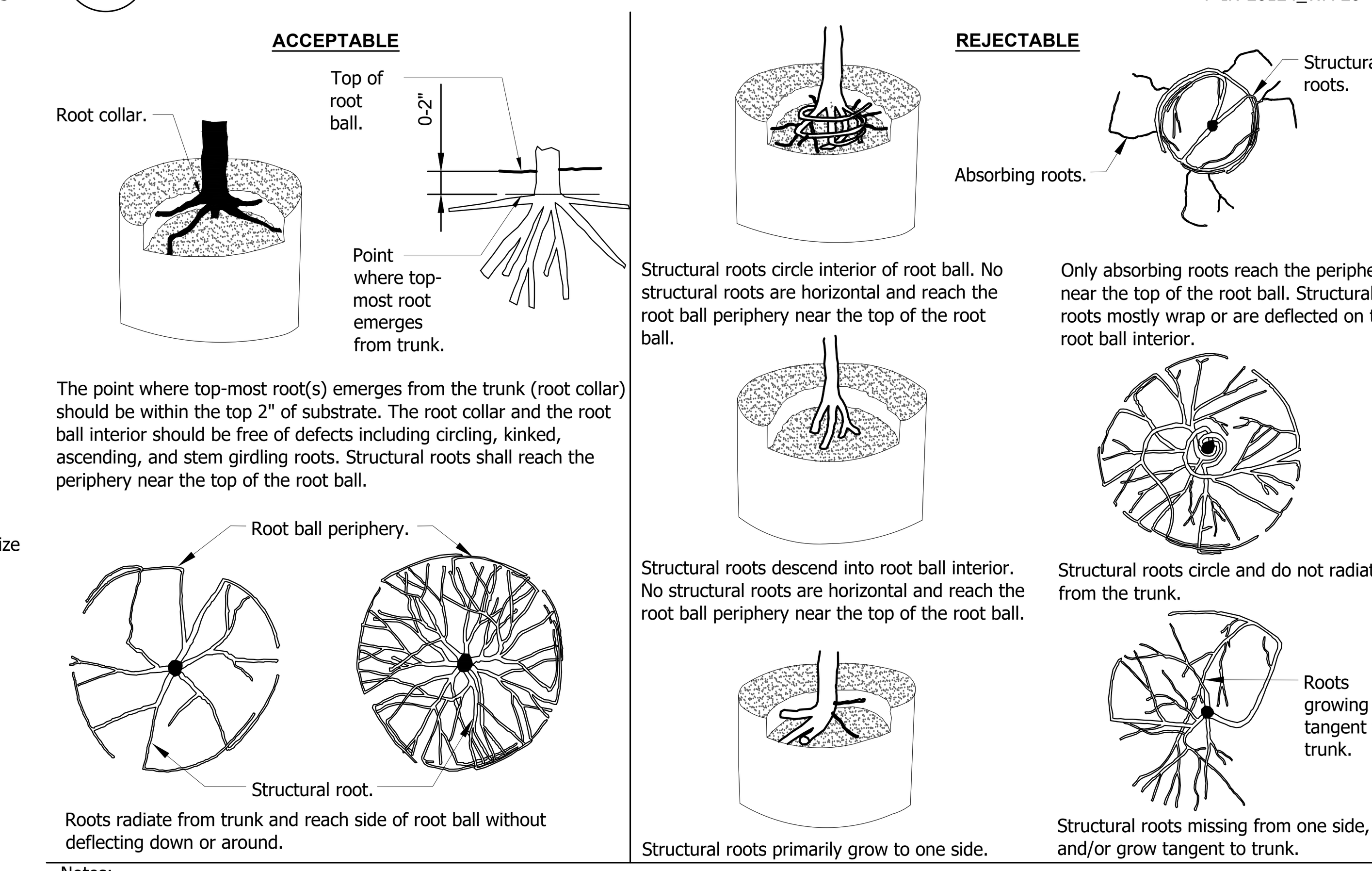


Notes:
1- Root barriers shall be installed per manufacturer's specifications and recommendations.

2- Root barriers shall be installed when root ball is located within 8' of pavement.

5 LINEAR ROOT BARRIERS

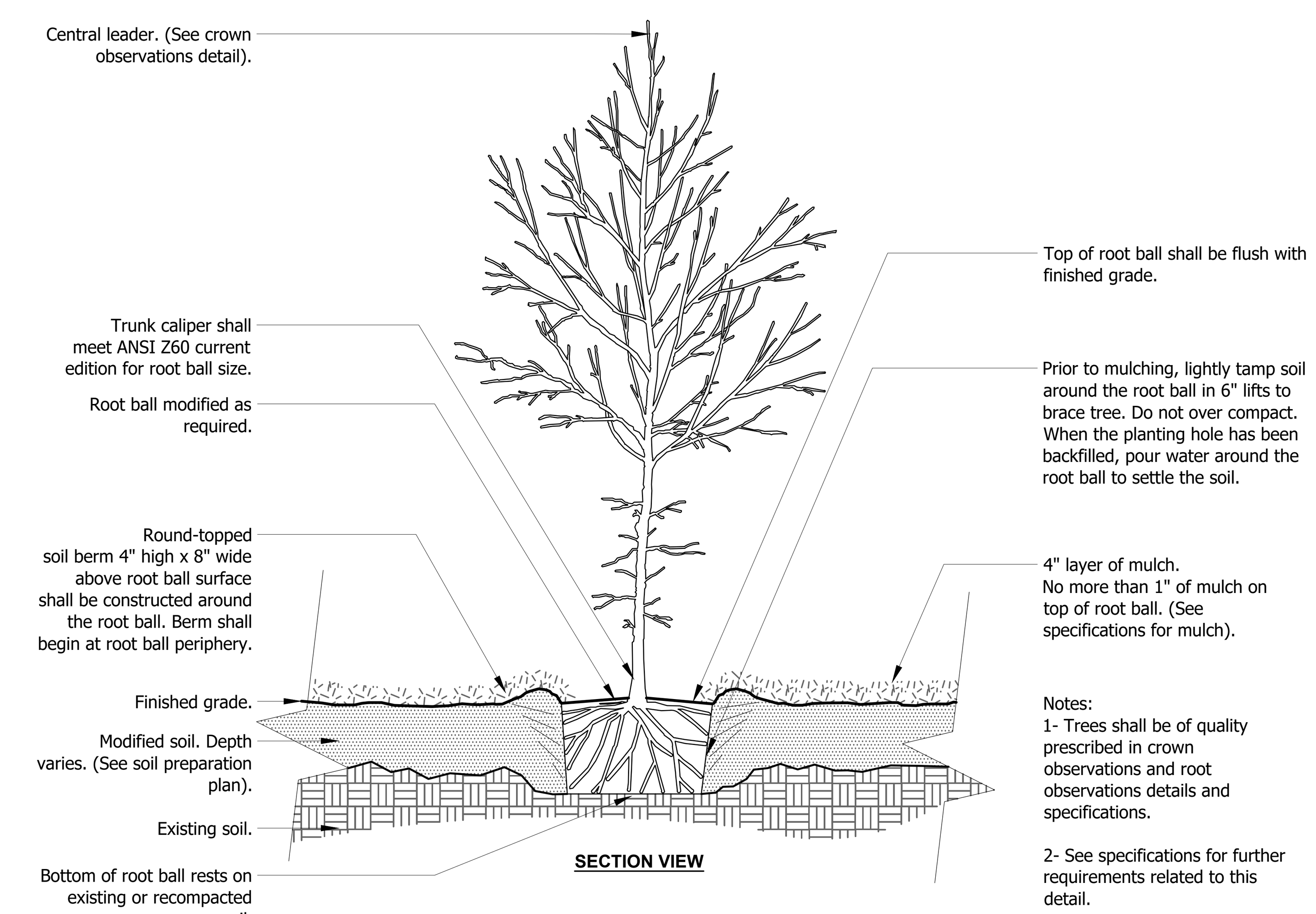
P-IN-20124_WA-24



Notes:
1- Observations of roots shall occur prior to acceptance. Roots and substrate may be removed during the observation process; substrate/soil shall be replaced after observation has been completed.
2- Small roots (¼" or less) that grow around, up, or down the root ball periphery are considered a normal condition in container production and are acceptable however they should be eliminated at the time of planting. Roots on the periperhy can be removed at the time of planting. (See root ball shaving container detail).
3- See specifications for observation process and requirements.

2 ROOT OBSERVATION DETAIL - CONTAINER

P-IN-20124_WA-21



Notes:
1- Trees shall be of quality prescribed in crown observations and root observations details and specifications.

2- See specifications for further requirements related to this detail.

3 TREE W/ BERM - MODIFIED SOIL

P-IN-20124_WA-22

NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No 5803
Signature
Renewal Date
Date
STATE OF CALIFORNIA

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@woodarchitecture.com
DRW BY: TC
CHK BY: TC

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
PLANTING DETAILS & NOTES

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN

GENERAL CONDITIONS

A. CONTRACT DOCUMENTS: Shall consist of specifications and its general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

B. VERIFICATION: The Contractor shall verify measurements on the drawings before beginning work. In case of error or discrepancy in the drawings or specifications or in the work of others affecting his/her work, he/she shall notify the Owner's Representative immediately. The Contractor shall be held responsible for any damages or loss due to his/her failure to observe these instructions.

C. MATERIALS, MACHINERY, EMPLOYEES: Except as otherwise noted, the Contractor shall provide and pay for all materials, labor, tools, and other items necessary and incidental to the completion of his/her work.

D. SURVEYS, PERMITS, REGULATIONS: The Owner shall furnish an adequate survey of the property. The Contractor shall obtain and pay for all permits and comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a variance exists therewith he/she shall promptly notify the Owner's Representative in writing and any necessary changes shall be adjusted as provided in the contract for changes in the work.

E. PROTECTION OF WORK, PROPERTY AND PERSON: The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

F. CHANGES IN THE WORK: The owner may order changes in the work, and the contract sum being adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extras must be made in writing before executing the work involved.

G. CORRECTION OF WORK: The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative for a period of ninety (90) days from the date of completion of the contract.

H. Owner's Authorized Representative: The Owner's authorized representative acts as the authorized representative of the Owner in conjunction with the project manager, and has authority to accept or reject materials or workmanship and to make minor changes in the work not involving extra cost. He will also interpret the meaning of the contract documents and may stop the work if necessary to ensure its proper execution.

I. CLARIFICATION OF DRAWINGS BEFORE BIDDING: After reviewing the drawings thoroughly it is the Contractor's responsibility to clarify with the Owner's Representative any questions the Contractor may have regarding the method of construction, quantities, or quality of materials included or called out. If the Contractor cannot contact the Owner's Representative, the Contractor must qualify his/her bid or accept the interpretation of the Owner's Representative on the questionable areas as they develop during construction.

J. SAMPLES: The Owner's Representative reserves the right to take and analyze samples of materials for conformity to specifications at any time. The Contractor shall furnish samples upon request by the Owner's Representative. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

K. PRE-CONSTRUCTION CONFERENCE: Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work. The purpose of this conference is to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

SECTION 32 91 00

PLANTING SOIL

PART 1 GENERAL

1.1 SUMMARY

A. The scope of work includes all labor, materials, tools, supplies, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with furnishing, delivery, and installation of Planting Soil and /or the modification of existing site soil for use as Planting Soil, complete as shown on the drawings and as specified herein.

B. The scope of work in this section includes, but is not limited to, the following:

1. Modify existing stockpiled site soil.
   a. Modify existing site soil in place for use as Planting Soil.
   b. Install existing or modified existing soil for use as Planting Soil.
2. Fine grade Planting Soil.
3. Install Compost into Planting Soil.
4. Clean up and disposal of all excess and surplus material.

1.2 CONTRACT DOCUMENTS

A. Shall consist of specifications, general conditions, and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

1.3 RELATED DOCUMENTS AND REFERENCES

A. Related Documents:

1. Drawings and general provisions of contract, including general and supplementary conditions and Division I specifications, apply to work of this section.
2. Related Specification Section
   a. Section - Planting
   b. Section - Irrigation

B. References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the Specification to the extent required by the references thereto. In the event that the requirements of the following referenced standards and specification conflict with this specification section the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail.

1. ASTM: American Society of Testing Materials cited section numbers.
2. U.S. Department of Agriculture, Natural Resources Conservation Service, 2003. National Soil Survey Handbook, title 430-VI. Available Online.
3. US Composting Council *www.compostingcouncil.org* http://compostingcouncil.org/admin/wp-content/plugins/wp-*pdfupload/pdf/191/LandscapeArch_Specs.pdf.*
4. Methods of Soil Analysis, as published by the Soil Science Society of America (http://www.soils.org/).
5. Up by Roots: healthy soils and trees in the built environment. 2008. J. Urban. International Society of Arboriculture, Champaign, IL.

1.4 VERIFICATION

A. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

1.5 PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

C. In case of conflict among any referenced standards or codes or among any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

D. Comply with the requirements of the California code of regulation title 23 waters, division 2 department of water resources chapter 2.7 model water efficient landscape ordinance, 492.5 soil management report.

1. Where requirements of specification section Planting Soil are more stringent than the California code, the more stringent requirements shall prevail.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

1.7 CHANGES IN WORK

A. The Owner's Representative may order changes in the work, and the contract sum adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

B. All changes in the work, notifications and contractor's request for information (RFI) shall conform to the contract general condition requirements.

1.8 CORRECTION OF WORK

A. The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative, at the soonest possible time that can be coordinated with other work and seasonal weather demands but not more than 180 (one hundred and eighty) days after notification.

1.9 DEFINITIONS

A. Acceptable drainage: Drainage rate is sufficient for the plants to be grown. Not too fast and not too slow. Typical rates for installed Planting Soil are between 1 - 5 inches per hour. Turf soils are often higher, but drainage rates above 2 - 3 inches per hour will dry out very fast. In natural undisturbed soil a much lower drainage rate, as low as 1/8th inch per hour can still support good plant growth. Wetland plants can grow on top of perched water layers or even within seasonal perched water layers, but could become unstable in high wind events.

B. Amendment: material added to Topsoil to produce Planting Soil Mix. Amendments are classified as general soil amendments, fertilizers, biological, and pH amendments.

C. Biological Amendment: Amendments such as Mycorrhizal additives, compost tea or other products intended to change the soil biology.

D. Compacted soil: soil where the density of the soil is greater that the threshold for root limiting, and further defined in this specification.

E. Compost: well decomposed stable organic material as defined by the US Composting Council and further defined in this specification.

F. Drainage: The rate at which soil water moves through the soil transitioning the soil from saturated condition to field capacity. Most often expressed as saturated hydraulic conductivity (Ksat; units are inches per hour).

G. End of Warranty Acceptance: The date when the Owner's Representative accepts that the plants and work in this section meet all the requirements of the warranty. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation (if applicable) work run concurrent with each other, and further defined in this specification.

H. Existing Soil: Mineral soil existing at the locations of proposed planting after the majority of the construction within and around the planting site is completed and just prior to the start of work to prepare the planting area for soil modification and/or planting, and further defined in this specification.

I. Fine grading: The final grading of the soil to achieve exact contours and positive drainage, often accomplished by hand rakes or drag rakes other suitable devices, and further defined in this specification, and further defined in this specification.

J. Finished grade: surface or elevation of Planting Soil after final grading and 12 months of settlement of the soil, and further defined in this specification.

K. Graded soil: Soil where the A horizon has been stripped and relocated or re-spread; cuts and fills deeper than 12 inches, and further defined in this specification.

L. Installed soil: Planting soil and existing site soil that is spread and or graded to form a planting soil, and further defined in this specification.

M. Minor disturbance: Minor grading as part of agricultural work that only adjusts the A horizon soil, minor surface compaction in the top 6 inches of the soil, applications of fertilizers, installation of utility pipes smaller than 18 inches in diameter thru the soil zone.

N. Owner's Representative: The person or entity, appointed by the Owner to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Owner's Representative may appoint other persons to review and approve any aspects of the work.

O. Ped: a clump or clod of soil held together by a combination of clay, organic matter, and fungal hyphae, retaining the original structure of the harvested soil.

P. Planting Soil: Topsoil, or Planting Soil Mixes which are imported or existing at the site, or made from components that exist at the site, or are imported to the site; and further defined in this specification.

Q. *Poor drainage: Soil drainage that is slower than that to which the plants can adapt. This is a wide range of metrics, but generally if the soil is turning grey in color it is reasonable preferable to either to plant moisture adaptive plants at smaller sizes that are young in age with shallow root balls or look at options to improve the drainage*

R. Scarify: Loosening and roughening the surface of soil and sub soil prior to adding additional soil on top, and further defined in this specification.

S. Soil Horizons: as defined in the USDA National Soil Survey Handbook

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242.

T. Soil Tilling: Loosening the surface of the soil to the depths specified with a **rotary tine tilling machine, roto tiller, (or spade tiller)**, and further defined in this specification.

U. Soil trenching: Cutting narrow trenches thru the soil at the depths and spacing specified to loosen the soil profile, and further defined in this specification.

V. Subgrade: surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing Planting Soil.

W. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation (if applicable) where the Owner's Representative accepts that all work in these sections is complete and the Warranty period has begun. This date may be different than the date of substantial completion for the other sections of the project, and further defined in this specification.

X. Topsoil: naturally produced and harvested soil from the A horizon or upper layers or the soil as further defined in this specification.

BB. Undisturbed soil: Soils with the original A horizon intact that have not been graded or compacted. Soils that have been farmed, subjected to fire or logged but not graded, and natural forested land will be considered as undisturbed.

1.10 SUBMITTALS

A. See the contract General Conditions for policy and procedures related to submittals.

B. Submit all product submittals eight weeks prior to the start of the soil work.

C. Product data and certificates: For each type of manufactured product, submit data and certificates that the product meets the specification requirements, signed by the product manufacturer, and complying with the following:

1. Submit manufacturers or supplier's product data and literature certified analysis for standard products and bulk materials, complying with testing requirements and referenced standards and specific requested testing.
   a. For each Compost product submit the following analysis by a recognized laboratory:
      1.) pH
2.) Salt concentration (electrical conductivity)
3.) Moisture content %, wet weight basis
4.) Particle size % passing a selected mesh size, dry weight basis
5.) Stability carbon dioxide evolution rate mg CO2-C per g OM per day
6.) Solvita maturity test
7.) Physical contaminants (inerts) %, dry weight basis
8.) US EPA Class A standard, 40CFR § 503.13, Tables 1 and 3 levels Chemical Contaminants mg/kg (ppm)
   b. For Coarse Sand product submit the following analysis by a recognized laboratory:
      1.) pH
2.) Particle size distribution (percent passing the following sieve sizes):
   3/8 inch (9.5 mm)
   No 4 (4.75 mm)
   No 8 (2.36 mm)
   No 16(1.18 mm)
   No 30 (.60 mm)
   No 50 (.30 mm)
   No 100 (.15 mm)
   No 200 (.075 mm)

D. Samples: Submit samples of each product and material, where required by Part 2 of the specification, to the Owner's Representative for approval. Label samples to indicate product, characteristics, and locations in the work. Samples will be reviewed for appearance only.

1. Submit samples a minimum of 8 weeks prior to the anticipated date of the start of soil installation.
2. Samples of all Topsoil, Coarse Sand, Compost and Planting Soil shall be submitted at the same time as the particle size and physical analysis of that material.

E. Soil testing for Imported and Existing Topsoil, existing site soil to be modified as Planting Soil and Planting Soil Mixes.

1. Topsoil, existing site soil and Planting Soil Mix testing: Submit soil test analysis report for each sample of Topsoil, existing site soil and Planting Soil from an approved soil-testing laboratory and where indicated in Part 2 of the specification as follows:
   a. Submit Topsoil, Planting Soil, Compost, and Coarse Sand for testing at least 8 weeks before scheduled installation of Planting Soil Mixes. Submit Planting Soil Mix test no more than 2 weeks after the approval of the Topsoil, Compost and Coarse Sand. Do not submit to the testing laboratory, Planting Soil Mixes, for testing until all Topsoil, Compost and Coarse Sand have been approved.
   b. If tests fail to meet the specifications, obtain other sources of material, retest and resubmit until accepted by the Owner's Representative.
   c. All soil testing will be at the expense of the Contractor.
2. Submit all testing required by California Code of regulation Title 23 waters, Division 2 Department of Water resources Chapter 2.7 Model Water Efficient Landscape Ordinance, 492.5 Soil Management Report.
3. Provide a particle size analysis (% dry weight) and USDA soil texture analysis. Soil testing of Planting Soil Mixes shall also include USDA gradation (percentage) of gravel, coarse sand, medium sand, and fine sand in addition to silt and clay.
4. Provide the following other soil properties:
   a. pH and buffer pH.
   b. Percent organic content by oven dried weight.
   c. Nutrient levels by parts per million including: phosphorus, potassium, magnesium, manganese, iron, zinc and calcium. Nutrient test shall include the testing laboratory recommendations for supplemental additions to the soil for optimum growth of the plantings specified.
   d. Soluble salt by electrical conductivity of a 1:2 soil water sample measured in Milliohm per cm.
   e. Cation Exchange Capacity (CEC).

1.11 OBSERVATION OF THE WORK

A. The Owner's Representative may observe the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

1. The Owner's Representative may utilize the Contractor's penetrometer and moisture meter at any time to check soil compaction and moisture.

B. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

1. EXISTING SOIL CONDITIONS REVIEW: Prior to the start of any soil modification that will utilize or modify the existing soil.
2. EXCAVATION REVIEW: Observe each area of excavation prior to the installation of any Planting Soil.
3. COMPLETION of SOIL MODIFICATIONS REVIEW: Upon completion of all soil modification and installation of planting soil.
4. COMPLETION OF FINE GRADING AND SURFACE SOIL MODIFICATIONS REVIEW: Upon completion of all surface soil modifications and fine grading but prior to the installation of shrubs, ground covers, or lawns.

1.13 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1.14 QUALITY ASSURANCE

A. Installer Qualifications: The installer shall be a firm having at least 5 years of experience of a scope similar to that required for the work, including the preparation, mixing and installation of soil mixes to support planting. The installer of the work in Section: Planting, shall be the same firm installing the work in this section.

1. The bidders list for work under this section shall be approved by the Owner's Representative.
2. Installer Field Supervision: When any Planting Soil work is in progress, installer shall maintain, on site, an experienced full-time supervisor who can communicate in English with the Owner's Representative.
3. Installer's field supervisor shall have a minimum of five years experience as a field supervisor installing soil, shall be trained and proficient in the use of field surveying equipment to establish grades and can communicate in English with the Owner's Representative.
4. The installer's crew shall be experienced in the installation of Planting Soil, plantings, and irrigation (where applicable) and interpretation of planting plans, soil installation plans, and irrigation plans (where applicable).
5. Submit references of past projects and employee training certifications that support that the Contractors meet all of the above installer qualifications and applicable licensures.

B. Soil testing laboratory qualifications: an independent laboratory, with the experience and capability to conduct the testing indicated and that specializes in USDA agricultural soil testing, Planting Soil Mixes, and the types of tests to be performed. Geotechnical engineering testing labs shall not be used.

C. All delivered and installed Planting Soil shall conform to the approved submittals sample color, texture and approved test analysis.

1. The Owner's Representative may request samples of the delivered or installed soil be tested for analysis to confirm the Planting Soil conforms to the approved material.
2. All testing shall be performed by the same soil lab that performed the original Planting Soil testing.
3. Testing results shall be within 10% plus or minus of the values measured in the approved Planting Soil Mixes.
4. Any Planting Soil that fails to meet the above criteria, if requested by the Owner's Representative, shall be removed and new soil installed.

D. Soil compaction testing: following installation or modification of soil, test soil compaction with a penetrometer.

1. Maintain at the site at all times a soil cone penetrometer with pressure dial and a soil moisture meter to check soil compaction and soil moisture.
   a. Penetrometer shall be AgraTronix Soil Compaction Meter distributed by Ben Meadows, www.benmeadows.com or approved equal.
   b. Moisture meter shall be “general digital soil moisture meter” distributed by Ben Meadows, www.benmeadows.com or approved equal.
2. Prior to testing the soil with the penetrometer check the soil moisture and penetrometer readings in the mockup soils. Penetrometer readings are impacted by soil moisture and excessively wet or dry soils will read significantly lower or higher than soils at optimum moisture.
3. The penetrometer readings shall be within 20% plus or minus of the readings in the approved mockup when at similar moisture levels.

1.15 SITE CONDITIONS

A. It is the responsibility of the Contractor to be aware of all surface and subsurface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.

1. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering cost of corrections. If the Contractor fails to notify the Owner's Representative of such conditions, they shall remain responsible for plant material under the warrantee clause of the specifications.
2. This specification requires that all Planting Soil and Irrigation (if applicable) work be completed and accepted prior to the installation of any plants.

1.16 SOIL COMPACTION - GENERAL REQUIREMENTS

A. Except where more stringent requirements are defined in this specification. The following parameters shall define the general description of the threshold points of soil compaction in existing, modified or installed soil and subsoil.

B. The following are threshold levels of compaction as determined by each method.

1. Acceptable Compaction: Good rooting anticipated, but increasing settlement expected as compaction is reduced and/or in soil with a high organic matter content.
   a. Bulk Density Method - Varies by soil type see Chart on page 32 in Up By Roots.
   b. Standard Proctor Method - 75-85%; soil below 75% is unstable and will settle excessively.
   c. Penetration Resistance Method - about 75-250 psi, below 75 psi soil becomes increasingly unstable and will settle excessively.
2. Root limiting Compaction: Root growth is limited with fewer, shorter and slower growing roots.
   a. Bulk Density Method - Varies by soil type see Chart on page 32 in Up By Roots.
   b. Standard Proctor Method - above approximately 85%.
   c. Penetration Resistance Method - about 300 psi.
3. Excessive Compaction: Roots not likely to grow but can penetrate soil when soil is above field capacity.
   a. Bulk Density Method - Varies by soil type see Chart on page 32 in Up By Roots.
   b. Standard Proctor Method - Above 90%.
   c. Penetration Resistance Method - Approximately above 400 psi

1.17 DELIVERY, STORAGE, AND HANDLING

A. Weather: Do not mix, deliver, place or grade soils when frozen or with moisture above field capacity.

B. Protect soil and soil stockpiles, including the stockpiles at the soil blender's yard, from wind, rain and washing that can erode soil or separate fines and coarse material, and contamination by chemicals, dust and debris that may be detrimental to plants or soil drainage. Cover stockpiles with plastic sheeting or fabric at the end of each workday.

C. All manufactured packaged products and material shall be delivered to the site in unopened containers and stored in a dry enclosed space suitable for the material and meeting all environmental regulations. Biological additives shall be protected from extreme cold and heat. All products shall be freshly manufactured and dated for the year in which the products are to be used.

D. Deliver all chemical amendments in original, unopened containers with original labels intact and legible, which state the guaranteed chemical analysis. Store all chemicals in a weather protected enclosure.

E. Bulk material: Coordinate delivery and storage with Owner's Representative and confine materials to neat piles in areas acceptable to Owner's Representative.

1.18 EXCAVATING AND GRADING AROUND UTILITIES

A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.

B. Determine location of underground utilities and perform work in a manner that will avoid damage. Hand excavate as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.

C. Notification of the *local utility locator service*, *Insert PHONE NUMBER*, is required for all planting areas. The Contractor is responsible for knowing the location and avoiding utilities that are not covered by the *811, DIG ALERT*.

PART 2 PRODUCTS

2.1 IMPORTED TOPSOIL

A. Imported Topsoil definition: Fertile, friable soil containing less than 5% total volume of the combination of subsoil, refuse, roots larger than 1 inch diameter, heavy, sticky or stiff clay, stones larger than 2 inches in diameter, noxious seeds, sticks, brush, litter, or any substances deleterious to plant growth. The percent (%) of the above objects shall be controlled by source selection not by screening the soil. Topsoil shall be suitable for the germination of seeds and the support of vegetative growth. Imported Topsoil shall not contain weed seeds in quantities that cause noticeable weed infestations in the final planting beds. Imported Topsoil shall meet the following physical and chemical criteria:

1. Soil texture: USDA loam, sandy clay loam or sandy loam with clay content between 15 and 25%. And a combined clay/silt content of no more than 55%.
2. pH value shall be between 5.5 and 7.0.
3. Percent organic matter (OM): 2.0-5.0%, by dry weight.
4. Soluble salt level: Less than 2 mmho/cm.
5. Soil chemistry suitable for growing the plants specified.

B. Imported Topsoil shall be a harvested soil from fields or development sites. The organic content and particle size distribution shall be the result of natural soil formation. Manufactured soils where Coarse Sand, Composted organic material or chemical additives has been added to the soil to meet the requirements of this specification section shall not be acceptable. Retained soil peds shall be the same color on the inside as is visible on the outside.

C. Imported Topsoil for Planting Soil shall NOT have been screened and shall retain soil peds or clods larger than 2 inches in diameter throughout the stockpile after harvesting.

D. Stockpiled Existing Topsoil at the site meeting the above criteria may be acceptable.

E. Provide a two gallon sample from each Imported Topsoil source with required soil testing results. The sample shall be a mixture of the random samples taken around the source stockpile or field. The soil sample shall be delivered with soil peds intact that represent the size and quantity of expected peds in the final delivered soil.

2.2 COMPOST

A. Compost: Blended and ground leaf, wood and other plant based material, composted for a minimum of 9 months and at temperatures sufficient to break down all woody fibers, seeds and leaf structures, free of toxic material at levels that are harmful to plants or humans. Source material shall be yard waste trimmings blended with other plant or manure based material designed to produce Compost high in fungal material.

1. Compost shall be commercially prepared Compost and meet US Compost Council STA/TMECC criteria or as modified in this section for “Compost as a Landscape Backfill Mix Component”.

http://compostingcouncil.org/admin/wp-content/plugins/wp-pdfupload/pdf/191/LandscapeArch_Specs.pdf

2. Compost shall comply with the following parameters:
   a. pH: 5.5 - 8.0.
   b. Soil salt (electrical conductivity): maximum 5 dS/m (mmhos/cm).
   c. Moisture content %, wet weight basis: 30 - 60.
   d. Particle size, dry weight basis: 98% pass through 3/4 inch screen or smear.
   e. Stability carbon dioxide evolution rate: mg CO_2-C/ g OM/ day < 2.
   f. Solvita maturity test: > 6.
   g. Physical contaminants (inerts), %, dry weight basis: <1%.
   h. Chemical contaminants, mg/kg (ppm): meet or exceed US EPA Class A standard, 40CFR § 503.13, Tables 1 and 3 levels.
   i. Biological contaminants select pathogens fecal coliform bacteria, or salmonella, meet or exceed US EPA Class A standard, 40 CFR § 503.32(a) level requirements.

B. Provide a two gallon sample with manufacturer's literature and material certification that the product meets the requirements.

2.7 MODIFIED EXISTING SOIL (SOIL SUITABLE FOR PLANTING WITH INDICATED MODIFICATION)

A. General definition: Surface soil in the areas designated on the soils plan as Modified Existing Soil has been altered and or graded before or during the construction process but is still considered acceptable for planting and long term health of the plants specified with the proposed modifications. Modifications respond to the soil problems expected or encountered. The Owner's Representative shall verify that the soil in the designated areas is suitable for modification at the beginning of planting bed preparation work in that area.

1. The Owner's Representative shall verify that the soil in the designated areas is suitable for the specified modification at the beginning of planting bed preparation work in that area. In the event that the work of this project construction has damaged the existing soil in areas designated for modification to the point where the soil is no longer suitable to support the plants specified with the specified modification, the Owner's Representative may require further modification of the damaged soil up to an including removal and replacement with soil of equal quality to the soil that would have resulted from the modification. Damage may include further compaction, contamination, grading, creation of hard pan or drainage problem, and loss of the O, and or A horizon.
2. General requirements for all soil modifications:
   a. Take soil samples, test for chemical properties, and make appropriate adjustments.
   b. Unless otherwise instructed, remove all existing plants, root thatch, and non-soil debris from the surface of the soil using equipment that does not add to the compaction in the soil.
   c. All soil grading, tilling and loosening must be completed at times when the soil moisture is below field capacity. Allow soil to drain for at least two days after any rain event more than 1 inch in 24 hours, or long enough so that the soil does not make the hand muddy when squeezed.
   d. Provide pre-emergent weed control after the soil work is complete and plants planted but prior to adding mulch to the surface, if indicated by weed type and degree of threat.

B. Modified existing soil - compacted surface soil (Radial Trenching Option)

1. Description of condition to be modified: Surface soil compaction to a maximum of 24 inches deep from traffic or light grading. Original A horizon may be previously removed or graded but lower profile below 24 inches intact with acceptable compaction levels and limited grading. The soil organic matter, pH and chemistry in the A horizon may not be suitable for the proposed plants and may need to be modified as required.
2. Modifications:
   e. Using a trenching machine, dig trenches to the extent and depth shown on the plans and details.
   f. Backfill the trench with the soil removed from the trench. Add additional site soil if needed to fill the trench to be flush to the existing grade after the soil settlement.

C. Modified existing soil - compacted subsoil

1. Description of condition to be modified: Deep soil compaction the result of previous grading, filling and dynamic or static compaction forces. Original A horizon likely removed or buried. The soil organic matter, pH and chemistry in the A horizon is likely not suitable for the proposed plants and should be modified as required.
2. Trenching:
   a. Step one: After grading and removing all plants and debris from the surface using a chain trenching machine, dig 24 inch deep trenches, 24 inches apart across the entire area. Maintain an 18-inch standoff from the edges of all curbs, paving and structures. Backfill the trenches with Compost.
   b. Step 2: Spread 1-2 inches of Compost over the trenches area and till into the top 6 inches of the soil surface. Compost tilling treatment shall extend to the edges of curbs, paving and structures.
3. Following soil ripping or fracturing the average penetration resistance should be less than 250 psi to the depth of the ripping or fracturing.
4. Do not start planting into ripped or fractured soil until soil has been settled or leave grades sufficiently high to anticipate settlement of 10 - 15% of ripped soil depth.

2.8 PLANTING SOIL MIXES

A. General definition: Mixes of Existing Soil or Imported Topsoil, Coarse Sand, and or Compost to make a new soil that meets the project goals for the indicated planting area. These may be mixed off site or onsite, and will vary in Mix components and proportions as indicated.

B. Planting Mix - moderately slow draining soil for trees and shrub beds

1. A Mix of Imported Topsoil, Coarse Sand and Compost. The approximate Mix ratio shall be:

Mix component	% by moist volume
Imported Topsoil unscreened	45-50%
Coarse sand	40-45%
Compost	10%

2. Final tested organic matter between 2.75 and 4% (by dry weight).
3. Mix the Coarse Sand and Compost together first and then add to the Topsoil. Mix with a loader bucket to loosely incorporate the Topsoil into the Coarse Sand/Compost Mix. DO NOT OVER MIX! Do not mix with a soil blending machine. Do not screen the soil. Clumps of Soil, Compost and Coarse Sand will be permitted in the overall Mix.
4. At the time of final grading, add fertilizer if required to the Planting Soil at rates recommended by the testing results for the plants to be grown.
5. Provide a two gallon sample with testing data that includes recommendations for chemical additives for the types of plants to be grown. Samples and testing data shall be submitted at the same time.

PART 3 EXECUTION

3.1 SITE EXAMINATION

A. Prior to installation of Planting Soil, examine site to confirm that existing conditions are satisfactory for the work of this section to proceed.

1. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope toward the under drain lines as shown on the drawings.
2. Confirm that surface all areas to be filled with Planting Soil are free of construction debris, refuse, compressible or biodegradable materials, stones greater than 2 inches diameter, soil crusting films of silt or clay that reduces or stops drainage from the Planting Soil into the subsoil; and/or standing water. Remove unsuitable material from the site.
3. Confirm that no adverse drainage conditions are present.
4. Confirm that no conditions are present which are detrimental to plant growth.
5. Confirm that utility work has been completed per the drawings.
6. Confirm that irrigation work, which is shown to be installed below prepared soil levels, has been completed.

B. If unsatisfactory conditions are encountered, notify the Owner's Representative immediately to determine corrective action before proceeding.

3.2 COORDINATION WITH PROJECT WORK

A. The Contractor shall coordinate with all other work that may impact the completion of the work.

B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.

C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner's Representative of any conflicts encountered.

3.3 GRADE AND ELEVATION CONTROL

A. Provide grade and elevation control during installation of Planting Soil. Utilize grade stakes, surveying equipment, and other means and methods to assure that grades and contours conform to the grades indicated on the plans.

3.4 SITE PREPARATION

A. Excavate to the proposed subgrade. Maintain all required angles of repose of the adjacent materials as shown on the drawings or as required by this specification. Do not over excavate compacted subgrades of adjacent pavement or structures. Maintain a supporting 1:1 side slope of compacted subgrade material along the edges of all paving and structures where the bottom of the paving or structure is above the bottom elevation of the excavated planting area.

B. Remove all construction debris and material including any construction materials from the subgrade.

C. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope approximately parallel to the finished grade and/or toward the subsurface drain lines as shown on the drawings.

D. In areas where Planting Soil is to be spread, confirm subgrade has been scarified.

E. Protect adjacent walls, walks and utilities from damage or staining by the soil. Use 1/2 inch plywood and or plastic sheeting as directed to cover existing concrete, metal and masonry work and other items as directed during the progress of the work.

1. At the end of each working day, clean up any soil or dirt spilled on any paved surface.
2. Any damage to the paving or site features or work shall be repaired at the Contractor's expense.

3.5 SOIL MOISTURE

A. Volumetric soil moisture level, in both the Planting Soil and the root balls of all plants, prior to, during and after planting shall be above permanent wilt point and below field capacity for each type of soil texture within the following ranges.

Soil texture	**Permanent wilting point**	**Field capacity**
Sand, Loamy sand, Sandy loam	5 - 8%	12 - 18%
Loam, Sandy clay, Sandy clay loam	14 - 25%	27 - 36%
Clay loam, Silt loam	11 - 22%	31 - 36%
Silty clay, Silty clay loam	22 - 27%	38 - 41%

B. The Contractor shall confirm the soil moisture levels with a moisture meter (Digital Soil Moisture Meter, DSMM500 by General Specialty Tools and Instruments, or approved equivalent). If moisture is found to be too low, the planting holes shall be filled with water and allowed to drain before starting any planting operations. If the moisture is too high, suspend planting operations until the soil moisture drains to below field capacity.

3.6 EXISTING SOIL MODIFICATION

A. Follow the requirements for modifying existing soil as indicated in Part 2 for the different types of soil modifications. The extent of the areas of different soil modification types are indicated on the Soils Plan or as directed by the Owner's Representative.

3.8 PLANTING SOIL AND PLANTING SOIL MIX INSTALLATION

A. Prior to installing any Planting Soil from stockpiles or Planting Soil Mixes blended off site, the Owner's Representative shall approve the condition of the subgrade and the previously installed subgrade preparation and the installation of subsurface drainage.

B. All equipment utilized to install or grade Planting Soils shall be wide track or balloon tire machines rated with a ground pressure of 4 psi or less. All grading and soil delivery equipment shall have buckets equipped with 6 inch long teeth to scarify any soil that becomes compacted.

C. In areas of soil installation above existing subsoil, scarify the subgrade material prior to installing Planting Soil.

1. Scarify the subsoil of the subgrade to a depth of 3 - 6 inches with the teeth of the back hoe or loader bucket, tiller or other suitable device.
2. Immediately install the Planting Soil. Protect the loosened area from traffic. DO NOT allow the loosened subgrade to become compacted.
3. In the event that the loosened area becomes overly compacted, loosen the area again prior to installing the Planting Soil.

D. Install the Planting Soil in 12 - 18 inch lifts to the required depths. Apply compacting forces to each lift as required to attain the required compaction. Scarify the top of each lift prior to adding more Planting Soil by dragging the teeth of a loader bucket or backhoe across the soil surface to roughen the surface.

E. Phase work such that equipment to deliver or grade soil does not have to operate over previously installed Planting Soil. Work in rows of lifts the width of the extension of the bucket on the loader. Install all lifts in one row before proceeding to the next. Work out from the furthest part of each bed from the soil delivery point to the edge of the each bed area.

F. Where possible place large trees first and fill Planting Soil around the root ball.

G. Installing soil with soil or mulch blowers or soil slingers shall not be permitted due to the over mixing and soil ped breakdown cause by this type of equipment.

H. Where travel over installed soil is unavoidable, limit paths of traffic to reduce the impact of compaction in Planting Soil. Each time equipment passes over the installed soil it shall reverse out of the area along the same path with the teeth of the bucket dropped to scarify the soil. Comply with the paragraph “Compaction Reduction” (section 3.9) in the event that soil becomes over compacted.

I. The depths and grades shown on the drawings are the final grades after settlement and shrinkage of the compost material. The Contractor shall install the Planting Soil at a higher level to anticipate this reduction of Planting Soil volume. A minimum settlement of approximately 10 - 15% of the soil depth is expected. All grade increases are assumed to be as measured prior to addition of surface Compost till layer, mulch, or sod.

3.9 COMPACTION REQUIREMENTS FOR INSTALLED OR MODIFIED PLANTING SOIL

A. Compact installed Planting Soil to the compaction rates indicated and using the methods approved for the soil mockup. Compact each soil lift as the soil is installed.

B. Existing soil that is modified by tilling, ripping or fracturing shall have a density to the depth of the modification, after completion of the loosening, such that the penetrometer reads approximately 75 to 250 psi at soil moisture approximately the mid-point between wilting point and field capacity. This will be approximately between 75 and 82% of maximum dry density standard proctor.

C. Installed Planting Soil Mix and re-spread existing soil shall have a soil density through the required depth of the installed layers of soil, such that the penetrometer reads approximately 75 to 250 psi at soil moisture approximately the mid-point between wilt point and field capacity. This will be approximately between 75 and 82% of maximum dry density standard proctor.

D. Planting Soil compaction shall be tested at each lift using a penetrometer calibrated to the mockup soil and its moisture level. The same penetrometer and moisture meter used for the testing of the mockup shall be used to test installed soil throughout the work.

E. Maintain moisture conditions within the Planting Soil during installation or modification to allow for satisfactory compaction. Suspend operations if the Planting Soil becomes wet. Apply water if the soil is overly dry.

F. Provide adequate equipment to achieve consistent and uniform compaction of the Planting Soils. Use the smallest equipment that can reasonably perform the task of spreading and compaction. Use the same equipment and methods of compaction used to construct the Planting Soil mockup.

G. Do not pass motorized equipment over previously installed and compacted soil except as authorized below.

1. Light weight equipment such as trenching machines or motorized wheel barrows is permitted to pass over finished soil work.
2. If work after the installation and compaction of soil compacts the soil to levels greater than the above requirements, follow the requirements of the paragraph "Over Compaction Reduction" below.

3.10 OVER COMPACTION REDUCTION

A. Any soil that becomes compacted to a density greater than the specified density and/or the density in the approved mockup shall be dug up and reinstalled. This requirement includes compaction caused by other sub-contractors after the Planting Soil is installed and approved.

B. Surface roto tilling shall not be considered adequate to reduce over compaction at levels 6 inches or greater below finished grade.

3.11 INSTALLATION OF CHEMICAL ADDITIVES

A. Following the installation of each soil and prior to fine grading and installation of the Compost till layer, apply chemical additives as recommended by the soil test, and appropriate to the soil and specific plants to be installed.

B. Types, application rates and methods of application shall be approved by the Owner's Representative prior to any applications.

3.12 FINE GRADING

A. The Owner's Representative shall approve all rough grading prior to the installation of Compost, fine grading, planting, and mulching.

B. Grade the finish surface of all planted areas to meet the grades shown on the drawings, allowing the finished grades to remain higher (10 - 15% of depth of soil modification) than the grades on the grading plan, as defined in paragraph Planting Soil Installation, to anticipate settlement over the first year.

C. Utilize hand equipment, small garden tractors with rakes, or small garden tractors with buckets with teeth for fine grading to keep surface rough without further compaction. Do not use the flat bottom of a loader bucket to fine grade, as it will cause the finished grade to become overly smooth and or slightly compressed.

D. Provide for positive drainage from all areas toward the existing inlets, drainage structures and or the edges of planting beds. Adjust grades as directed to reflect actual constructed field conditions of paving, wall and inlet elevations. Notify the Owner's Representative in the event that conditions make it impossible to achieve positive drainage.

E. Provide smooth, rounded transitions between slopes of different gradients and direction. Modify the grade so that the finish grade before adding mulch and after settlement is one or two inches below all paving surfaces or as directed by the drawings.

F. Fill all dips and remove any bumps in the overall plane of the slope. The tolerance for dips and bumps in shrub and ground cover planting areas shall be a 2 inch deviation from the plane in 10 feet. The tolerance for dips and bumps in lawn areas shall be a 1 inch deviation from the plane in 10 feet.

3.13 INSTALLATION OF COMPOST TILL LAYER

A. After Planting Soil Mixes are installed in planting bed areas and just prior to the installation of shrub or groundcover plantings, spread 3 - 4 inches of Compost over the beds and roto till into the top 4 - 6 inches of the Planting Soil. This step will raise grades slightly above the grades required in paragraph “Fine Grading”. This specification anticipates that the raise in grade due to this tilling will settle within a few months after installation as Compost breaks down. Additional settlement as defined in paragraph “Planting Soil and Planting Soil Mix installation” must still be accounted for in the setting of final grades.

3.14 CLEAN-UP

A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.

1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site. The Owner's Representative seals are to remain on the trees and removed at the end of the warranty period.

1. Make all repairs to grades, ruts, and damage to the work or other work at the site.
2. Remove and dispose of all excess Planting Soil, subsoil, mulch, plants, packaging, and other material brought to the site by the Contractor.

3.15 PLANTING SOIL AND MODIFIED EXISTING SOIL PROTECTION

A. The Contractor shall protect installed and/or modified Planting Soil from damage including contamination and over compaction due to other soil installation, planting operations, and operations by other Contractors or trespassers. Maintain protection during installation until acceptance. Utilize fencing and matting as required or directed to protect the finished soil work. Treat, repair or replace damaged Planting Soil immediately.

B. Loosen compacted Planting Soil and replace Planting Soil that has become contaminated as determined by the Owner's Representative. Planting Soil shall be loosened or replaced at no expense to the Owner.
   a. Till and restore grades to all soil that has been driven over or compacted during the installation of plants.
   b. Where modified existing soil has become contaminated and needs to be replaced, provide imported soil that is of similar composition, depth and density as the soil that was removed.

3.16 PROTECTION DURING CONSTRUCTION

A. The Contractor shall protect planting and related work and other site work from damage due to planting operations, operations by other Contractors or trespassers.

1. Maintain protection during installation until the date of plant acceptance (see specifications section - Planting). Treat, repair or replace damaged work immediately.
2. Provide temporary erosion control as needed to stop soil erosion until the site is stabilized with mulch, plantings or turf.

B. Damage done by the Contractor, or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain, including large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Owner. The Owner's Representative shall determine when such cleaning, replacement or repair is satisfactory. Damage to existing trees shall be assessed by a certified arborist.

3.17 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.

B. The date of substantial completion of the planting soil shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

3.18 FINAL ACCEPTANCE / SOIL SETTLEMENT

A. At the end of the plant warrantee and maintenance period, (see Specification section - Planting) the Owner's Representative shall observe the soil installation work and establish that all provisions of the contract are complete and the work is satisfactory.

1. Restore any soil settlement and or erosion areas to the grades shown on the drawings. When restoring soil grades remove plants and mulch and add soil before restoring the planting. Do not add soil over the root balls of plants or on top of mulch.

B. Failure to pass acceptance: If the work fails to pass final acceptance, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owner's Representative.

END OF SECTION 32 91 00

NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No 5803
Signature
4-30-22
Renewal Date
Date
STATE OF CALIFORNIA

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@iwoodarchitecture.com

CHK BY: TC
DRW BY: TC

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
SPECIFICATIONS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN

3.2 TRENCHING, DIRECTIONAL BORING AND SLEEVING

A. Perform all trenching, directional boring, sleeving and excavations as required for the installation of the work included under this section, including shoring of earth banks to prevent cave_ins.

B. The Contractor may directional bore lines where it is practical or where required on the plans.

1. Extend the bore 1' past the edge of pavement unless noted differently on the plans
2. Cap ends of each bore and locate ends at finished grade using metal stakes.
3. All boring and sleeving shall have detectable locator tape placed at the ends of the pipe.

C. Make trenches for mains, laterals and control wiring straight and true to grade and free of protruding stones, roots or other material that would prevent proper bedding of pipe or wire.

D. Excavate trenches wide enough to allow a minimum of 4 - inch between parallel pipelines and 8 inch from lines of other trades. Maintain 3 - inch vertical clearance between irrigation lines. Minimum transverse angle is 45 degrees. All pipes shall be able to be serviced or replaced without disturbing the other pipes.

E. Trenches for pipelines shall be made of sufficient depth to provide the minimum cover from finished grade as follows:

1. Pressure main line: 18 inches below finish grade and 24 - 30 inches below paved areas in Schedule 40 PVC sleeves.
2. Reclaimed water constant pressure main lines shall cross at least twelve (12) inches below potable water lines.
   a. If a constant pressure reclaimed water main line must be installed above a potable water line or less than twelve (12) inches below a potable water line, then reclaimed water line shall be installed within an approved protective sleeve. The sleeve shall extend ten (10) feet from each side of the center of the potable line, for a total of twenty (20) feet. The sleeve shall be color-coded (purple) for use with reclaimed water.
3. Lateral lines: 12 inches below finish grade and 18 inches below paved areas in Schedule 40 PVC sleeves.
4. Control wiring: to the side of pressure main line and 24 inches below paved areas in Schedule 40 PVC sleeves.

F. On new on-site systems (post-meter), the required horizontal separation between potable water lines, reclaimed water constant pressure main lines and sewer lines shall be a minimum of four (4) feet apart as directed by the project engineer and/ or regulatory agency. Measurements shall be between facing surfaces, not pipe centerlines.

G. When trenching through areas of imported or modified soil, deposit imported or modified soils on one side of trench and subsoil on opposite side.

H. Backfill the trench per the requirements in paragraphs “Backfilling and Compacting” below.

3.3 PIPE INSTALLATION

A. General Pipe Installation

1. Exercise caution in handling, loading and storing, of plastic pipe and fittings to avoid damage.
   a. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.
   b. All pipe that has been dented or damaged shall be discarded unless such dent or damaged section is cut out and pipe rejoined with a coupling.
2. Trench depth shall be as specified above from the finish grade to the top of the pipe.
3. Install a detectable pipe locator tape 6 to 8 inches above all main line pipes.

B. Polyvinyl Chloride Pipe (PVC) Installation

1. Under no circumstance is pipe to rest on concrete, rock, wood blocks, construction debris or similar items.
2. No water shall be permitted in the pipe until a period of at least 24 hours has elapsed for solvent weld setting and curing.
3. Install assemblies and pipe to conform to respective details and where shown diagrammatically on drawings, using first class workmanship and best standard practices as approved. All fittings that are necessary for proper connections such as swing joints, offsets, and reducing bushings that are not shown on details shall be installed as necessary and directed as part of the work.
4. Dielectric bushings shall be used in any connections of dissimilar metals.
5. Gasketed plastic pipe: pipe-to-pipe joints or pipe to fittings shall be made in accordance with manufacturer's specifications.
6. Solvent weld or threaded plastic pipe:
   a. Installation of all pipe and fittings shall be in strict accordance with manufacturer's specifications.
   b. Pipe shall be cut using approved PVC pipe cutters only. Sawed joints are disallowed. All field cuts shall be beveled to remove burrs and excess before gluing.
   c. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. Excess solvent on the exterior of the joint shall be wiped clean immediately after assembly.
   d. Plastic to metal connections shall be made with plastic adapters and if necessary, short (not close) brass threaded_nipples. Connection shall be made with two (2) wraps of Teflon tape and hand tightened plus one turn with a strap wrench.
   e. Snake pipe horizontally in trench to allow one (1) foot of expansion and contraction per 100 feet of straight run.
   f. Threaded pipe joints shall be made using Teflon tape. Solvent shall not be used with threaded joints. Pipe shall be protected from tool damage during assembly. All damaged pipe shall be removed and replaced. Take up threaded joints with light wrench pressure.
   g. No close nipples or risers are allowed. Cross connections in piping is disallowed.
   h. Center load pipe at 10 feet on center intervals with small amount of backfill to prevent arching and slipping under pressure. Other than this preliminary backfill all pipe joints, fittings and connections are to remain uncovered until successful completion of hydrostatic testing and written approval of the testing report.
   i. Concrete thrust blocks shall be constructed behind all pipe fittings 1-1/2 inch diameter and larger at all changes of direction of 45 degrees or more.

C. Galvanized Pipe Installation

1. All joints shall be threaded with pipe joint compound used on all threads.
2. Dielectric bushings shall be used in any connections of dissimilar metals.

3.4 TRENCHING, DIRECTIONAL BORING, AND SLEEVING REVIEW:

A. Upon completion and installation of all trenching, directional boring, and sleeving, all installed irrigation control wiring, lines and fittings shall be visually observed by the Owner's Representative unless otherwise authorized. Do not cover any wires, lines or fittings until they have been tested and observed by the Owner's Representative.

3.5 FLUSHING

A. Openings in piping system during installation are to be capped or plugged to prevent dirt and debris from entering pipe and equipment. Remove plugs when necessary to flush or complete system.

B. After completion and prior to the installation of any terminal fittings, the entire pipeline system shall be thoroughly flushed to remove dirt, debris or other material.

3.6 HYDROSTATIC PRESSURE TESTING

A. After flushing, and the installation of valves the following tests shall be conducted in the sequence listed below. The Contractor shall furnish all equipment; materials and labor necessary to perform the tests and all tests shall be conducted in the presence of the Owner's Representative.

B. Water pressure tests shall be performed on all pressure main lines before any couplings, fittings, valves and the like are concealed.

C. Immediately prior to testing, all irrigation lines shall be purged of all entrapped air or debris by adjusting control valves and installing temporary caps forcing water and debris to be discharged from a single outlet.

D. Test all pressure main line at 150 PSI. For a minimum of four (4) hours with an allowable loss of 5 PSI. Pressure and gauges shall be read in PSI, and calibrated such that accurate determination of potential pressure loss can be ascertained.

E. Re-test as required until the system meets the requirements. Any leaks, which occur during test period, will be repaired immediately following the test. All pipe shall be re-tested until final written acceptance.

F. The Contractor is responsible for proving documentation stating the weather conditions, date, the start time and initial water pressure readings, the finish time and final water pressure readings and the type of equipment used to perform the test. The documentation must be signed by a witness acceptable to the Owner, verifying all of the above-mentioned conditions.

G. Submit a written report of the pressure testing results with the other above required information to the Owner's Representative for approval.

3.7 BACKFLOW PREVENTER TESTING

A. The backflow preventer shall be tested according to procedures and results per the requirements of the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California or American Water Works Association whichever is more stringent.

B. Testing shall be performed by a Backflow Prevention Assembly Tester with a current certification from the American Backflow Preventer Association.

3.8 CONTROLLER CERTIFICATION

A. Controller shall be certified by xxxxx of (name the company). Contact xxxxxxxx at xxx.xxx.xxxx.

1. Certification shall include the following;
   a. Programming by plant type, emitter type or both.
      1.) Program starts shall be enabled before the moisture level in the soil reaches maximum allowed depletion (MAD).
      2.) Program stops are enabled before the moisture within the soil reaches field capacity.
   b. All flows for remote control irrigation valves have been learned.
   c. All lightning arrestors and grounding rods have been tested and meet the controller manufacturer's specification for conventional or 2-wire systems.
   d. K factor and offset are correct based upon the flow sensor model type and size.
   e. Flow management has been enabled so in the event of a mainline or lateral line break the system will shut off and notify the Owner, Owner's Representative and Contractor of the issue.
   f. Certifier shall simulate a high flow of an irrigation valve and an unexpected flow and verify the system shuts down.
      1.) A high flow flow of an irrigation valve shall be created by removing one nozzle, bubbler or drip connection.
      2.) An unexpected flow shall be created by manually turning on a remote control irrigation valve.

3.9 BACKFILLING AND COMPACTING

A. Irrigation trenches shall be carefully backfilled with material approved for backfilling and free of rocks and debris one (1) inch in diameter and larger. When back filling trenches in areas of imported or modified planting soil, replace any excavated subsoil at the bottom and the imported soil or modified planting soil at the top of the trench.

B. Backfill shall be compacted with approved equipment to the following densities

5. Backfill under pavement and within 2 feet of the edge of pavement: Compact to 95% or greater of maximum dry density standard proctor.
6. Backfill of subsoil under imported planting mixes or modified existing planting soil: Between 85 and 90% of maximum dry density standard proctor.
7. Backfill of imported planting mixes or modified existing planting soil: Compact to the requirements of the adjacent planting mix or planting soil as specified in section “Planting Soil”.

C. Finish grade of all trenches shall conform to adjacent grades without dips or other irregularities. Dispose of excess soil or debris off site at Contractor's expense.

D. Any settling of backfill material during the maintenance or warranty period shall be repaired at the Contractor's expense, including any replacement or repair of soil, lawn, and plant material or paving surface.

3.10 RESURFACING PAVING OVER TRENCHES

A. Restore all surfaces and repair existing underground installations damaged or cut as a result of the excavation to their original condition, satisfactory to the Owner's Representative.

B. Trenches through paved areas shall be resurfaced with same materials quality and thickness as existing material. Paving restoration shall be performed by the project paving Sub-contractor or an approved Contractor skilled in paving work.

C. The cost of all paving restoration work shall be the responsibility of the irrigation Contractor unless the trenching thru the paving was, by previous agreement, part of the general project related construction.

3.11 INSTALLATION OF EQUIPMENT

A. General:

1. All equipment shall be installed to meet all installation requirements of the product manufacturer. In the event that the manufactures requirements cannot be implemented due to particular condition at the site or with other parts of the design, obtain the Owner's Representative's written authorization and approval for any modifications.
2. Install all equipment at the approximately at the location(s) and as designated and detailed on the drawings. Verify all locations with the Owner's Representative.
3. Install all valves within a valve box of sufficient size to accommodate the installation and servicing of the equipment. Group valves together where practical and locate in shrub planting areas.
4. All sprinkler irrigation systems that are using water from potable water systems shall require backflow prevention. All backflow prevention devices shall meet and be installed in accordance with requirements set forth by local codes and the health department.

B. Water Hammer Arrestor:

1. Arrestor shall be located halfway between the master valve/hydrometer and the backflow prevention device in a planting area. The minimum distance between arrestor can be located between both pieces of equipment is two feet (2') on either side.
2. All threaded connections shall be made with Monster Tape.
3. All connections to and from the arrestor and pipe shall be Sch. 80.
4. Lines shall be flushed thoroughly prior to the installation of the arrestor.
5. Arrestor may be installed either parallel or perpendicular to the mainline pipe.

C. Hydrometer:

1. Hydrometer shall be installed after the backflow prevention device and water hammer arrestor.
2. Hydrometer shall have a minimum of two feet (2') straight mainline before and after before any change in direction.
3. Prior to installation the mainline shall be thoroughly flushed.
4. Mainline connections shall be the same size as the hydrometer.
5. All threaded connections shall be made using Monster Tape.
6. Hydrometer decoders shall be installed in the valve box with the serial number facing up 3-4" below the top of the valve box.
7. Hydrometer decoders shall be secured to the valve box using two (2) stainless self tapping screws.
8. Decoder wires and register wires shall be connected using the approved wire nuts.
9. Contractor shall position the three-way selector into the 'Auto' position.
10. Prior to installing the approved grease packs, Contractor shall search and assign the master valve and flow sensor decoder at the irrigation controller flow set up and within each applicable program.
11. Contractor shall than test each decoder at the irrigation controller.
12. Contractor shall install the approved grease packs after each decoder has past the communication test.

D. Remote control valves:

4. Install one remote control valve per valve box.
5. A Sch. 80 tru-union ball valves shall be installed upstream of the remote control irrigation valve.
6. A Sch. 80 union shall be installed downstream of the remote control irrigation valve.
7. Solenoid wires shall be connected to the valve wire and common wire using the controller manufacturer approved connectors.
   a. For 2-wire systems solenoid wires shall be connected to the 2-wire path and controller decoder.
5. Prior to the installation of the controller approved grease packs, irrigation connections shall be tested at the controller for each valve.
6. Remote control valve manifolds and quick coupler valves shall be separate allowing use of a quick coupler with all remote control valves shut off.
7. Install boxes no farther than 12 inches from edge of paving and perpendicular to edge of paving and parallel to each other. Allow 12 inches clearance between adjacent valve boxes.

E. Pressure regulator & basket filter:

1. Install one (1) pressure regulator/filter per valve box.
2. A Sch. 80 male adapter and sch. 80 unions shall be installed upstream and downstream of the pressure regulator & basket filter as indicating in the drawings.
3. The pressure regulator shall be install a minimum of one foot (1') and a maximum of three feet (3') away from the remote control irrigation valve.
4. The Contractor shall remove the top of the pressure regulator & basket filter after all remote control irrigation valves, mainline and equipment have been installed and glue joints cured and flush any debris from the basket filter & pressure regulator.

F. Quick coupler valve:

1. Install each quick coupler valve in its own valve box.
2. Install thrust blocks on quick couplers.
3. Place no closer than 12 inches to adjacent paving.
4. Install 18 inches off set from main line.
5. All threaded connections for quick couplers shall be Sch. 80 PVC.
6. All threaded connection to quick couplers shall be made using Monster Tape.

G. Bubblers:

1. All main lines and lateral lines, including swing joints, shall be flushed and pressure tested before installing bubbler heads.
2. Install bubblers as shown in details at locations shown on the drawings.
3. All bubblers shall be set perpendicular to finish grade unless otherwise designated on the drawings or details.
4. All bubblers installed on slopes shall have a check valve installed between the riser and emitter.
5. Soil around the bubbler and swing joint shall be water settled to remove air pockets so that irrigation water runs through the plant root ball.

H. Decoders:

1. Valve decoders shall be installed as shown in the details as shown on the drawings.
2. Valve decoders shall be secured to the valve box with the decoder model number facing up using two (2) stainless steel self tapping screws.
3. Valve decoder tags shall secured in the controller box and shall indicate valve number in the irrigation sequence, irrigation emitter type and physical location within the project as shown on the plans.
4. Electrical connections from the irrigation valve and decoder shall be made using controller manufacturer approved connectors.
5. Prior to grease packing the irrigation wire connections, the irrigation system shall be tested at the controller.

I. Moisture Sensors:

1. Moisture sensors shall be installed as shown in the details at locations shown on the drawings.
2. The Landscape Architect shall approve moisture sensor locations in the field prior to installation.
3. Moisture sensors shall be tested for operation at the controller prior to backfilling.
   a. Contractor shall attach the sensor to the remote control irrigation valve and wire to the solenoid and decoder and secure the wires with the controller manufacturer approved wire nuts.
   b. After connecting the moisture sensors the Contractor shall fill the soil around the moisture sensor to a depth of 6” below finished grade.
   c. Contractor shall then test the moisture sensor through the irrigation controller to determine current moisture level conditions.
   d. The Contractor shall then pour a five (5) gallon bucket of water at the moisture sensor location, then test the moisture sensor through the controller. If the moisture level increases by more then 200% the Contractor shall continue backfilling the soil to the top of finish grade. If the sensor does not increase by more than 200% the Contractor shall repeat the process.
4. One moisture sensor shall be installed for each emitter and plant type.
5. Moisture sensors for turf shall be installed 5" below finished grade at location that is an equal distance between two overhead emitters.
6. Moisture sensors for point source irrigation emitters to trees shall be installed 12" below finished grade at the berm inner edge and angled down 45°.
7. Moisture sensors for point source irrigation emitters to all other plants shall be installed 8" below finished grade at the berm inner edge and angled down 45°.
8. Install specified sprinkler heads as shown in details at locations shown on the drawings. Adjust layout for full coverage, spacing of heads shall not exceed the maximum spacing recommended by the manufacturer.
9. After moisture sensors have been tested and backfilled the irrigation system shall run until moisture levels in the soil reach field capacity to establish the moisture sensor baseline.

J. Lightning Arrestors:

1. Lightning arrestors shall be installed every six hundred feet (600') along the irrigation mainline or mainline spurs longer than one hundred feet (100').
2. The primary location for lighting arrestors shall be in the same valve box as remote control irrigation valves.
3. Lightning arrestors not installed in the same location as a remote control irrigation valve shall be installed along the mainline in a ten inch (10") green round locking valve box.

K. Grounding Plates:

1. Grounding devices shall be installed as shown in the details at locations shown on the drawings.
2. Grounding devices shall be located eight feet (8') to ten feet (10') away from the lightning arrestor.
3. Grounding devices cannot be located in the same trench as the irrigation mainline.
4. For bidding purposes, at every lightning arrester shall have two grounding devices installed. Grounding rods shall be secured to one another using #6 bare copper wire and grounding rod clamps.
5. After the grounding rods have been installed the soil around the grounding rods tamped with the end of a spade shovel followed by pouring a five gallon bucket of water around the grounding rod to increase settling

L. Irrigation controllers:

1. Remote control valves shall be connected to controller in numerical sequence as shown on the drawings.
2. Controller shall be tested with complete electrical connections. The Contractor shall be responsible for temporary power to the controller for operation and testing purposes.
3. Connections to control wiring shall be made within the pedestal of the controller. All wire shall follow the pressure main insofar as possible.
4. Electrical wiring shall be in a rigid gray PVC plastic conduit from controller to electrical outlet. The electrical Contractor shall be responsible for installing all wiring to the controller, in order to complete this installation. A disconnect switch shall be included.

M. Wiring:

1. Low Voltage
   a. Control wiring between controller and electrical valves shall be installed in the same trench as the main line where practical. The wire shall be bundled and secured to the lower quadrant of the trench at 10 foot intervals with plastic electrical tape.
      1.) 2 - wire controller wiring shall be installed in Sch 40 electrical conduit. Conduit shall be a minimum 1" inch in size.
   b. When the control wiring cannot be installed in the same main line trench it shall be installed a minimum of 18 inches below finish grade and a bright colored plastic ribbon with suitable markings shall be installed in the trench 6 inches below grade directly over the wire.
   c. An expansion loop shall be provided inside each valve box. Expansion loop shall be formed by coiling five feet (5') of wire and coiling it into a eighteen inch (18”) circle and placing it underneath the irrigation valve and securing it with black zip ties.
      1.) 2-wire controller wire shall be stripped using a Gorilla UF stripper or approved equal.
   d. Provide one control wire to service each valve in system.
   e. Provide common wire(s) per controller.
   f. Run two (2) spare #14 - 1 wires from controller along entire main line to last electric remote control valve on each and every leg of main line. Label spare wires at controller and wire stub to be located in a box.
   g. All control wire splices not occurring at control valve shall be installed in a separate splice valve box.
   h. Wire markers (sealed, 1 inch to 3 inch square) are to identify control wires at valves and at terminal strips of controller. At the terminal strip mark each wire clearly indicting valve circuit number.
2. High Voltage
   a. All electrical work shall conform to local codes, ordinances and any authorities having jurisdiction. All high voltage electrical work to be performed by licensed electrician.
   b. The Contractor shall provide 120-volt power connection to the automatic controller unless noted otherwise on drawings.

R. Valve boxes:

1. Install one valve box for each type of valve installed as per the details.
2. Gravel sump shall be installed after compaction of all trenches. Final portion of gravel shall be placed inside valve box after valve is backfilled and compacted.
3. Permanently label valve number and or controller letter on top of valve box lid using a method approved by the Owners Representative.

S. Tracer wire:

1. Tracer wire shall be installed with non_metallic plastic irrigation main lines where controller wires are not buried in the same trench as the main line.
2. The tracer wire shall be placed on the bottom of the trench under the vertical projection of the pipe with spliced joints soldered and covered with insulation type tape.
3. Tracer wire shall be of a color not used for valve wiring. Terminate wire in a valve box. Provide enough length of wire to make a loop and attach wire marker with the designation "tracer wire".

T. Drip Installation:

1. Install drip tubing and drip mat products at the depth below grade or on grade as indicated on the drawings.
2. Install drip tubing products at the spacing indicated on the drawings. Install drop tubing so that the spacing between thef first row of drip tubing in a planted areas is six inches (6”) away from any curb, roadway or edge of pavement.
3. Install drip mat products continuously under all areas of planting without any gaps or open spaces. The edge of the mat product shall be installed immediately against any boundary paving. Drip mats shall overlap by four inches (4”) when installed adjacent to one another.
4. When drip tubing must be routed around any obstacle such as utility equipment, trees or pavement, the tubing shall tied into a PVC manifold and sized as not to lose additional pressure or volume at the end of the run.
5. When installing drip tubing, install soil staples as listed below:
   a. Sandy Soil - One staple every three (3') feet and two (2) staples on each change of direction (tee, elbow, or cross).
   b. Loam Soil - One staple every four (4') feet and two (2) staples on each change of direction (tee, elbow, or cross).
   c. Clay Soil - One staple every five (5') feet and two (2) staples on each change of direction (tee, elbow, or cross).
6. Cap or plug all openings as soon as lines have been installed to prevent the intrusion of materials that would obstruct the pipe. Leave in place until removal is necessary for completion of installation.
7. Thoroughly flush all water lines before installing valves and other hydrants.
8. Install pressure regulators and filters as shown on the drawings.
9. Install air/vacuum relief valves as indicated on the drawings.
10. Install single outlet emitters onto drip tubing as indicating on the drawings.

3.12 ADJUSTMENT AND COVERAGE TEST

A. Adjustment:

1. The Contractor shall flush and adjust all sprinkler heads, valves and all other equipment to ascertain that they function according to the manufacturer's data.
2. Adjust all sprinkler heads not to overspray onto walks, roadways and buildings when under maximum operating pressure and during times of normal prevailing winds.

B. Coverage test:

1. The Contractor shall perform the coverage test in the presence of the Owner's Representative after all sprinkler heads have been installed, flushed and adjusted. Each section is tested to demonstrate uniform and adequate coverage of the planting areas serviced.
2. Any systems that require adjustments for full and even coverage shall be done by the Contractor prior to final acceptance at the direction of the Owner's Representative at no additional cost. Adjustments may also include realignment of pipes, addition of extra heads, and changes in nozzle type or size.
3. The Contractor at no additional cost shall immediately correct all unauthorized changes or improper installation practices.
4. The entire irrigation system shall be operating properly with written approval of the installation by the Owner's representative prior to beginning any planting operations.

C. Controller Programming:

1. Prior to the beginning of the maintenance period the controller shall be programmed by the Contractor and approved by the Owner's Representative.
2. Assign correct date and time to the controller.
3. Connect hydrometer or flow sensor and master valve wires in the controller to the assigned ports.
   a. If the irrigation system is 2-wire, assign the respective decoders for the hydrometer or flow sensor/master valve to the water source.
4. Connect remote control irrigation valve wires to the assigned valve ports in the controller.
   a. If the irrigation system is 2-wire, assign the respective decoders for each valve to the zone number you want the valve to operate under.
5. Group similar valves to the same program.
   a. For instance all of the tree valves are assigned to one program, all of the shrubs are assigned to a second program, and all of the turf valves are assigned to a 3rd program.
   b. Label each valve and give a brief description and location.
   c. Label each program and give a brief description of what it operates.
6. Learn the flow for each valve in the controller.
   a. Contractor shall verify the K factor for each flow meter/hydrometer based upon the make and model of the flow equipment and controller along with the flow meter/hydrometer size.
7. Establish system parameters for how the controller is to operate when detecting an error, such parameters shall include but are not limited to;
   a. High flow alerts.
   b. Low flow alerts.
   c. Unexpected flows.
   d. Flow variance.
8. If applicable, Contractor shall connect the controller to the cloud for online access through a computer, smart phone, or tablet.
   a. An online account shall be created for the Owner, Owner's Representative and installing Contractor.
   b. All accounts shall have email notifications set up which alerts the users of errors and program starts.
9. Contractor and Owner's Representative shall observe the site one day after controller operation through programing to verify system operation and no water runoff has occurred or breaks were present.

3.13 REPAIR OF PLANTING SOIL

A. Any areas of planting soil including imported or existing soils or modified planting soil which become compacted or disturbed or degraded as a result of the installation of the irrigation system shall be restored to the specified quality and compaction prior to beginning planting operations at no additional expense to the Owner. Restoration methods and depth of compaction remediation shall be approved by the Owner's Representative.

3.14 CLEAN-UP

A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.
   a. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once installation is complete, wash all soil from pavements and other structures.

1. Make all repairs to grades ruts, and damage to the work or other work at the site.
2. Remove and dispose of all excess soil, packaging, and other material brought to the site by the Contractor.

3.15 PROTECTION

A. The Contractor shall protect installed irrigation work from damage due to operations by other Contractors or trespassers.

1. Maintain protection during installation until Acceptance. Treat, repair or replace damaged work immediately. The Owner's Representative shall determine when such treatment, replacement or repair is satisfactory.

3.16 PRE - MAINTENANCE OBSERVATION:

A. Once the entire system shall be completely installed and operational and all planting is installed, the Owner's Representative shall observe the system and prepare a written punch list indicating all items to be corrected and the beginning date of the maintenance period.

B. This is not final acceptance and does not relieve the Contractor from any of the responsibilities in the contract documents.

3.17 GENERAL MAINTENANCE AND THE MAINTENANCE PERIOD

A. General maintenance shall begin immediately after installation of irrigation system. The general maintenance and the maintenance period shall include the following:

1. On a weekly basis the Contractor shall keep the irrigation system in good running order and make observations on the entire system for proper operation and coverage. Repair and cleaning shall be done to keep the system in full operation.
2. Records of all timing changes to control valves from initial installation to time of final acceptance shall be kept and turned over to the Owner's Representative at the time of final acceptance.
3. During the last week of the maintenance period, provide equipment familiarization and instruction on the total operations of the system to the personnel who will assume responsibility for running the irrigation system.
4. At the end of the maintenance period, turn over all operations logs, manuals, instructions, schedules, keys and any other equipment necessary for operation of the irrigation system to the Owner's Representative who will assume responsibility for the operations and maintenance of the irrigation system.

B. The maintenance period for the irrigation system shall coincide with the maintenance period for the Planting. (See specification section “Planting”

3.18 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.

B. The date of substantial completion of the irrigation shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

3.19 FINAL ACCEPTANCE / SYSTEM MALFUNCTION CORRECTIONS

A. At the end of the Plant Warrantee and Maintenance period, (See specification section “Planting”) the Owner's Representative shall inspect the irrigation work and establish that all provisions of the irrigation system are complete and the system is working correctly.

1. Restore any soil settlement over trenches and other parts of the irrigation system.
2. Replace, repair or reset any malfunctioning parts of the irrigation system.

B. The Contractor shall show all corrections made from punch list. Any items deemed not acceptable shall be reworked and the maintenance period will be extended.

C. The Contractor shall show evidence that the Owner's Representative has received all charts, records, drawings, and extra equipment as required before final acceptance.

D. Failure to pass review: If the work fails to pass final review, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the reviewer.

END OF SECTION 32 84 00

SECTION 32 93 00

PLANTING

PART 1 GENERAL

1.1 SUMMARY

A. The scope of work includes all labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with furnishing, delivery, and installation of plant (also known as "landscaping”) complete as shown on the drawings and as specified herein.

B. The scope of work in this section includes, but is not limited to, the following:

1. Locate, purchase, deliver and install all specified plants.
2. Water all specified plants.
3. Mulch, fertilize, stake, and prune all specified plants.
4. Maintenance of all specified plants until the beginning of the warranty period.
5. Plant warranty.
6. Clean up and disposal of all excess and surplus material.
7. Maintenance of all specified plants during the warranty period.

1.2 CONTRACT DOCUMENTS

A. Shall consist of specifications and general conditions and the construction drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

1.3 RELATED DOCUMENTS AND REFERENCES

A. Related Documents:

1. Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section
2. Related Specification Sections
   a. Section - Planting Soil
   b. Section - Irrigation

B. References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the specification to the extent required by the references thereto. In the event that the requirements of the following referenced standards and specification conflict with this specification section the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail or as determined by the Owners Representative.

1. State of California, Department of Food and Agriculture, Regulations for Nursery Inspections, Rules and Grading.
2. ANSI Z60.1 American Standard for Nursery Stock, most current edition.
3. ANSI A 300 - Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current edition and parts.
4. Florida Grades and Standards for Nursery Stock, current edition (Florida Department of Agriculture, Tallahassee FL).
5. Interpretation of plant names and descriptions shall reference the following documents. Where the names or plant descriptions disagree between the several documents, the most current document shall prevail.
   a. USDA - The Germplasm Resources Information Network (GRIN) http://www.ars-grin.gov/npgs/searchgrin.html
   b. Manual of Woody Landscape Plants; Michael Dirr; Stipes Publishing, Champaign, Illinois; Most Current Edition.
   c. The New Sunset Western Garden Book, Oxmoor House, most current edition.
6. Pruning practices shall conform to recommendations “Structural Pruning: A Guide For The Green Industry” most current edition; published by Urban Tree Foundation, Visalia, California.
7. Glossary of Arboricultural Terms, International Society of Arboriculture, Champaign IL, most current edition.

1.4 VERIFICATION

A. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

B. In the case of a discrepancy in the plant quantities between the plan drawings and the plant call outs, list or plant schedule, the number of plants or square footage of the planting bed actually drawn on the plan drawings shall be deemed correct and prevail.

1.5 PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

1.7 CHANGES IN THE WORK

A. The Owner's Representative may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

B. All changes in the work, notifications and contractor's request for information (RFI) shall conform to the contract general condition requirements.

1.8 CORRECTION OF WORK

A. The Contractor, at their own cost, shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative, at the soonest as possible time that can be coordinated with other work and seasonal weather demands.

1.9 DEFINITIONS

All terms in this specification shall be as defined in the “Glossary of Arboricultural Terms” or as modified below.

A. Container plant: Plants that are grown in and/or are currently in a container including boxed trees.

B. Defective plant: Any plant that fails to meet the plant quality requirement of this specification.

C. End of Warranty Final Acceptance: The date when the Owner's Representative accepts that the plants and work in this section meet all the requirements of the warranty. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrent with each other.

D. Healthy: Plants that are growing in a condition that expresses leaf size, crown density, color; and with annual growth rates typical of the species and cultivar's horticultural description, adjusted for the planting site soil, drainage and weather conditions.

E. Kinked root: A root within the root package that bends more than 90 degrees.

F. Maintenance: Actions that preserve the health of plants after installation and as defined in this specification.

G. Maintenance period: The time period, as defined in this specification, which the Contractor is to provide maintenance.

H. Normal: the prevailing protocol of industry standard(s).

I. Owner's Representative: The person appointed by the Owner to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Owner's Representative may appoint other persons to review and approve any aspects of the work.

J. Reasonable and reasonably: When used in this specification relative to plant quality, it is intended to mean that the conditions cited will not affect the establishment or long term stability, health or growth of the plant. This specification recognizes that it is not possible to produce plants free of all defects, but that some accepted industry protocols and standards result in plants unacceptable to this project.

When reasonable or reasonably is used in relation to other issues such as weeds, diseased, insects, it shall mean at levels low enough that no treatment would be required when applying recognized Integrated Plant Management practices.

This specification recognizes that some decisions cannot be totally based on measured findings and that professional judgment is required. In cases of differing opinion, the Owner's Representative's expert shall determine when conditions are judged as reasonable.

K. Root ball: The mass of roots including any soil or substrate that is shipped with the tree within the root ball package.

L. Root ball package. The material that surrounds the root ball during shipping. The root package may include the material in which the plant was grown, or new packaging placed around the root ball for shipping.

M. Root collar (root crown, root flare, trunk flare, flare): The region at the base of the trunk where the majority of the structural roots join the plant stem, usually at or near ground level.

N. Shrub: Woody plants with mature height approximately less than 15 feet.

O. Stem: The trunk of the tree.

P. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation where the Owner's Representative accepts that all work in these sections is complete and the Warranty period has begun. This date may be different than the date of substantial completion for the other sections of the project.

Q. Stem girdling root: Any root more than ¼ inch diameter currently touching the trunk, or with the potential to touch the trunk, above the root collar approximately tangent to the trunk circumference or circling the trunk. Roots shall be considered as Stem Girdling that have, or are likely to have in the future, root to trunk bark contact.

R. Structural root: One of the largest roots emerging from the root collar.

S. Tree: Single and multi-stemmed plants with mature height approximately greater than 15 feet.

1.10 SUBMITTALS

A. See contract general conditions for policy and procedure related to submittals.

B. Submit all product submittals 8 weeks prior to installation of plantings.

C. Product data: Submit manufacturer product data and literature describing all products required by this section to the Owner's Representative for approval. Provide submittal eight weeks before the installation of plants.

D. Plant growers' certificates: Submit plant growers' certificates for all plants indicating that each meets the requirements of the specification, including the requirements of tree quality, to the Owner's Representative for approval. Provide submittal eight weeks before the installation of plants.

E. Samples: Submit samples of each product and material where required by the specification to the Owner's Representative for approval. Label samples to indicate product, characteristics, and locations in the work. Samples will be reviewed for appearance only. Compliance with all other requirements is the exclusive responsibility of the Contractor.

F. Plant sources: Submit sources of all plants as required by Article - “Selection of Plants” to the Owner's Representative for approval.

G. Close out submittals: Submit to the Owner's Representative for approval.

1. Plant maintenance data and requirements.

1.11 OBSERVATION OF THE WORK

A. The Owner's Representative may observe the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

B. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

1. SITE CONDITIONS PRIOR TO THE START OF PLANTING: review the soil and drainage conditions.
2. COMPLETION OF THE PLANT LAYOUT STAKING: Review of the plant layout.
3. PLANT QUALITY: Review of plant quality at the time of delivery and prior to installation. Review tree quality prior to unloading where possible, but in all cases prior to planting.
4. COMPLETION OF THE PLANTING: Review the completed planting.

1.12 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1.13 QUALITY ASSURANCE

A. Substantial Completion Acceptance - Acceptance of the work prior to the start of the warranty period:

1. Once the Contractor completes the installation of all items in this section, the Owner's Representative will observe all work for Substantial Completion Acceptance upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date of the observation.
2. Substantial Completion Acceptance by the Owner's Representative shall be for general conformance to specified size, character and quality and not relieve the Contractor of responsibility for full conformance to the contract documents, including correct species.
3. Any plants that are deemed defective as defined under the provisions below shall not be accepted.

B. The Owner's Representative will provide the Contractor with written acknowledgment of the date of Substantial Completion Acceptance and the beginning of the warranty period and plant maintenance period (if plant maintenance is included).

C. Contractor's Quality Assurance Responsibilities: The Contractor is solely responsible for quality control of the work.

D. Installer Qualifications: The installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for the work, including the handling and planting of large specimen trees in urban areas. The same firm shall install planting soil (where applicable) and plant material.

1. The bidders list for work under this section shall be approved by the Owner's Representative.
2. Installer Field Supervision: When any planting work is in progress, installer shall maintain, on site, a full-time supervisor who can communicate in English with the Owner's Representative.
3. Installer's field supervisor shall have a minimum of five years experience as a field supervisor installing plants and trees of the quality and scale of the proposed project, and can communicate in English with the Owner's Representative.
4. The installer's crew shall have a minimum of 3 years experienced in the installation of Planting Soil, Plantings, and Irrigation (where applicable) and interpretation of soil plans, planting plans and irrigation plans.
5. Submit references of past projects, employee training certifications that support that the Contractors meets all of the above installer qualifications and applicable licensures.

NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No 5803
Signature
4-30-22
Renewal Date
Date
STATE OF CALIFORNIA

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@iwoodarchitecture.com
CHK BY: TC
DRW BY: TC

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
SPECIFICATIONS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC | DRAWN BY:TC
SCALE: AS SHOWN
SHEET 59 OF 61

SECTION 32 84 00

IRRIGATION

PART 1 GENERAL

1.1 SUMMARY

A. Irrigation system required for this work includes but is not limited to the furnishing of all labor, tools, materials, appliances, tests, permits, taxes, etc., necessary for the installation of a landscape irrigation system as herein specified and shown on the drawings, and the removal of all debris from the site.

1. Locate, purchase, deliver and install piping, conduit, sleeves, 120 volt and low voltage electrical and water connections, valves, backflow preventer devices, controllers, rain sensors, spray and bubbler heads, drip irrigation lines, and associated accessories for a fully operational automatic irrigation system.

2. Trenching and water settling of backfill material.

3. Testing and startup of the irrigation system.

4. Prepare an as built record set of drawings.

5. Training of the Owner's maintenance personnel in the operational requirements of the Irrigation system.

6. Clean up and disposal of all excess and surplus material.

7. Maintenance of the irrigation system during the proscribed maintenance period.

B. The system shall efficiently and evenly irrigate all areas and be complete in every respect and shall be left ready for operation to the satisfaction of the Owner's Representative.

C. Coordinate with other trades, as needed to complete work, including but not limited to Water Meter, Point of Connection (POC) and Backflow Preventer Device (BFPD) location and electrical hookups.

1.2 CONTRACT DOCUMENTS

A. Shall consist of specifications and its general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any part shall be as binding as if called for in all parts.

1.3 RELATED DOCUMENTS AND REFERENCES

A. Related Documents:

1. Drawings and general provisions of contract, including general and supplementary conditions and Division I specifications, apply to work of this section.

2. Related Specification Sections

a. Section - Planting

b. Section - Planting Soil

c. Sections - Mechanical/Plumbing

d. Sections - Electrical

B. References:

1. American Society of Testing Materials (ASTM): cited section numbers.

2. National Sanitation Foundation (NSF): rating system.

3. Irrigation Association: Turf & Landscape Irrigation Best Management Practices

1.4 VERIFICATION

A. Irrigation piping and related equipment are drawn diagrammatically. Scaled dimensions are approximate only. Before proceeding with work, carefully check and verify dimensions and immediately notify the Owner's Representative of discrepancies between the drawings or specifications and the actual conditions. Although sizes and locations of plants and or irrigation equipment are drawn to scale wherever possible, it is not within the scope of the drawings to show all necessary offsets, obstructions, or site conditions. The Contractor shall be responsible to install the work in such a manner that it will be in conformance to site conditions, complete, and in good working order.

B. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstruction, grade difference or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstruction or differences should be brought to the attention of the Owner's Representative as soon as detected. In the event that notification to the Owner and Owner's Representative does not occur, the Contractor shall assume full responsibility for any revision necessary.

C. Piping and equipment is to be located within the designated planting areas wherever possible unless specifically defined or dimensioned otherwise.

1.5 PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

1.7 CHANGES IN THE WORK

A. The Owner's Representative may order changes in the work, and the contract sum being adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

B. All changes in the work, notifications and Contractor's request for information (RFI) shall conform to the contract general condition requirements.

1.8 CORRECTION OF WORK

A. The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative, at the soonest as possible time that can be coordinated with other work, and seasonal weather demands, but not more than 90 (ninety) days after notification.

1.9 DEFINITIONS

A. Owner's Representative: The person appointed by the Owner to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Owner's Representative may appoint other persons to review and approve any aspects of the work.

B. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation where the Owner's Representative accepts that all work in these sections is complete and the Warranty period has begun. This date may be different that the date of substantial completion for the other sections of the project.

C. Final Acceptance: The date when the Owner's Representative accepts that the plants and work in this section meet all the requirements of specification. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrently.

1.10 SUBMITTALS

A. See the contract General Conditions for policy and procedures related to submittals.

B. Product data

1. Submit a minimum of (3) complete lists of all irrigation equipment to be used, manufacturer's brochures, maintenance manuals, warrantees and operating instructions, within 15 days after the notice to proceed.

a. This submission may be done digitally and all documents shall be submitted in one PDF document.

2. The submittals shall be packaged and presented in an organized manner, in the quantity described in Division 1 of the specifications. Provide a table of contents of all submitted items.

3. Clearly identify on each submitted sheet by underlining or highlighting (on each copy) the specific product being submitted for approval. Failure to clearly identify the specific product being submitted will result in a rejection for the entire submittal. No substitutions of material or procedures shall be made concerning these documents without the written consent of an accepted equivalent by the Owner's Representative.

4. Equipment or materials installed or furnished without prior approval of the Owner's Representative, may be rejected by the Owner's Representative and the Contractor shall be required to remove such materials from the site at their own expense.

5. Approval of substitution of material and/or products, other than those specified shall not relieve the Contractor from complying with the requirements of the contract documents and specifications. The Contractor shall be responsible, at their own expense, for all changes that may result from the approved substitutions, which affect the installation or operations other items of their own work and/or the work of other Contractors.

C. Samples: Samples of the equipment may be required at the request of the Owner's Representative if the equipment is other than that specified.

D. Other Submittals: Submit for approval:

1. Documentation of the installer's qualifications.

a. Contractor's License

b. Certified Installer from Controller Manufacturer

2. As built record set of drawings.

3. Wiring diagram.

4. Controller charts.

5. Colored zoning charts: Show each irrigation zone and the valve it is controlled by.

6. Controller irrigation schedule: Indicate zone run times, zones for each program, program run times, times and days of operation, flow management information and soil moisture sensor settings, if applicable.

7. Testing data from all required pressure testing.

8. Backflow prevention device certification: Certification from the manufacturer or their representative that the back flow prevention device has been installed correctly according to the manufactures requirements.

9. Irrigation controller certification: Certification from the manufacturer or an authorized distributor that the Controller has been installed correctly according to the manufactures requirements.

1.11 OBSERVATION OF THE WORK

A. The Owner's Representative may inspect the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

B. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

1. Trenching, directional boring, and sleeving review.

2. Hydrostatic pressure testing.

3. Valve manifolds, lateral lines and emitters.

4. Sensor installation and controller operation.

5. Adjustment and coverage test.

6. Pre-maintenance observation.

7. Final acceptance / system malfunction corrections.

1.12 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1.13 QUALITY ASSURANCE

A. It is the intention of this specification to accomplish the work of installing an automatic irrigation system, which will operate in an efficient and satisfactory manner. The irrigation system shall be installed and made operational according to the workmanlike standards established for landscape installation and sprinkler irrigation operation as set forth by the most recent Best Management Practices (BMP) of the Irrigation Association.

B. The specification can only indicate the intent of the work to be performed rather than a detailed description of the performance of the work. It shall be the responsibility of the Contractor to install said materials and equipment in such a manner that they shall operate efficiently and evenly and support optimum plant growth and health.

C. The Owner's Representative shall be the sole judge of the true intent of the drawings and specifications and of the quality of all materials furnished in performance of the contract.

D. The Contractor shall keep one copy of all drawings and specifications on the work site, in good order. The Contractor shall make these documents available to the Owner's Representative when requested.

E. In the event of any discrepancies between the drawings and the specification, the final decision as to which shall be followed, shall be made by the Owner's Representative.

F. In the event the installation is contradictory to the direction of the Owner's Representative, the installation shall be rectified by the Contractor at no additional cost to the Owner. The Contractor shall immediately bring any such discrepancies to the attention of the Owner's Representative.

G. It shall be distinctly understood that no oral statement of any person shall be allowed in any manner to modify any of the contract provisions. Changes shall be made only on written authorization of the Owner's Representative.

H. Installer Qualifications: The installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for the work.

a. Installer Field Supervision: The installer shall maintain on site an experienced full-time supervisor who can communicate in English with the Owner's Representative.

b. Submit the installer's qualifications for approval.

1.14 IRRIGATION SYSTEM WARRANTY:

A. The Contractor shall Warrantee all workmanship and materials for a period of 1 year (s) following the acceptance of the work.

1. Any parts of the irrigation work that fails or is defective shall be replaced or reconstructed at no expense to the Owner including but not limited to: restoring grades that have settled in trenches and excavations related to the work. Reconstruction shall include any plantings, soil, mulch or other parts of the constructed landscape that may be damaged during the repair or that results from soil settlement.

B. The date of acceptance of the work and start of the Guarantee period shall be determined by the Owner's Representative, upon the finding that the entire irrigation system is installed as designed and specified, and found to be operating correctly, supplying water evenly to all planting and/or lawn areas.

C. The system controller shall be warranted by the equipment manufacturer against equipment malfunction and defects for a period of 10 years, following the acceptance of the work.

D. Neither the final acceptance nor any provision in the contract documents shall relieve the Contractor of responsibility for faulty materials or workmanship. The Contractor shall remedy any defects within a period of 7 days (s) from the date of notification of a defect.

1.15 SITE CONDITIONS

A. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the installation of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

1.16 DELIVERY, STORAGE, AND HANDLING

A. All materials and equipment shall be stored properly and protected as required by the Contractor. The Contractor shall be entirely responsible for damages or loss by weather or other cause to work under the contract. Materials shall be furnished in ample quantities and at such times as to ensure uninterrupted progress of the work.

B. Deliver the products to the job site in their original unopened container with labels intact and legible at time of use.

C. Store in accordance with the manufacturers' recommendations.

1.17 PROTECTION

A. The Contractor shall continuously maintain adequate protection of all their work from damage, destruction, or loss, and shall protect the owner's property from damage arising in connection with this contract. Contractor shall make good any such damage, destruction, loss or injury. Contractor shall adequately protect adjacent property as provided by law and the contract documents.

B. The Contractor shall maintain sufficient safeguards, such as railings, temporary walks, lights, etc., against the occurrence of accidents, injuries or damage to any person or property resulting from their work, and shall alone be responsible for the same if such occurs.

C. All existing paving, structures, equipment or plant material shall be protected at all times, including the irrigation system related to plants, from damage by workers and equipment. The Contractor shall follow all protection requirements including plant protection provision of the general contract documents. All damages shall be repaired or replaced at the Contractor's expense. Repairs and or replacement shall be to the satisfaction of the Owner's Representative, including the selection of a Contractor to undertake the repair or maintenance. Repairs shall be at no cost to the owner.

1. For trees damaged to the point where they will not be expected to survive or which are severely disfigured and that are too large to replace, the cost of damages shall be as determined by the Owner's arborist using accepted tree value evaluation methods.

D. The Contractor shall refrain from trenching within the drip line of any existing tree to remain. The Owner's Representative may require the Contractor to relocate proposed irrigation work, bore lines beneath roots or use air spade technology to dig trenches through and under the root system to avoid damage to existing tree root areas.

1.18 EXCAVATING AROUND UTILITIES

A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.

1. Do not begin any excavation until all underground utilities have been located and marked.

Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain stakes and or markings set by others until parties concerned mutually agree to their removal.

B. Notification of811, DIG ALERT, is required for all excavation around utilities. The Contractor is responsible for knowing the location and avoiding utilities that are not covered by the *DIG ALERT*.

C. Section 4216/4217 of the government code requires a dig-alert identification number be issued before a "permit to excavate" will be valid. For your dig-alert identification number call underground service alert toll free 1-800-422-4133 two working days before beginning construction.

1.19 POINT OF CONNECTION

A. The point of connection of the irrigation system to its electrical power sources shall be provided by the General Contractor's licensed electrical Contractor per governing codes at the location shown on the drawings. The irrigation Contractor will connect the power to provided junction box or grounded plug receptacle.

B. The point of connection of the irrigation system to its potable and or non-potable water sources, including the main shutoff valve and backflow preventer shall be provided by the General Contractor's licensed plumbing Contractor per governing codes at the location shown on the drawings. The minimum size and water pressure of the pressurized line will be as noted on the irrigation drawing.

1.20 TEMPORARY UTILITIES

A. All temporary piping, wiring, meters, panels and other related appurtenances required between source of supply and point of use shall be provided by the Contractor and coordinated with the Owner's Representative. Existing utilities may be used with the written permission of the owner.

1.21 CUTTING, PATCHING, TRENCHING AND DIGGING

A. The Contractor shall do all cutting, fitting, trenching or patching of their work that may be required to make its several parts come together as shown upon, or implied by, the drawings and specifications for the completed project.

B. Digging and trenching operations shall be suspended when the soil moisture is above field capacity.

1.22 USE OF PREMISES

A. The Contractor shall confine their apparatus; the storage of materials, and the operations of their workers to limits indicated by the law, ordinances, or permits and shall not unreasonably encumber the premises with their materials.

B. Contractor parking, and material and equipment storage shall in areas approved by the Owner's Representative.

1.23 AS BUILT RECORD SET OF DRAWINGS

A. Immediately upon the installation of any buried pipe or equipment, the Contractor shall indicate on the progress record drawings the locations of said pipe or equipment. The progress record drawings shall be made available at any time for review by the Owner's Representative.

B. Before final acceptance of work, the Contractor shall provide an as built record set of drawings showing the irrigation system work as built. The drawings shall be transmitted to the Owner's Representative in paper format and as a pdf file of each document on compact disk or flash drive. The drawings shall include all information shown on the original contract document and revised to reflect all changes in the work. The drawings shall include the following additional information

1. All valves shall be numbered by station and corresponding numbers shall be shown on the as built record set of drawings.

2. All main line pipe or irrigation equipment including sleeves, valves, controllers, irrigation wire runs which deviate from the mainline location, backflow preventers, remote control valves, grounding rods, shut-off valves, rain sensors, wire splice locations, and quick coupling valves shall be located by two (2) measured dimensions, to the nearest one-half foot. Dimensions shall be given from permanent objects such as buildings, sidewalks, curbs, walls, structures and driveways. All changes in direction and depth of main line pipe shall be noted exactly as installed. Dimensions for pipes shall be shown at no greater than a 50 ft. maximum interval.

3. As built record set of drawings shall be signed and dated by the Contractor attesting to and certifying the accuracy of the as built record set of drawings. As built record set of drawings shall have "As Built Record Set of Drawings", company name, address, phone number and the name of the person who created the drawing and the contact name (if different).

C. The Owner shall make the original contract drawing files available to the Contractor.

D. The Contractor shall GPS all points of connection, controllers, flow sensors, master valves, hydrometers, backflow prevention devices, remote control irrigation valves and moisture sensors prior to receiving a notice of completion from the Owner's Representative.

a. Contractor shall provide an updated aerial of the site location after project completion to the controller manufacturer to be uploaded onto the online irrigation management system.

1.24 CONTROLLER CHARTS:

A. Provide one controller chart for each automatic controller installed.

1. On the inside surface of the cover of each automatic controller, prepare and mount a color-coded chart showing the valves, main line, and systems serviced by that particular controller. All valves shall be numbered to match the operation schedule and the drawings. Only those areas controlled by that controller shall be shown. This chart shall be a plot plan, entire or partial, showing building, walks, roads and walls. The plan, reduced as necessary and legible in all details, shall be made to a size that will fit into the controller cover. This print shall be approved by the Owner's Representative and shall be protected in laminated in a plastic cover and be secured to the inside back of the controller cabinet door.

2. Programming chart shall be 8.5" x 11" letter size and laminated. Programming chart shall include but is not limited to;

a. Valve numbers and brief description of the valve use along with program associated to each valve.

b. Program numbers and brief description of its use.

c. Moisture sensor associated to each valve and program, if applicable.

d. Decoder model numbers associated with each valve, pump relay, and hydrometers, if applicable.

e. Utility numbers such as the irrigation and electrical meter.

f. Model numbers for cell phone module or WiFi module, if applicable.

g. Controller model number, if applicable.

h. Booster pump make and model number, if applicable.

3. The controller chart shall be completed and approved prior to acceptance of the work.

1.25 TESTING

A. Provide all required system testing with written reports as described in part 3.

1.26 OPERATION AND MAINTENANCE MANUALS AND GUARANTEES

A. Prepare and deliver to the Owner's Representative within ten calendar days prior to completion of construction, two 3-ring hard cover binders containing the following information:

1. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturers' representatives.

2. Catalog and parts sheets on all material and equipment.

3. Guarantee statement. The start of the guarantee period shall be the date the irrigation system is accepted by the Owner.

4. Complete operating and maintenance instruction for all major equipment.

5. Irrigation product manufacturers warrantees.

B. In addition to the above-mentioned maintenance manuals, provide the Owner's maintenance personnel with instructions for maintaining major equipment and show evidence in writing to the Owner's Representative at the conclusion of the project that this has been rendered.

PART 2 PRODUCTS

2.1 MATERIALS GENERAL

A. All materials shall be of standard, approved and first grade quality and shall be new and in perfect condition when installed and accepted.

B. See the parts schedule on the drawings for specific components and manufacturers.

C. Approval of any items or substitutions indicates only that the product(s) apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted. The Contractor shall be responsible for the performance of substituted items. If the substitution proves to be unsatisfactory or not compatible with other parts of the system, the Contractor shall replace said items with the originally specified items, including all necessary work and modifications to replace the items, at no cost to the owner.

2.2 RECLAIMED WATER SYSTEM DESIGNATION

A. Where irrigation systems use reclaimed water, all products including valve boxes, lateral and main line pipe, etc. where applicable and/or required by local code shall have the reclaimed water purple color designation.

2.3 PIPING MATERIAL

A. Individual types of pipe and fittings supplied are to be of compatible manufacturer unless otherwise approved. Pipe sizes shown are nominal inside diameter unless otherwise noted.

B. Plastic pipe:

1. All pipe shall be free of blisters, internal striations, cracks, or any other defects or imperfections. The pipe shall be continuously and permanently marked with the following information: manufacturer's name or trade mark, size, class and type of pipe pressure rating, quality control identifications, date of extrusion, and National Sanitation Foundation (NSF) rating.

2. Pressure main line for piping upstream of remote control valves and quick coupling valves:

a. Pipe smaller than 2 inch diameter shall be plastic pipe for use with solvent weld or threaded fittings. Shall be manufactured rigid virgin polyvinyl chloride (PVC) 1220, Type 1, Grade 2 conforming to ASTM D 1785, designated as Schedule 40.

b. Pipe 2 - 3 inch diameter shall be manufactured rigid virgin polyvinyl chloride (PVC), Type 1, Grade 2 conforming to ASTM D 1785, designated as bell gasket Class 315.

c. Pipe larger than 3 inch diameter shall be manufactured rigid virgin polyvinyl chloride (PVC), Type 1, Grade 2 conforming to ASTM D 1785, designated as bell gasket Class 200 PVC 'Ring Tight'.

3. Non - pressure lateral line for piping downstream of remote control valves: plastic pipe for use with solvent weld or threaded fittings. Shall be manufactured rigid virgin polyvinyl chloride PVC 1220 (type 1, grade 2) conforming to ASTM d 1785, designated as Class 200, 3/4 minimum size.

4. Sleeve carrying pipes and conduits under paving 2 inches in diameter and larger shall be Sch. 40 solvent weld PVC conforming to ASTM D 1785.

5. Low voltage irrigation control wire conduit, direct burial, 1.5" in diameter and larger shall be Sch. 40 PVC solvent weld, grey in color and confirming to NEMA-TC2

C. Galvanized pipe shall be used for above ground connections to, backflow prevention device assemblies, hose bibs, and booster pumps and as shown on the plans and details.

1. Pipe shall be hot dip galvanized continuous welded, seamless, Schedule 40 conforming to applicable current ASTM standards.

2.4 FITTINGS AND CONNECTIONS:

A. Polyvinyl chloride pipe fittings and connections: Type II, Grade 1, Schedule 40, high impact molded fittings, manufactured from virgin compounds as specified for piping tapered socket or molded thread type, suitable for either solvent weld or screwed connections. Machine threaded fittings and plastic saddle and flange fittings are not acceptable. Furnish fittings permanently marked with following information: nominal pipe size, type and schedule of material, and National Sanitation Foundation (NSF) seal of approval. PVC fittings shall conform to ASTM D2464 and D2466.

B. Brass pipe fittings, unions and connections: standard 125 pound class 85% red brass fittings and connections, IPS threaded.

C. PVC Schedule 80 threaded risers and nipples: Type I, grade 1, Schedule 80, high impact molded, manufactured from virgin compounds as specified for piping and conforming to ASTM D-2464. Threaded ends shall be molded threads only. Machined threads are not acceptable.

D. Galvanized pipe fittings shall be galvanized malleable iron ground joint Schedule 40 conforming to applicable current ASTM standards.

2.5 SOLVENT CEMENTS AND THREAD LUBRICANT

A. Solvent cements shall comply with ASTM D2564. Socket joints shall be made per recommended procedures for joining PVC plastic pipe and fittings with PVC solvent cement and primer by the pipe and fitting manufacturer and procedures outlined in the appendix of ASTM D2564. Color of PVC solvent cement shall be light blue.

B. Thread lubricant shall be Teflon ribbon-type, or approved equal, suitable for threaded installations as per manufacturer's recommendations.

C. Pipe Joint Compound (Pipe dope) shall be used on all galvanized threaded connections. Pipe Joint Compound is a white colored, non-separating thread sealant compound designed to seal threaded connections against leakage due to internal pressure. It shall contain PTFE (Polytetrafluoroethylene) to permit a tighter assembly with lower torque, secure permanent sealing of all threaded connections and allow for easy disassembly without stripping or damaging threads.

2.6 BACKFLOW PREVENTION DEVICES

A. The backflow prevention device shall be certified to NSF/ANSI 372 shall be ASSE Listed 1013, rated to 180 degree F, and supplied with full port ball valves.

B. The main body and access covers shall be low lead bronze (ASTM B 584)

C. The seat ring and all internal polymers shall be NSF Listed Noryl and the seat disc elastomers shall be silicone.

D. Backflow Preventer shall be as indicated on the drawings.

2.7 PRESSURE REGULATOR

A. Pressure regulator shall certified to NSF/ANSI 372, consisting of low lead bronze body bell housing, a separate access cap shall be threaded to the body and shall not require the use of ferrous screws.

B. The main valve body shall be cast bronze (ASTM B 584).

C. The access covers shall be bronze (ASTM B 584 or Brass ASTM B 16)

D. The assembly shall be of the balanced piston design and shall reduce the pressure in both flow and no flow conditions.

E. Pressure regulator shall be as indicated on the drawings.

2.9 BACKFLOW PREVENTER CAGE

A. A heavy-duty steel mesh cage with rust proof finish. The caging shall be sized to allow space for the entire piping assembly associated with the Backflow Preventer unit, and all associated equipment.

B. The cage shall include the manufacturers' standard tamper proof locking mechanism.

C. Provide a concrete base as detailed on the drawings.

D. Backflow Preventer Cage type, manufacturer and color shall be as indicated on the plans.

2.10 WATER HAMMER ARRESTOR

A. Water hammer arrestor shall be a single copper piece with a one - inch (1") threaded lead free brass connection.

B. Water hammer arrestor shall have a polypropylene piston, EDPM o-ring seal and brass NPT threaded connection.

C. Water Hammer arrestor shall be designed to operate on all domestic and commercial lines with a minimum 150 PSI working pressure.

D. Water hammer arrestor shall be the manufacturer, model and size as indicated on the drawings.

2.11 DRIP SYSTEM FLUSH/INDICATOR VALVES

A. Drip system flush valve shall consist of a Sch. 40 PVC ball valve with socket connections and specialized PVC fittings to provide a hose thread adapter and sealing cap on the discharge side.

B. Drip system flush valve and components shall be the manufacturer, model and sizes indicated on the drawings.

2.18 REMOTE CONTROL VALVES

A. Remote control valves shall be electrically operated, single seat, normally closed configuration, equipped with flow control adjustment and capability for manual operation.

B. Valves shall be actuated by a normally closed low wattage solenoid using 24 volts, 50/60 cycle solenoid power requirement. Solenoid shall be epoxy encased. A union shall be installed on the discharge end.

C. Remote control valves shall be wired to controller in same numerical sequence as indicated on drawings.

D. Remote control valves shall be as indicated on the drawings.

2.19 PRESSURE REGULATOR & BASKET FILTER

A. Pressure regulating basket filter shall have an operating range of 5.0 to 20.0 gallons per minute.

B. Pressure regulating basket filter shall regulate pressure to 40 psi and have an inlet pressure between 15 - 150 psi.

C. Pressure regulating basket filter shall have a 200 mesh stainless steel filtration mesh.

D. A Sch. 80 male adapter and threaded union shall be installed upstream and downstream of the pressure regulating basket filter.

E. Pressure regulator and basket shall come with a filter replacement indicator.

2.20 HYDROMETER

A. Hydrometer shall be compatible with the irrigation controller.

1. For 2-wire systems both flow sensor and master valve decoders are required.

B. Hydrometer shall have a maximum operating pressure of 235 psi and a minimum operating pressure of 14 psi.

C. Connection shall be National Pipe Thread or ANSI Flange.

D. Hydrometer body material shall be cast iron with polyester coating.

E. Hydrometer diaphragm material shall be reinforced natural rubber.

F. Hydrometer register shall be either reed switch or photo diode.

1. Reed switch registers shall have a maximum contact current of 50 mA and a maximum contact voltage of 28 VDC.

2. Photo diode registers shall have a minimum 15 mA to a maximum 25 mA DC through a resistor and maximum loda of 2 mA.

3. Contractor shall verify register output with the controller manufacturer prior to ordering.

G. Hydrometer solenoids shall be compatible with the specified irrigation controller.

H. Hydrometer shall be as indicated on the drawings.

2.21 QUICK COUPLER VALVES

A. Quick coupler valves shall be a one or two piece, heavy-duty brass construction with a working pressure of 150 PSI with a built in flow control and a self_closing valve.

B. Quick coupler shall be equipped with locking red brass cap covered with durable yellow thermo-plastic rubber cover. Key size shall be compatible with quick coupler and of same manufacturer.

C. Quick coupler valves shall be as indicated on the drawings.

2.22 SWING JOINTS

A. Quick Couplers.

1. Swing joints shall be Sch. 80 conforming to ASTM D 1785/D 2464/D 2467

2. Swing joints shall have a pressure rating of 315 psi conforming to ASTM D 3139

3. Swing joints shall have a double O-ring seal.

B. Pop-up spray bodies or bubblers.

1. Swing joint shall be low density poly tubing 0.49" in diameter.

4. Swing joints shall be pressure rated to 150 PSI

5. Swing joints shall be either ½" or ¾" in size.

6. See irrigation details for size and diameter of swing joints.

2.23 BUBBLERS

A. Fixed bubbler emitters with emission rates between $\frac{1}{4}$ gallon per hour up to 2 gallons per minute.

1. Description

j. Nozzle: ABS

k. Internal Parts: Corrosion resistant.

l. Pattern: Fixed.

m. Check Valve: Yes.

n. Inlet: ½" FIPT threads.

o. Pressure range: 5 - 65 psi

p. Filtration: 100 - 150 mesh.

a. Color: See drawings.

B. All bubblers shall be as indicated on the drawings.

2.24 AUTOMATIC CONTROLLER

A. Controller shall be housed in a sturdy, locking, weather resistant case, furnished for maximum exterior protection.

B. Controller shall be equipped with evapo-transpiration (ET) sensor, which adjusts the controller programming based on local climatic conditions. The sensor shall also have a rain sensing shut-off switch, wind sensing shut off switch, and freeze sensing shut-off of switch.

1. If a moisture sensor is used in lieu of an evapo-transpiration sensor an additional sensor, which has a rain-sensing shut-off switch, wind sensing shut-off switch, and freeze sensing shut-off switch shall be provided.

C. Automatic controller shall have online capabilities and the ability to communicate with the controller manufacturer's irrigation management software.

1. Automatic controller shall be connected to the manufacturer's irrigation management software with Ethernet, Wifi or Cellular.

a. If cellular is used the Contractor shall provide five (5) years of cell service as a part of the project, if applicable.

2. Automatic controller shall be connected to the manufacturer's irrigation management software with Ethernet, Wifi or cellular.

a. Contractor shall provide a five (5) subscription of online access to the controller manufacturer's irrigation management software, if applicable.

C. Automatic controller shall be as indicated on the drawings.

2.25 CONTROLLER DECODERS

A. All decoders shall be per the controller manufacturer's specifications.

B. Decoder model number shall be as shown on the drawings.

2.26 LIGHTNING ARRESTOR

A. All lightning arrestors shall be per the controller manufacturer's specifications.

B. Lightning arrestor model numbers shall be as shown on the drawings.

2.27 MOISTURE SENSORS

A. All moisture sensors shall be approved for use by the controller manufacturer.

B. Moisture sensor model number shall be as shown on the drawings.

2.28 GROUNDING RODS OR PLATES

A. All grounding rods shall be 8' x 3/8" and made of copper.

B. Grounding plates shall be a minimum of five (5') square feet and conform to ASIC earth grounding electronic equipment in irrigation systems guidelines.

C. Grounding rod wire shall be #6 AWG direct burial copper wire.

D. All connections to grounding rods or plates shall conform to ASIC Earth Grounding Electric Equipment in Irrigation Systems Guidelines.

1. Connections can be either a CADWELD® or screw clamp type of connection.

2. All clamps must be suitable for direct burial or exothermic weld.

3. The resistance reading for this connection should be less than1 millohm.

2.29 ELECTRICAL CONTROL WIRING

A. Low voltage

1. The electrical control wire shall be direct burial type UF, no. 14 AWG, solid, single conductor, copper wire UL approved or larger, if required to operate system as designed.

2. For 2-Wire controllers all irrigation wire for the controller, flow sensor, master valve, hydrometer, remote control valves and moisture sensors shall be per the controller manufacturer's specifications and recommendations.

a. Wire shall be a minimum of #14UF AWG in size or as indicated on the drawing.

b. Wire shall be twisted and encased inside a heavy duty, color coded polyethylene jacket.

c. If there are multiple controllers each wire path shall be color coded differently.

3. Color code wires to each valve. Common wire shall be white.

4. If multiple controllers are being utilized, and wire paths of different controllers cross each other, both common and control wires from each controller to be of different colors.

5. Control wire splices: Splices are when required shall be placed in splice boxes.

6. Wire connections shall be per the controller manufacturer's specifications and recommendations.

B. High voltage

1. Shall be of type as required by local codes and ordinances.

2. Shall be of proper size to accommodate needs of equipment it is to serve.

2.30 VALVE BOXES AND MATERIALS

A. Valve boxes: valve boxes shall be constructed of ABS (acrylonitrile butadiene styrene) plastic, green in color, with rigid base and sides and shall be supplied with bolt lock cover secured with stainless steel bolts. Cover shall be identified as shown on drawings. Provide box extensions as required.

1. Water hammer arrestor, hydrometers 2" and smaller, master valves, flow sensors, remote control irrigation valves, gate valves, and ball valves 3 inch or less in size shall use a 14 inch x 19 inch x 12 inch rectangular box.

2. Hydrometers 3" and larger, master valves 3" and larger, and ball valves 4" and larger shall use a 33 inch x 24 inch x 15" rectangular valve box.

3. Quick coupler valves, wire splices, and grounding rods shall use a 10 inch circular box.

4. Grounding rods shall be in a 8 inch circular box.

2.31 CONCRETE THRUST BLOCKS

A. Concrete thrust blocks shall be sized per the pipe manufactures requirement or as indicated on the drawings.

2.32 VALVE IDENTIFICATION TAGS

A. Valve Identification Tags shall be 2.25 inch x 2.65 inch polyurethane. Color: potable water; yellow / Non-potable water; purple. Tags shall be permanently attached to each remote control valve with tamper proof seals as indicated on the drawings.

2.33 EQUIPMENT TO BE FURNISHED TO OWNER

A. Two (2) sets of keys for each automatic controller.

B. Two (2) 48 inch tee wrenches for operating the gate valves.

C. Three (3) sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project.

D. Two (2) quick coupler keys to match manufacturer type of quick coupler.

E. Two (2) controller decoders of each type used on the project.

F. One (1) sensor for each type used on the project.

2.34 INCIDENTAL MATERIALS AND EQUIPMENT

A. Furnish all materials and equipment not specified above, but which are necessary for completion of the work as intended.

2.35 MAIN LINE LOCATOR TAPE

A. 3 - inch wide plastic detectable locator tape.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. Code requirements shall be those of state and municipal codes and regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith, but exceeding the code requirements, shall govern unless written permission to the contrary is granted by the Owner's Representative.

B. Extreme care shall be exercised at all times by the Contractor in excavating and working in the project area due to existing utilities and irrigation systems to remain. Contractor shall be fully responsible for expenses incurred in the repair of damages caused by their operation.

1. The Contractor is responsible for identifying and maintaining existing irrigation main lines that supply water to areas on the site as noted on the drawings and outside of the proposed limit of work. The Contractor shall relocate or replace existing irrigation main line piping as required to provide a continuous supply of water to all areas of existing irrigation on site.

a. Providing continuous water supply shall include hand watering and or the use of watering trucks to provide adequate water.

C. Plan locations of backflow preventers, valves, controllers, irrigation lines, sleeves, spray heads and other equipment are diagrammatic and indicate the spacing and relative locations of all installations. Final site conditions and existing and proposed plantings shall determine final locations and adjusted as necessary and as directed to meet existing and proposed conditions and obtain complete water coverage. Minor changes in locations of the above from locations shown shall be made as necessary to avoid existing and proposed trees, piping, utilities, structures, etc. at the Contractor's expense or when directed by the Owner's Representative.

1. The Contractor shall be held responsible for relocation of any items without first obtaining the Owner's Representative's approval. The Contractor shall remove and relocate such items at their expense if so directed by the Owner's Representative.

D. Prior to any work the Contractor shall stake out locations of all pipe, valves, equipment and irrigation heads and emitters using an approved staking method and maintain the staking of the approved layout in accordance with the drawings and any required modifications. Verify all horizontal and vertical site dimensions prior to staking of heads. Do not exceed spacing shown on drawings for any given area. If such modified spacing demand additional or less material than shown on the drawings, notify the Owner's Representative before beginning any work in the adjacent area.

E. Stub out main line at all end runs and as shown on drawings. Stub out wires for future connection where indicated on plan and as directed.

F. Point of connection shall be approximately as shown on drawings. Connect new underground piping and valves and provide all flanges, adapters or other necessary fittings for connection.

G. Permission to shut off any existing in-use water line must be obtained 48 hours in advance, in writing from the Owner. The Contractor shall receive instructions from the Owner's Representative as to the exact length of time of each shut-off.

H. No fittings shall be installed on pipe underneath pavement or walls.

I. Prior to starting any work, Contractor shall obtain a reading of existing static water pressure (no flow condition) at the designated point of connection and immediately submit written verification of pressure with date and time of recording to Owner's Representative.

NOT FOR CONSTRUCTION

NO. | DATE | DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No 5803
Signature
4-30-22
Renewal Date
Date
STATE OF CALIFORNIA

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
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CHK BY: TC
DRW BY: TC

VISALIA Founded 1852

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
SPECIFICATIONS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC DRAWN BY:TC
SCALE: AS SHOWN
SHEET 60 OF 61

1.14 PLANT WARRANTY

A. Plant Warranty:

1. The Contractor agrees to replace defective work and defective plants. The Owner's Representative shall make the final determination if plants meet these specifications or that plants are defective.

Plants warranty shall begin on the date of Substantial Completion Acceptance and continue for the following periods, classed by plant type:

a. Trees - 1 Year(s).

2. When the work is accepted in parts, the warranty periods shall extend from each of the partial Substantial Completion Acceptances to the terminal date of the last warranty period. Thus, all warranty periods for each class of plant warranty, shall terminate at one time.

3. All plants shall be warrantied to meet all the requirements for plant quality at installation in this specification. Defective plants shall be defined as plants not meeting these requirements. The Owner's representative shall make the final determination that plants are defective.

4. Plants determined to be defective shall be removed immediately upon notification by the Owner's Representative and replaced without cost to the Owner, as soon as weather conditions permit and within the specified planting period.

5. Any work required by this specification or the Owner's Representative during the progress of the work, to correct plant defects including the removal of roots or branches, or planting plants that have been bare rooted during installation to observe for or correct root defects shall not be considered as grounds to void any conditions of the warranty. In the event that the Contractor decides that such remediation work may compromise the future health of the plant, the plant or plants in question shall be rejected and replaced with plants that do not contain defects that require remediation or correction.

6. The Contractor is exempt from replacing plants, after Substantial Completion Acceptance and during the warranty period, that are removed by others, lost or damaged due to occupancy of project, lost or damaged by a third party, vandalism, or any natural disaster.

7. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification. Make all necessary repairs due to plant replacements. Such repairs shall be done at no extra cost to the Owner.

8. The warranty of all replacement plants shall extend for an additional one-year period from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of the said extended warranty period, the Owner's Representative may elect one more replacement items or credit for each item. These tertiary replacement items are not protected under a warranty period.

9. During and by the end of the warranty period, remove all tree wrap, ties, and guying unless agreed to by the Owner's Representative to remain in place. All trees that do not have sufficient caliper to remain upright, or those requiring additional anchorage in windy locations, shall be staked or remain staked, if required by the Owner's Representative.

B. End of Warranty Final Acceptance - Acceptance of plants at the end of the warranty period.

1. At the end of the warranty period, the Owner's Representative shall observe all warranted work, upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date for final observation.

2. End of Warranty Final Acceptance will be given only when all the requirements of the work under this specification and in specification sections Planting Soil and Irrigation have been met.

1.15 SELECTION AND OBSERVATION OF PLANTS

A. The Owner's Representative may review all plants subject to approval of size, health, quality, character, etc. Review or approval of any plant during the process of selection, delivery, installation and establishment period shall not prevent that plant from later rejection in the event that the plant quality changes or previously existing defects become apparent that were not observed.

B. Plant Selection: The Owner's Representative reserves the right to select and observe all plants at the nursery prior to delivery and to reject plants that do not meet specifications as set forth in this specification. If a particular defect or substandard element can be corrected at the nursery, as determined by the Owner's Representative, the agreed upon remedy may be applied by the nursery or the Contractor provided that the correction allows the plant to meet the requirements set forth in this specification. Any work to correct plant defects shall be at the contractor's expense.

1. The Owner's Representative may make invasive observation of the plant's root system in the area of the root collar and the top of the root ball in general in order to determine that the plant meets the quality requirements for depth of the root collar and presence of roots above the root collar. Such observations will not harm the plant.

2. Corrections are to be undertaken at the nursery prior to shipping.

C. The Contractor shall bear all cost related to plant corrections.

D. All plants that are rejected shall be immediately removed from the site and acceptable replacement plants provided at no cost to the Owner.

E. Submit to the Owner's Representative, for approval, plant sources including the names and locations of nurseries proposed as sources of acceptable plants, and a list of the plants they will provide. The plant list shall include the botanical and common name and the size at the time of selection. Observe all nursery materials to determine that the materials meet the requirements of this section.

1.) The following nurseries are pre-approved to supply plants for this project:

F. Trees shall be purchased from the growing nursery. Re-wholesale plant suppliers shall not be used as sources unless the Contractor can certify that the required trees are not directly available from a growing nursery. When Re-wholesale suppliers are utilized, the Contractor shall submit the name and location of the growing nursery from where the trees were obtained by the re-wholesale seller. The re-wholesale nursery shall be responsible for any required plant quality certifications.

G. The Contractor shall require the grower or re-wholesale supplier to permit the Owner's Representative to observe the root system of all plants at the nursery or job site prior to planting including random removal of soil or substrate around the base of the plant. Observation may be as frequent and as extensive as needed to verify that the plants meet the requirements of the specifications and conform to requirements.

H. Each tree shall have a numbered seal applied by the Contractor. The seal shall be placed on a lateral branch on the north side of the tree. The seal shall be a tamper proof plastic seal bearing the Contractors name and a unique seven-digit number embossed on the seal.

1. Do not place seals on branches that are so large that there is not sufficient room for the branch growth over the period of the warranty.

I. The Owner's Representative may choose to attach their seal to each plant, or a representative sample. Viewing and/or sealing of plants by the Owner's Representative at the nursery does not preclude the Owner's Representative's right to reject material while on site. The Contractor is responsible for paying any up charge for the Owner's Representative to attach their seal to specific plants.

J. Where requested by the Owner's Representative, submit photographs of plants or representative samples of plants. Photographs shall be legible and clearly depict the plant specimen. Each submitted image shall contain a height reference, such as a measuring stick. The approval of plants by the Owner's Representative via photograph does not preclude the Owner's Representative's right to reject material while on site.

1.16 PLANT SUBSTITUTIONS FOR PLANTS NOT AVAILABLE

A. Submit all requests for substitutions of plant species, or size to the Owner's Representative, for approval, prior to purchasing the proposed substitution. Request for substitution shall be accompanied with a list of nurseries contacted in the search for the required plant and a record of other attempts to locate the required material. Requests shall also include sources of plants found that may be of a smaller or larger size, or a different shape or habit than specified, or plants of the same genus and species but different cultivar origin, or which may otherwise not meet the requirements of the specifications, but which may be available for substitution.

1.17 SITE CONDITIONS

A. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.

1. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering cost of corrections. If the Contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for plant material under the warranty clause of the specifications.

B. It is the responsibility of the Contractor to be familiar with the local growing conditions, and if any specified plants will be in conflict with these conditions. Report any potential conflicts, in writing, to the Owner's Representative.

C. This specification requires that all Planting Soil and Irrigation (if applicable) work be completed and accepted prior to the installation of any plants.

1. Planting operations shall not begin until such time that the irrigation system is completely operational for the area(s) to be planted, and the irrigation system for that area has been preliminarily observed and approved by the Owner's Representative.

D. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practices.

1. Do not install plants into saturated or frozen soils. Do not install plants during inclement weather, such as rain or snow or during extremely hot, cold or windy conditions.

1.18 PLANTING AROUND UTILITIES

A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.

B. Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.

C. Notification of *DIG ALERT, 811*, is required for all planting areas: The Contractor is responsible for knowing the location and avoiding utilities that are not covered by the *DIG ALERT*.

PART 2 PRODUCTS

2.1 PLANTS: GENERAL

A. Standards and measurement: Provide plants of quantity, size, genus, species, and variety or cultivars as shown and scheduled in contract documents.

1. All plants including the root ball dimensions or container size to trunk caliper ratio shall conform to ANSI Z60.1 "American Standard for Nursery Stock" latest edition, unless modified by provisions in this specification. When there is a conflict between this specification and ANSI Z60.1, this specification section shall be considered correct.

2. Plants larger than specified may be used if acceptable to the Owner's Representative. Use of such plants shall not increase the contract price. If larger plants are accepted the root ball size shall be in accordance with ANSI Z-60.1. Larger plants may not be acceptable if the resulting root ball cannot be fit into the required planting space.

3. If a range of size is given, no plant shall be less than the minimum size and not less than 50 percent of the plants shall be as large as the maximum size specified. The measurements specified are the minimum and maximum size acceptable and are the measurements after pruning, where pruning is required.

B. Proper Identification: All trees shall be true to name as ordered or shown on planting plans and shall be labeled individually or in groups by genus, species, variety and cultivar.

C. Compliance: All trees shall comply with federal and state laws and regulations requiring observation for plant disease, pests, and weeds. Observation certificates required by law shall accompany each shipment of plants.

1. Clearance from the local county agricultural commissioner, if required, shall be obtained before planting trees originating outside the county in which they are to be planted.

D. Plant Quality:

2. **General**: Provide healthy stock, grown in a nursery and reasonably free of die-back, disease, insects, eggs, bores, and larvae. At the time of planting all plants shall have a root system, stem, and branch form that will not restrict normal growth, stability and health for the expected life of the plant

3. **Plant quality above the soil line:**

a. Plants shall be healthy with the color, shape, size and distribution of trunk, stems, branches, buds and leaves normal to the plant type specified. Tree quality above the soil line shall comply with the project Crown Acceptance details (or Florida Grades and Standards, tree grade Florida Fancy or Florida #1) and the following:

1.) Crown: The form and density of the crown shall be typical for a young specimen of the species or cultivar pruned to a central and dominant leader.

a.) Crown specifications do not apply to plants that have been specifically trained in the nursery as topiary, espalier, multi-stem, clump, or unique selections such as contorted or weeping cultivars.

2.) Leaves: The size, color, and appearance of leaves shall be typical for the time of year and stage of growth of the species or cultivar. Trees shall not show signs of prolonged moisture stress or over watering as indicated by wilted, shriveled, or dead leaves.

3.) Branches: Shoot growth (length and diameter) throughout the crown should be appropriate for the age and size of the species or cultivar. Trees shall not have dead, diseased, broken, distorted, or otherwise injured branches.

a.) Main branches shall be distributed along the central leader not clustered together. They shall form a balanced crown appropriate for the cultivar/species.

b.) Branch diameter shall be no larger than two-thirds (one-half is preferred) the diameter of the central leader measured 1 inch above the branch union.

c.) The attachment of the largest branches (scaffold branches) shall be free of included bark.

4.) Trunk: The tree trunk shall be relatively straight, vertical, and free of wounds that penetrate to the wood (properly made pruning cuts, closed or not, are acceptable and are not considered wounds), sunburned areas, conks (fungal fruiting bodies), wood cracks, sap leakage, signs of boring insects, galls, cankers, girdling ties, or lesions (mechanical injury).

5.) Temporary branches, unless otherwise specified, can be present along the lower trunk below the lowest main (scaffold) branch, particularly for trees less than 1 inch in caliper. These branches should be no greater than 3/8-inch diameter. Clear trunk should be no more than 40% of the total height of the tree.

a. Trees shall have one central leader. If the leader was headed, a new leader (with a live terminal bud) at least one-half the diameter of the pruning cut shall be present.

1.) All trees are assumed to have one central leader trees unless a different form is specified in the plant list or drawings.

b. All graft unions, where applicable, shall be completely closed without visible sign of graft rejection. All grafts shall be visible above the soil line.

c. Trunk caliper and taper shall be sufficient so that the lower five feet of the trunk remains vertical without a stake. Auxiliary stake may be used to maintain a straight leader in the upper half of the tree.

3. **Plant quality at or below the soil line:**

a. Plant roots shall be normal to the plant type specified. Root observations shall take place without impacting tree health. Root quality at or below the soil line shall comply with the project Root Acceptance details and the following:

1.) The roots shall be reasonably free of scrapes, broken or split wood.

2.) The root system shall be reasonably free of injury from biotic (e.g., insects and pathogens) and abiotic (e.g., herbicide toxicity and salt injury) agents. Wounds resulting from root pruning used to produce a high quality root system are not considered injuries.

3.) A minimum of three structural roots reasonably distributed around the trunk (not clustered on one side) shall be found in each plant. Root distribution shall be uniform throughout the root ball, and growth shall be appropriate for the species.

a.) Plants with structural roots on only one side of the trunk (J roots) shall be rejected.

4.) The root collar shall be within the upper 2 inches of the substrate/soil. Two structural roots shall reach the side of the root ball near the top surface of the root ball. The grower may request a modification to this requirement for species with roots that rapidly descend, provided that the grower removes all stem girdling roots above the structural roots across the top of the root ball.

5.) The root system shall be reasonably free of stem girdling roots over the root collar or kinked roots from nursery production practices.

6.) At time of observations and delivery, the root ball shall be moist throughout. Roots shall not show signs of excess soil moisture conditions as indicated by stunted, discolored, distorted, or dead roots.

E. Submittals: Submit for approval the required plant quality certifications from the grower where plants are to be purchased, for each plant type. The certification must state that each plant meets all the above plant quality requirements.

1. The grower's certification of plant quality does not prohibit the Owner's Representative from observing any plant or rejecting the plant if it is found to not meet the specification requirements.

2.2 ROOT BALL PACKAGE OPTIONS: The following root ball packages are permitted. Specific root ball packages shall be required where indicated on the plant list or in this specification. Any type of root ball packages that is not specifically defined in this specification shall not be permitted.

A. CONTAINER (INCLUDING ABOVE-GROUND FABRIC CONTAINERS AND BOXES) PLANTS

1. Container plants may be permitted only when indicated on the drawing, in this specification, or approved by the Owner's Representative.

2. Provide plants shall be established and well rooted in removable containers.

3. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant..

A. Container or flat-grown plants should be sized as noted in the planting plan. Plants shall be well-rooted and healthy.

2.3 PLANTING SOIL

A. Planting Soil as used in this specification means the soil at the planting site, or imported as modified and defined in specification Section Planting Soil. If there is no Planting Soil specification, the term Planting Soil shall mean the soil at the planting site within the planting hole.

2.4 MULCH

A. Mulch shall be "Walk on" grade, coarse, ground, from tree and woody brush sources. The size range shall be a minimum (less than 25% or less of volume) fine particles 3/8 inch or less in size, and a maximum size of individual pieces (largest 20% or less of volume) shall be approximately 1 to 1-1/2 inch in diameter and maximum length approximately 4 to 8". Pieces larger than 8 inch long that are visible on the surface of the mulch after installation shall be removed.

1. It is understood that mulch quality will vary significantly from supplier to supplier and region to region. The above requirements may be modified to conform to the source material from locally reliable suppliers as approved by the Owner's Representative.

B. Submit supplier's product specification data sheet and a one gallon sample for approval.

2.5 TREE STAKING AND GUYING MATERIAL

A. Tree guying to be flat woven polypropylene material, 3/4 inch wide, and 900 lb. break strength. Color to be Green. Product to be ArborTie manufactured by Deep Root Partners, L.P. or approved equal.

B. Stakes shall be lodge pole stakes free of knots and of diameters and lengths appropriate to the size of plant as required to adequately support the plant.

C. Below ground anchorage systems to be constructed of 2 x 2 dimensional untreated wood securing (using 3 inch long screws) horizontal portions to 4 feet long vertical stakes driven straight into the ground outside the root ball.

D. Submit manufacturer's product data for approval

PART 3 EXECUTION

3.1 SITE EXAMINATION

A. Examine the surface grades and soil conditions to confirm that the requirements of the Specification Section - Planting Soil - and the soil and drainage modifications indicated on the Planting Soil Plan and Details (if applicable) have been completed. Notify the Owner's Representative in writing of any unsatisfactory conditions.

3.2 DELIVERY, STORAGE AND HANDLING

A. Protect materials from deterioration during delivery and storage. Adequately protect plants from drying out, exposure of roots to sun, wind or extremes of heat and cold temperatures. If planting is delayed more than 24 hours after delivery, set plants in a location protected from sun and wind. Provide adequate water to the root ball package during the shipping and storage period.

1. All plant materials must be available for observation prior to planting.

2. Using a soil moisture meter, periodically check the soil moisture in the root balls of all plants to assure that the plants are being adequately watered. Volumetric soil moisture shall be maintained above wilting point and below field capacity for the root ball substrate or soil.

B. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote staging area for plants and other supplies.

1. The Owner's Representative or Contractor shall approve the duration, method and location of storage of plants.

C. Provide protective covering over all plants during transporting.

3.3 PLANTING SEASON

A. Planting shall only be performed when weather and soil conditions are suitable for planting the materials specified in accordance with locally accepted practice. Install plants during the planting time as described below unless otherwise approved in writing by the Owner's Representative. In the event that the Contractor request planting outside the dates of the planting season, approval of the request does not change the requirements of the warranty.

1. Deciduous trees and shrubs January to May and August to December.

3.4 ADVERSE WEATHER CONDITIONS

A. No planting shall take place during extremely hot, dry, windy or freezing weather.

3.5 COORDINATION WITH PROJECT WORK

A. The Contractor shall coordinate with all other work that may impact the completion of the work.

B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.

C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner's Representative of any conflicts encountered.

3.6 LAYOUT AND PLANTING SEQUENCE

A. Relative positions of all plants and trees are subject to approval of the Owner's Representative.

B. Notify the Owner's Representative, one (1) week prior to layout. Layout all individual tree and shrub locations. Place plants above surface at planting location or place a labeled stake at planting location. Layout bed lines with paint for the Owner's Representative's approval. Secure the Owner's Representative's acceptance before digging and start of planting work.

C. When applicable, plant trees before other plants are installed.

D. It is understood that plants are not precise objects and that minor adjustments in the layout will be required as the planting plan is constructed. These adjustments may not be apparent until some or all of the plants are installed. Make adjustments as required by the Owner's Representative including relocating previously installed plants.

3.7 SOIL PROTECTION DURING PLANT DELIVERY AND INSTALLATION

A. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.

1. Where possible deliver and plant trees that require the use of heavy mechanized equipment prior to final soil preparation and tilling. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.

2. Till to a depth of 6 inches, all soil that has been driven over during the installation of plants.

3.8 SOIL MOISTURE

A. Volumetric soil moisture level, in both the planting soil and the root balls of all plants, prior to, during and after planting shall be above permanent wilting point and below field capacity for each type of soil texture within the following ranges.

Soil type	Permanent wilting point	Field capacity
Sand, Loamy sand, Sandy loam	5 - 8%	12 - 18%
Loam, Sandy clay, Sandy clay loam	14 - 25%	27 - 36%
Clay loam, Silt loam	11 - 22%	31 - 36%
Silty clay, Silty clay loam	22 - 27%	38 - 41%

1. Volumetric soil moisture shall be measured with a digital moisture meter. The meter shall be the Digital Soil Moisture Meter, DSMM500 by General Specialty Tools and Instruments, or approved equivalent.

B. The Contractor shall confirm the soil moisture levels with a moisture meter. If the moisture is too high, suspend planting operations until the soil moisture drains to below field capacity.

3.9 INSTALLATION OF PLANTS: GENERAL

A. Installation plan shall be submitted a minimum of 14 days prior to the scheduled installation. Plan should describe the methods, activities, materials and schedule to achieve installation of plants.

B. Observe each plant after delivery and prior to installation for damage of other characteristics that may cause rejection of the plant. Notify the Owner's Representative of any condition observed.

C. No more plants shall be distributed about the planting bed area than can be planted and watered on the same day.

D. The root system of each plant, regardless of root ball package type, shall be observed by the Contractor, at the time of planting to confirm that the roots meet the requirements for plant root quality in Part 2 Products: Plants General: Plant Quality. The Contractor shall undertake at the time of planting, all modifications to the root system required by the Owner's Representative to meet these quality standards.

1. Modifications, at the time of planting, to meet the specifications for the depth of the root collar and removal of stem girdling roots and circling roots may make the plant unstable or stress the plant to the point that the Owner's Representative may choose to reject the plant rather than permitting the modification.

2. Any modifications required by the Owner's Representative to make the root system conform to the plant quality standards outlined in Part 2 Products: Plants General: Quality, or other requirements related to the permitted root ball package, shall not be considered as grounds to modify or void the plant warranty.

3. The resulting root ball may need additional staking and water after planting. The Owner's Representative may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty

4. The Contractor remains responsible to confirm that the grower has made all required root modifications noted during any nursery observations.

E. Container and Boxed Root Ball Shaving: The outer surfaces of ALL plants in containers and boxes, including the top, sides and bottom of the root ball shall be shaved to remove all circling, descending, and matted roots. Shaving shall be performed using saws, knives, sharp shovels or other suitable equipment that is capable of making clean cuts on the roots. Shaving shall remove a minimum of one inch of root mat or up to 2 inches as required to remove all root segments that are not growing reasonably radial to the trunk.

F. Exposed Stem Tissue after Modification: The required root ball modifications may result in stem tissue that has not formed trunk bark being exposed above the soil line. If such condition occurs, wrap the exposed portion of the stem in a protective wrapping with a white filter fabric. Secure the fabric with biodegradable masking tape. DO NOT USE string, twine, green nursery ties or any other material that may girdle the trunk if not removed.

G. Excavation of the Planting Space: Using hand tools or tracked mini-excavator, excavate the planting hole into the Planting Soil to the depth of the root ball measured after any root ball modification to correct root problems, and wide enough for working room around the root ball or to the size indicated on the drawing or as noted below.

1. For trees and shrubs planted in soil areas that are NOT tilled or otherwise modified to a depth of at least 12 inches over a distance of more than 10 feet radius from each tree, or 5 feet radius from each shrub, the soil around the root ball shall be loosened as defined below or as indicated on the drawings.

a. The area of loosening shall be a minimum of 3 times the diameter of the root ball at the surface sloping to 2 times the diameter of the root ball at the depth of the root ball.

b. Loosening is defined as digging into the soil and turning the soil to reduce the compaction. The soil does not have to be removed from the hole, just dug, lifted and turned. Lifting and turning may be accomplished with a tracked mini excavator, or hand shovels.

2. If an auger is used to dig the initial planting hole, the soil around the auger hole shall be loosened as defined above for trees and shrubs planted in soil areas that are NOT tilled or otherwise modified.

3. The measuring point for root ball depth shall be the average height of the outer edge of the root ball after any required root ball modification.

4. If motorized equipment is used to deliver plants to the planting area over exposed planting beds, or used to loosen the soil or dig the planting holes, all soil that has been driven over shall be tilled to a depth of 6 inches.

H. For trees to be planted in prepared Planting Soil that is deeper than the root ball depth, compact the soil under the root ball using a mechanical tamper to assure a firm bedding for the root ball. If there is more than 12 inches of planting soil under the root ball excavate and tamp the planting soil in lifts not to exceed 12 inches.

I. Set top outer edge of the root ball at the average elevation of the proposed finish. Set the plant plumb and upright in the center of the planting hole. The tree graft, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.

J. The Owner's Representative may request that plants orientation be rotated when planted based on the form of the plant.

K. Backfill the space around the root ball with the same planting soil or existing soil that was excavated for the planting space. See Specification Section Planting Soil, for requirements to modify the soil within the planting bed.

L. Brace root ball by tamping Planting Soil around the lower portion of the root ball. Place additional Planting Soil around base and sides of ball in six-inch (6") lifts. Lightly tamp each lift using foot pressure or hand tools to settle backfill, support the tree and eliminate voids. DO NOT over compact the backfill or use mechanical or pneumatic tamping equipment. Over compaction shall be defined as greater than 85% of maximum dry density, standard proctor or greater than 250 psi as measured by a cone penetrometer when the volumetric soil moisture is lower than field capacity.

1. When the planting hole has been backfilled to three quarters of its depth, water shall be poured around the root ball and allowed to soak into the soil to settle the soil. Do not flood the planting space. If the soil is above field capacity, allow the soil to drain to below field capacity before finishing the planting. Air pockets shall be eliminated and backfill continued until the planting soil is brought to grade level.

M. Where indicated on the drawings, build a 4 inch high, level berm of Planting Soil around the outside of the root ball to retain water. Tamp the berm to reduce leaking and erosion of the saucer.

N. Thoroughly water the Planting Soil and root ball immediately after planting.

O. Remove all nursery plant identification tags and ribbons as per Owner's Representative instructions. The Owner's Representative's seals are to remain on plants until the end of the warranty period.

P. Remove corrugated cardboard trunk protection after planting.

Q. Follow additional requirements for the permitted root ball packages.

3.10 PERMITTED ROOT BALL PACKAGES AND SPECIAL PLANTING REQUIREMENTS

A. The following are permitted root ball packages and special planting requirements that shall be followed during the planting process in addition to the above General planting requirements.

B. CONTAINER (INCLUDES BOXED AND ABOVE-GROUND FABRIC CONTAINERS) PLANTS

2. This specification assumes that most container plants have significant stem girdling and circling roots, and that the root collar is too low in the root ball.

3. Remove the container.

4. Perform root ball shaving as defined in Installation of Plants: General above.

5. Remove all roots and substrate above the root collar and the main structural roots according to root correction details so root system conforms to root observations detail.

6. Remove all substrate at the bottom of the root ball that does not contain roots.

7. Using a hose, power washer or air excavation device, wash out the substrate from around the trunk and top of the remaining root ball and find and remove all stem girdling roots within the root ball above the top of the structural roo

3.12 STAKING AND GUYING

A. Do not stake or guy trees unless specifically required by the Contract Documents, or in the event that the Contractor feels that staking is the only alternative way to keep particular trees plumb.

5. The Owner's Representative shall have the authority to require that trees are staked or to reject staking as an alternative way to stabilize the tree.

6. Trees that required heavily modified root balls to meet the root quality standards may become unstable. The Owner's Representative may choose to reject these trees rather than utilize staking to temporarily support the tree.

B. Trees that are guyed shall have their guys and stakes removed after one full growing season or at other times as required by the Owner's Representative.

C. Tree guying shall utilize the tree staking and guying materials specified. Guying to be tied in such a manner as to create a minimum 12-inch loop to prevent girdling. Refer to manufacturer's recommendations and the planting detail for installation.

1. Plants shall stand plumb after staking or guying.

2. Stakes shall be driven to sufficient depth to hold the tree rigid.

D. For trees planted in planting mix over waterproofed membrane, use dead men buried 24 inches to the top of the dead man, in the soil. Tie the guy to the dead man with a double wrap of line around the dead man followed by a double half hitch. When guys are removed, leave the dead men in place and cut the guy tape 12 inches above the ground, leaving the tape end covered in mulch.

3.15 STRAIGHTENING PLANTS

A. Maintain all plants in a plumb position throughout the warranty period. Straighten all trees that move out of plumb including those not staked. Plants to be straightened shall be excavated and the root ball moved to a plumb position, and then re-backfilled.

B. Do not straighten plants by pulling the trunk with guys.

3.16 PRUNING OF TREES AND SHRUBS

A. Prune plants as directed by the Owner's Representative. Pruning trees shall be limited to addressing structural defects as shown in details; follow recommendations in "Structural Pruning: A Guide For The Green Industry" published by Urban Tree Foundation, Visalia CA.

B. All pruning shall be performed by a person experienced in structural tree pruning.

C. Except for plants specified as multi-stemmed or as otherwise instructed by the Owner's Representative, preserve or create a central leader.

D. Pruning of large trees shall be done using pole pruners or if needed, from a ladder or hydraulic lift to gain access to the top of the tree. Do not climb in newly planted trees. Small trees can be structurally pruned by laying them over before planting. Pruning may also be performed at the nursery prior to shipping.

E. Remove and replace excessively pruned or malformed stock resulting from improper pruning that occurred in the nursery or after.

F. Pruning shall be done with clean, sharp tools.

G. No tree paint or sealants shall be used.

3.18 MULCHING OF PLANTS

A. Apply 5 inches of mulch before settlement, covering the entire planting bed area. Install no more than 1 inch of mulch over the top of the root balls of all plants. Taper to 2 inches when abutting pavement.

B. For trees planted in lawn areas the mulch shall extend to a 5 foot radius around the tree or to the extent indicated on the plans.

C. Lift all leaves, low hanging stems and other green portions of small plants out of the mulch if covered.

3.19 PLANTING BED FINISHING

A. After planting, smooth out all grades between plants before mulching.

B. Separate the edges of planting beds and lawn areas with a smooth, formed edge cut into the turf with the bed mulch level slightly lower, 1 and 2 inches, than the adjacent turf sod or as directed by the Owner's Representative. Bed edge lines shall be a depicted on the drawings.

3.20 WATERING

A. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants from the point of installation until the date of Substantial Completion Acceptance. The Contractor shall adjust the automatic irrigation system, if available, and apply additional or adjust for less water using hoses as required.

B. Hand water root balls of all plants to assure that the root balls have moisture above wilt point and below field capacity. Test the moisture content in each root ball and the soil outside the root ball to determine the water content.

3.21 CLEAN-UP

A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.

1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site. The Owner's Representative's seals are to remain on the trees and removed at the end of the warranty period.

C. Make all repairs to grades, ruts, and damage by the plant installer to the work or other work at the site.

D. Remove and dispose of all excess planting soil, subsoil, mulch, plants, packaging, and other material brought to the site by the Contractor.

3.22 PROTECTION DURING CONSTRUCTION

A. The Contractor shall protect planting and related work and other site work from damage due to planting operations, operations by other Contractors or trespassers. Maintain protection during installation until Substantial Completion Acceptance. Treat, repair or replace damaged work immediately.

B. Damage done by the Contractor, or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain, including roots, trunk or branches of large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Owner. The Owner's Representative shall determine when such cleaning, replacement or repair is satisfactory.

3.23 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE

A. During the project work period and prior to Substantial Completion Acceptance, the Contractor shall maintain all plants.

B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept reasonably free of weeds, grass.

3.24 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.

1. Notification shall be at least 7 days prior to the date the contractor is requesting the review.

B. The date of substantial completion of the planting shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

C. The Plant Warranty period begins at date of written notification of substantial completion from the Owner's Representative. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.

3.25 MAINTENANCE DURING THE WARRANTY PERIOD BY THE PLANT INSTALLER

A. During the warranty period, provide all maintenance for all plantings to keep the plants in a healthy state and the planting areas clean and neat.

B. General requirements:

1. All work shall be undertaken by trained planting crews under the supervision of a foreman with a minimum of 5 years experience supervising commercial plant maintenance crews.

2. All chemical and fertilizer applications shall be made by licensed applicators for the type of chemicals to be used. All work and chemical use shall comply with all applicable local, provincial and federal requirements.

3. Assure that hoses and watering equipment and other maintenance equipment does not block paths or be placed in a manner that may create tripping hazards. Use standard safety warning barriers and other procedures to maintain the site in a safe manner for visitors at all times.

4. All workers shall wear required safety equipment and apparel appropriate for the tasks being undertaken.

5. The Contractor shall not store maintenance equipment at the site at times when they are not in use unless authorized in writing by the Owner's Representative.

6. Maintenance vehicles shall not park on the site including walks and lawn areas at any time without the Owner's Representative's written permission.

7. Maintain a detailed log of all maintenance activities including types of tasks, date of task, types and quantities of materials and products used, watering times and amounts, and number of each crew. Periodically review the logs with the Owner's Representative, and submit a copy of the logs at the end of each year of the maintenance agreement.

8. Meet with the Owner's Representative a minimum of three times a year to review the progress and discuss any changes that are needed in the maintenance program. At the end of the warranty period attend a hand over meeting to formally transfer the responsibilities of maintenance to the Owner's Representative. Provide all information on past maintenance activities and provide a list of critical tasks that will be needed over the next 12 months. Provide all maintenance logs and soil test data. Make the Contractor's supervisor available for a minimum of one year after the end of the warranty period to answer questions about past maintenance.

C. Provide the following maintenance tasks:

1. Watering; Provide all water required to keep soil within and around the root balls at optimum moisture content for plant growth.

a. Maintain all watering systems and equipment and keep them operational.

b. Monitor soil moisture to provide sufficient water. Check soil moisture and root ball moisture with a soil moisture meter on a regular basis and record moisture readings. Do not over water.

2. Soil nutrient levels: Take a minimum of 4 soil samples from around the site in the spring and fall and have them tested by an accredited agricultural soil testing lab for chemical composition of plant required nutrients, pH, salt and % organic matter. Test results shall include laboratory recommendations for nutrient applications. Apply fertilizers at rates recommended by the soil test.

a. Make any other soil test and/or plant tissue test that may be indicated by plant conditions that may not be related to soil nutrient levels such as soil contaminated by other chemicals or lack of chemical uptake by the plant.

3. Plant pruning: Remove cross over branching, shorten or remove developing co dominant leaders, dead wood and winter-damaged branches. Unless directed by the Owner's Representative, do not shear plants or make heading cuts.

4. Restore plants: Reset any plants that have settled or are leaning as soon as the condition is noticed.

5. Guying and staking: Maintain plant guys in a taught position. Remove tree guys and staking after the first full growing season unless directed by Owner's Representative.

6. Weed control: Keep all beds free of weeds. Hand-remove all weeds and any plants that do not appear on the planting plan. Chemical weed control is permitted only with the approval of the Owner's Representative. Schedule weeding as needed but not less *12 times per year*.

7. Trash removal: Remove all trash and debris from all planting beds and maintain the beds in a neat and tidy appearance. The number of trash and debris removal visits shall be no less than 12 times per year and may coincide with other maintenance visits.

8. Plant pest control: Maintain disease, insects and other pests at manageable levels. Manageable levels shall be defined as damage to plants that may be noticeable to a professional but not to the average person. Use least invasive methods to control plant disease and insect outbreaks.

a. The Owner's Representative must approve in advance the use of all chemical pesticide applications.

9. Plant replacement: Replace all plants that are defective as defined in the warranty provisions, as soon as the plant decline is obvious and in suitable weather and season for planting as outlined in above sections. Plants that become defective during the maintenance period shall be covered and replaced under the warranty provisions.

10. Mulch: Refresh mulch once a year to maintain complete coverage but do not over mulch. At no time shall the overall mulch thickness be greater that 5 inches. Do not apply mulch within 6 inches of the trunks or stems of any plants. Replacement mulch shall meet the requirements of the original approved material. Mulch shall be no more than one inch on top of the root ball surface.

11. Bed edging: Check and maintain edges between mulch and lawn areas in smooth neat lines as originally shown on the drawings.

12. Leaf, fruit and other plant debris removal: Remove fall leaf, spent flowers, fruit and plant part accumulations from beds and paved surfaces. Maintain all surface water drains free of debris. Debris removal shall be undertaken at each visit to weed or pick up trash in beds.

13. Damage from site use: Repair of damage by site visitors and events, beyond normal wear, are not part of this maintenance. The Owner's Representative may request that the Contractor repair damage beds or plantings for an additional cost. All additional work shall be approved in advance by the Owner's Representative.

3.27 END OF WARRANTY FINAL ACCEPTANCE / MAINTENANCE OBSERVATION

A. At the end of the Warranty and Maintenance period the Owner's Representative shall observe the work and establish that all provisions of the contract are complete and the work is satisfactory.

1. If the work is satisfactory, the maintenance period will end on the date of the final observation.

2. If the work is deemed unsatisfactory, the maintenance period will continue at no additional expense to the Owner until the work has been completed, observed, and approved by the Owner's Representative.

B. FAILURE TO PASS OBSERVATION: If the work fails to pass final observation, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owners Representative.

END OF SECTION 32 93 00

NO.	DATE	DESCRIPTION

NORTH

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No 5803
Signature
4-30-22
Renewal Date
Date
STATE OF CALIFORNIA

PREPARED BY:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
559. 786.9600
tyson@iwoodarchitecture.com

CHK BY: TC
DRW BY: TC

NOT FOR CONSTRUCTION

CITY OF VISALIA
315 E. ACEQUIA AVE.
VISALIA, CA 93291

RIGGIN AVENUE
WIDENING & IMPROVEMENTS
SPECIFICATIONS

PROJ. NO. 20124_WA
DATE:2/16/2021
DESIGN BY: TC DRAWN BY:TC
SCALE: AS SHOWN