

North Willow Avenue Street Widening Project

Initial Study/Mitigated Negative Declaration

Prepared for:

City of Clovis
Planning and Development Services Department
Engineering Division
1033 Fifth Street, Clovis, California 93612

Prepared on: March 2018

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Table of Contents

Project Overview	1
Initial Study	1
Environmental Factors Potentially Affected.....	2
Chapter 1.....	3
Project Description.....	3
1.1 Introduction and Background.....	3
1.2 Project Location	5
1.3 Project Objectives.....	12
1.4 Proposed Project	12
1.5 Project Schedule.....	13
1.6 Required Public Agency Approval	14
Chapter 2.....	15
Environmental Checklist	15
2.1 Aesthetics	16
2.2 Agricultural and Forestry Resources	18
2.3 Air Quality	27
2.4 Biological Resources	34
2.5 Cultural Resources	39
2.6 Geology and Soils.....	42
2.7 Greenhouse Gas Emissions.....	45
2.8 Hazards and Hazardous Materials	47
2.9 Hydrology and Water Quality.....	50
2.10 Land Use and Planning	55
2.11 Mineral Resources.....	56
2.12 Noise.....	59
2.13 Population and Housing	65
2.14 Public Services	66
2.15 Recreation	67
2.16 Transportation/Traffic.....	69
2.17 Tribal Cultural Resources	73
2.18 Utilities and Service Systems	75
2.19 Mandatory Findings of Significance.....	77
Chapter 3.....	79
Mitigation Monitoring and Reporting Program	79
3.1 Purpose	79
3.2 Lead Agency and Responsible Agency.....	79
3.3 Mitigation Monitoring and Reporting Coordinator.....	79
3.4 Monitoring and Reporting Procedures for Design-, Site Clearing-, and Construction-Related Mitigation Measures.....	79

3.5 Monitoring and Reporting Procedures for Operational- and Maintenance-Related Mitigation Measures	80
Chapter 4.....	90
References.....	90

Figures

Figure 1: Project Location Map	7
Figure 2: Project Vicinity Map	8
Figure 3: USGS Topographic Map.....	9
Figure 4: General Plan EIR Planning Areas	10
Figure 5: General Plan EIR Existing Land Uses	11
Figure 6: General Plan EIR Existing Important Farmland.....	23
Figure 7: General Plan EIR Williamson Act Lands	24
Figure 8: General Plan EIR Strategic Farmland	25
Figure 9: General Plan EIR Planned Land Use Map	26
Figure 10: General Plan EIR Water Bodies and Flood Zones.....	54
Figure 11: General Plan EIR Mineral Resources Zones.....	57
Figure 12: General Plan EIR Mineral Resources Zone Detail	58
Figure 13: General Plan EIR Existing Roadway Noise Level Contours	63
Figure 14: General Plan EIR Full Buildout Roadway Noise Level Contours	64
Figure 15: General Plan EIR Existing Parks and Trails	68
Figure 16: General Plan EIR Existing Circulations System	71
Figure 17: General Plan EIR Full Buildout Circulation System and Roadway Classification	72

Tables

Table 1: Project Location	6
Table 2: Additional Area Required	13
Table 3: Required Permits and Approvals	14
Table 4: Converted Farmland	20
Table 5: Annual Construction Emissions	30
Table 6: Daily Construction Emissions	31
Table 7: Sensitive Receptors	32
Table 8: Short Term, Construction-Related GHG Emissions	46
Table 9: Mitigation Measures	81

Appendices

Appendix A: Air Quality/GHG Assessment	91
Appendix B: Biological Resources Assessment	92
Appendix C: Phase 1 Archaeological Resources Study	93

Appendix D: Acoustical Analysis.....	94
Appendix E: Construction Plans	95

Project Overview

Initial Study

A. Project Title:	North Willow Avenue Street Widening Project CIP Project No. 15-16
B. Lead Agency Name and Address:	City of Clovis 1033 Fifth Street Clovis, CA 93612
C. Contact Person and Phone Number:	Ryan Burnett, AICP, Engineering Program Supervisor 559-324-2336
D. Project Location:	Clovis, CA
E. Project Sponsor's Name and Address:	Ryan Burnett, AICP, Engineering Program Supervisor 1033 Fifth Street Clovis, CA 93612
F. City of Clovis General Plan Designation(s):	From Shepherd to Copper (street widening locations): MU-V: Mixed Used Village MU-BC: Mixed Use/Business Campus PK: Park W: Water From Nees to Shepherd (pavement striping improvements only locations): MU-V: Mixed Used Village MH: Medium High Density Residential L: Low Density Residential GC: General Commercial
G. County of Fresno and City of Clovis Zoning Designation(s):	Country of Fresno from Shepherd to Copper (street widening locations): AE20: Exclusive Agricultural CM: Commercial and Light Manufacturing City of Clovis from Nees to Shepherd (pavement striping improvements only locations): C-2: Community Commercial R-2: Low Density Multiple Family Residential R-1-7500: Single Family Residential 7,500 sqft R-A:Single Family Residential 24,000 sqft P-C-C: Planned Commercial Center
H. Description of Project:	See Project Description.
I. Surrounding Land Uses and Setting:	See Project Description.
J. Other public agencies whose approval is required:	See Table 3.

Environmental Factors Potentially Affected

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

- | | | |
|---|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology and Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Hydrology and Water Quality |
| <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation and Traffic | <input type="checkbox"/> Tribal Cultural Resources | <input type="checkbox"/> Utilities and Service Systems |
| <input type="checkbox"/> Mandatory Findings of Significance | | |

Determination

On the basis of this Initial Study:

- 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. An ENVIRONMENTAL IMPACT REPORT 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 required.



Signature

Ryan Burnett, AICP – The City of Clovis
Printed Name

April 3, 2018

Date

Engineering Program Supervisor
Title

Chapter 1

Project Description

1.1 Introduction and Background

The City of Clovis (City) is proposing to undertake the North Willow Avenue Street Widening Project (Project) that would widen the northbound lanes of Willow Avenue from Copper Avenue to Shepherd Avenue from one travel lane to three travel lanes including a bike lane. The Project site encompasses an approximately 2-mile long segment of Willow Avenue between Copper and Shepherd Avenues. A segment of Willow Avenue between Shepherd Avenue and Nees Avenue would also receive pavement striping improvements for a total distance of 3 miles. The Project site is located in the Northwest Urban Center, within the City of Clovis Sphere of Influence (SOI). The Project segment of Willow Avenue borders the City of Fresno on the west side and City of Clovis SOI on the east side. The auxiliary improvements to occur due to the road widening are the following installations:

- landscaped medians
- Storm drain improvements as required by the Fresno Metropolitan Flood Control District (FMFCD)
- Signal lights
- Curb cuts and cross walks
- Street lights
- Fire hydrants
- Increasing the capacity of:
 - The existing privately owned International Basin (approximately 0.55 acres)
 - The existing FMFCD basin AQ (approximately 0.34 acres)
- A new city of Clovis temporary basin along the road alignment (approximately 0.36 acres)
- A new water line
- A new sewer line
- Striping improvements

The purpose of the Project is to increase the transit efficiency and level of service by reducing congestion and enhancing safety on the affected roadway. The Project would support implementation of the 2014 General Plan by increasing the capacity of northbound traffic on Willow Avenue, between Copper and Shepherd Avenues, and enhancing the roadway to provide multi-modal access. The Project would improve northbound travel lanes on Willow Avenue between Copper and Shepherd Avenues to meet the City's arterial street standard, which would include curb and gutter; bike lanes; three northbound travel lanes; protected left-turn lanes; landscaped median islands; and three retention basins' two existing and one proposed that are located along the alignment to account for the anticipated increase in stormwater runoff that would result from Project implementation. Pavement striping improvements would also occur on Willow Avenue between Shepherd and Nees Avenues. Increased capacity on Willow Avenue would not result in increased vehicle trips, vehicle miles traveled, or average vehicle speeds on roadways in the Project vicinity, but would rather increase the transit efficiency and level of service by reducing congestion and enhancing and safety on the affected roadway. Refer to the construction documents in Appendix D.

Along segments of the road where the existing right-of-way is too narrow to accommodate the proposed arterial street improvements, the City would need to acquire or obtain by dedication additional land.

The following discussion provides a summary of background and process information relevant to the Project.

1.1.1 CEQA Process

This document has been prepared to satisfy the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before they approve or implement those projects.

1.1.2 City of Clovis 2014 General Plan and Program EIR

The City adopted the General Plan and Development Code Update Draft Program Environmental Impact Report in June 2014 (Draft PEIR).¹ The General Plan and Development Code Update Final Program Environmental Impact Report (Final PEIR)² was adopted by the City in August 2014 along with the City of Clovis 2014 General Plan (General Plan). The purpose of the 2014 General Plan was to update the 1993 plan and provide guidance to land use and development for the entire Clovis Planning Area to accommodate 80 years of growth. The General Plan also establishes the goals and policies relevant to land use, growth and development for various topic elements.

1.1.3 CEQA Tiering

Under CEQA, “tiering” refers to the use of the impact analyses contained in a broader EIR, such as the Draft and Final PEIR (State Clearinghouse Number (SCH) 2012061069) to streamline the analysis of subsequent, related projects through a tiered EIR or a tiered Negative Declaration (CEQA Guidelines section 15152). The Project was initially evaluated in the Draft and Final PEIR (CEQA Guidelines section 15168).

The Project is located on unincorporated land within the City’s Sphere of Influence and Planning Area. Fresno County (County) General Plan Policy LU-G.1 provides that “cities have primary responsibility for planning within their LAFCO-adopted spheres of influence and are responsible for urban development and the provision of urban services within their spheres of influence.” Based on the County’s policy, the 2014 General Plan is the primary planning document for the area in which the Project is proposed.

¹ City of Clovis, Placeworks. (June 2014) *City of Clovis General Plan and Development Code Update Draft Program Environmental Impact Report*. Available at: <http://www.ci.clovis.ca.us/Depts-Services/Planning-and-Development/General-Plan/General-Plan-EIR>.

² City of Clovis, Placeworks. (August 2014) *City of Clovis General Plan and Development Code Update Final Program Environmental Impact Report*. Available at: <http://www.ci.clovis.ca.us/Depts-Services/Planning-and-Development/General-Plan/General-Plan-EIR>.

This Initial Study (IS) has determined that the Project is consistent with the 2014 General Plan and the zoning of the City. This conclusion reflects the following considerations.

- The 2014 General Plan contains goals and policies regarding the development of the Northwest Urban Center.
- The overarching goal of the Circulation Element described in the 2014 General Plan is to provide “a comprehensive and well-maintained multi-modal circulation system that provides for the safe and efficient movement of people and goods.”
- The Project is consistent with the overarching goals of the Circulation Element as it will provide multi-modal transportation and accommodate the capacity that is expected to occur due to development of the Northwest Urban Center.

This IS tiers off of the general analysis contained in the Draft and Final PEIR, and where applicable presents a project-specific CEQA analysis for the Project. Consistent with CEQA Guidelines section 15150, the Draft PEIR and Final PEIR are incorporated by reference into this IS, including applicable environmental setting, impact analysis, and mitigation measures.

1.2 Project Location

The Project site is located within the Northwest Urban Center described in the 2014 General Plan. The proposed widening portion of the Project extends 2 miles along the east side of Willow Avenue, between Copper and Shepherd Avenues, in the northerly portion of the Fresno-Clovis metropolitan area. The widening portion of the alignment is bounded to the north by Copper Avenue and to the south by Shepherd Avenue. To the west is primarily residential development between Shepherd and Behymer Avenues, and between Behymer and Copper Avenues is a Clovis Unified School District campus (Clovis North High School) and Willow International Community College, all within Fresno City Limits. To the east is unincorporated land within Fresno County containing primarily agricultural use properties with a few rural residential developments, a single commercial storage site, and a church.

The pavement striping portion of the Project would occur along Willow Avenue, between Nees and Shepherd Avenues. This portion of the alignment is bordered primarily by residential developments, with commercial developments located at the northern and southern ends.

Refer to Table 1, Figure 1, and Figure 2 for additional information regarding Project location.

Table 1: Project Location

City	Unincorporated (Within the City of Clovis Sphere of Influence – Northwest Urban Center)
County	Fresno
Zip Code	93619
Assessor's Parcel Number	Varies
Nearest Existing Major Cross Streets	Widening: Start: N. Willow Ave. and W. Shepherd Ave. End: N. Willow Ave. and E. Copper Ave. Pavement Striping Only: Start: N. Willow Ave. and W. Nees Ave. End: N. Willow Ave. and W. Shepherd Ave.
Elevation	Approximately 388 AMSL
USGS Map	Friant and Clovis (See Figure 3)
Section, Township & Range	Section(s) 13,24 Township 12S, Range 20E Section(s) 18 Township 12S, Range 21E Mount Diablo Base and Meridian
Latitude and Longitude	Widening: Start: 36 52'00.98"N; 119 43'46.96" W End: 36 53'45.53"N; 119 43'47.62" W Pavement Striping Only: Start: 36 51'8.18"N; 119 43'47.12" W End: 36 52'0.38"N; 119 43'47.21" W
Current Land Use	See Figure 5
Applicable General Plan	<i>City of Clovis General Plan</i> , adopted August 2014

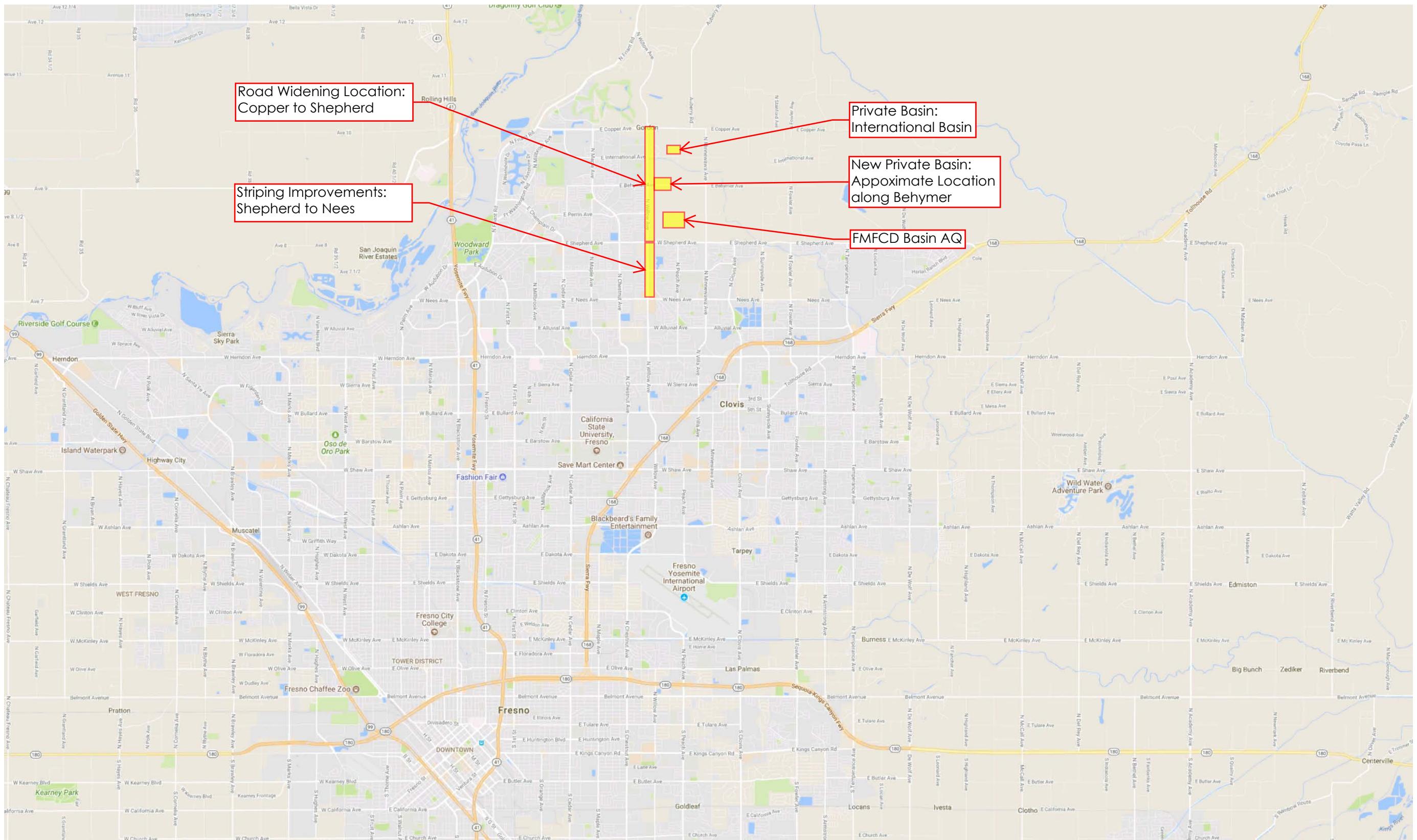


Figure 1: Project Location Map

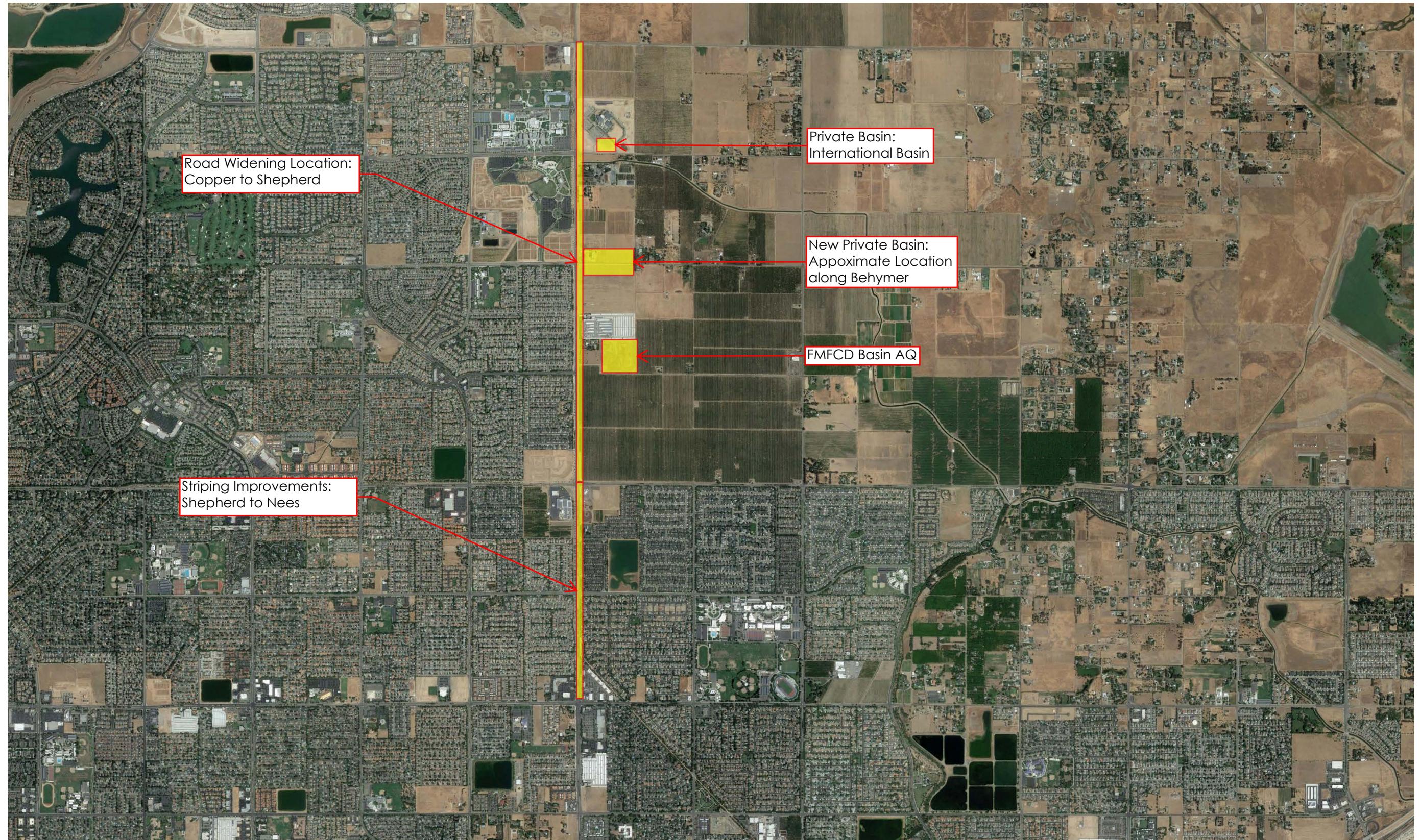


Figure 2: Project Vicinity Map

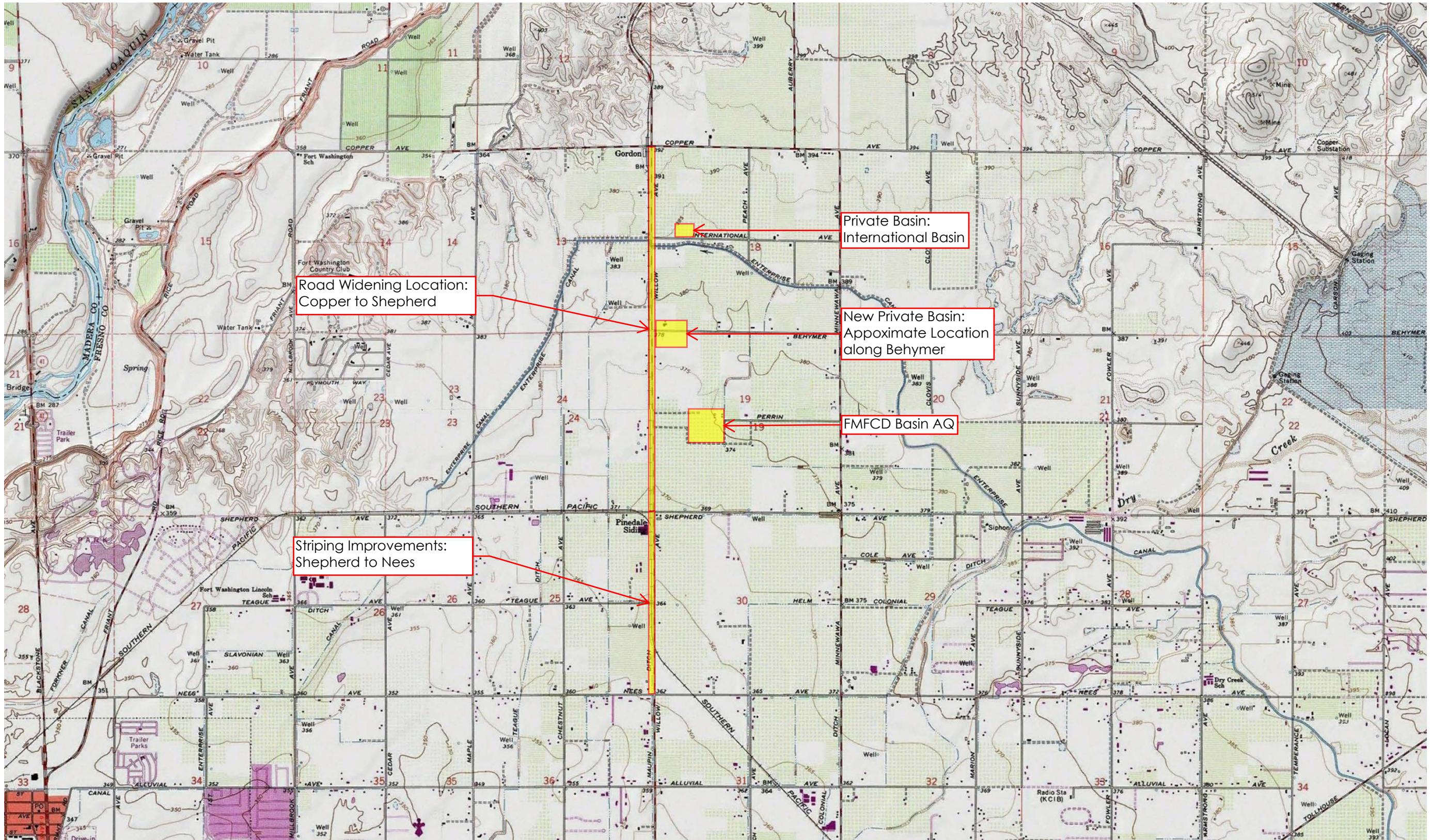
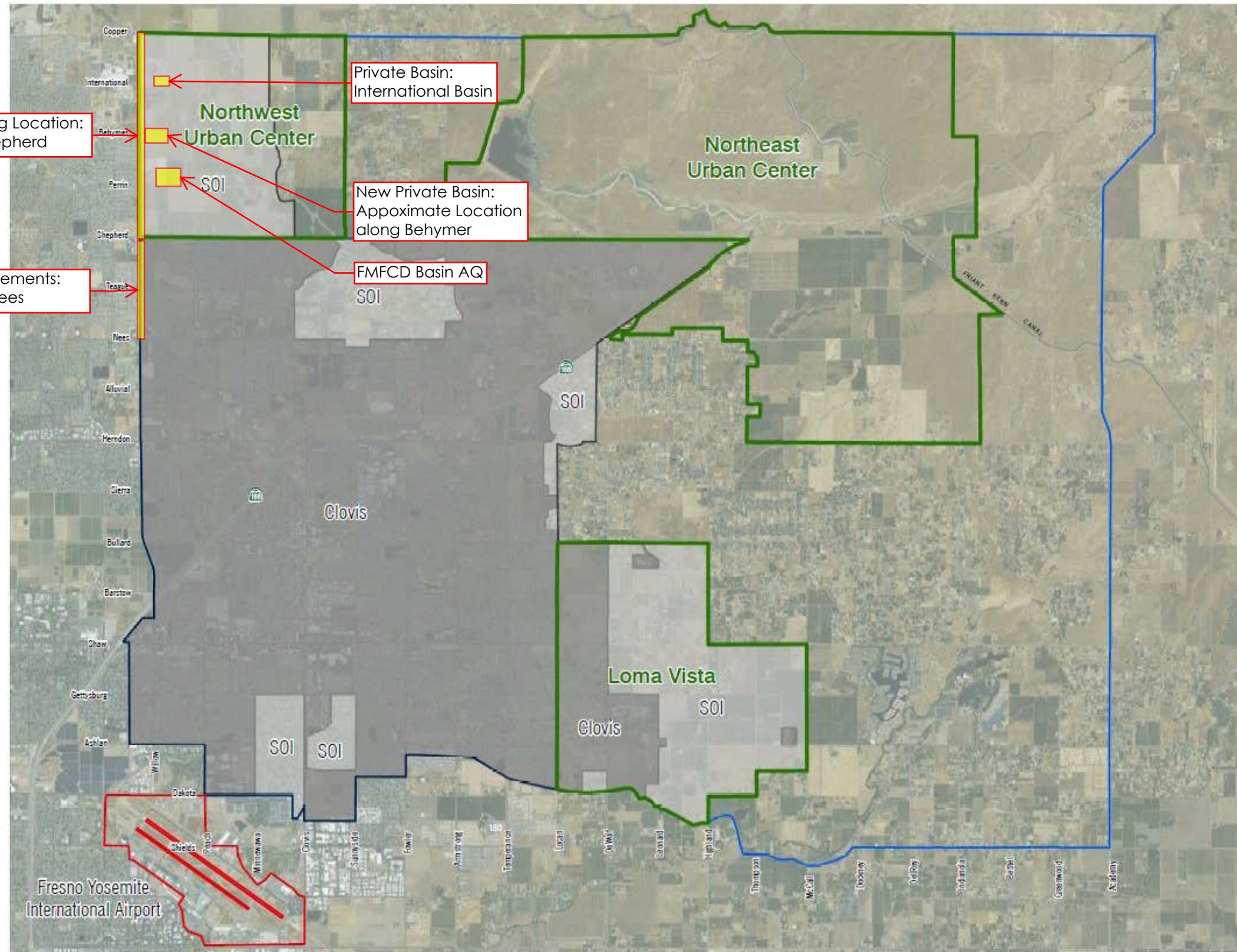


Figure 3: USGS Topographic Map



Source: City of Clovis, 2010; Esri, DigitalGlobe, 2013

Figure 4: General Plan EIR Planning Areas

3. Project Description

Figure 3-2

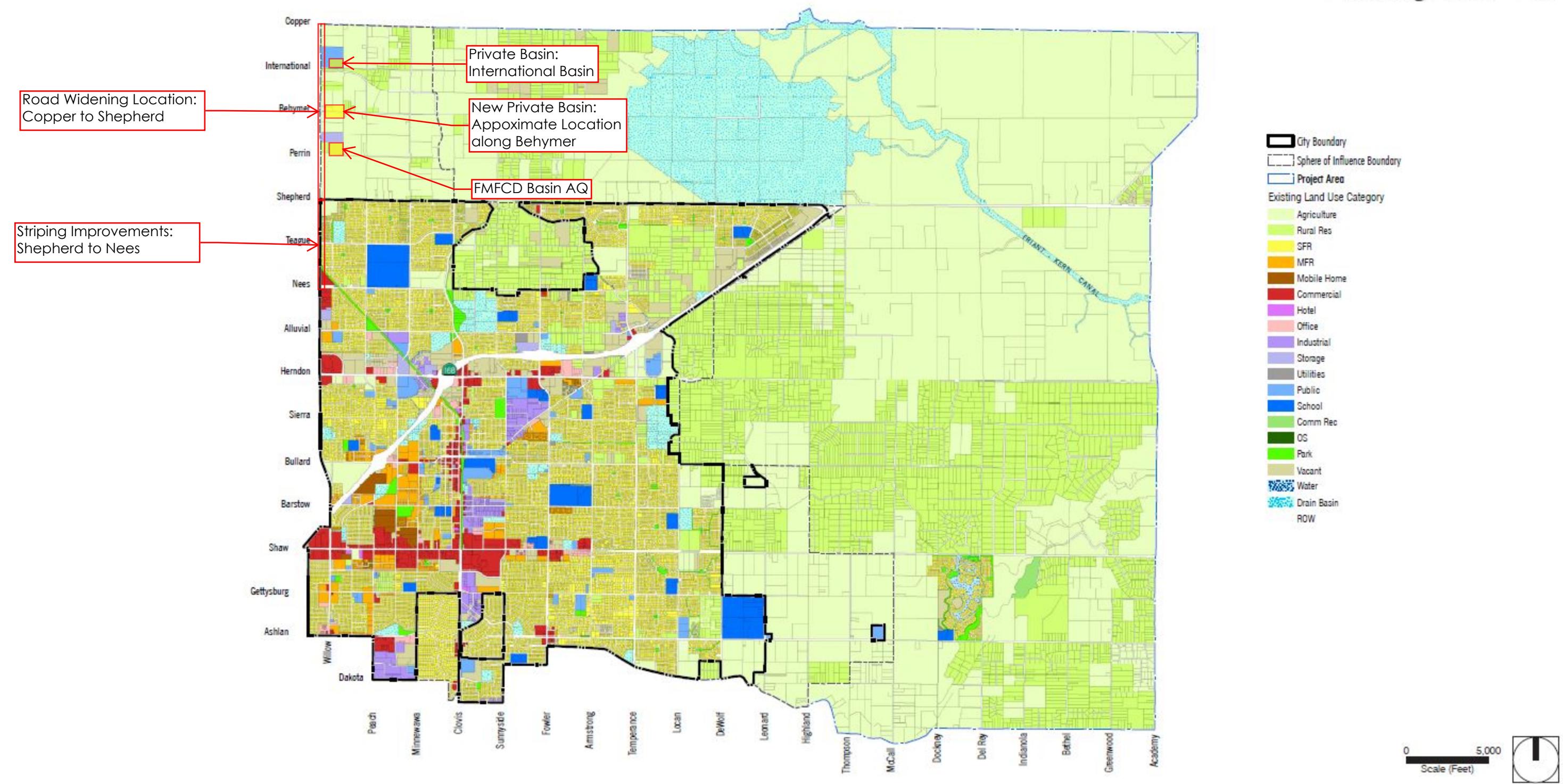
Aerial Photograph

- Urban Center Boundary
- Plan Area Boundary
- City Boundary
- Sphere of Influence Boundary
- Fresno Yosemite International Airport



PLACEWORKS

Existing Land Uses



City of Clovis General Plan and Development Code Update

A-15

The Planning Center | DC&E • Figure 3

Figure 5: General Plan EIR Existing Land Uses

1.3 Project Objectives

The overall objective of the Project is to support implementation of the 2014 General Plan by increasing the capacity of northbound traffic on Willow Avenue and enhancing the roadway to provide multi-modal access. The 2014 General Plan objectives include the development of a circulation system that would:

- Satisfy the overarching goal for the 2014 General Plan Circulation Element as previously described in Section 1.1.3 of this document.
- Satisfy the overarching goal for the 2014 General Plan Land Use Element: A complete community and a sustainable city that maintains its small town character and premiere quality of life through balanced growth, development and reinvestment.
- Meet goals and policies set forth in the 2014 General Plan that call for investment in city infrastructure and connected development in the Northeast and Northwest Urban Centers. These Urban Centers are unique sub-communities of Clovis that are key components to enabling the City to grow while maintaining authentic, small town character and overall livability.
- Productively utilize Fresno County Transportation Authority Measure C Regional Transportation Program Short-Term Sub Program funds.

1.4 Proposed Project

The Project would include widening and improving a 2-mile segment on the east side of Willow Avenue between Copper and Shepherd Avenues. Improvements would include developing a concrete median, two additional vehicle northbound travel lanes, curb and gutter, landscape and irrigation, street lighting, and bike lanes. As part of the Project, the City would also make modifications to street signs, street striping, and electrical equipment within the Willow Avenue right-of-way. The Project would include modifications to traffic signals at the intersections of Willow Avenue and Perrin, Behymer, and International Avenues, and the installation of a new traffic signal at the intersection of Willow and Copper Avenues, with the installation of electrical equipment necessary for operation of the new and modified traffic signals. New and modified drainage facilities would be incorporated to accommodate additional storm water runoff from the Project. The existing Fresno Metropolitan Control District (FMFCD) Basin AQ and the private International Basin would be modified to provide additional capacity for runoff from the proposed project. In addition, there is a new proposed temporary basin to be owned by the City of Clovis. The location of this proposed basin has not yet been determined by the City of Clovis; however, the technical report analyzed all potential locations of the proposed basin along Behymer Avenue to ensure that none of the locations would result in significant impacts. Refer to Figure 2 for the potential basin locations. Minor pavement striping improvements would also be made to Willow Avenue between Nees and Shepherd Avenues. The Project would not induce growth, rather it would change traffic patterns to facilitate implementation of the 2014 General Plan. Finally, the City would acquire or obtain by dedication additional land along sections of Willow Avenue where the existing ROW is too narrow to accommodate the Project. Refer to the construction documents provided in Appendix E for more information. Table 2 below outlines the additional area required for Project completion.

Table 2: Additional Area Required.

Assessor's Parcel No.	Area of Existing Parcel/Lot (Acres)	Approximate Area of Additional Right- of-Way (Acres)	Existing Property Land Use, and Specific Improvements within the Right-of-Way to be Obtained/Acquired	Existing Land Use/ Farmland Classification
55602016S	171.724	2.885	Orchard: 4' wood fence, 10' wide graded dirt access road, and approximately 2 – 3 rows of orchard trees within right-of-way	Agriculture: Prime Farmland
55601020	7.271	0.061	Residential Home: 6' chain link fence, mail box, driveway, and landscaping	Rural Residential: Prime Farmland
55601027	18.693	0.522	Residential Home: 2 concrete irrigation standpipes, mailbox, driveway	Agriculture
55601026	19.233	0.528	Vacant Lot, No development	Agriculture
58007128	5.511	0.202	Residential Home: fruit stand	Agriculture
58007130	16.862	0.939	Farmland: graded dirt shoulder, and crops	Agriculture: Prime Farmland
58007124	8.731	0.112	Residential Home: 4' chain link fence, perimeter trees and landscaping	Agriculture
58007122	8.781	0.264	Residential Home: 4' chain link fence, perimeter trees and landscaping	Rural Residential
58007126	5.031	0.085	Vacant Lot: No development	Rural Residential
58005003S	42.146	0.023	Clovis Hills Community Church: no developments within right-of-way, only graded dirt	Public
58005002S	22.703	0.679	Farmland: Garfield irrigation standpipe, approximately 4-6 rows of crops	Agriculture: Prime Farmland
58005001S	22.353	0.641	Farmland: 4-6 rows of crops	Agriculture: Prime Farmland
Total Right-of-Way Required				6.94

1.5 Project Schedule

The City plans to acquire the necessary ROW after completing the CEQA process. Project construction timing depends on the time required to complete the CEQA process and acquire the additional ROW. The City anticipates that construction of the Project will begin in 2019 and last approximately 9 months, although the actual timing will depend on the variables discussed.

1.6 Required Public Agency Approval

Table 3 summarizes the permits and/or approvals that may be required prior to Project construction. Additional local approvals, permits, and related land easement acquisitions and infrastructure work (and associated permitting) may also be required, including the relocation and installation of facilities as necessary to accommodate the Project.

Table 3: Required Permits and Approvals

Agency	Type of Approval
State Agencies	
Cal OSHA	Construction or Excavation Permit, if applicable
Local Agencies	
Fresno County	Plan Check Approval, and Applicable Permitting
The City of Fresno	Plan Check Approval, and Applicable Permitting
The City of Clovis	Plan Check Approval, Applicable Permitting, and Adoption of the Initial Study
Fresno Irrigation District (FID)	Plan Check Approval, and Applicable Permitting
Garfield Irrigation District (GID)	Plan Check Approval, and Applicable Permitting
Fresno Metropolitan Flood Control District (FMFCD)	Plan Check Approval, and Applicable Permitting
Regional Water Quality Control Board (RWQCB)	Construction General Permit
San Joaquin Valley Air Pollution Control District (SJVAPCD)	Indirect Source Review (ISR) and Dust Control Plan (DCP)
Various	Encroachment Permits
Private Citizens/Businesses	
Various	Public Right-of-Way

Chapter 2

Environmental Checklist

The following environmental checklist is based on Appendix G of the CEQA Guidelines. A discussion of each environmental topic is provided, including the following (where applicable): background and summary of existing conditions; location in the Draft PEIR or Final PEIR where the environmental topic is discussed; applicable Final PEIR impacts and mitigation measures; additional project-specific analysis; and discussion of environmental checklist questions, including findings for the Project effects that correspond to the following categories of environmental impacts:

- *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 is required.
- *Less than Significant with Project Level 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.
- *Less than Significant Impact* applies where the project would potentially have an effect on the environment but there is no substantial evidence that the effect would be significant, without the incorporation of mitigation measures.
- *No Impact* applies if the referenced information sources show that the impact does not apply to projects like the one involved.

2.1 Aesthetics

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of light and glare that would adversely affect day or nighttime views in the area?			X	

Checklist Discussion

a) & b) *Less than Significant Impact:*

The Final PEIR identified and assessed the following potential impact.

PEIR Impact 5.1-1: Development in accordance with the 2014 General Plan Update would not substantially alter or damage scenic vistas or resource in the Plan Area, or along a state scenic highway. The Final PEIR concluded that this impact would be less than significant.

The Draft PEIR did not identify any scenic vistas, state scenic highways, or scenic resources in or near the Project area. Specifically, the Draft PEIR states that the Northwest Urban Center's proposed land use in the eastern portion is designated as very-low and low-density residential areas. Considering that the Project is consistent with the 2014 General Plan and Northwest Urban Center Plan, the views toward the Sierra Nevada would be preserved. Therefore, the Project would have a less than significant impact on scenic vistas or resources.

c) *Less than Significant Impact:*

The Final PEIR identified and assessed the following potential impact.

Impact 5.1-2: Buildout in accordance with the proposed land use plan would alter the visual appearance of the City and its Plan Area, but would not substantially degrade its existing visual character or quality. The Final PEIR describes this impact as less than significant.

The Project would convert a small amount of acreage from agricultural to urban purposes. However, this change is consistent with changes that would occur as a result of developing the Northwest Urban Center under the 2014 General Plan, which was evaluated in the Draft PEIR. Therefore, this impact would be considered less than significant.

d) Less than Significant Impact:

The Final PEIR identified and assessed the following potential impact.

Impact 5.1-3: Full buildout in accordance with the proposed land use plan would generate new sources of light and glare that would affect day and nighttime views in the Plan Area.

Compliance with Light standards under Section 9.22.050 in the Development Code Update policies, as well as regulations pertaining to light and glare sources from new developments, would ensure that nighttime lighting, glare impacts, and potential spillover resulting from full buildout of the 2014 General Plan would be minimized and impacts would be less than significant. Development of the Northwest Urban Center is part of the future developments described in the General Plan. New sources of light and glare would include street lights, traffic signal lights and headlights from vehicles traveling on the road. Because the Project is consistent with development described in the General Plan, and is compliant with the General Plan and Draft PEIR lighting standards and regulatory requirements, Project-related impacts would be less than significant.

2.2 Agricultural and Forestry Resources

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	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?			X	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X	
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 Cod Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?			X	
d) Result in the loss of forestland or conversion of forestland to non-forest use?			X	
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?			X	

Checklist Discussion

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 agricultural 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, the Forest Legacy Assessment project, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

a) Less than Significant Impact:

The following impacts were identified and assessed in the Final PEIR.

Impact 5.2-1: Buildout of the proposed 2014 General Plan would convert 3,206 acres of Prime Farmland, 1,834 acres of Farmland of Statewide Importance, and 1,585 acres of Unique Farmland to non-agricultural land uses.

Impact 5.2-2: Anticipated development within the 2035 time horizon would convert 3,072 acres designated for agriculture to other land use designations.

Impact 5.2-3: Within the 2035 time horizon, development in accordance with the 2014 General Plan Update within the SOI would result in the conversion of 476 acres of Prime Farmland and 16 acres of nonprime farmland bearing Williamson Act contracts to nonagricultural land uses.

The Final PEIR included the following mitigation measure.

Mitigation Measure 2-3: Pending the adoption of a regional agricultural preservation program or local Farmland Preservation Plan (FPP), or if a regional agricultural preservation program or local FPP is not in place by June 25, 2017 the following requirement shall apply:
Project applicants for properties that include more than 20 acres designated Prime Farmland, Farmland of Statewide Importance, or Unique Farmland shall prepare or fund an agricultural resource evaluation prior to project approval.

Table 4: Converted Farmland

Assessor's Parcel No.	Area of Existing Parcel/Lot (Acres)	Approximate Area of Additional Right-of-Way (Acres)	Existing Property Land Use, and Specific Improvements within the Right-of-Way to be Obtained/Acquired	Existing Land Use/ Farmland Classification
Road Widening Impacts				
55602016S	171.724	2.885	Orchard: 4' wood fence, 10' wide graded dirt access road, and approximately 2 – 3 rows of orchard trees within right-of-way	Agriculture: Prime Farmland
55601020	7.271	0.061	Residential Home: 6' chain link fence, mail box, driveway, and landscaping	Rural Residential: Prime Farmland
55601027	18.693	0.522	Residential Home: 2 concrete irrigation standpipes, mailbox, driveway	Agriculture
55601026	19.233	0.528	Vacant Lot, No development	Agriculture
58007128	5.511	0.202	Residential Home: fruit stand	Agriculture
58007130	16.862	0.939	Farmland: graded dirt shoulder, and crops	Agriculture: Prime Farmland
58007124	8.731	0.112	Residential Home: 4' chain link fence, perimeter trees and landscaping	Agriculture
58005002S	22.703	0.679	Farmland: Garfield irrigation standpipe, approximately 4-6 rows of crops	Agriculture: Prime Farmland
58005001S	22.353	0.641	Farmland: 4-6 rows of crops	Agriculture: Prime Farmland
Total Agricultural Land Converted		6.569 acres (2.2% of the 293.08 acres of properties impacted)		
Total Prime Farmland Converted		5.205 acres (2.2% of the 240.913 acres of prime farmland impacted)		
Assessor's Parcel No.	Current Basin or Parcel Area (acres)	Proposed Additional Area or New Area (acres)	Basin Name and Location	Existing Land Use/ Farmland Classification
Basin Impacts				
58005003S	0.880983	0.554737	Existing Private Basin: International Basin	Public: No Farmland
N/A	15.6	0.342076	FMFCD Basin AQ	Vacant: No Farmland
55601026	19.2326	0.36	New Private Basin Along Behymer – Option 1 Southeast corner of Behymer and Willow, Currently housing an rows of Agriculture Trees Most viable option – option shown on construction plans	Agriculture
58007128	5.51	0.36	New Private Basin Along Behymer – Option 2 Northeast corner of Behymer and Willow, currently housing a residential property	Agriculture
58007113	22.023	0.36	New Private Basin Along Behymer – Option 3 North of Behymer, one parcel east of Option 2	Agriculture: Prime Farmland
Only the New Private Basin has the potential to affect any agriculture land. If Option 1 is chosen: 1.9% of 19.2326 acres of farmland is impacted If Option 2 is chosen: 6.5% of the 5.51 acres of farmland is impacted If Option 3 is chosen: 1.6% of the 22.023 acres of Prime Farmland is impacted				

As shown in Table 4 above, the Project would convert approximately 5.2 acres of Prime Farmland to paved public right-of-way. Because the Project would convert well under 20 acres of Prime Farmland, Mitigation Measure 2-3 has been satisfied and is not included as a mitigation measure in this IS.

The Project alignment is within the City's SOI, specifically in the Northwest Urban Center. The 2014 General Plan designates the Project area and nearby land for mixed urban uses and not a continuation of agricultural uses (See Figure 6, 7, 8, and 9), and the General Plan has chosen strategic farmland locations outside of the Project area for future Farmland uses.

Because the 2014 General Plan designates the Project area for mixed urban uses, increasing the capacity of this roadway on which the Project is to take place is inevitable. Most of the land within the Northwest Urban Center is Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Finding an alternative road to widen within this area is not feasible.

The Project alignment and nearby land is mostly comprised of Prime Farmland. Prime Farmland is defined in the Draft PEIR as having "the best combination of physical and chemical features and able to sustain long-term agricultural production. This land has the soils quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date." Development of the Project will convert approximately 5.2 acres of Prime Farmland to paved public right-of-way. This 5.2-acre area is equivalent to 0.16% of the 3,206 acres of Prime Farmland within the City of Clovis Planning Area that would be converted to urban land uses under the General Plan Update, and only 2.2% of the Prime Farmland our project is directly impacted.

For the reasons described above, Project-related impacts on agricultural resources would be less than significant.

b) Less than Significant Impact:

As discussed in Section 2.2.a above and shown on Figure 7 below, the Project area and surrounding land are not under Williamson Act contracts. Therefore, the Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract and this impact would be less than significant.

c) Less than Significant Impact:

As discussed in Section 2.2.a above, no forestry or timberland resources exist in the Project area. Therefore, the Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production, and this impact would be less than significant.

d) *Less than Significant Impact.*

As discussed in Section 2.2.a and 2.2.c above, no forest land exists in the Project area. Therefore, the Project would not result in the loss of forest land or conversion of forest land to non-forest use, and this impact would be less than significant.

e) *Less than Significant Impact.*

The Project is necessary for the increased vehicular and pedestrian traffic that is anticipated to occur as a result of development of the Northwest Urban Center. The General Plan designates land adjacent to the Project as mixed-use urban and residential areas. These areas are to be converted to non-agricultural land uses regardless of whether or not the Project occurs. Therefore, the Project-related impacts would be less than significant.

5. Environmental Analysis

Figure 5.2-1

Existing Important Farmland

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Faint Kern Canal
- City Boundary
- Sphere of Influence Boundary
- Urban Center Boundary
- Plan Area Boundary

Note:

The California Department of Conservation farmland data used in analysis of converted farmland was updated to reflect development and entitled property since 2010.

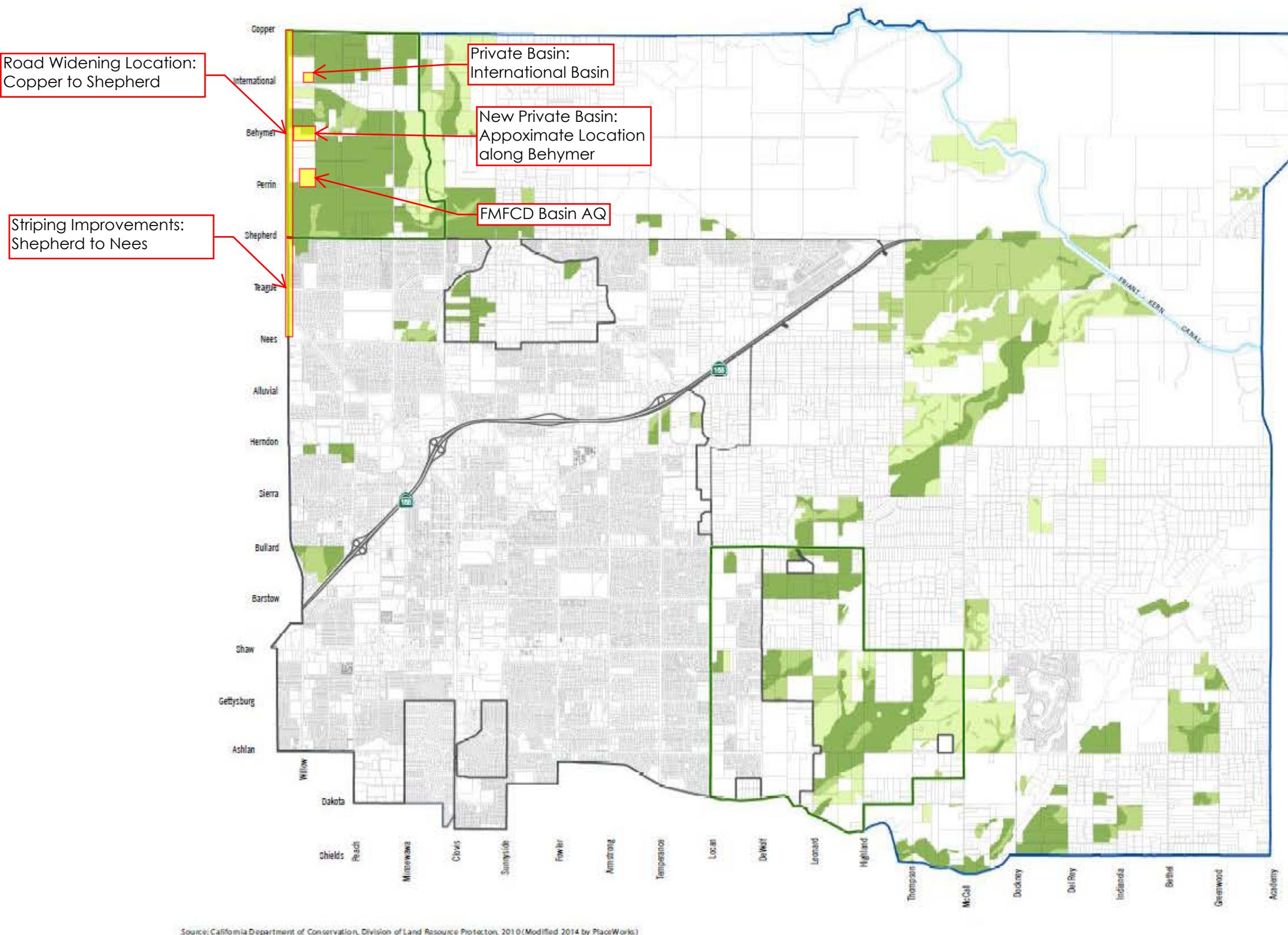
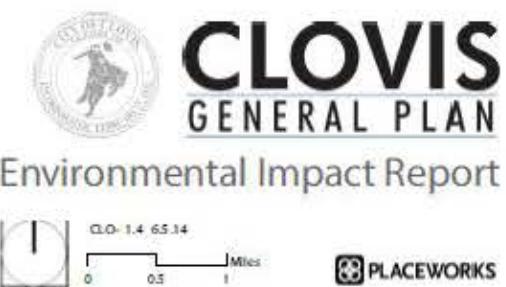


Figure 6: General Plan EIR Existing Important Farmland

5. Environmental Analysis

Figure 5.2-2

Williamson Act Lands

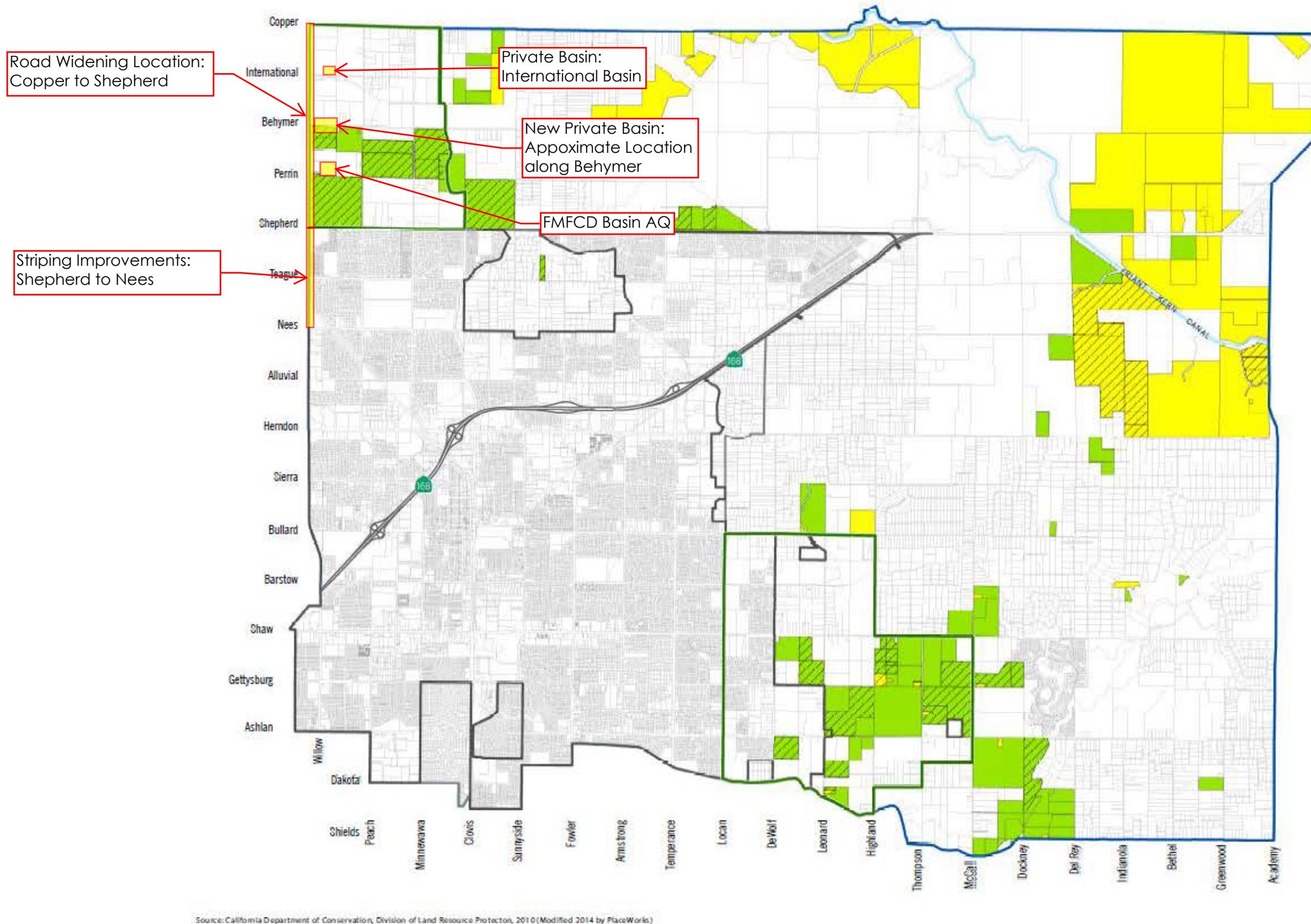


Figure 7: General Plan EIR Williamson Act Lands

- P - Prime Agricultural Land
- P NR - Prime Agricultural Land (Non-Renewal)
- NP - Non-Prime Agricultural Land
- NP NR - Non-Prime Agricultural Land (Non-Renewal)
- Faint Kern Canal
- City Boundary
- Sphere of Influence Boundary
- Urban Center Boundary
- Plan Area Boundary



CLOVIS
GENERAL PLAN

Environmental Impact Report

CLD-14.4 06.6.14
0 Miles
PLACEWORKS

5. Environmental Analysis

Figure 5.2-3

Strategic Farmland

- Very High (55-60)
- Medium (35-49)
- Low (< 35)
- Urban
- Area Not Mapped
- Faint Kern Canal
- City Boundary
- Sphere of Influence Boundary
- Urban Center Boundary
- Plan Area Boundary

Note:
Strategic Farmland not mapped within the City of Clovis & SOI



CLOVIS
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Environmental Impact Report



CLO-14.0 6.5.14

PLACEWORKS

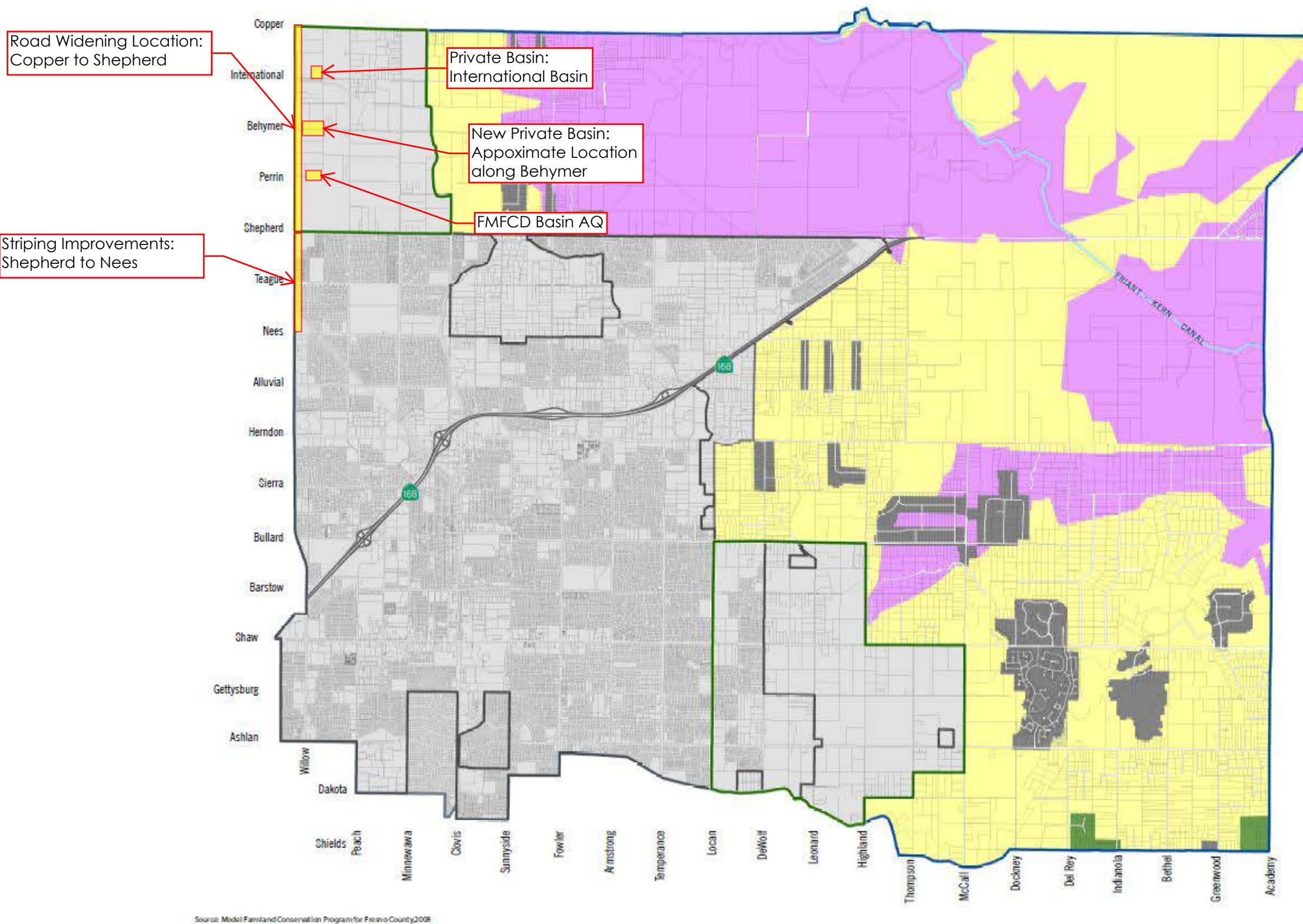
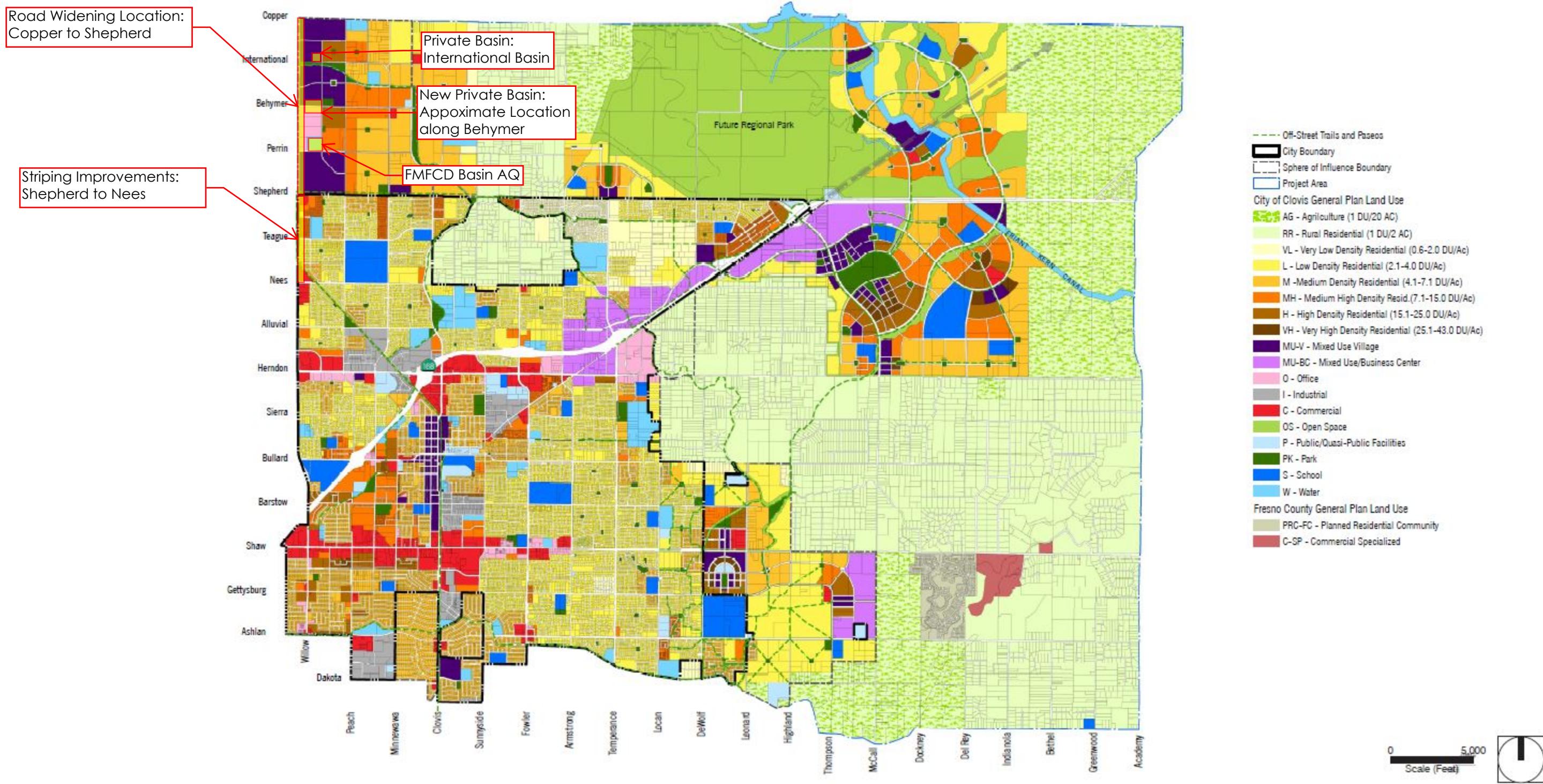


Figure 8: General Plan EIR Strategic Farmland

Proposed General Plan Land Use Plan



City of Clovis General Plan and Development Code Update

A-19

The Planning Center | DC&E • Figure 5

Figure 9: General Plan EIR Planned Land Use Map

2.3 Air Quality

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?		X		
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	

Checklist Discussion

According to the CEQA Guidelines, where available, significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. The proposed project lies within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Therefore, where available, SJVAPCD significance criteria were used for project-specific analysis of potential air quality impacts. The SJVAPCD provides guidance for air quality analysis under CEQA in its *Guidance for Assessing and Mitigating Air Quality Impacts*.³

a) Less than Significant Impact:

The Final PEIR concluded that the 2014 General Plan Update would be consistent with SJVAPCD control measures. However, development associated with buildup of the 2014 General Plan Update would exceed SJVAPCD significance thresholds and, given the lack of feasible mitigation available to reduce emissions below significance thresholds, it was concluded that impacts would be significant and unavoidable.

³ San Joaquin Valley Air Pollution Control District. (March 2015). *Guidance for Assessing and Mitigating Air Quality Impacts*. Available online at: http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf.

The proposed project is one of a multitude included in the analysis performed for the PEIR. As further discussed below, air pollutant emissions from this specific project would not exceed applicable thresholds of significance and project-related air quality impacts would be considered less than significant. Short-term, construction-related emissions would not exceed applicable thresholds of significance and operation of the Project would not result in long-term increases of emissions (refer to Section 2.3.b.).

Additionally, the Project is included (identified as #FRE111332, #FRE111340, #FRE111341 and #FRE111342) in the regional emissions analysis conducted by the Fresno Council of Governments (FCOG) for the conforming 2014 Regional Transportation Plan (RTP) and the 2015 Federal Transportation Improvement Program (FTIP) (see Appendix A).

The Project's design concept and scope have not changed significantly from what was analyzed in the RTP/FTIP. The conformity determination found that the RTP/FTIP is a conforming project and, therefore, the individual projects contained in the RTP/FTIP are conforming projects and would not interfere with air quality planning efforts, including implementation of the State Implementation Plan.

For the above reasons, implementation of the Project would not conflict with or obstruct implementation of applicable air quality plans, and this impact would be considered less than significant.

b) Less than Significant Impact with Mitigation Incorporated:

The Final PEIR concluded that construction activities associated with buildout of the 2014 General Plan would generate short-term emissions that exceed the SJVAPCD thresholds of significance and would contribute to the ozone and particulate matter nonattainment designation of the San Joaquin Valley Air Basin. It was concluded that the standard conditions and mitigation measures included in the PEIR would not reduce this impact to a less than significant level and the PEIR impact would therefore be significant and unavoidable. However, impacts related to this individual proposed project would be less than significant for the reasons discussed below.

The following standard condition is included in the PEIR and would be incorporated into the Project:

2014 General Plan Update Standard Condition SC-1: Prior to project approval, each applicant for individual, site-specific developments under the 2014 General Plan shall comply with the San Joaquin Valley Air Pollution Control District rules and regulations, including, without limitation, Indirect Source Rule 9510. The applicant shall document, to the City's reasonable satisfaction, its compliance with this standard condition.

The following mitigation measure has been performed as included in the PEIR and has been incorporated into the Project:

2014 General Plan Update Mitigation Measure 3-1: Prior to issuance of any construction permits, development project applicants shall prepare and submit to the City of Clovis Planning Division a technical assessment evaluating potential project construction-related air quality

impacts. The evaluation shall be prepared in conformance with SJVAPCD methodology in assessing air quality impacts. If construction-related criteria air pollutants are determined to have the potential to exceed the SJVAPCD adopted thresholds of significance, as identified in the Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI), the City of Clovis Planning Division shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during construction activities. These identified measures shall be incorporated into appropriate construction documents (e.g., construction management plans) submitted to the City and shall be verified by the City's Planning Division.

An Air Quality and Greenhouse Gas Impact Analysis⁴ was prepared for the Project (see Appendix A), thus satisfying General Plan Update Mitigation Measure 3-1. The AQ/GHG Analysis determined that construction-related criteria air pollutants would not have the potential to exceed the SJVAPCD adopted thresholds of significance. No mitigation measures would be required; however, the Project would still comply with SJVAPCD Regulation VIII for the control of fugitive dust, including the preparation of a Dust Control Plan prior to the commencement of construction activities.

Further discussion is provided below on project-related short-term construction and long-term operation emissions.

Long-term Operational Emissions

The purpose of the Project is to support implementation of the 2014 General Plan by increasing the capacity of northbound traffic on Willow Avenue and enhancing the roadway to provide multi-modal access. Implementation of the Project would not induce growth or result in the installation of any new sources of air pollutant emissions; rather, it would change traffic patterns, consistent with the 2014 General Plan, to increase transit efficiency and level of service by reducing congestion . Once operational, the Project would not result in long-term increases of emissions. Additionally, as noted above, the Project was included in the regional emissions analysis conducted by FCOG for the conforming 2014 RTP and the 2015 FTIP. The Project's design concept and scope have not changed significantly from what was analyzed in the RTP and FTIP. Therefore, long-term operational impacts would be less than significant.

Short-term Construction Emissions

Construction of the Project would result in criteria pollutant emissions associated with site grading, excavation, paving, vehicle and equipment travel on unpaved surfaces, and motor vehicle exhaust from construction equipment and worker vehicle trips. Construction-related emissions would include particulate matter (PM) and ozone precursors, including volatile organic compounds (VOC) and oxides of nitrogen (NOX).

⁴ Ambient Air Quality & Noise Consulting. (January 2018). *Air Quality & Greenhouse Gas Impact Analysis for N. Willow Avenue Widening Project Clovis, CA.*

Project-related annual and daily construction emissions were analyzed in the Air Quality and Greenhouse Gas Impact Analysis⁵ prepared for the Project (see Appendix A) and are presented in Table 5 and Table 6, respectively.

As shown in Table 5 below, Project-related construction emissions would not exceed the SJVAPCD's significance thresholds for annual emissions. As a result, regional air quality impacts would be considered less than significant.

Table 5: Annual Construction Emissions

Construction Activity	Emissions (Tons/Year)				
	ROG	NOx	CO	PM10	PM2.5
N. Willow Avenue Widening	0.6	7.1	4.3	0.5	0.3
Stormwater Basin Construction	0.2	1.8	1.0	0.3	0.2
<i>Total:</i>	0.8	8.9	5.3	0.8	0.5
SJVAPCD Significance Thresholds	10	10	None	15	None
<i>Exceeds SJVAPCD Thresholds?</i>	No	No	N/A	No	N/A

Source: Ambient. (2018). Air Quality & Greenhouse Gas Impact Analysis.

Emissions were quantified using CalEEMod, version 2016.3.2. Includes compliance with SJVAPCD Regulation VIII for the control of fugitive dust. Refer to Appendix A for modeling results and assumptions.

As shown in Table 6 below, Project-related construction emissions would not exceed the SJVAPCD's significance thresholds for daily emissions.

Therefore, implementation of the proposed project would not result in or contribute substantially to an existing or projected air quality violation for which the project area or the San Joaquin Valley Air Basin (SJVAB) is designated non-attainment. This impact would be considered less than significant.

⁵ Ambient Air Quality & Noise Consulting. (January 2018). *Air Quality & Greenhouse Gass Impact Analysis for N. Willow Avenue Widening Project Clovis, CA.*

Table 6: Daily Construction Emissions

Construction Activity	Average Daily Emissions (lbs/day) ¹				
	ROG	NOX	CO	PM10	PM2.5
N. Willow Avenue Widening					
Grubbing/Land Clearing	0.2	2.2	1.6	0.3	0.2
Grading/Excavation	2.9	32.1	20.8	1.9	1.4
Drainage/Utilities/Sub-Grade	1.1	11.2	8.2	0.4	0.4
Paving	0.4	2.7	2.9	0.2	0.2
Highest Average Daily Emissions:	2.9	32.1	20.8	1.9	1.4
SJVAPCD Significance Thresholds:	100	100	100	100	100
Exceed SJVAPCD Threshold?	No	No	No	No	No
Stormwater Basin Construction					
Site Preparation	0.1	0.7	0.3	0.1	0.1
Excavation & Construction	1.7	17.0	10.0	0.2	0.1
Highest Average-Daily Emissions:	1.7	17.0	10.0	0.2	0.1
SJVAPCD Significance Thresholds:	100	100	100	100	100
Daily Emissions Exceed SJVAPCD Thresholds/Significant Impact?:	No	No	No	No	No
<i>Source: Ambient. (2018). Air Quality & Greenhouse Gas Impact Analysis.</i>					
Emissions were quantified using CalEEMod, version 2016.3.2. Includes compliance with SJVAPCD Regulation VIII for the control of fugitive dust. Refer to Appendix A for modeling results and assumptions.					
¹ Average daily onsite emissions are based on total onsite emissions divided by the total number of construction days. Assumes 250 construction days for road widening and 60 days for basin construction.					

c) Less than Significant Impact with Mitigation Incorporated:

As discussed in 2.3.b above, construction of the Project would result in less than significant impacts with mitigation incorporated. Operation of the proposed project would not result in any long-term increases in air pollutant emissions. Therefore, the Project would not result in a cumulatively considerable net increase of any criteria pollutant and impacts would be less than significant.

d) Less than Significant Impact:

Table 7 below shows the relative distances from the centerline of Willow Avenue to the nearest sensitive receptor structures. The nearest sensitive receptor structure is Willow International Community College, located approximately 183 feet from the centerline of Willow Avenue.

Table 7: Sensitive Receptors

Sensitive Receptor	Distance from Willow Avenue Centerline (feet)
Clovis Hills Church	493
Clovis North High School	312
Willow International Community College	183

The Project would potentially increase localized pollutant concentrations associated with emissions of mobile-source Carbon Monoxide (CO) and emissions of construction-related Toxic Air Contaminants (TACs).

Implementation of the Project would not induce growth or result in the installation of any new sources of TAC emissions; rather, it would change traffic patterns, consistent with the 2014 General Plan, to increase transit efficiency and level of service by reducing congestion. Therefore, implementation of the Project would not result in long-term increases in exposure of sensitive receptors to TACs. Short-term construction activities may result in temporary increases of TACs, as discussed below.

Naturally-Occurring Asbestos

Naturally-occurring asbestos, which was identified by California Air Resources Board as a TAC in 1986, is located in many parts of California and is commonly associated with ultramafic rock. The Project area is not located near any areas that are likely to contain ultramafic rock. As a result, risk of exposure to asbestos during the construction process would be considered less than significant.

Diesel-Exhaust Emissions

Construction of the Project would result in the generation of diesel particulate matter (DPM) emissions associated with the use of off-road diesel-powered equipment for site grading, excavation, paving and other construction activities. Health risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. The calculation of cancer risk associated with exposure to TACs is typically calculated based on a 25- to 30-year period of exposure. The use of diesel-powered construction equipment would be temporary and episodic, and would occur over a relatively large area. Assuming that construction activities involving the use of diesel-fueled equipment would occur over an approximately 8- to 9-month period, project-related construction activities would constitute less than 3 percent of the typical exposure period. Additionally, as noted in 2.3.b. above, construction-related emissions of PM would not exceed the SJVAPCD's localized significance thresholds. Therefore, exposure to construction-related DPM would not exceed applicable thresholds (i.e., incremental increase in cancer risk of 20 in one million), and this impact would be considered less than significant.

Localized PM Concentrations

Construction of the proposed project may contribute to localized PM concentrations, including emissions from onsite construction equipment and fugitive dust. Fugitive dust emissions would be primarily associated with earthmoving and material handling activities, as well as vehicle travel on unpaved and paved surfaces. As noted in 2.3.b. above, construction-related emissions of PM would not exceed the SJVAPCD's localized significance thresholds. The proposed project would also be required to comply with SJVAPCD Regulation VIII for the control of fugitive dust, including preparation of a Dust Control Plan prior to the commencement of construction activities. As a result, this impact would be considered less than significant.

Carbon Monoxide

Carbon monoxide is the primary criteria air pollutant of local concern associated with the proposed project. Under specific meteorological and operational conditions, such as near areas of heavily congested vehicle traffic, CO concentrations may reach unhealthy levels. Mobile-source emissions of CO are a direct function of traffic volume, speed, and delay. As noted above, the purpose of the Project is to provide improved traffic flow, which would result in decreased vehicle delay at roadways near the Project. As a result, implementation of the Project would not result in a deterioration of levels of service along N. Willow Avenue, nor would the Project contribute to increased traffic volumes along area roadways. For these reasons, this impact would be considered less than significant.

e) Less Than Significant Impact:

Implementation of the Project would not result in long-term emissions of odors. Utilization of a variety of gasoline- or diesel-powered equipment during construction would result in the emission of exhaust-related pollutants, which could result in objectionable odors. Additionally, earthmoving activities could disturb decaying vegetation or other materials that could result in objectionable odors. However, construction-related odors would be intermittent and temporary, and would rapidly disperse with increasing distance from the source. Additionally, the Project would comply with SJVAPCD Regulation VIII for the control of fugitive dust, including preparation of a Dust Control Plan prior to commencement of construction activities. Therefore, the Project would not result in the creation of objectionable odors affecting a substantial number of people, and impacts would be less than significant.

2.4 Biological Resources

Would the Project:	Potentially Significant Impact	Less than Significant Impact 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 Game or U.S. fish and Wildlife Service?		X		
b) Have a substantially adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Wildlife Service?			X	
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pools, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?				X

Checklist Discussion

A technical study and an associated addendum were prepared to analyze potential project-related adverse effects on biological resources (Stonefly Consulting, 2016; Stonefly Consulting 2017); both are provided in Appendix B. The analysis included field surveys and a site-specific search of special-status plant and wildlife species observations recorded with the California Natural Diversity Database (CNDDB) within 5 miles of the Project, and those known to occur in the region, per the U.S. Fish and Wildlife

Service (USFWS) Information, Planning, and Conservation online screening tool (IPaC). The findings of this study are incorporated into the checklist discussion below.

a) Less than Significant Impact with Mitigation Incorporated:

The Final PEIR identified and assessed the following potential impacts related to biological resources.

Impact 5.4-1: Development pursuant to the 2014 General Plan Update could impact plant species listed as endangered or treated under the federal and/or California endangered species acts and/or by the California Native Plant Society.

Impact 5.4-2: Developments pursuant to the 2014 General Plan Update could impact animal species listed as endangered or threatened under the federal and/or California endangered species acts.

Impact 5.4-3: Buildout of the 2014 General Plan Update could impact animal species listed by the California Department of Fish and Wildlife as California Species of Special Concern or California Fully Protected Animals.

Impact 5.4-4: Developments pursuant to the 2014 General Plan Update could impact sensitive natural communities, including vernal pools and riparian habitats.

Impact 5.4-5: Buildout of the 2014 General Plan Update could impact federally-protected wetlands.

Impact 5.4-6: Developments pursuant to the 2014 General Plan Update could impact local wildlife movement corridors.

Impact 5.4-7: Buildout of the 2014 General Plan Update could impact migratory birds.

Impact 5.4-8: Projects developed or redeveloped pursuant to the 2014 General Plan Update would comply with general plan policies. There are no habitat conservation plans or natural community conservation plans in effect in the Plan Area, and 2014 General Plan Update implementation would not conflict with any such plan.

Currently, the Project area to the east of the existing roadway consists of graveled road shoulders, Prime Farmland and agriculture designated land (some disked) with rural residential areas to the furthest south of the alignment, two commercial sites; a mini storage facility and nursery, and a large church to the far north of the alignment. As such, the Project area has been disturbed from its natural state for many years. The farmland is described in the Draft PEIR as limited in its habitat value for sensitive plant and wildlife species. The direct impacts of the Project would be a loss of 5.2 acres of Prime Farmland and graveled shoulder areas and possible mortality for any animals in the path of construction equipment.

As discussed in the Biological Resources Assessment (Stonefly Consulting, 2016), while Swainson's hawks are known to occur in the broader Project vicinity, they are unlikely to nest in trees within the Project footprint due to lack of suitable nesting substrate. There may be potential for the Swainson's hawk to hunt in the area during nesting season. This situation is similar for the burrowing owl, which have no potential to nest in the Project vicinity, but could potentially forage in the area (Stonefly Consulting, 2016).

No other special status species, plant or animal, have been observed in the Project area as indicated in the Draft PEIR Special Status Species Observations Figure 5.4-2.

The Final PEIR lists several mitigation measures for Impacts 5.4-1 through 5.4-8 (see above). The Final PEIR incorporated the following mitigation measures to reduce the potential impacts to a less than significant level.

2014 General Plan Update Mitigation Measure 4-2 – Resource Impact

Avoidance/Minimization:

Project applicants shall avoid potential impacts to sensitive or protected biological resources.

Avoidance may include:

- Establishing appropriate no-disturbance buffers (consultation with relevant regulatory agencies may be required to establish suitable buffer areas).
- Initiating construction at a time when special status or protected animal species will not be vulnerable to project-related mortality (e.g. outside of the avian nesting season or bat maternal or wintering roosting season).
- Minimizing impact by measures such as exclusion and/or silt fencing; relocation of impacted resources; construction monitoring by a qualified biologist; and training program by a qualified biologist for construction personnel on sensitive biological resources.

2014 General Plan Update Mitigation Measure 4-5 – Migratory Birds:

The City shall require applicants for new development projects to conduct a pre-construction general nesting bird survey within all suitable nesting habitat that may be impacted by active construction during the general avian breeding season (January 1 to September 15). The pre-construction surveys shall be conducted no more than fourteen (14) days prior to initiation of construction. If no active avian nests are identified within the proposed development project area, no further mitigation is necessary. If active nests of bird species covered by the Migratory Bird Treaty Act are detected within the proposed development project area or within a 300-foot buffer of the proposed project development project area, construction shall be halted until the young have fledged, until a qualified biologist has determined the nest is inactive, or until appropriate mitigation measures that respond to the specific situation have been developed and implemented in consultation with the regulatory agencies.

The Project-specific Biological Resources Assessment by Stonefly Consulting (2016) proposes the following impact avoidance and minimization measures to help avoid and minimize impacts to special status or other species:

Project-Specific Impact Minimization Measure -1: To avoid and minimize impacts to migratory bird species, any vegetation, tree, or structure removal (e.g., light posts, signage, etc., that could support or contain the nest of a migratory bird species) should be removed between September 1 and January 31. The timing of such activity will help reduce the chance of impact to the nest of a migratory bird species. Tree or structure removal during other times of the year (February 1 to August 31) should be performed immediately after a qualified biologist has determined that such activity will not impact the nest of a migratory bird species. If an active nest is detected during such pre-activity surveys, an activity exclusion zone appropriate to the species should be identified and maintained (with flagging, fencing, or other appropriate means) until it is determined that young have fledged and that the nest is no longer active. If no active nests are detected, then no further action would be necessary.

Project-Specific Impact Minimization Measure -2: To avoid disturbance to roosting bats, a qualified biologist should perform a pre-activity surveys to determine whether bats are roosting in trees subject to removal. If an active bat roost is discovered, then a suitable work-exclusion zone should be identified and maintained until an eviction plan has been developed. If roosting bats are not detected, then no further action is required and tree and/or structure removals should commence immediately.

Project-related impacts would be less-than-significant with incorporation of mitigation measures, as described above.

b) Less than Significant Impact:

The Project area has not been identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service as encompassing any riparian habitat or other sensitive natural community (Stonefly Consulting, 2016). The Enterprise Canal traverses Willow Avenue between E. International and E. Behymer Avenues; however, it will not be affected by the Project because the portion of the canal within the Project area is underground and is not anticipated to be disturbed. Therefore, this impact would be considered less than significant.

c) Less than Significant Impact:

Based on an on-site survey, jurisdictional waters, including wetlands, do not exist within the Project area (Stonefly Consulting, 2016). Figure 5.4-1 in the Draft PEIR, Habitat and Land Uses, shows the locations of “known jurisdictional waters and undeveloped grassland areas containing likely jurisdictional waters” within the Clovis Planning Area and the project locations was not included. Additionally, according to the Biological Resources Assessment, no natural riparian or wetland habitat is present within the Project footprint, based on the field survey and records search conducted as part of the assessment (Stonefly Consulting, 2016). The Project would result in a less than significant impact.

d) Less than Significant Impact:

The Project area does not appear to constitute a “movement corridor” for native wildlife that would attract wildlife to move through the area any more than the surrounding agricultural lands. In general, the area is surrounded on the west by residential development and Prime Farmland as previously described. The residential developments on the west restrict wildlife movement and would not be considered a movement corridor. The Draft PEIR Habitat and Land Uses Figure 5.4-1 illustrates habitats and generalized land uses in the Clovis Planning Area. The Project area is an area designated as “Agriculture.” According to the Draft PEIR, agricultural habitat is described as “compared to natural habitats, managed agricultural lands provide relatively low habitat value for wildlife due to the lack of understory vegetation, upon which many wildlife species depend for food and cover. Annual management practices such as disking and harvesting eliminate breeding and foraging habitat for many small birds and mammals native to the region. The use of chemical pesticides may also pose a threat to such species.” Finally, according to the Biological Resources Assessment, the proposed Project will not impact movement or migratory wildlife or fish species, or wildlife corridors, or nursery sites (Stonefly Consulting, 2016). Therefore, the Project would result in a less than significant impact.

e) No Impact:

According to the PEIR, the city does not have any local policies or ordinances protecting biological resources, or other approved tree preservation policy or ordinance. As a result, implementation of the General Plan Update would not impact any biological resources that are protected by a city policy or ordinance. Therefore, the Project would result in no impact.

f) No Impact:

The PEIR stated there are no habitat conservation plans or natural community conservation plans in effect in the [General] Plan Area, and no land in the [General] Plan Area was designated for wildlife conservation or habitat conservation under the then-existing 1993 General Plan. Therefore, the Project would result in no impact.

2.5 Cultural Resources

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines Section 15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines Section 15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		
d) Disturb any human remains, including those interred outside of formal cemeteries?		X		

Checklist Discussion

A Phase 1 Archaeological Resources Survey of the cultural resources within the Project vicinity was completed in January 2018 and is provided in Appendix C (Szromba, M., Bailey, A., and C. Duran, 2018). This study consisted of a cultural resource records search, Native American scoping, and a pedestrian survey. The findings of this study are incorporated into the checklist discussion below.

a), b), c) & d) Less than Significant Impact with Mitigation Incorporated: The Final PEIR lists the potential impacts to historical, archeological, and paleontological resources or human remains as follows:

Impact 5.5-1: Development in accordance with the 2014 General Plan Update could impact up to 30 historic buildings, structures, or objects identified through previous cultural research studies and up to 12 additional historic resources identified and listed on the Fresno County List of Historic Resources.

Impact 5.5-2: Development in accordance with the 2014 General Plan Update could impact up to 25 prehistoric sites, four historic sites, and one combined prehistoric/historic resource site.

Impact 5.5-3: Development in accordance with the 2014 General Plan Update could destroy paleontological resources or a unique geologic feature.

Impact 5.5-4: Development in accordance with the 2014 General Plan Update could potentially disturb human remains.

The impact of the Project on any historical, archaeological, and paleontological resource or on human remains discovered in the Project area would be less than significant with mitigation incorporated, as discussed below.

According to the Archaeological Resources Survey, the entire project site has been previously disturbed, especially the east side of Willow Avenue, which has been disrupted by grading, agriculture, commercial and residential development, and the construction of sidewalks.

Additionally, background research and pedestrian surveys did not identify any archaeological resources within the current project site. The project site is highly disturbed by modern infrastructure construction, including the grading and paving of Willow Avenue and existing storm water basins, and has been additionally disturbed by agricultural activities and residential development.

The records search identified one built-environment resource (P-10-005934) adjacent to the project site, consisting of a canal. The resource was found to be ineligible for the CRHR and therefore requires no further management consideration under the current study.

The Archaeological Resources Survey recommended a finding of “no impact to historical resources” under CEQA. Although no historical resources were identified within the project site, the following measures will be implemented for unanticipated discoveries.

Impact Minimization – Unanticipated Discovery of Cultural Resources:

If cultural resources are encountered during ground-disturbing activities, work in the immediate area shall be halted and an archaeologist meeting the Secretary of the Interior's *Professional Qualification Standards* for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the project, additional work such as data recovery excavation may be warranted to mitigate any significant impacts to historical resources.

Impact Minimization – Unanticipated Discovery of Human Remains:

If human remains are discovered during ground-disturbing activities, 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, 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.

The Project area does not contain any prehistoric sites, historic sites, or combined prehistoric/historic resource site identified in Impact 5.5-2. This finding was supported in the site-specific Phase 1 Archaeological Resources Study (Szromba, M., Bailey, A., and C. Duran, 2018).

The following mitigation measures, which generally align with the impact minimization measures identified above, were included in the Final PEIR to reduce the potential impacts to cultural resources to less than significant with mitigation incorporated:

2014 General Plan Update Mitigation Measure 5-5: Should any cultural resources, including human remain, be discovered during the project implementation, no further grading shall occur in the area of the discovery until the Planning Director concurs in writing that adequate provisions are in place to protect these resources. Unanticipated discoveries shall be treated in accordance with the applicable state law and evaluated for significance by a professional archeologist that meets the Secretary of the Interior's Professional Qualifications Standards. If significance criteria are met, then the project shall be required to protect the resource through avoidance or mitigate impacts to the resource by performing data recovery, curate materials with a recognized scientific or educational repository; and provide a comprehensive final report including appropriate records for the California Department of Parks and Recreation Series 523 forms (Building, Structure, and Object Record; Archeological Site Record; or District Record, as applicable).

2014 General Plan Update Mitigation Measure 5-7: Should any potentially significant fossil resources, including human remains be discovered during project implementation, no further grading shall occur in the area of the discovery until the Planning Director concurs in writing that the adequate provisions are in place to protect these resources. Unanticipated discoveries shall be treated in accordance with applicable state law and evaluated for significance by a certified professional paleontologist that meets the Secretary of the Interior's Professional Qualifications Standards. If significance criteria are met, then the project shall be required to protect the resource through avoidance or mitigate impacts to the resource by performing data recovery, professional identification, radiocarbon dates as applicable, and other special studies; curate material with a recognized scientific or educational repository; and provide a comprehensive final report, including catalog with museum numbers.

The measures described above will be implemented to avoid and minimize any potential impact to cultural resources that could occur due to the unanticipated discovery of cultural remains or human resources. Therefore, the proposed project would result in less than significant impact with mitigation incorporated.

2.6 Geology and Soils

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:				
a.i. Rupture of a known earthquake fault, as delineated on the more 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.			X	
a.ii. Strong seismic ground shaking?			X	
a.iii. Seismic-related ground failure, including liquefaction?			X	
a.iv. Landslides?			X	
b) Result in substantial soil erosion or the loss of top soil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-a-B of the Uniform Building Code (1994), creating substantial risk to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X

Checklist Discussion

a.i., a.ii., a.iii., and a.iv.) Less than Significant Impact:

The Final PEIR assessed potential impacts related to liquefaction, earthquake-induced ground settlement, subjecting people or structures to substantial hazards from earth-quake induced landslides, or ground subsidence. The Final PEIR concluded that these impacts would be less than significant, and no

mitigation is required. This determination was based on the general soil types in the Plan Area which were described as “either too coarse or too high in clay content to be susceptible to liquefaction.” However, the City will retain a geotechnical sub consultant to prepare a Project-specific geotechnical report as required in the Draft PEIR (5.6-11). The design parameters identified in the analyses would be subject to review and approval by the City of Clovis and the project would include the approved standards in the design

The Final PEIR states that the Plan Area is not susceptible to earthquake-induced landslides due to very slight grades, specifically stating that the northwestern corner of the Plan Area is nearly flat with a south slope of 0.2 percent grade. The Final PEIR states “Developments near the northwest corner of the Plan Area would not subject people or structures to substantial hazards from earth-quake induced landslides.” Hazards from ground subsidence were designated as less than significant in the Final PEIR because the groundwater levels are monitored closely in the Kings Groundwater Basin. The Final PEIR states “If subsidence becomes a problem, the Fresno Regional Groundwater Management Plan will be amended to include preventive and mitigation measures for land subsidence (FID 2006).” For these reasons, the Project impact would be less than significant.

b) Less than Significant Impact:

The potential for the Project to result in wind- or water-related soil erosion or loss of topsoil would be greatest during clearing, grubbing, and grading activities. Based on the following information, the potential for substantial erosion would be less than significant:

The Project must comply with the SJVAPCD Regulation VIII with the preparation of a Dust Control Plan. The purpose of which is to reduce ambient concentrations of fine particulate matter (PM10) by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. Included under Regulation VIII are rules related to construction, demolition, extraction, and earthmoving activities; bulk materials; carryout and trackout; paved and unpaved roads; unpaved vehicle/equipment traffic areas; and agricultural sources.

The Project must comply with the National Pollutant Discharge Elimination System (NPDES), Construction General Permit (CGP), which require the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is a site-specific plan designated to control the discharge of pollutants from construction sites to local storm drains and waterways.

The Project must comply with the *City of Clovis Standard Specifications*, which include soil erosion prevention measures in addition to those required under SJVAPCD Regulation VIII and the NPDES permit requirements.

After the Project is constructed, concrete, paving, and landscaping would cover areas disturbed by construction activities. These materials would preclude erosion or loss of topsoil. For these reasons, the Project impact would be less than significant.

c) & d) Less than Significant Impact:

As discussed in Section 2.6.a. above, the PEIR determined that the included projects would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of an on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Included projects would also not be located on expansive soil that would create substantial risk to life or property. Therefore, impacts would be less than significant.

e) No Impact:

The Project does not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur.

2.7 Greenhouse Gas Emissions

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emission, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purposes of reducing the emissions of greenhouse gases?			X	

Checklist Discussion

a) & b) Less than Significant Impact:

Implementation of the proposed project would not induce growth or result in the installation of any new sources of greenhouse gas (GHG) emissions; rather, it would change traffic patterns, consistent with the General Plan, to increase transit efficiency and level of service by reducing congestion. As a result, the project would not result in long-term increases of GHG emissions; rather, increased transit efficiency on roadways in the Project vicinity would result in less vehicle idling, which would in turn reduce GHG emissions.

Construction of the Project would result in short-term emissions of GHG. Based on modeling conducted in the Air Quality and Greenhouse Gas Impact Analysis (Ambient 2018), annual emissions of construction-related GHG emissions would total approximately 1,145 metric tons of carbon dioxide equivalents (MTCO₂e). Amortizing total emissions to account for their lifetime cumulative contribution yields approximately 38 MTCO₂e/year. Construction-related GHG emissions are shown in Table 8 below.

The SJVAPCD GAMAQI provides guidance on assessing GHG emissions; however, the guidance does not address transportation projects or construction-related emissions. In the absence of further regulatory guidance related to the significance of Project-related GHG emissions, the Council of Environmental Quality (CEQ) presumptive threshold of 25,000 MTCO₂e was used for comparison. Project-related GHG emissions would be well below this threshold, resulting in a less than significant impact.

Table 8: Short Term, Construction-Related GHG Emissions

Construction Year	Annual Emissions (MTCO ₂ e)
N. Willow Avenue Widening	950
Stormwater Basins Construction	195
Total Annual Emissions:	1,145

Source: Ambient. (2018). Air Quality & Greenhouse Gas Impact Analysis.

Emissions were quantified using CalEEMod, version 2016.3.2. Total annual emissions assumes road widening and construction of all stormwater basins would occur within a one-year period. Refer to Appendix A for modeling results and assumptions.

Additionally, as noted in Section 2.3 of this IS, the Project was included in the regional emissions analysis conducted by FCOG for the conforming 2014 RTP and the 2015 FTIP. The Project's design concept and scope have not changed significantly from what was analyzed in the RTP and FTIP. The conformity determination found that the RTP/FTIP and, therefore, the individual projects contained in the RTP/FTIP, are conforming projects and would not interfere with air quality planning efforts, including implementation of the State Implementation Plan.

Finally, the use of a modern construction vehicle and off-road equipment fleet would ensure that compliance with State regulations is maintained and GHG emissions are reduced accordingly.

Because the Project would result in less than significant increases in GHG emissions, the Project is consistent with the applicable RTP, and construction equipment would comply with State regulations, the Project would not conflict with any plans, policies, or regulations adopted for the purpose of reducing GHG emissions. Impacts related to GHG emissions would be less than significant.

2.8 Hazards and Hazardous Materials

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	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?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
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 to the public or environment?				X
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?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?			X	
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X	

Checklist Discussion

a), b) & c) Less than Significant Impact:

California Health and Safety Code Section 25501(o) defines hazardous material as:

“...any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. ‘Hazardous materials’ include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.”

Project construction activities would involve the transport, use, and disposal of hazardous materials. Examples include asphalt (petroleum hydrocarbons), gasoline (petroleum hydrocarbons), and portland cement (calcium and aluminum silicates).

The City will require the project contractors to transport, use, and dispose of hazardous materials following labeled directions and applicable government local, regional, state, and federal regulations.

The following sections in the City’s Standard Specifications provide for the safe use of hazardous materials:

- 6-2 Storage and Protection of Materials (32)
- 6-12 Materials Hauling (36)
- 7-1 Laws to be Observed (37)
- 7-6 Air Pollution Control (45)
- 7-7 Water Pollution Prevention (45)
- 7-8 Use of Pesticides (47)
- 7-11 Sanitary Regulations (48)
- 7-13 Worker Protection from Toxic or Explosive Gases; Confined Spaces Entry (49)
- 10-1 Dust Control (74)
- 20-1.06 Weed Control (117)

Implementing the above measures would ensure that the Project would not create a significant hazard to the public or environment related to the use, transport, disposal, accidental release, or handling of hazardous materials, substances, or waste. Impacts would be less than significant.

d) No Impact:

The according to the California Department of Toxic Substances Control’s (DTSC) Hazardous Waste and Substances Site List, the Project is not located on a site which is included on a list of hazardous materials

sites compiled pursuant to Government Code Section 65962.5. Therefore, there would be no impact related to Project implementation.

e) & f) No Impact:

Based on a review of recent Google Earth aerial photography, the Federal Aviation Administration San Francisco Sectional Aeronautical Chart, and the 2014 General Plan, the Project Area is not within an airport land use plan or within two nautical miles of a public airport, public use airport, or private airstrip. Therefore, no impact would occur.

g) Less than Significant Impact:

The purpose of the Project is to support implementation of the 2014 General Plan Update by increasing the capacity of northbound traffic on Willow Avenue and enhancing the roadway to provide multi-modal access. Implementation of the Project would not induce growth or result in the installation of any impairments or interferences to emergency response plans or emergency evacuation plans; rather, the Project would enhance emergency response and evacuation capabilities by reducing congestion on roadways in the project vicinity, consistent with the 2014 General Plan Update. Therefore, impacts would be less than significant.

h) Less than Significant Impact:

The *Glossary of Wildland Fire Terminology* defines wildland fires as:

"non-structure fires that occur in areas in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered."

The Project area is currently used for agricultural purposes. Disking is performed semi-regularly and suitable conditions do not exist to facilitate wildland fires. Therefore, this impact would be less than significant.

2.9 Hydrology and Water Quality

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate of surface runoff in a manner that would result in flooding on- or off- site?			X	
e) Create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year floodplain, as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow?				X

Checklist Discussion

a) Less than Significant Impact:

The City of Clovis and the Project area fall under the jurisdiction of the Fresno Metropolitan Flood Control District (FMFCD) that currently has a National Pollutant Discharge Elimination System (NPDES) permit through the State Water Resources Quality Control Board (SWRQCB) that has applicable water quality and discharge requirements. To be in accordance with the current permit requirements the existing private basin at International and the FMFCD Basin AQ will be expanded to increase their capacity to account for the additional runoff and act as a retention facility allowing for treatment of the storm water prior to connecting into the FMFCD storm water system or percolation into the ground. A design requirement by FMFCD was to install an additional temporary basin along Willow and Behymer to service that drainage area of the project and achieve the same retention and treatment as the other two basins. During the course of construction the project will have a Storm Water Pollution Prevention Plan (SWPPP) in place to gain coverage under the Construction General Permit (CGP) that will have water quality and discharge requirements to mitigate any potential of violating any water quality standards or waste discharge requirements; therefore the impact is less than significant.

b) Less than Significant Impact:

Currently the City of Clovis utilizes groundwater for potable water sources. The purpose of the Project is to create similar improvements to the existing features on the southbound travel lane and to support implementation of the 2014 General Plan by increasing the capacity of northbound traffic on Willow Avenue, between Copper and Shepherd Avenues, and enhancing the roadway to provide multi-modal access. Implementation of the Project would not induce growth or result in the installation of anything that would deplete groundwater supplies or interfere with groundwater recharge; rather, it would change traffic patterns, consistent with the 2014 General Plan, to increase transit efficiency and level of service by reducing congestion. There is a proposed water line as a part of the project, the purpose of this is to transfer the existing service from the City of Fresno to the City of Clovis since the SOI will be annexed by the City of Clovis and water service would be the responsibility of the City of Clovis. The Project would not result in an increase of population density that would require an increase in water service utilizing ground water and in turn depleting the ground water supply or deficit in an aquifer volume. Therefore the impact is less than significant.

c) Less than Significant Impact:

The Project includes the installation of storm drain inlets, pipe, and retention basins. The installations of these features are meant to mimic the existing drainage patterns and facilities for the project area. 98% of the proposed improvements of the project are the installation of the additional 2 travel lanes that are impervious hardscape that do not result in erosion or siltation onsite or offsite. There is the possibility of sediment to occur during the course of construction; however, the project will have a SWPPP and Best Management Practices (BMPs) in place to prevent sediment from leaving the project site. The topography of the project area is generally level and there are no streams, rivers, or drainage courses within the

project area. The Enterprise canal does run through the project area, however the open channel is outside the project boundaries and BMPs will be installed to prevent any discharges to the canal. All utility installation adjacent to the canal will be done via jack and boring methods to prevent any disturbance to the canal. Refer to Figure 10 for all water bodies and flood zones. With all permits and requirements adhered to the impact would be less than significant.

d) Less than Significant Impact:

The Project includes the installation of hardscape that increases the imperviousness of the project area and results in additional runoff. All runoff from the project site discharge to FMFCD drain inlets and discharge to existing or proposed retention facilities. All retention facilities are designed to accommodate an approved design storm, and were designed to account for the increase in runoff so that the drainage properties of the project area are returned to their pre-project condition. Therefore, the impact would be less than significant.

e) Less than Significant Impact:

As a part of the project the increase in hardscape and impervious area will result in an increase in runoff. The existing and proposed retention basins in each drainage area of the project were designed or expanded to account for the increase in runoff from the project and will return the project to the pre project condition and therefore the impact would be less than significant.

f) Less than Significant Impact:

The Draft PEIR states “the 2014 General Plan Update buildout would involve soil disturbance, construction, and operation of developed land uses that could each generate pollutants affecting stormwater.” The Draft PEIR also states “construction projects of one acre or more would be required to comply with the General Construction Permit Order No. 2012-0006-DWQ, issued by the State Water Resources Control Board (SWRCB) in 2012. Projects obtain coverage by developing and implementing a Storm Water Pollution Prevention Plant (SWPPP) which estimates sediment risk from construction activities to receiving waters and specifies BMP’s to be used by the project to minimize pollution of stormwater.”

To avoid the degradation of water quality, the City (or the project contractor) would prepare a SWPPP prior to construction.

Storm water drainage inlets and infrastructure must be designed and construction in accordance with the requirements and specifications of the FMFCD.

The *City of Clovis Standard Specifications* contain requirements for the following:

1. 5-16 Maintaining Drainage (26)
2. 7-7 Water Pollution Prevention
3. 7-7 (A)4 Site Stabilization (47)
4. 10-1 Dust Control (74)

Implementation of the measures described above would ensure that project-related impacts remain less than significant.

g) & h) *No Impact:*

The Project does not involve the development of housing, and the Project area is not within a FEMA-designated 100-year floodplain, as shown on Figure 10. Therefore, no impact would occur.

i) *No Impact:*

The Project would not expose people and structures to a significant risk of loss, injury, or death involving flooding because it is not within a flood hazard area or within an area that would be subject to flooding as a result of the failure of a dam or levee. Therefore, no impact would occur.

j) *No Impact:*

The Project area is not near any water bodies, slopes, or soils that could result in inundation of the Project area by a seiche, tsunami, or mudflow (USGS). Therefore, no impact would occur.

5. Environmental Analysis

Figure 5.9-5

Water Bodies and Flood Zones

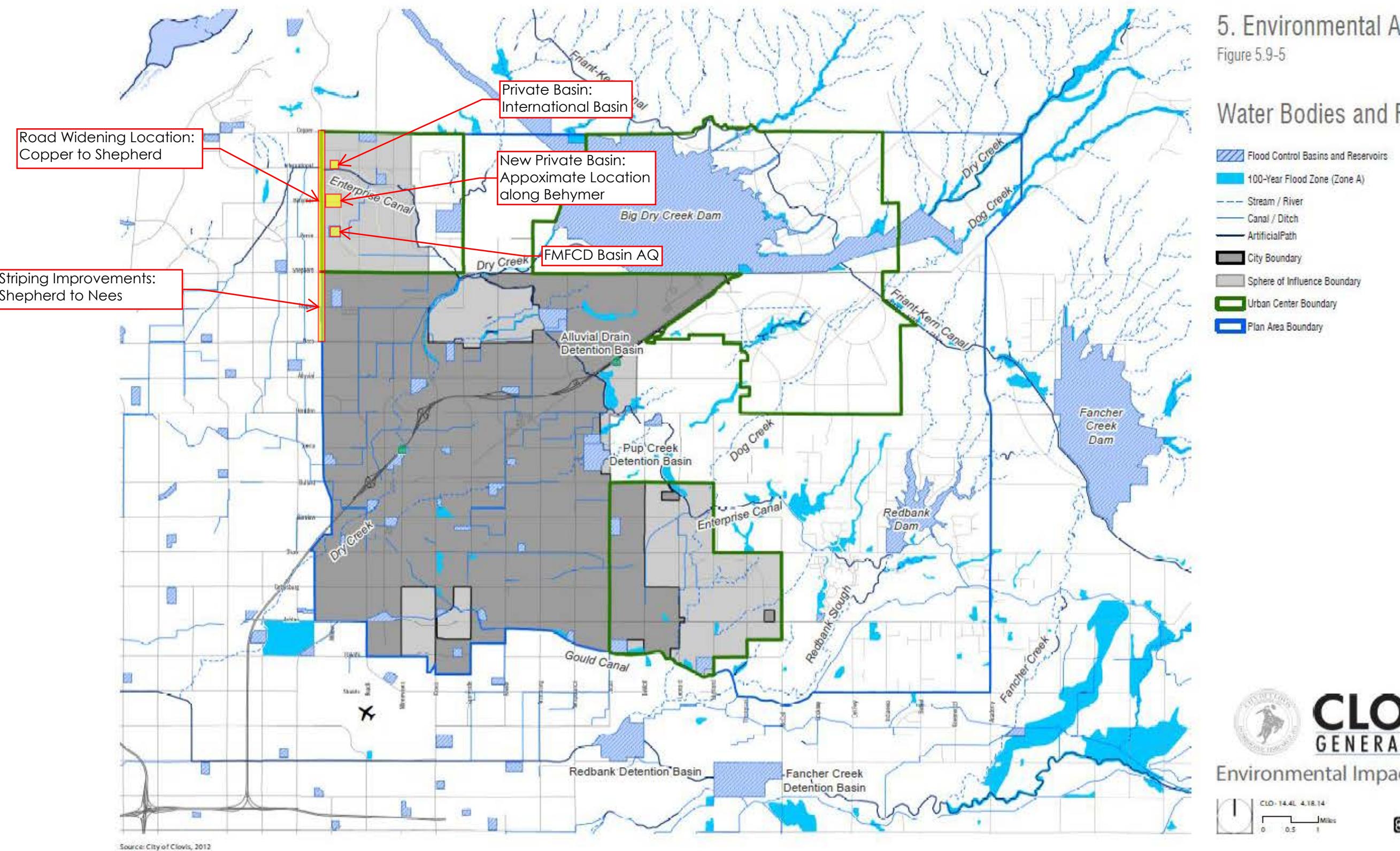


Figure 10: General Plan EIR Water Bodies and Flood Zones



2.10 Land Use and Planning

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?			X	
b) Conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	
c) Conflict with any applicable habitat conservation plan or natural communities conservation plan?				X

Checklist Discussion

a) Less than Significant Impact:

The Project has no design, construction, or operational characteristics that would physically divide Clovis. Instead, widening Willow Avenue would improve the physical cohesiveness of the community by providing safer, more efficient vehicular, bicyclist, and pedestrian access within the community. Therefore, a less than significant impact would occur.

b) Less than Significant Impact:

The Project would not conflict with any adopted land use plan, policy, or regulation adopted by the City. The 2014 General Plan designates Willow Avenues as an arterial street within the project area. Rather, the Project would support implementation of the 2014 General Plan designation by widening the street to conform to the City's arterial street standard. Therefore, a less than significant impact would occur.

c) No Impact:

The City has not adopted any habitat conservation plans or natural communities' conservation plans that apply to the Project area. Therefore, no impact would occur.

2.11 Mineral Resources

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	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?			X	
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 land use plan?			X	

Checklist Discussion

a) & b) Less than Significant Impact:

No known mineral resources exist within the Project area, and the Draft PEIR states that the entire Plan Area is mapped as Mineral Resource Zone -3 (MRZ-3) meaning the significance of mineral deposits cannot be determined from available data (refer to Figure 11 and 12). A geotechnical investigation will occur to verify that no minerals are encountered. Therefore, a less than significant impact would occur.

Mineral Resource Zones

5. Environmental Analysis

Figure 5.11-1

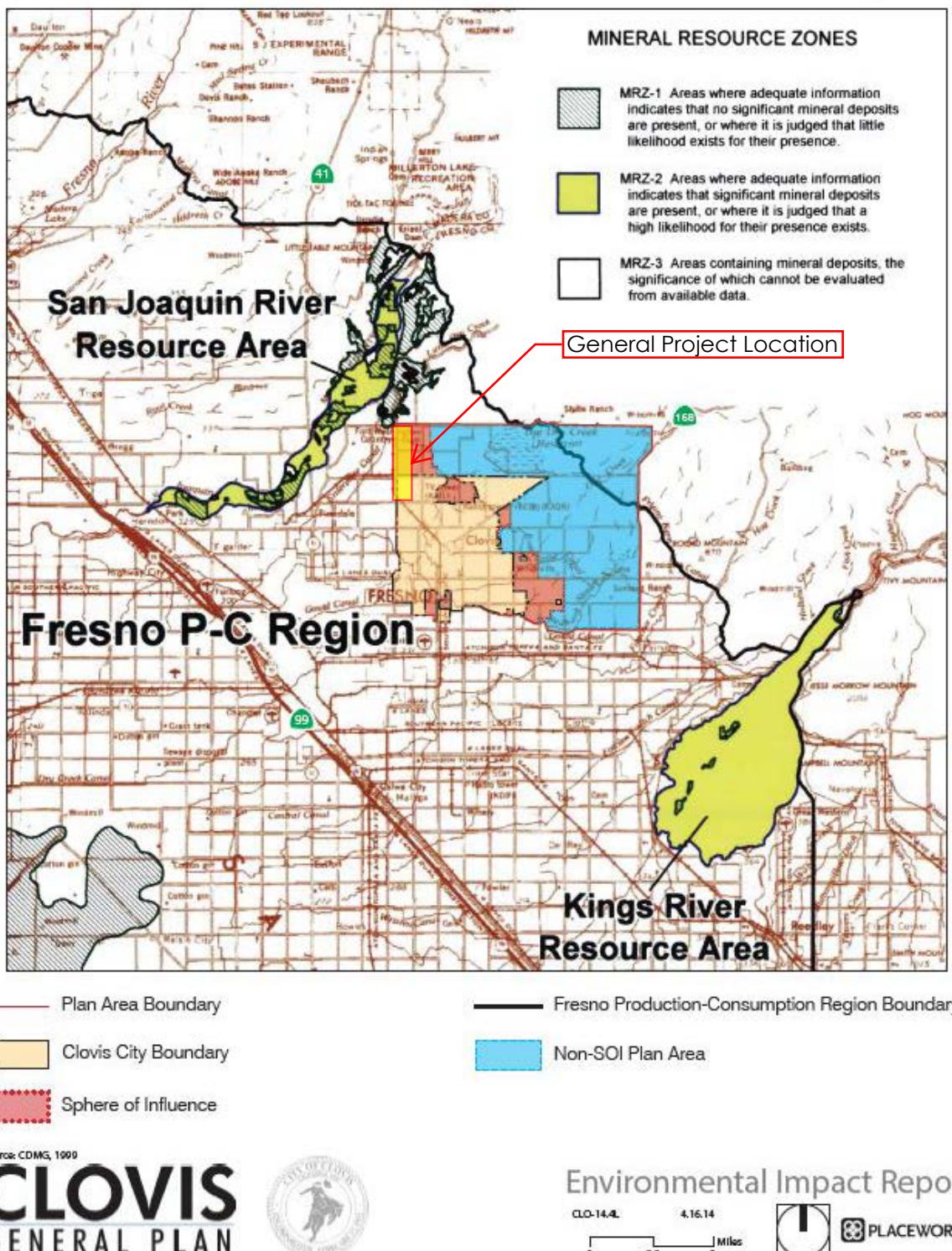
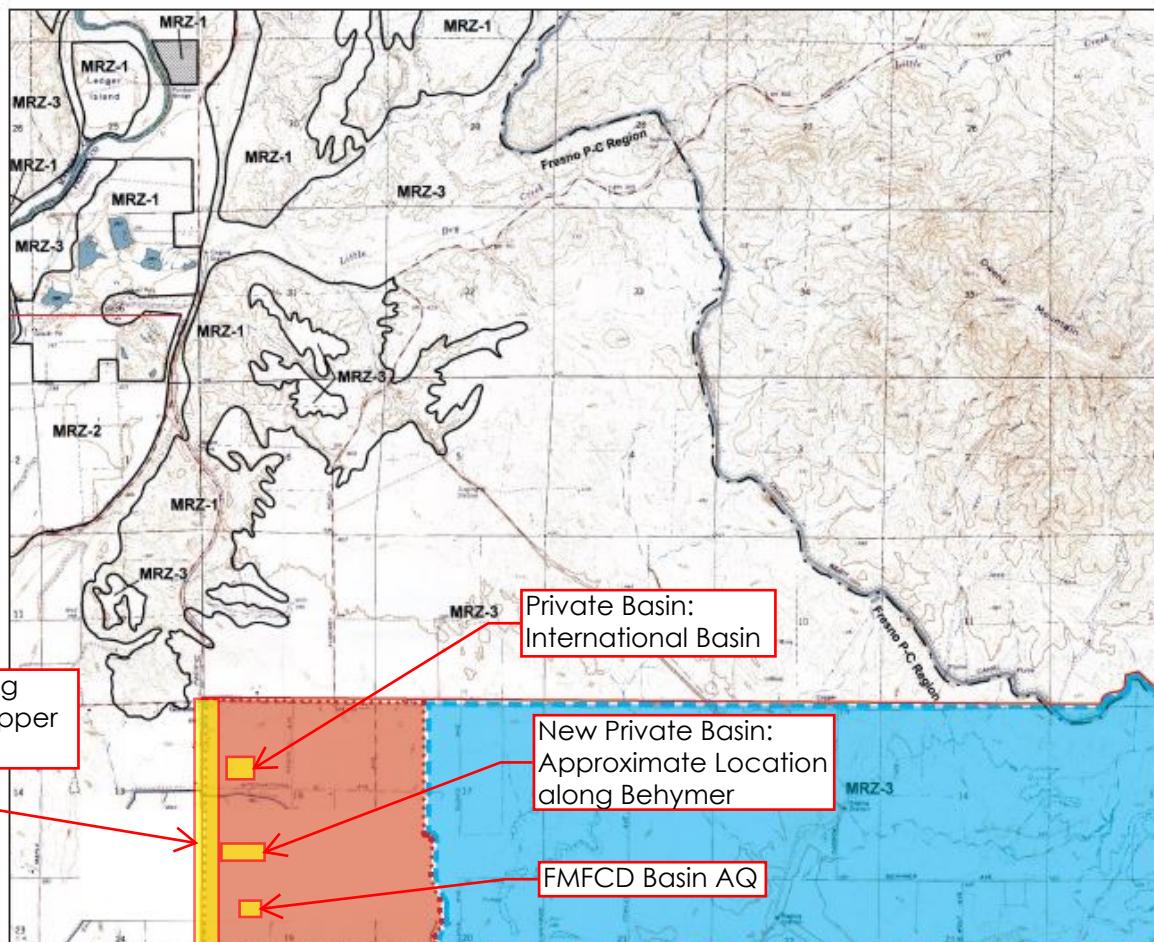


Figure 11: General Plan EIR Mineral Resource Zones

Mineral Resource Zones Detail

5. Environmental Analysis

Figure 5.11-2



MRZ-1 Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2 Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.

MRZ-3 Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

Plan Area Boundary

Non-SOI Plan Area

Sphere of Influence

Source: CDMG, 1999

CLOVIS
GENERAL PLAN



Environmental Impact Report

CLO-14.4L 4.16.14

0 0.5 1 Miles



PLACEWORKS

Figure 12: General Plan EIR Mineral Resource Zone Detail

2.12 Noise

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?		X		
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
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 expose people residing or working in the project area to excessive noise levels?			X	
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?			X	

Checklist Discussion

A technical analysis of the Project-specific impacts to the acoustics in the Project vicinity was completed in May 2016 and is provided in Appendix D (WJV Acoustics, 2016). This environmental noise assessment was prepared to determine if significant noise impacts would be produced by the Project and to describe the mitigation measures for noise if significant impacts are identified. Additionally, the Project was included in the 2014 General Plan Update and PEIR adopted in August 2014. Figure 13 shows the General Plan EIR Existing Roadway Noise Contours and Figure 14 shows the 2014 General Plan EIR Full Buildout Roadway Noise Level Contours.

a) Less than Significant Impact:

Implementation of the Project would not induce growth or result in the installation of any new sources of noise; rather, it would change traffic patterns, consistent with the 2014 General Plan, to increase transit efficiency and level of service by reducing congestion. The Project is intended to support implementation of the 2014 General Plan by increasing transit efficiency and level of service and enhancing safety on the affected roadway.

The Project would result in changes to the roadway centerline distances for land uses adjacent to the Project area, which in turn would result in a slight increase or decrease in noise levels for land uses located east or west of the Project, respectively. The acoustical study determined that five receptors (four residential, one church) located east of Willow Avenue would experience increases in noise levels of 0.2 to 0.5 decibels (dB) as a result of the change in distance to the roadway centerline.

All of the nearby receptors would still experience exterior noise levels of less than 65 dB Community Noise Equivalent Level (CNEL), which is the City of Clovis exterior noise level standard. Construction methods complying with current building code requirements can be assumed to reduce exterior noise levels by approximately 25 dB if windows and doors are closed, resulting in interior noise levels of less than 40 dB for nearby receptors. The City of Clovis and City of Fresno interior noise level standards are 45 dB CNEL/L_{dn} (day/night average sound level). Therefore, the Project would not expose persons to or generate noise levels during the operational phase in excess of local standards.

Construction noise could occur at various locations in the Project vicinity. Construction activities would be temporary in nature. Additionally, the Project would comply with the provisions of Clovis Municipal Code that, unless otherwise expressly provided by a permit, permits construction activities only between the hours of 7:00 AM to 7:00 PM Monday thru Friday and between 9:00 AM and 5:00 PM on Saturday and Sunday. From June 1 through September 15, permitted construction activity may commence after 6:00 AM Monday through Friday. Extended construction work hours with a permit must at all times be in strict compliance with the permit conditions. The acoustical study concluded that construction noise would not be considered a significant impact and no mitigation would be required if Project-related construction activities comply with the City's noise ordinance and all equipment is equipped with adequate mufflers and properly maintained.

According to the analysis described above, the Project would not expose persons to or generate noise levels in excess of local standards, and impacts would be less than significant.

b) Less than Significant Impact with Mitigation Incorporated:

The Project would not induce growth or result in the installation of any new sources of groundborne vibration. The Project would therefore not result in the exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels due to Project operation.

Construction of the Project would not include pile driving or other vibration-intensive activities. Construction-related vibration would be temporary and only occur near the area where activities are occurring at that time. Additionally, ground borne vibration would decrease rapidly with distance from the source, especially given that it would be traveling through dirt, which transmits vibration less efficiently than pavement or other solid surfaces.

Additionally, the Project would incorporate the following mitigation measure to maintain consistency with the PEIR.

2014 General Plan Update Mitigation Measure 12-1: Individual projects that involve vibration-intensive construction activities within 200 feet of sensitive receptors, such as blasting, pile drivers, jackhammers, and vibratory rollers, shall be evaluated for potential vibration impacts. A study shall be conducted for individual projects where vibration-intensive impacts may occur. If construction-related vibration is determined to be perceptible at vibration-sensitive uses, additional requirements, such as use of less-vibration-intensive equipment or construction techniques, shall be implemented during construction (e.g. nonexplosive blasting methods, drilled piles as opposed to pile driving, etc.).

Since there is no vibration intensive construction activities within 200 feet of sensitive receptors per the mitigation measure, Project impacts would be less than significant.

c) *Less than Significant Impact:*

As discussed in Section 2.12.a above, the Project would not result in long-term increases in noise levels, except those due to the roadway centerline being closer to receptors located east of the Project. The acoustical analysis determined that five receptors (four residential, one church) located east of Willow Avenue would experience increases in noise levels of 0.2 to 0.5 decibels (dB) as a result of the change in distance to the roadway centerline. Although no specific threshold has been established for what is considered a substantial increase in ambient noise levels, it is generally agreed that a 3 dB increase is the minimum change perceptible to most people. The Project would result in noise level increases that are well under the minimum perceptible change threshold and would therefore result in less than significant impacts.

d) *Less than Significant Impact with Mitigation Incorporated:*

Operation of the Project would not result in any temporary or periodic increases in ambient noise levels in the Project vicinity above levels existing without the Project.

As discussed in Section 2.12.a above, Construction noise could occur at various locations in the Project vicinity. Construction-related noise would be temporary in nature and only occur near the area where activities are occurring at that time. Additionally, the Project would comply with the provisions of Clovis Municipal Code that, unless otherwise expressly provided by a permit, permits construction activities only between the hours of 7:00 AM to 7:00 PM Monday thru Friday and between 9:00 AM and 5:00 PM on

Saturday and Sunday. From June 1 through September 15, permitted construction activity may commence after 6:00 AM Monday through Friday. Extended construction work hours with a permit must at all times be in strict compliance with the permit conditions.

To maintain consistency with the PEIR, the Project would also incorporate the following mitigation measure.

2014 General Plan Update Mitigation Measure 12-2: Applicants for new development projects within 500 feet of sensitive receptors shall implement the following best management practices to reduce construction noise levels:

- Consider the installation of temporary sound barriers for construction activities immediately adjacent to occupied noise-sensitive structures.
- Equip construction equipment with mufflers.
- Restrict haul routes and construction-related traffic.
- Reduce nonessential idling of construction equipment to no more than five minutes.

With incorporation of the above mitigation measure, the Project would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, and impacts would be less than significant.

e) & f) Less than Significant Impact:

The Project area is not within an airport land use plan area and is not within two miles of a public airport or within the vicinity of a private airstrip. Therefore, a less than significant impact would occur.

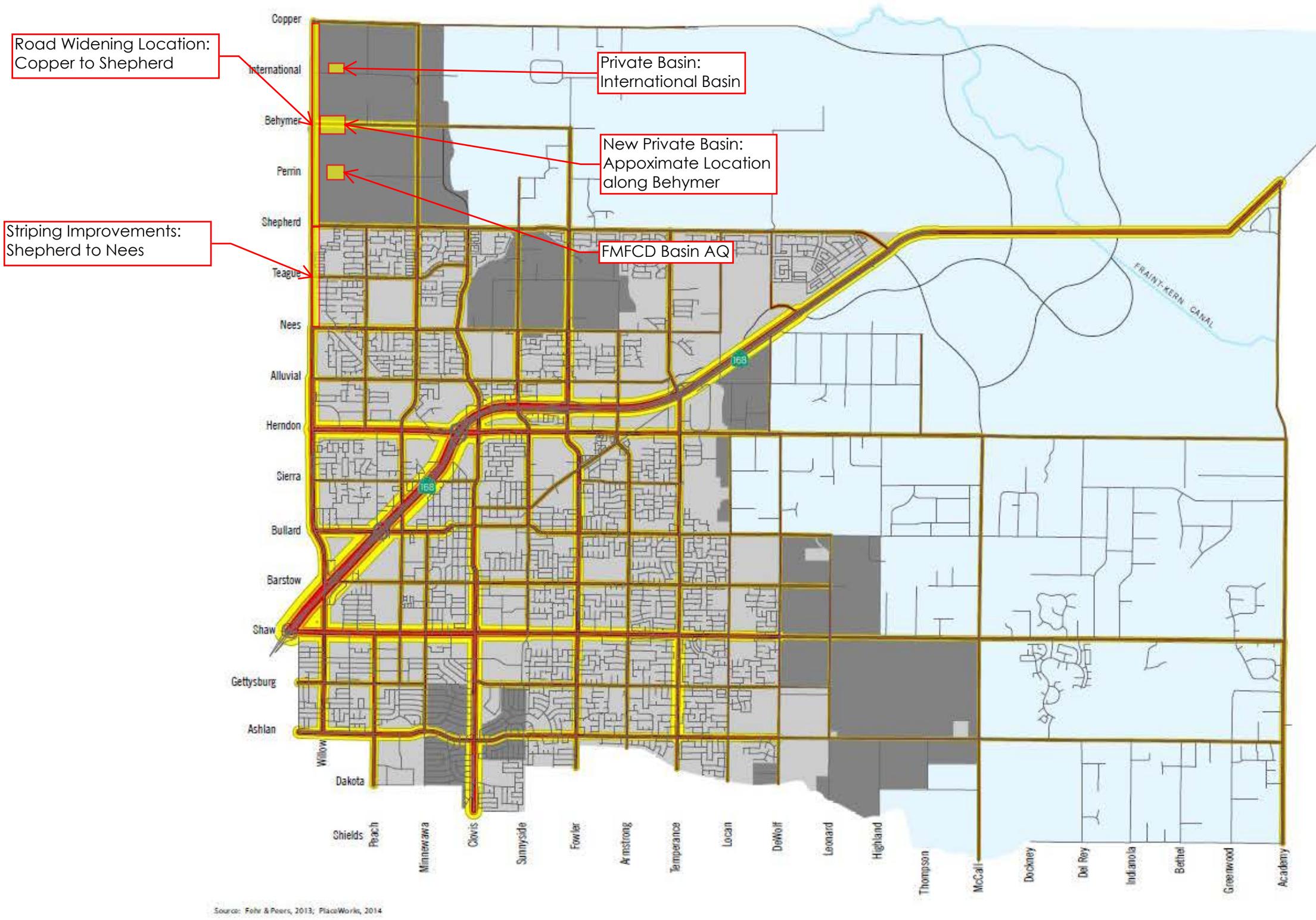


Figure 13: General Plan EIR Existing Roadway Noise Level Contours

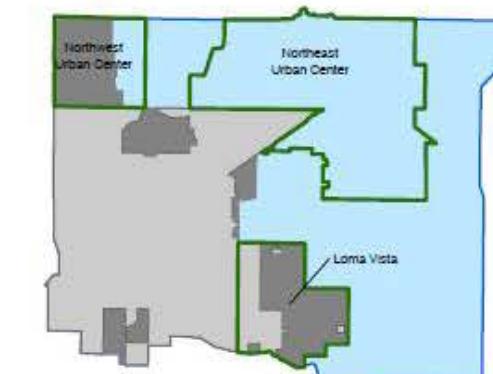
5. Environmental Analysis

Figure 5.12-3

Existing Roadway Noise Level Contours

- 70 dBA CNEL Contour
- 65 dBA CNEL Contour
- 60 dBA CNEL Contour

Key Map



5. Environmental Analysis

Figure 5.12-5

Full Buildout Roadway Noise Level Contours

- 70 dBA CNEL Contour
- 65 dBA CNEL Contour
- 60 dBA CNEL Contour

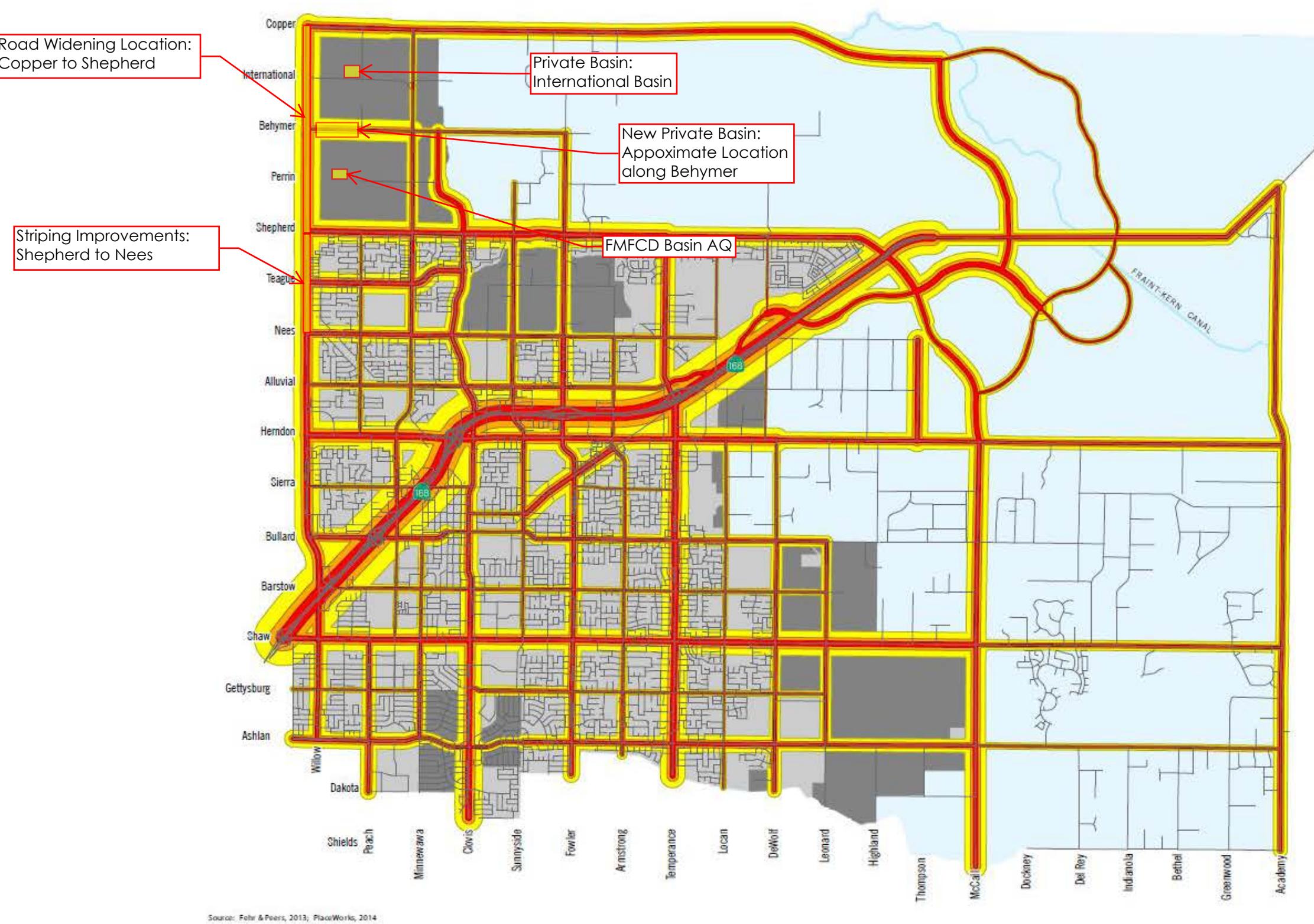
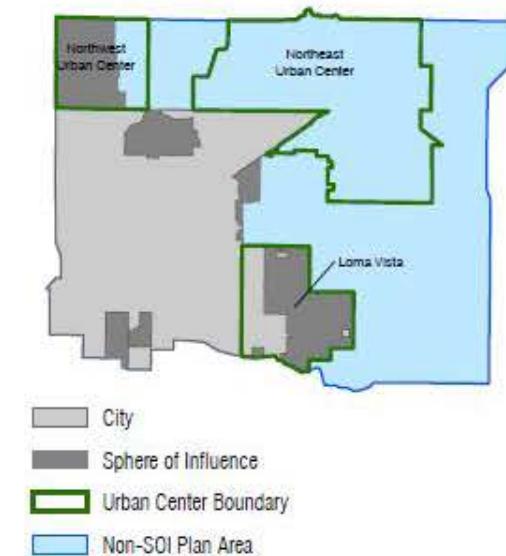


Figure 14: General Plan EIR Full Buildout Roadway Noise Level Contours

Key Map



Environmental Impact Report

CLO-14.0 10.14.13
0 0.25 0.5 Miles
PLACEWORKS

2.13 Population and Housing

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

Checklist Discussion

a) Less than Significant Impact:

The Project would not induce substantial population growth in the area, either directly or indirectly. It does not involve the construction of new housing. The Project would generate temporary construction-related jobs, most of which would be filled by workers already residing in the Fresno-Clovis area.

The Project involves widening an existing road and not the construction of a new road. While the widening would facilitate the safe and efficient movement of additional traffic on Willow Avenue, it would not induce substantial growth. The City has planned the Northwest Urban Center for urban development and, as part of this planning, had determined that Willow Avenue should be an arterial street to accommodate the development. Therefore, the impact would be less than significant.

b) & c) No Impact:

No houses exist within the project area, including the land the City would obtain for additional street ROW, and no people reside in the project area that could be displaced as a result of the Project. Therefore, no impact would occur.

2.14 Public Services

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities or need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a.i. Fire Protection?			X	
a.ii. Police Protection?			X	
a.iii. Schools?			X	
a.iv. Parks?			X	
a.v. Other public facilities?			X	

Checklist Discussion

a.i, a.ii, a.iii, a.iv, a.v) Less than Significant Impact:

The purpose of the Project is to support implementation of the 2014 General Plan Update. Implementation of the Project would not induce growth or require the provision of new or physically altered government facilities, other than those identified and analyzed in this IS. Rather, the Project would increase the transit efficiency and level of service by reducing congestion and enhancing safety on the affected roadway, thereby improving the performance objectives for public services. Therefore, impacts would be less than significant.

2.15 Recreation

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?			X	

Checklist Discussion

a) & b) *Less than Significant Impact:*

The purpose of the Project is to support implementation of the General Plan Update. Implementation of the Project would not induce growth, result in the installation of any feature that would increase the use of existing neighborhood or regional parks or other recreational facilities, or require the construction or expansion of recreational facilities (Refer to Figure 15). Rather, the Project would increase the transit efficiency and level of service by reducing congestion and enhancing safety on the affected roadway. Therefore, impacts would be less than significant.

5. Environmental Analysis

Figure 5.15-1

Parks and Trails

- Trails**
- Clovis Old Town Trail
 - Dry Creek Trail
 - Enterprise Trail
 - Jefferson Trail
 - Gould Trail
 - PGE Trail
 - Dog Creek Trail
 - Loma Vista Paseos
 - Harlan Ranch Blvd. Path
 - Shepherd Ave. Path
 - Greenbelt Paths
 - County Trail
 - Planned/Future Trails
- Park Type**
- Pocket
 - Future Pocket
 - Neighborhood
 - Future Neighborhood
 - Area
 - Future Area
 - Community
 - Future Community
 - Future Regional
 - Dual Basin
 - Future Dual Basin
 - School Park/Playfield
 - City Boundary
 - Sphere of Influence Boundary
 - Plan Area Boundary

Note: All planned/future trails are depicted as dash lines on the map.



CLOVIS
GENERAL PLAN

Environmental Impact Report

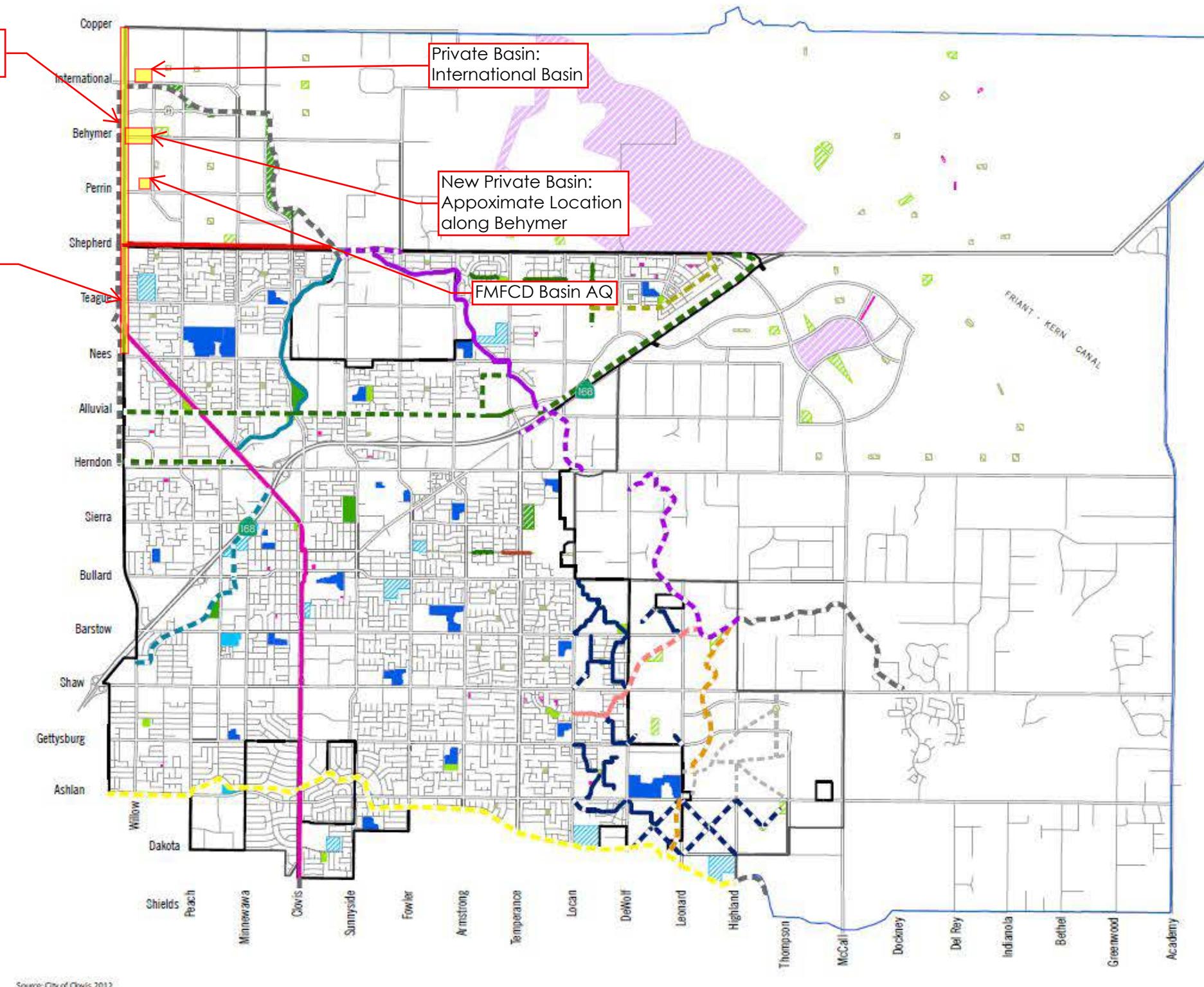
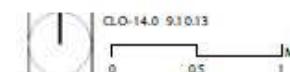


Figure 15: General Plan EIR Existing Parks and Trails

2.16 Transportation/Traffic

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			X	
b) Conflict with an applicable congestion management program including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?			X	
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			X	

Checklist Discussion

a) Less than Significant Impact:

The Project was included in the PEIR and 2014 General Plan Update, which were adopted August 2014. The purpose of the Project is to support implementation of the 2014 General Plan by increasing capacity of northbound traffic on Willow Avenue and enhancing the roadway to provide multi-modal access. As shown on Figure 16 and Figure 17, the General Plan designates Willow Avenue as an arterial street for the existing circulation system and the full buildout circulation system and roadway classification. The Project would improve Willow Avenue between Copper and Shepherd Avenues to meet the City's arterial street standard, which would include curb and gutter, bike lanes, three northbound total travel lanes, protected left-turn lanes, and landscaped median islands. Implementation of the Project would not induce

growth or result in the installation of any feature that would conflict with the 2014 General Plan. Rather, it would increase the transit efficiency and level of service by reducing congestion and enhancing safety on the affected roadway. Therefore, the Project would support, rather than conflict with, the 2014 General Plan. Impacts would be less than significant.

Once operational the proposed project would improve, rather than disrupt, traffic flow along Willow Avenue for all modes of transportation including vehicle, pedestrian and bicycle. However, construction of the Project could result in a temporary increase in traffic volumes and disruption of traffic flow during construction activities. Prior to construction, the contractor would develop a traffic management plan, prepared and coordinated with the County of Fresno, City of Fresno, and City of Clovis, that would address construction-related traffic impacts for all modes of transportation in the project area. Included in the traffic management plan would be plans to safely divert bicycle traffic with minimal disruption to cyclists.

b) No Impact:

The City has not adopted a congestion management plan. Additionally, as described in 2.17.a above, the Project would reduce congestion in the Project vicinity. Therefore, no impact would occur.

c) No Impact:

The Project would have no physical or operational characteristics related to airport or air traffic, including but not limited to changing air traffic patterns or increasing air traffic levels. The Project area is located approximately 2.4 miles from the nearest airport (Arnold Ranch Airport) and is not within an area encompassed by an airport land use plan. Therefore, no impact would occur.

d) & e) Less than Significant Impact:

The Project would not include any hazardous design features such as sharp curves, dangerous intersections, or incompatible uses. Rather, improving Willow Avenue to conform to the City's arterial street standard would eliminate traffic hazards posed by the existing incomplete street improvements and would allow safer, more efficient movement of traffic, including emergency vehicles, through the area. Therefore, impacts would be less than significant.

f) Less than Significant Impact:

As discussed in Section 2.16.a above, the 2014 General Plan designates Willow Avenue as an arterial street. The Project would complete the development of Willow Avenue within the Project area to meet the City's arterial standard. The improvements proposed for the Project include bicycle lanes. Development of these facilities would enhance the safety of bicyclists and would comply with the City's adopted policies, plans, or programs for these facilities. Therefore, impacts would be less than significant.

5. Environmental Analysis

Figure 5.16-1

Existing Circulation System

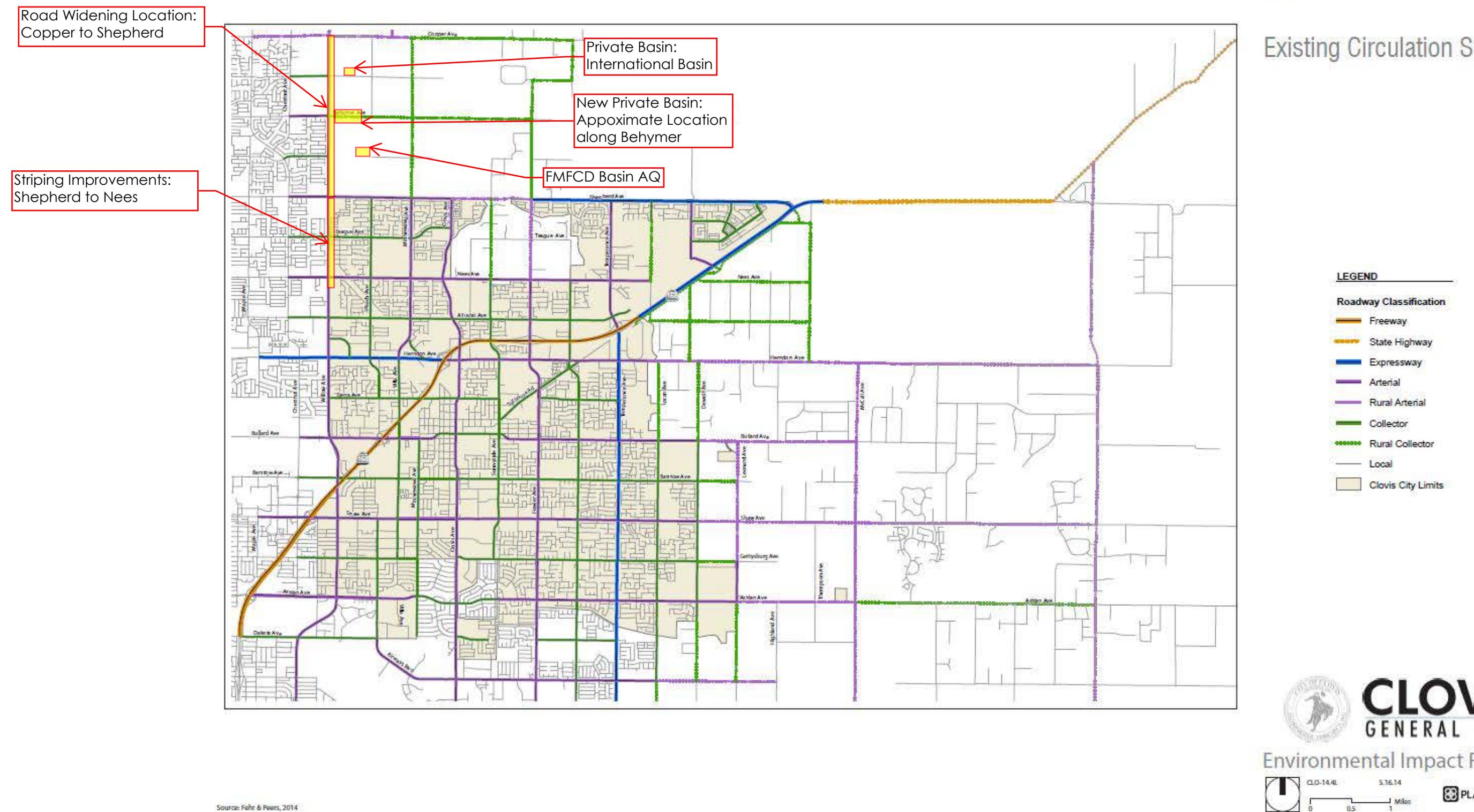
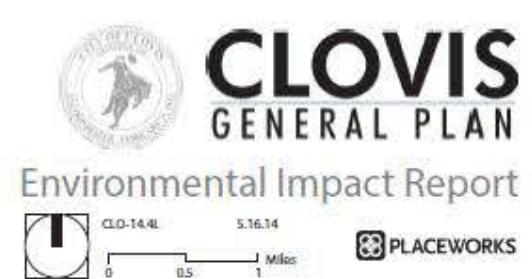


Figure 16: General Plan EIR Existing Circulation System



5. Environmental Analysis

Figure 5.16-5

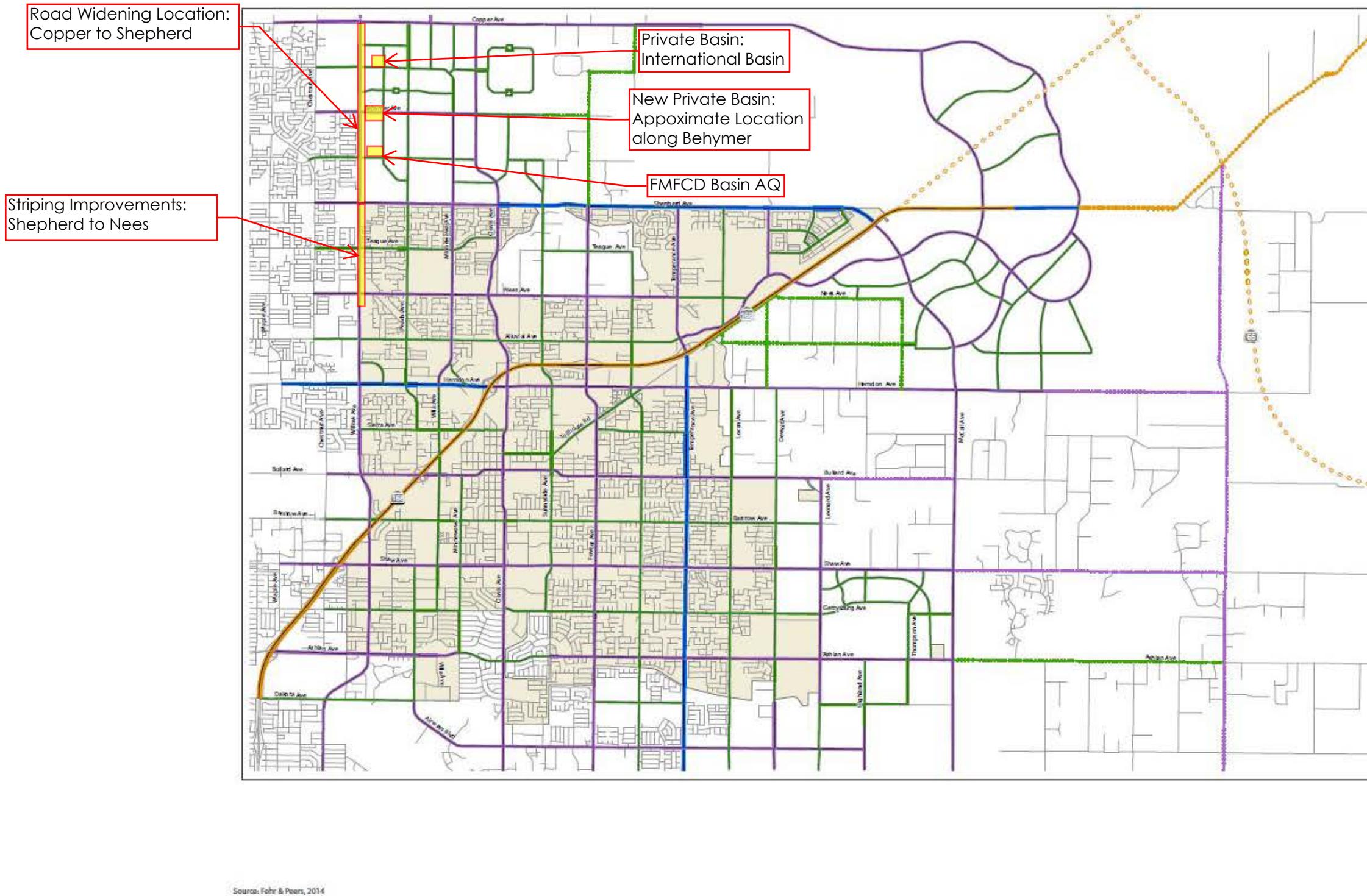
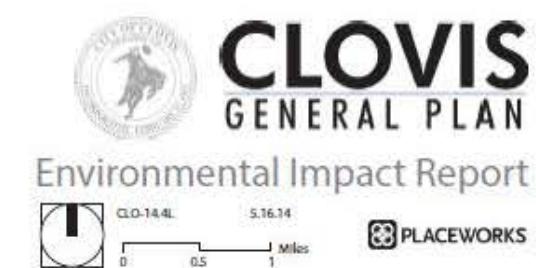


Figure 17: General Plan EIR Full Buildout Circulation System and Roadway Classification

Full Buildout Circulation System and Roadway Classification

LEGEND	
Roadway Classification	
Freeway	
Conceptual 2-4 Lane State Highway	
State Highway	
Expressway	
Arterial	
Rural County Arterial	
Collector	
Rural County Collector	
Local	
Clovis City Limits	



2.17 Tribal Cultural Resources

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
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)?			X	
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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			X	

Checklist Discussion

a) Less than Significant Impact:

According to the Archaeological Resources Study conducted for the project (Rincon 2018), a historic canal was identified adjacent to the current project site, but was evaluated as ineligible for the California Register of Historical Resources (CRHR) and requires no further consideration. Project-related impacts would be less than significant.

b) Less than Significant Impact:

The Archaeological Resources Study also concluded that Native American scoping efforts did not identify any specific resources important to the consulted groups within the project site. Background research conducted for the study included a review of the Sacred Lands File (SLF) maintained by the Native American Heritage Commission (NAHC); Native American scoping for information regarding any Native American cultural resources within or near the project site; a review of cultural resource records at the California Historical Resources Information System (CHRIS) Southern San Joaquin Valley Information

Center (SSJVIC); and a review of available historical USGS 7.5- and 15-minute quadrangle and aerial maps.

In May 2016, the NAHC was contacted to request a review of the SLF and to request a contact list of local Native American groups and individuals who may have knowledge of cultural resources existing within or near the project area. In June 2016, a response was received from NAHC via email stating that a search of the SLF yielded negative results. The response also provided a list of Native American groups and individuals with whom to communicate regarding the project. Letters were mailed to the NAHC-provided contacts later that month. As of January 2018, no responses were received from Native American contacts.

Implementation of 2014 General Plan Update Mitigation Measures 5-5 and 5-7 (see Section 2.5 of this IS) would ensure that impacts related to the unanticipated discovery of cultural resources or human remains would be minimized. Project-related impacts would therefore be less than significant.

2.18 Utilities and Service Systems

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X	
b) Require or result in construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			X	
e) Result in a determination by the wastewater treatment provider that services 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?			X	
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g) Comply with federal, state, and local statutes and regulations related to solid waste?			X	

Checklist Discussion

a) **Less than Significant Impact:**

The Project would not generate any additional wastewater, other than that which has already been accounted for in the designs of the three new retention basins that are to be constructed as part of the Project. Therefore, the Project does not have the potential to exceed wastewater treatment requirements of the applicable RWQCB.

The management of wastewater during construction would be subject to Section 5, Control of Work; Section 7-11, Sanitary Regulations; and Section 64, Sanitary Sewer Facilities in the City's Standard Specifications. Additionally, the Project would be required to prepare a Stormwater Pollution Prevention

Plan (SWPPP) prior to initiating construction. Implementation of these requirements would ensure that any potential impacts remain less than significant.

b) No Impact:

The Project would not include or require the construction of new water or wastewater treatment facilities or the expansion of existing facilities. Therefore, no impact would occur.

c) Less than Significant Impact:

The Project would result in the construction of new storm water drainage facilities. These facilities would be part of the standard improvements required to widen Willow Avenue to the City's arterial street standards. The City would construct the improvements within the proposed street ROW. No substantial modifications to the existing storm water drainage system would be required to accommodate the Project, other than the retention basins that are to be constructed to accommodate additional runoff. The new storm water drainage improvements would be designed and constructed in accordance with the requirements and specifications of the Fresno Metropolitan Flood Control District (FMFCD). Therefore, any impact would be less than significant.

d) Less than Significant Impact:

The Project would use water during the construction phase and for irrigation of the landscaping proposed for planting in median islands. The existing water line and service is provided by the City of Fresno. The proposed water line will be from the City of Clovis's facilities to transfer service from the City of Fresno to the City of Clovis. The City's water supply system has a sufficient supply of water available to serve the Project from existing entitlements and resources. No new or expanded entitlements would be required. Therefore, this impact would be less than significant.

e) Less than Significant Impact:

As discussed in Sections 2.18.a and 2.18.b above, the Project would not generate any additional wastewater and would not require the construction of new water or wastewater treatment facilities or the expansion of existing facilities, other than the construction of retention basins to accommodate additional stormwater runoff. The existing sewer lines and service is provided by the City of Fresno. The proposed sewer line will be from the City of Clovis's facilities to transfer service from the City of Fresno to the City of Clovis. Therefore, the wastewater treatment provider would have adequate capacity to service the Project's projected demand in addition to the provider's existing demand and impacts would be less than significant.

f) & g) Less than Significant Impact:

The landfill that would serve the Project has sufficient permitted capacity to accommodate solid waste disposal needs and complies with federal, state, and local statutes and regulations related to solid waste. Therefore, this impact would be less than significant.

2.19 Mandatory Findings of Significance

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?		X		
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means 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)			X	
c) Have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

Checklist Discussion

a) Less than Significant Impact with Mitigation Incorporated:

The Project does not 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 eliminate important examples of the major periods of California history or prehistory. This conclusion reflects the research and analysis presented in Section 2.4 (Biological Resources) and Section 2.5 (Cultural Resources). It is also supported by maintaining consistency with the General Plan and Development Code Update Final PEIR by incorporating 2014 General Plan Update Mitigation Measures 4-2 and 4-5, Project-Specific Impact Minimization Measures 1 and 2 related to biological resources, and General Plan Update Mitigation Measures 5-5 and 5-7, related to cultural resources.

b) Less than Significant Impact:

The purpose of the Project is to support implementation of the 2014 General Plan by increasing the capacity of northbound traffic on Willow Avenue and enhancing the roadway to provide multi-modal access. Implementation of the Project would not induce growth or result in the installation of any features

that would lead to any cumulatively considerable impacts; rather, it would increase the transit efficiency and level of service by reducing congestion and enhancing safety on the affected roadway.

Additionally, the Project is one of a multitude of projects that were evaluated for potential environmental impacts in the PEIR, which was adopted in August 2014.

Finally, as described in this Initial Study, potential environmental impacts of the Project would be less than significant, or the Project would have no impact at all, when compared to the baseline. All potentially-significant impacts would be reduced to a less than significant level with the incorporation of proposed mitigation measures and compliance with required permits and applicable regulations.

The potential environmental impacts identified in this Initial Study have been considered in conjunction with each other as to their potential to generate other potentially-significant effects. The various potential environmental effects of the Project would not combine to generate any potentially-significant cumulative effects. Therefore, this impact is considered less than significant.

c) Less than Significant Impact with Mitigation Incorporated:

The purpose of the Project is to support implementation of the 2014 General Plan by increasing the capacity of northbound traffic on Willow Avenue and enhancing the roadway to provide multi-modal access. The Project would not cause adverse effects on human beings, but rather is intended to provide direct benefits to human beings in the project vicinity by enabling more efficient vehicle transit, increased level of service, and enhanced safety for pedestrians and cyclists.

Potential adverse effects on human beings were discussed in Sections 2.1 through 2.19 of this Initial Study. Any potentially-significant impacts on human beings would be reduced to a less than significant level with the incorporation of proposed mitigation measures and compliance with required permits and applicable regulations. Therefore, this impact would be considered less than significant with mitigation incorporated.

Chapter 3

Mitigation Monitoring and Reporting Program

3.1 Purpose

The City has prepared this Mitigation Monitoring and Reporting Program to comply with Section 15097 of the State CEQA Guidelines. The purpose for the Mitigation Monitoring and Reporting Program is to ensure implementation of the mitigation measures identified in this Initial Study (see Table 9).

3.2 Lead Agency and Responsible Agency

The City will undertake the Project and is the Lead Agency for the Project. The City is responsible for the implementation of all mitigation measures identified in this Initial Study.

3.3 Mitigation Monitoring and Reporting Coordinator

The City Engineer or his/her designee shall act as the Project Mitigation Reporting Coordinator (“Coordinator”).

3.4 Monitoring and Reporting Procedures for Design-, Site Clearing-, and Construction-Related Mitigation Measures

- a. The Coordinator shall provide a copy of all Project design- , site clearing- , and construction-related mitigation measures to the project engineer and contractor for incorporation in the Project plans, construction specifications, permits, and contracts, as appropriate.
- b. Prior to award of bid, the Coordinator shall determine that all Project design- , site clearing- , and construction-related mitigation measures have been incorporated in the Project plans, construction specifications, permits, and contracts, as appropriate.
- c. During construction, the Coordinator, through the construction management team, shall inspect the Project area regularly to ensure all work complies with the mitigation measures. If a discrepancy is not resolved within a reasonable time, the City Engineer may order work to cease until the discrepancy is resolved.
- d. Prior to the City of Clovis accepting the Project improvements, the City Engineer shall certify that the Project incorporates all Project design- and construction-related mitigation measures.

3.5 Monitoring and Reporting Procedures for Operational- and Maintenance-Related Mitigation Measures

Before the Project becomes operational, the City Engineer shall determine that the Project operational plans and procedures incorporate all operations-related mitigation measures, as presented below in Table 9.

Table 9: Mitigation Measures

Mitigation Measure	Responsible for Implementation	Responsible for Monitoring	Action by Monitor	Timing
<u>2014 General Plan Update Standard Condition SC-1:</u> Prior to project approval, each applicant for individual, site-specific developments under the General Plan shall comply with the San Joaquin Valley Air Pollution Control District rules and regulations, including, without limitation, Indirect Source Rule 9510. The applicant shall document, to the City's reasonable satisfaction, its compliance with this standard condition	City Contractor	City SJVAPCD	Confirm the implementation of specific control measures for construction, excavation, extraction, and other earthmoving activities as required by the SJVAPCD. Confirm the implementation of enhanced and additional control measures for construction emissions of PM ₁₀ where feasible. Confirm that Implementation Plans prepared by the City comply with SJVAPCD Rule 9510 (Indirect Source Review). Confirm that required reductions of oxides of nitrogen (NO _x) and PM ₁₀ emissions are achieved (if applicable) and/or payment of required off-site mitigation is made.	Prior to Construction
<u>2014 General Plan Update Mitigation Measure 3-1:</u> Prior to issuance of any construction permits, development project applicants shall prepare and submit to the City of Clovis Planning Division a technical assessment evaluating potential project construction-related air quality impacts. The evaluation shall be prepared in conformance with San Joaquin Valley Air Pollution Control District (SJVAPCD) methodology in assessing air quality impacts. If construction-related criteria air pollutants are determined to have the potential to exceed the SJVAPCD adopted thresholds of significance, as identified in the Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI), the City of Clovis Planning Division shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during construction activities. These identified measures shall be incorporated into appropriate construction	City Contractor	City SJVAPCD	Confirm compliance with SJVAPCD Regulation VIII and submit a Dust Control Plan subject to review and approval of the SJVAPCD at least 30 days prior to the start of construction activity on a site that includes 5 acres or more of disturbed surface area. Confirm the implementation of specific control measures for construction, excavation, extraction, and other earthmoving activities as required by the SJVAPCD.	Prior to Construction Ongoing: Construction

documents (e.g., construction management plans) submitted to the City and shall be verified by the City's Planning Division.				
<p><u>2014 General Plan Update Mitigation Measure 4-2 Resource Impact</u></p> <p>Avoidance/Minimization:</p> <p>Project applicants shall avoid potential impacts to sensitive or protected biological resources. Avoidance may include:</p> <p>Establishing appropriate no-disturbance buffers (consultation with relevant regulatory agencies may be required to establish suitable buffer areas). Initiating construction at a time when special status or protected animal species will not be vulnerable to project-related mortality (e.g. outside of the avian nesting season or bat maternal or wintering roosting season).</p> <p>Minimizing impact by measures such as:</p> <p>Exclusion and/or silt fencing;</p> <p>Relocation of impacted resources;</p> <p>Construction monitoring by a qualified biologist; and</p> <p>Training program by a qualified biologist for construction personnel on sensitive biological resources.</p>	City Contractor	City CDFW	Confirm appropriate no-disturbance buffers as approved by CDFW are established. Confirm construction schedule is not conflicting with nesting or maternal or roosting seasons. Confirm construction monitoring as needed by a qualified biologist, and training conducted by a qualified biologist for construction personnel on sensitive biological resources.	Prior to construction Ongoing: Construction
<p><u>2014 General Plan Update Mitigation Measure 4-5 Migratory Birds:</u></p> <p>The City shall require applicants for new development projects to conduct a pre-construction general nesting bird survey within all suitable nesting habitat that may be impacted by active construction during the general avian breeding season (January 1 to September 15). The pre-construction surveys shall be conducted no more than fourteen (14) days prior to initiation of construction. If no active avian nests are identified within the proposed development project area, no further mitigation is necessary. If active nests of bird species covered by the Migratory Bird Treaty Act</p>	City Contractor	City CDFW	Confirm completion of pre-construction surveys by a qualified biologist. Confirm that if active nests are found during the survey that the appropriate mitigation measures are implemented, including a no-work buffer approved by CDFW. Confirm that the results of the survey are documented in a letter report that is distributed to CDFW and the City.	Prior to Construction Ongoing: Construction

are detected within the proposed development project area or within a 300-foot buffer of the proposed project development project area, construction shall be halted until the young have fledged, until a qualified biologist has determined the nest is inactive, or until appropriate mitigation measures that respond to the specific situation have been developed and implemented in consultation with the regulatory agencies.				
<u>Project-Specific Impact Minimization Measure -1:</u> To avoid and minimize impacts to migratory bird species, any vegetation, tree, or structure removal (e.g., light posts, signage, etc., that could support or contain the nest of a migratory bird species) should be removed between 1 September and 31 January. The timing of such activity will help reduce the chance of impact to the nest of a migratory bird species. Tree or structure removal during other times of the year (1 February to 31 August) should be performed immediately after a qualified biologist has determined that such activity will not impact the nest of a migratory bird species. If an active nest is detected during such pre-activity surveys, an activity exclusion zone appropriate to the species should be identified and maintained (with flagging, fencing, or other appropriate means) until it is determined that young have fledged and that the nest is no longer active. If no active nests are detected, then no further action would be necessary.	City Contractor	City CDFW	Confirm appropriate no-disturbance buffers as approved by CDFW are established. Confirm construction schedule is not conflicting with nesting or maternal or roosting seasons. Confirm construction monitoring as needed by a qualified biologist, and training conducted by a qualified biologist for construction personnel on sensitive biological resources.	Prior to construction Ongoing: Construction
<u>Project-Specific Impact Minimization Measure .2:</u> To avoid disturbance to roosting bats, a qualified biologist should perform a pre-activity surveys to determine whether bats are roosting in trees subject to removal. If an active bat roost is discovered, then a suitable work-exclusion zone	City Contractor	City CDFW	Confirm completion of pre-construction surveys by a qualified biologist. Confirm delineation of work-exclusion zones in the event that pre-construction surveys indicate the presence of active bat roosts.	Prior to construction Ongoing: Construction

should be identified and maintained until an eviction plan has been developed. If roosting bats are not detected, then no further action is required and tree and/or structure removals should commence immediately.				
<u>2014 General Plan Update Mitigation Measure 5-5:</u> Should any cultural resources, including human remain, be discovered during the project implementation, no further grading shall occur in the area of the discovery until the Planning Director concurs in writing that adequate provisions are in place to protect these resources. Unanticipated discoveries shall be treated in accordance with the applicable state law and evaluated for significance by a professional archeologist that meets the Secretary of the Interior's Professional Qualifications Standards. If significance criteria are met, then the project shall be required to protect the resource through avoidance or mitigate impacts to the resource by performing data recovery, curate materials with a recognized scientific or educational repository; and provide a comprehensive final report including appropriate records for the California Department of Parks and Recreation Series 523 forms (Building, Structure, and Object Record; Archeological Site Record; or District Record, as applicable).	City Contractor	Historic Preservation	Confirm that during construction, if prehistoric or historic-period subsurface cultural resources are discovered, that all activity in the vicinity of the find is stopped and a qualified archaeologist is contacted to assess the significance of the find according to <i>CEQA Guidelines</i> Section 15064.5. Confirm that if any find is determined to be significant, the proposed project proponent and the archaeologist determine, in consultation with local Native American groups, appropriate avoidance measures or other appropriate mitigation. Confirm that all significant cultural materials recovered are, as necessary and at the discretion of the consulting archaeologist and in consultation with local Native American groups, subject to scientific analysis, professional museum duration, and documentation according to current professional standards. Confirm that if human skeletal remains are uncovered during proposed project construction, work in the vicinity of the find is stopped and the Fresno County coroner is contacted to evaluate the remains, following the procedures and protocols set forth in Section 15064.5 (e)(1) of the <i>CEQA Guidelines</i> . Confirm that if the County coroner determines that the remains are Native American, Native American Heritage Commission is contacted, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641) and the Most Likely Descendant is	Ongoing: Construction

			identified. Confirm that the Most Likely Descendant has made recommendations for the treatment of any human remains.	
<u>2014 General Plan Update Mitigation Measure 5-7:</u> Should any potentially significant fossil resources, including human remains be discovered during project implementation, no further grading shall occur in the area of the discovery until the Planning Director concurs in writing that the adequate provisions are in place to protect these resources. Unanticipated discoveries shall be treated in accordance with applicable state law and evaluated for significance by a certified professional paleontologist that meets the Secretary of the Interior's Professional Qualifications Standards. If significance criteria are met, then the project shall be required to protect the resource through avoidance or mitigate impacts to the resource by performing data recovery, professional identification, radiocarbon dates as applicable, and other special studies; curate material with a recognized scientific or educational repository; and provide a comprehensive final report, including catalog with museum numbers.	City Contractor	Historic Preservation	Confirm that if paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, all ground disturbing activities within 50 feet of the find are halted until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate salvage measures in consultation with the City and in conformance with Society of Vertebrate Paleontology Guidelines (SVP, 1995; SVP, 1996).	Ongoing: Construction
<u>2014 General Plan Update Mitigation Measure 12-1:</u> Individual projects that involve vibration-intensive construction activities within 200 feet of sensitive receptors, such as blasting, pile drivers, jackhammers, and vibratory rollers, shall be evaluated for potential vibration impacts. A study shall be conducted for individual projects where vibration-intensive impacts may occur. If construction-related vibration is determined to be perceptible at vibration-sensitive uses, additional requirements, such as use of less-vibration-intensive	City Contractor	City	Confirm that an acoustical analysis study is completed and if vibration-intensive construction activities are to take place within 200 feet of sensitive receptors, that potential vibration impacts shall be evaluated. Confirm that if vibration-sensitive areas will perceive the vibration-intensive construction activities, then less-vibration-intensive equipment or construction techniques shall be implemented. Confirm that construction activities will meet municipal code requirements related to noise.	Prior to construction On-going: Construction

equipment or construction techniques, shall be implemented during construction (e.g. nonexplosive blasting methods, drilled piles as opposed to pile driving, etc.).				
<u>2014 General Plan Update Mitigation Measure 12-2:</u> Applicants for new development projects within 500 feet of sensitive receptors shall implement the following best management practices to reduce construction noise levels: Consider the installation of temporary sound barriers for construction activities immediately adjacent to occupied noise-sensitive structures. Equip construction equipment with mufflers. Restrict haul routes and construction-related traffic. Reduce nonessential idling of construction equipment to no more than five minutes.	City Contractor	City	Confirm that construction equipment noise is minimized.	Ongoing: Construction

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Chapter 4

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Appendix A: Air Quality/GHG Assessment

AIR QUALITY & GREENHOUSE GAS IMPACT ANALYSIS

FOR

**N. WILLOW AVENUE
WIDENING PROJECT
CLOVIS, CA**

JANUARY 2018

PREPARED FOR:

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TABLE OF CONTENTS

Introduction	1
Proposed Project Summary	1
Air Quality	1
Existing Setting.....	1
Sensitive Receptors	6
Regulatory Framework	6
Ambient Air Quality	10
Impacts & Mitigation Measures	11
Greenhouse Gases and Climate Change	18
Existing Setting.....	18
Regulatory Framework	20
Impacts & Mitigation Measures	21
References	23

LIST OF FIGURES

Figure 1 N. Willow Avenue Widening and Stormwater Basin Locations.....	2
Figure 2 State of California Greenhouse Gases Emissions Inventory by Main Economic Sector	20

LIST OF TABLES

Table 1 Common Pollutants & Adverse Effects	5
Table 2 Summary of Ambient Air Quality Standards	8
Table 3 SJVAB Attainment Status Designations	10
Table 4 Summary of Ambient Air Quality Monitoring Data ¹	11
Table 5 Annual Construction-Generated Emissions.....	14
Table 6 Daily On-Site Construction-Generated Emissions	15
Table 7 Short-term Construction-Generated GHG Emissions.....	22

APPENDICES

Appendix A: Regional Transportation Plan & Air Quality Conformity Project Listings
Appendix B: Emissions Modeling

LIST OF COMMON TERMS & ACRONYMS

AAM	Annual Arithmetic Mean
ADT	Average Daily Traffic
APCD	Air Pollution Control District
AQAP	Air Quality Attainment Plan
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
ARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
DPM	Diesel-Exhaust Particulate Matter or Diesel-Exhaust PM
FCAA	Federal Clean Air Act
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
IPCC	Intergovernmental Panel on Climate Change
N ₂ O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards or National AAQS
NESHAPs	National Emission Standards for HAPs
NO _x	Oxides of Nitrogen
O ₃	Ozone
PM	Particulate Matter
PM ₁₀	Particulate Matter (less than 10 µm)
PM _{2.5}	Particulate Matter (less than 2.5 µm)
ppb	Parts per Billion
ppm	Parts per Million
ROG	Reactive Organic Gases
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminant
µg/m ³	Micrograms per cubic meter
U.S. EPA	United States Environmental Protection Agency

INTRODUCTION

This report provides a summary of the existing environment in the project area and identifies potential air quality and greenhouse gas impacts associated with the proposed project. Project impacts are evaluated relative to applicable ambient air quality standards and thresholds of significance.

PROPOSED PROJECT SUMMARY

The proposed project includes the widening of N. Willow Avenue, between Copper Avenue and Shepherd Avenue, and installation of three stormwater basins to accommodate stormwater drainage, and various related improvements. At buildout, the project will widen N. Willow Avenue to a total of six travel lanes. The intent of the proposed improvements is to provide improved traffic capacity and safety for motorists and pedestrians. The project is located within the City of Clovis. The project location is depicted in Figure 1.

AIR QUALITY

EXISTING SETTING

The project is located within the City of Clovis, which is within the San Joaquin Valley Air Basin (SJVAB). The SJVAB is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Air quality in the SJVAB is influenced by a variety of factors, including topography, local and regional meteorology. Factors affecting regional and local air quality are discussed below.

TOPOGRAPHY, METEOROLOGY, AND POLLUTANT DISPERSION

The dispersion of air pollution in an area is determined by such natural factors as topography, meteorology, and climate, coupled with atmospheric stability conditions and the presence of inversions. The factors affecting the dispersion of air pollution with respect to the SJVAB are discussed below.

Topography

The SJVAB occupies the southern half of the Central Valley. The SJVAB is open to the north, and is surrounded by mountain ranges on all other sides. The Coast Ranges, which have an average elevation of 3,000 feet, are along the western boundary of the SJVAB, while the Sierra Nevada Mountains (8,000 to 14,000 feet in elevation) are along the eastern border. The San Emigdio Mountains, which are part of the Coast Ranges, and the Tehachapi Mountains, which are part of the Sierra Nevada, form the southern boundary, and have an elevation of 6,000 to 8,000 feet. The SJVAB is mostly flat with a downward gradient in terrain to the northwest.

Meteorology and Climate

The SJVAB has an inland Mediterranean climate that is strongly influenced by the presence of mountain ranges. The mountain ranges to the west and south induce winter storms from the Pacific Ocean to release precipitation on the western slopes producing a partial rain shadow over the valley. In addition, the mountain ranges block the free circulation of air to the east, trapping stable air in the valley for extended periods during the cooler half of the year.

Figure 1
N. Willow Avenue Widening and Stormwater Basin Locations



Source: BCF 2018

Winter in the SJVAB is characterized as mild and fairly humid, while the summer is typically hot, dry, and cloudless. The climate is a result of the topography and the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer months, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface as a result of the northwesterly flow produces a band of cold water off the California coast. In winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms.

The annual temperature, humidity, precipitation, and wind patterns reflect the topography of the SJVAB and the strength and location of the semi permanent, subtropical high-pressure cell. Summer temperatures that often exceed 100 degrees Fahrenheit ($^{\circ}$ F) and clear sky conditions are favorable to ozone formation. Most of the precipitation in the valley occurs as rainfall during winter storms. The winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. However, between winter storms, high pressure and light winds lead to the creation of low-level temperature inversions and stable atmospheric conditions, which can result in higher pollutant concentrations. The orientation of the wind flow pattern in the SJVAB is parallel to the valley and mountain ranges. Summer wind conditions promote the transport of ozone and precursors from the San Francisco Bay Area through the Carquinez Strait, a gap in the Coast Ranges, and low mountain passes such as Altamont Pass and Pacheco Pass. During the summer, predominant wind direction is from the northwest. During the winter, the predominant wind direction is from the southeast. Calm conditions are also predominant during the winter.

The climate is semi-arid, with an annual normal precipitation of approximately 11 inches. Temperatures in the project area range from a normal minimum of 38 $^{\circ}$ F, in January, to a normal maximum of 98 $^{\circ}$ F, in July (WRCC 2017).

Atmospheric Stability and Inversions

Stability describes the resistance of the atmosphere to vertical motion. The stability of the atmosphere is dependent on the vertical distribution of temperature with height. Stability categories range from "Extremely Unstable" (Class A), through Neutral (Class D), to "Stable" (Class F). Unstable conditions often occur during daytime hours when solar heating warms the lower atmospheric layers sufficiently. Under Class A stability conditions, large fluctuations in horizontal wind direction occur coupled with large vertical mixing depths. Under Class B stability conditions, wind direction fluctuations and the vertical mixing depth are less pronounced because of a decrease in the amount of solar heating. Under Class C stability conditions, solar heating is weak along with horizontal and vertical fluctuations because of a combination of thermal and mechanical turbulence. Under Class D stability conditions, vertical motions are primarily generated by mechanical turbulence. Under Class E and Class F stability conditions, air pollution emitted into the atmosphere travels downwind with poor dispersion. The dispersive power of the atmosphere decreases with progression through the categories from A to F.

With respect to the SJVAB, Classes D through F are predominant during the late fall and winter because of cool temperatures and entrapment of cold air near the surface. March and August are transition months with equally occurring percentages of Class F and Class A. During the spring months of April and May and the summer months of June and July, Class A is predominant. The fall months of September, October, and November have comparable percentages of Class A and Class F.

An inversion is a layer of warmer air over a layer of cooler air. Inversions influence the mixing depth of the atmosphere, which is the vertical depth available for diluting air pollution near the ground, thus significantly affecting air quality conditions. The SJVAB experiences both surface-based and elevated inversions. The shallow surface-based inversions are present in the morning but are often broken by daytime heating of the air layers near the ground. The deep elevated inversions occur less frequently than the surface-based inversions but generally result in more severe stagnation. The surface-based inversions occur more frequently in the fall, and the stronger elevated inversions usually occur during December and January.

Criteria Air Pollutants

For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the United States Environmental Protection Agency (U.S. EPA) establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of an air pollutant that can be present in ambient air without harm to the public's health. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. The FCAA allows states to adopt additional or more health-protective standards. The air quality regulatory framework and ambient air quality standards are discussed in greater detail later in this report.

Human Health & Welfare Effects

Common air pollutants and associated adverse health and welfare effects are summarized in Table 1. Within the SJVAB, the air pollutants of primary concern, with regard to human health, include ozone, particulate matter (PM) and carbon monoxide (CO). As depicted in Table 1, exposure to increased pollutant concentrations of ozone, PM and CO can result in various heart and lung ailments, cardiovascular and nervous system impairment, and death.

ODORS

Typically, odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from the psychological (i.e. irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted rules or regulations for the control of odor sources. The SJVAPCD does not have an individual rule or regulation that specifically addresses odors; however, odors would be applicable to SJVAPCD's Rule 4102, Nuisance. Any actions related to odors would be based on citizen complaints to local governments and the SJVAPCD. The SJVAPCD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine if the Project results in excessive nuisance odors, as defined under the California Code of Regulations, Health & Safety Code Section 41700, air quality public nuisance.

Table 1
Common Pollutants & Adverse Effects

Pollutant	Human Health & Welfare Effects
Particulate Matter (PM ₁₀ & PM _{2.5})	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Ozone (O ₃)	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles and dyes.
Sulfur Dioxide (SO ₂)	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel; damage crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO ₂)	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to global warming, and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ. Affects animals, plants, and aquatic ecosystems.

Source: CAPCOA 2014

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air, but due to their high toxicity, they may pose a threat to public health even at very low concentrations. Because there is no threshold level below which adverse health impacts are not expected to occur, TACs differ from criteria pollutants for which acceptable levels of exposure can be determined and for which state and federal governments have set ambient air quality standards. TACs, therefore, are not considered "criteria pollutants" under either the FCAA or the California Clean Air Act (CCAA), and are thus not subject to National or California ambient air quality standards (NAAQS and CAAQS, respectively). TACs are not considered criteria pollutants in that the federal and California Clean Air Acts do not address them specifically through the setting of NAAQS or CAAQS. Instead, the U.S. EPA and the California Air Resources Board (ARB) regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with District rules, these federal and state statutes and regulations establish the regulatory framework for TACs. At the national levels, the U.S. EPA has established National Emission Standards for HAPs (NESHAPs), in accordance with the requirements of the FCAA and subsequent amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

Within California, TACs are regulated primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

At the state level, the ARB has authority for the regulation of emissions from motor vehicles, fuels, and consumer products. Most recently, Diesel-exhaust particulate matter (DPM) was added to the ARB list of TACs. DPM is the primary TACs of concern for mobile sources. Of all controlled TACs, emissions of DPM are estimated to be responsible for about 70 percent of the total ambient TAC risk. The ARB has made the reduction of the public's exposure to DPM one of its highest priorities, with an aggressive plan to require cleaner diesel fuel and cleaner diesel engines and vehicles (ARB 2005).

At the local level, air districts have the authority over stationary or industrial sources. All projects that require air quality permits from the SJVAPCD are evaluated for TAC emissions. The SJVAPCD limits emissions and public exposure to TACs through a number of programs. The SJVAPCD prioritizes TAC-emitting stationary sources, based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. The SJVAPCD requires a comprehensive health risk assessment for facilities that are classified in the significant-risk category, pursuant to AB 2588. No major existing sources of TACs have been identified in the project area.

ASBESTOS

The term "asbestos" describes naturally occurring fibrous minerals found in certain types of rock formations. It is a mineral compound of silicon, oxygen, hydrogen, and various metal cations. When mined and processed, asbestos is typically separated into very thin fibers. When these fibers are present in the air, they are normally invisible to the naked eye. Once airborne, asbestos fibers can cause serious health problems. If inhaled, asbestos fibers can impair normal lung functions, and increase the risk of developing lung cancer, mesothelioma, or asbestosis.

Naturally-occurring asbestos, which was identified as a TAC in 1986 by ARB, is located in many parts of California and is commonly associated with ultramafic rock. The project site is not located in an area of known or suspected naturally-occurring asbestos.

SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, termed "sensitive receptors." The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

Land uses located adjacent to N. Willow Avenue, between Copper Avenue and Shepherd Avenue, and near the proposed stormwater basins consist of a mix of residential, commercial, agricultural, public, and vacant land uses. The nearest residential land uses are generally located adjacent to N. Willow Avenue. Clovis Community College, Clovis North High School, and Clovis Hills Community Church are also located adjacent to N. Willow Avenue near the intersection of E. International Avenue and N. Willow Avenue.

REGULATORY FRAMEWORK

Air quality within the SJVAB is regulated by several jurisdictions including the U.S. EPA, ARB, and the SJVAPCD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent.

FEDERAL

U.S. Environmental Protection Agency

At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

Federal Clean Air Act

The FCAA required the U.S. EPA to establish NAAQS, and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. NAAQS are summarized in Table 2.

The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The U.S. EPA has responsibility to review all state SIPs to determine conformance with the mandates of the FCAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures.

STATE

California Air Resources Board

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act of 1988. Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts, establishing the CAAQS, which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The CAAQS are summarized in Table 2. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel and engine used.

California Clean Air Act

The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO₂, and NO₂ by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a five percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

California Assembly Bill 170

Assembly Bill 170, Reyes (AB 170), was adopted by state lawmakers in 2003 creating Government Code Section 65302.1 which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies and feasible implementation strategies designed to improve air quality.

Table 2
Summary of Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards (Primary)
Ozone (O ₃)	1-hour	0.09 ppm	–
	8-hour	0.070 ppm	0.070 ppm
Particulate Matter (PM ₁₀)	AAM	20 µg/m ³	–
	24-hour	50 µg/m ³	150 µg/m ³
Fine Particulate Matter (PM _{2.5})	AAM	12 µg/m ³	12 µg/m ³
	24-hour	No Standard	35 µg/m ³
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm
	8-hour	9 ppm	9 ppm
	8-hour (Lake Tahoe)	6 ppm	–
Nitrogen Dioxide (NO ₂)	AAM	0.030 ppm	53 ppb
	1-hour	0.18 ppm	100 ppb
Sulfur Dioxide (SO ₂)	AAM	–	0.03 ppm
	24-hour	0.04 ppm	0.14 ppm
	3-hour	–	0.5 ppm (1300 µg/m ³)
	1-hour	0.25 ppm	75 ppb
Lead	30-day Average	1.5 µg/m ³	–
	Calendar Quarter	–	1.5 µg/m ³
	Rolling 3-Month Average	–	0.15 µg/m ³
Sulfates	24-hour	25 µg/m ³	No Federal Standards
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m ³)	
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m ³)	
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	
For more information on standards visit : http://www.arb.ca.gov/research/aaqs/aaqs2.pdf			Source: ARB 2018

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

The SJVAPCD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the SJVAB, within which the proposed project is located. Responsibilities of the SJVAPCD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA. The SJVAPCD Rules and Regulations that are applicable to the proposed project include, but are not limited to, the following:

- *Regulation VIII (Fugitive Dust Prohibitions).* Regulation VIII (Rules 8011-8081). This regulation is a series of rules designed to reduce particulate emissions generated by human activity, including construction and demolition activities, carryout and trackout, paved and unpaved roads, bulk material handling and storage, unpaved vehicle/traffic areas, open space areas, etc.
- *Rule 4102 (Nuisance).* Applies to any source operation that emits or may emit air contaminants or other materials.
- *Rule 4103 (Open Burning).* This rule regulates the use of open burning and specifies the types of materials that may be open burned. Section 5.1 of this rule prohibits the burning of trees and other vegetative (non-agricultural) material whenever the land is being developed for non-agricultural purposes.
- *Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).* This rule applies to the manufacture and use of cutback, slow cure, and emulsified asphalt during paving and maintenance operations.
- *Rule 9510 (Indirect Source Review - ISR).* Requires developers of larger residential, commercial, recreational, and industrial projects to reduce smog-forming and particulate emissions from their projects' baselines. This rule also applies to road improvement projects. If project emissions still exceed the minimum baseline reductions, a project's developer will be required to mitigate the difference by paying an off-site fee to the District, which would then be used to fund clean-air projects. For projects subject to this rule, the ISR rule requires developers to mitigate and/or offset emissions sufficient to achieve: (1) 20-percent reduction of construction equipment exhaust NOx; (2) 45-percent reduction of construction equipment exhaust PM₁₀; (3) 33-percent reduction of operational NOx over 10 years; and (4) 50-percent reduction of operational PM₁₀ over 10 years. SJVAPCD ISR applications must be filed "no later than applying for a final discretionary approval with a public agency."

REGULATORY ATTAINMENT DESIGNATIONS

Under the CCAA, the ARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for ozone, CO, and NO₂ as "does not meet the primary standards," "cannot be classified," or "better than national standards." For SO₂, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than

national standards." However, the ARB terminology of attainment, nonattainment, and unclassified is more frequently used. The U.S. EPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, U.S. EPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for PM₁₀ based on the likelihood that they would violate national PM₁₀ standards. All other areas are designated "unclassified."

The state and national attainment status designations pertaining to the SJVAB are summarized in Table 3. The SJVAB is currently designated as a nonattainment area with respect to the state PM₁₀ standard, ozone, and PM_{2.5} standards. The SJVAB is designated nonattainment for the national 8-hour ozone and PM_{2.5} standards. On September 25, 2008, the U.S. EPA redesignated the San Joaquin Valley to attainment for the PM₁₀ NAAQS and approved the PM₁₀ Maintenance Plan (SJVAPCD 2017).

Table 3
SJVAB Attainment Status Designations

Pollutant	National Designation	State Designation
Ozone, 1 hour	No Standard*	Nonattainment/Severe
Ozone, 8 hour	Nonattainment/Extreme	Nonattainment
PM ₁₀	Attainment	Nonattainment
PM _{2.5}	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen dioxide	Unclassified/Attainment	Attainment
Sulfur dioxide	Unclassified/Attainment	Attainment
Lead (particulate)	No Designation/Classification	Attainment
Hydrogen sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-reducing particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: SJVAPCD 2017

AMBIENT AIR QUALITY

Air pollutant concentrations are measured at several monitoring stations in Fresno County. The "Clovis-N. Villa Avenue Monitoring Station" is the closest representative monitoring site to the proposed project site with sufficient data to meet U.S. EPA and/or ARB criteria for quality assurance. This monitoring station monitors ambient concentrations of ozone, nitrogen dioxide, and airborne particulates. Ambient monitoring data were obtained for the last three years of available measurement data (i.e., 2014 through 2016) and are summarized in Table 4. As depicted, the state and national ozone standards were exceeded on numerous occasions during the past 3 years. The state standards for PM₁₀ and national PM_{2.5} standards have also been exceeded on various occasions during the past 3 years.

Table 4
Summary of Ambient Air Quality Monitoring Data¹

	2014	2015	2016
Ozone			
Maximum concentration (1-hour/8-hour average)	0.118/0.103	0.116/0.098	0.113/0.095
Number of days state/national 1-hour standard exceeded	26/0	18/0	26/0
Number of days state/national 8-hour standard exceeded	84/82	51/50	63/62
Nitrogen Dioxide (NO₂)			
Maximum concentration (state/national 1-hour average)	59/59.0	59/59.0	49/49.8
Annual average	NA	10	NA
Number of days state/national standard exceeded	0/0	0/0	0/0
Suspended Particulate Matter (PM₁₀)			
Maximum concentration (state/national)	84.3/82.3	101.3/105.3	74.9/76.2
Number of days state standard exceeded (measured/calculated ²)	5/NA	8/50.3	10/61.3
Number of days national standard exceeded (measured/calculated ²)	0/0	0/0	0/0
Fine Particulate Matter (PM_{2.5})			
Maximum concentration (state/national)	72.8/72.8	80.7/80.7	50.4/50.4
Number of days national standard exceeded (measured/calculated ²)	26/40.4	14/15.4	8/8.2
ppm = parts per million by volume, µg/m ³ = micrograms per cubic meter, NA=Not Available			
¹ Based on ambient concentrations obtained from the Clovis-N. Villa Avenue Monitoring Station.			
² Measured days are those days that an actual measurement was greater than the standard. Calculated days are the estimated number of days that a measurement would have exceeded the standard had measurements been collected every day.			
NA = Not Available			
Source: ARB 2018			

IMPACTS & MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Criteria for determining the significance of air quality impacts were developed based on information contained in the California Environmental Quality Act Guidelines (CEQA Guidelines, Appendix G). According to those guidelines, a project may have a significant effect on the environment if it would result in the following conditions:

1. Conflict with or obstruct implementation of any applicable air quality plan.
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
3. 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people.

To assist local jurisdictions in the evaluation of air quality impacts, the SJVAPCD has published the Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015). This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Accordingly, the SJVAPCD-recommended thresholds of significance are used to determine whether implementation of the proposed project would result in a significant air quality impact. The thresholds of significance are summarized below.

- Short-term Emissions—Construction impacts associated with the proposed project would be considered significant if project-generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NO_x, 27 TPY of SO_x, or 15 TPY of PM₁₀ or PM_{2.5}.
- Long-term Emissions—Operational impacts associated with the proposed project would be considered significant if project generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NO_x, 27 TPY of SO_x, or 15 TPY of PM₁₀ or PM_{2.5}.
- Conflict with or Obstruct Implementation of Applicable Air Quality Plan—Due to the region's non-attainment status for ozone, PM_{2.5}, and PM₁₀, if project-generated emissions of ozone precursor pollutants (i.e., ROG and NO_x) or PM would exceed the SJVAPCD's significance thresholds, then the project would be considered to conflict with the attainment plans.
- Local Mobile-Source CO Concentrations—Local mobile source impacts associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the CAAQS (i.e., 9.0 ppm for 8 hours or 20 ppm for 1 hour).
- Exposure to toxic air contaminants (TAC) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 20 in 1 million or would result in a Hazard Index greater than 1.
- Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors.

In addition to the above thresholds, the SJVAPCD also recommends the use of daily emissions thresholds for the evaluation of project impacts on localized ambient air quality. Accordingly, the proposed project would also be considered to result in a significant contribution to localized ambient air quality if onsite emissions or ROG, NO_x, PM₁₀, PM_{2.5}, CO, or SO₂ associated with either short-term construction or long-term operational activities would exceed a daily average of 100 pounds per day (lbs/day) for each of the pollutants evaluated (SJVAPCD 2015).

METHODOLOGY

Short-term construction emissions associated with development of the proposed land uses were calculated using the CalEEMod computer program, version 2016.3.2. Emissions were quantified based on information provided by the project proponent. Off-road equipment usage associated with the widening of N. Willow Avenue were based on default assumptions contained in the Sacramento Metropolitan Air Quality Management District's *Road Construction Emissions Model*, version 8.1.0. Off-road equipment usage for the proposed basins was based on information provided for the proposed project. Other construction information (e.g., worker vehicle trips, haul truck trips, trip lengths) were based on the default assumptions contained in the CalEEMod model for Fresno County. Modeling assumptions and output files are included in Appendix A of this report. Because the proposed project would not result in changes in vehicle trips, vehicle miles traveled, vehicle speeds, or the installation of stationary emission sources, long-term air quality impacts were anticipated to be minor and were qualitatively discussed.

PROJECT IMPACTS

<i>Impact AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?</i>

As noted in Impact AQ-2, implementation of the proposed project would not be anticipated to result in long-term increases of emissions, nor would short-term construction-generated emissions be projected to exceed applicable thresholds of significance. Furthermore, it is important to note that the proposed project is included in the regional emissions analysis conducted by the Fresno Council of Governments (FCOG) for the conforming 2014 Regional Transportation Plan (RTP) and the 2015 Federal Transportation Improvement Program (FTIP) (refer to Appendix A). The proposed project's design concept and scope have not

changed significantly from what was analyzed in the RTP/FTIP. The conformity determination found that the RTP/FTIP and, therefore, the individual projects contained in the RTP/FTIP, are conforming projects, and would not interfere with air quality planning efforts, including implementation of the State Implementation Plan. For these reasons, implementation of the proposed project would not conflict with nor obstruct implementation of applicable air quality plans. This impact would be considered less than significant. Refer to Impact AQ-3 for additional discussion of air quality impacts.

Impact AQ-2: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

The purpose of the proposed widening project is to provide improved traffic capacity and increased safety for motorists and pedestrians along the Willow Avenue corridor. Implementation of the proposed project would not result in an increase in vehicle traffic volumes along N. Willow Avenue, nor would the project result in significant changes in vehicle traffic speeds or the installation of any stationary sources of emissions. As a result, implementation of the proposed project would not be anticipated to result in long-term increases of emissions.

Short-term construction emissions would result in increased emissions of ozone-precursor pollutants (i.e., ROG and NO_x), CO, and PM. Construction generated emissions would not exceed SJVAPCD significance thresholds and would not result in increased emissions that would exceed applicable ambient air quality standards. Refer to Impact AQ-3 for additional discussion of air quality impacts.

Impact AQ-3: 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Short-term Construction Emissions

Construction-generated emissions are of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. The construction of the proposed project would result in the temporary generation of emissions associated with site grading, excavation, paving, motor vehicle exhaust associated with construction equipment and worker trips, as well as the movement of construction equipment on unpaved surfaces.

Short-term construction emissions would result in increased emissions of ozone-precursor pollutants (i.e., ROG and NO_x) and emissions of PM. Emissions of ozone-preursors would result from the operation of on-road and off-road motorized vehicles and equipment. Emissions of airborne PM are largely dependent on the amount of ground disturbance associated with site preparation activities and can result in increased concentrations of PM that can adversely affect nearby sensitive land uses. Construction-generated emissions are discussed in more detail, as follows:

Annual Construction Emissions

Assuming that widening of N. Willow Avenue and construction of the stormwater basins were to occur simultaneously over an approximate one-year period, the proposed project would generate maximum annual emissions of approximately 0.8 tons/year of ROG, 8.9 tons/year of NO_x, 5.3 tons/year of CO, 0.8 tons/year of PM₁₀, and 0.5 tons/year of PM_{2.5} (refer to Table 5). Emissions of SO₂ would be negligible. Estimated construction-generated emissions would not exceed the SJVAPCD's significance thresholds. As a result, regional air quality impacts would be considered less than significant.

Table 5
Annual Construction-Generated Emissions

Construction Activity	Emissions (Tons/Year)				
	ROG	NOx	CO	PM ₁₀	PM _{2.5}
N. Willow Avenue Widening	0.6	7.1	4.3	0.5	0.3
Stormwater Basin Construction	0.2	1.8	1.0	0.3	0.2
Total:	0.8	8.9	5.3	0.8	0.5
SJVAPCD Significance Thresholds:	10	10	None	15	None
Annual Emissions Exceed SJVAPCD Thresholds/Significant Impact?:	No	No	NA	No	NA

Emissions were quantified using the CalEEMod, version 2016.3.2. Includes compliance with SJVAPCD Regulation VIII for the control of fugitive dust. Refer to Appendix B for modeling results and assumptions.

Daily Construction Emissions

On-site construction emissions are summarized in Table 6. As indicated, the widening of N. Willow Avenue would generate average-daily emissions of approximately 2.9 lbs/day of ROG, 32.1 lbs/day of NO_x, 20.8 lbs/day of CO, 1.9 lbs/day of PM₁₀, and 1.4 lbs/day of PM_{2.5}. Daily on-site emissions associated with construction of the proposed stormwater basins would total 1.7 lbs/day of ROG, 17.0 lbs/day of NO_x, 10.0 lbs/day of CO, 0.2 lbs/day of PM₁₀ and 0.1 lbs/day of PM_{2.5}. Emissions of SO₂ would be negligible (i.e., less than 0.1 lbs/day). Construction-generated emissions would not exceed the SJVAPCD's significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated. Localized air quality impacts associated with project construction would be considered less than significant.

Long-term Increases of Operational Emissions

The purpose of the proposed project is to provide improved traffic capacity and increased safety for motorists and pedestrians along the N. Willow Avenue corridor. Implementation of the proposed project would not result in an increase in vehicle traffic volumes along N. Willow Avenue, nor would the project result in significant changes in vehicle traffic speeds or the installation of any stationary sources of emissions. As a result, implementation of the proposed project would not be anticipated to result in long-term increases of emissions.

In addition, it is important to note that the proposed project was included in the regional emissions analysis conducted by FCOG for the conforming 2014 RTP and the 2015 FTIP (refer to Appendix A). The proposed project's design concept and scope have not changed significantly from what was analyzed in the RTP and FTIP. The conformity determination found that the RTP/FTIP and, therefore, the individual projects contained in the RTP/FTIP, are conforming projects, and would not interfere with air quality planning efforts, including implementation of the State Implementation Plan. For these reasons, implementation of the proposed project would not be projected to result in or contribute substantially to an existing or projected air quality violation for which the project area or the SJVAB is designated non-attainment. This impact would be considered less than significant.

Table 6
Daily On-Site Construction-Generated Emissions

Construction Activity	Average-Daily Emissions (lbs/day) ¹				
	ROG	NOx	CO	PM ₁₀	PM _{2.5}
N. Willow Avenue Widening					
Grubbing/Land Clearing	0.2	2.2	1.6	0.3	0.2
Grading/Excavation	2.9	32.1	20.8	1.9	1.4
Drainage/Utilities/Sub-Grade	1.1	11.2	8.2	0.4	0.4
Paving	0.4	2.7	2.9	0.2	0.2
Highest Average-Daily Emissions:	2.9	32.1	20.8	1.9	1.4
SJVAPCD Significance Thresholds:	100	100	100	100	100
Daily Emissions Exceed SJVAPCD Thresholds/Significant Impact?:	No	No	No	No	No
Stormwater Basin Construction					
Site Preparation	0.1	0.7	0.3	0.1	0.1
Excavation & Construction	1.7	17.0	10.0	0.2	0.1
Highest Average-Daily Emissions:	1.7	17.0	10.0	0.2	0.1
SJVAPCD Significance Thresholds:	100	100	100	100	100
Daily Emissions Exceed SJVAPCD Thresholds/Significant Impact?:	No	No	No	No	No
<i>Emissions were quantified using the CalEEMod, version 2016.3.2. Includes compliance with SJVAPCD Regulation VIII for the control of fugitive dust. Refer to Appendix B for modeling results and assumptions.</i>					
<ol style="list-style-type: none"> Average daily onsite emissions are based on total onsite emissions divided by the total number of construction days. Assumes 250 construction days for road widening and 60 days for basin construction. 					

Impact AQ-4: Would the project expose sensitive receptors to substantial pollutant concentrations?

Potential increases in localized pollutant concentrations attributable to the proposed project would be primarily associated with emissions of TACs and PM during construction. Localized air quality impacts are discussed, as follows:

Toxic Air Contaminants

Implementation of the proposed project would not result in the long-term operation of any major onsite stationary sources of TACs, nor would project implementation result in an increase in vehicle trips along area roadways. For these reasons, implementation of the proposed project would not be anticipated to result in long-term increases in exposure of sensitive receptors to TACs. However, short-term construction activities may result in temporary increases of TACs. Short-term increases of TACs potentially associated with construction of the proposed improvements are discussed, as follows:

Naturally Occurring Asbestos

Naturally-occurring asbestos, which was identified by ARB as a TAC in 1986, is located in many parts of California and is commonly associated with ultramafic rock. The project site is not located near any areas that are likely to contain ultramafic rock (DOC 2000). As a result, risk of exposure to asbestos during the construction process would be considered less than significant.

Diesel-Exhaust Emissions

Construction of the proposed project would result in the generation of DPM emissions associated with the use of off-road diesel equipment for site grading and excavation, paving and other construction activities. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. The calculation of cancer risk associated with exposure of to TACs are typically calculated based on a 25- to 30-year period of exposure. The use of diesel-powered construction equipment, however, would be temporary and episodic and would occur over a relatively large area. Assuming that construction activities involving the use of diesel-fueled equipment would occur over an approximate two-year period, project-related construction activities would constitute less than eight percent of the typical exposure period. In addition, construction of the proposed facilities would not be anticipated to require extensive site grading or other more intensive site preparation activities that would involve extensive use of diesel-fueled off-road equipment or on-road vehicles. Furthermore, as noted in Impact AQ-3 (refer to Table 6), Construction-generated emissions of PM would not exceed the SJVAPCD's localized significance thresholds. As a result, exposure to construction-generated DPM would not be anticipated to exceed applicable thresholds (i.e., incremental increase in cancer risk of 20 in one million). As a result, this impact would be considered less than significant.

Localized PM Concentrations

Construction of the proposed project may contribute to localized PM concentrations, including emissions from onsite construction equipment and fugitive dust. Fugitive dust emissions would be primarily associated with earth-moving, and material handling activities, as well as, vehicle travel on unpaved and paved surfaces. As noted in Impact AQ-3 (refer to Table 6), construction-generated emissions of PM would not exceed the SJVAPCD's localized significance thresholds. It is also important to note that the proposed project would be required to comply with applicant SJVAPCD's Regulation VIII for the control of fugitive dust.¹ As a result, this impact would be considered less than significant.

Carbon Monoxide

Carbon monoxide is the primary criteria air pollutant of local concern associated with the proposed project. Under specific meteorological and operational conditions, such as near areas of heavily congested vehicle traffic, CO concentrations may reach unhealthy levels. If inhaled, CO can be adsorbed easily by the blood stream and can inhibit oxygen delivery to the body, which can cause significant health effects ranging from slight headaches to death. The most serious effects are felt by individuals susceptible to oxygen deficiencies, including people with anemia and those suffering from chronic lung or heart disease.

Mobile-source emissions of CO are a direct function of traffic volume, speed, and delay. As noted above, the purpose of the proposed project is to provide improved traffic capacity, which would be anticipated to result in decreased vehicle delay at nearby roadway intersections. As a result, implementation of the proposed project is not projected to result in a deterioration of levels of service along N. Willow Avenue, nor would the proposed project be projected to contribute to increased traffic volumes along area roadways. For these reasons, this impact would be considered less than significant.

¹ SJVAPCD Regulation VIII, Fugitive Dust Prohibitions. Available at Website url:
<http://www.valleyair.org/rules/1ruleslist.htm#reg8>.

Impact AQ-5: Would the project create objectionable odors affecting a substantial number of people?

Implementation of the proposed project would not result in long-term emissions of odors. However, construction of the proposed project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people. In addition, pavement coatings used during project construction would also emit temporary odors. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. For these reasons, potential short-term exposure of sensitive receptors to odorous emissions would be considered less than significant.

GREENHOUSE GASES AND CLIMATE CHANGE

EXISTING SETTING

The earth's climate has been warming for the past century. It is believed that this warming trend is related to the release of certain gases into the atmosphere. Greenhouse gases (GHG) absorb infrared energy that would otherwise escape from the earth. As the infrared energy is absorbed, the air surrounding the earth is heated. An overall warming trend has been recorded since the late 19th century, with the most rapid warming occurring over the past two decades. The 10 warmest years of the last century all occurred within the last 15 years. It appears that the decade of the 1990s was the warmest in human history [NOAA 2010]. Human activities have been attributed to an increase in the atmospheric abundance of greenhouse gases. The following is a brief description of the most commonly recognized GHGs.

GREENHOUSE GASES

Commonly identified GHG emissions and sources include the following:

- Carbon dioxide (CO_2) is an odorless, colorless natural greenhouse gas. CO_2 is emitted from natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
- Methane (CH_4) is a flammable greenhouse gas. A natural source of methane is from the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and ruminants such as cattle.
- Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load.
- Water vapor is the most abundant, important, and variable greenhouse gas. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life.
- Ozone is known as a photochemical pollutant and is a greenhouse gas; however, unlike other greenhouse gases, ozone in the troposphere is relatively short-lived and, therefore, is not global in nature. Ozone is not emitted directly into the atmosphere but is formed by a complex series of chemical reactions between volatile organic compounds, nitrogen oxides, and sunlight.
- Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.
- Hydrofluorocarbons (HFCs) are synthetic chemicals that are used as a substitute for CFCs. Of all the greenhouse gases, HFCs are one of three groups (the other two are perfluorocarbons and sulfur hexafluoride) with the highest global warming potential. The global warming potential is the potential of a gas to contribute to global warming; it is based on a reference scale with carbon dioxide at one. HFCs are human-made for applications such as air conditioners and refrigerants.
- Chlorofluorocarbons (CFCs) are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. CFCs destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol in 1987. The project would not emit CFCs.
- Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere; therefore, PFCs have long atmospheric lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture. The project would not emit PFCs.

- Sulfur hexafluoride (SF₆) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It has the highest global warming potential of any gas evaluated. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection. The project would not emit SF₆.
- Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Gases with high global warming potential, such as HFCs, PFCs, and SF₆, are the most heat-absorbent. Over a 100-year timeframe, CH₄ traps roughly 25 times more heat per molecule than CO₂, and N₂O absorbs approximately 298 times more heat per molecule than CO₂. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO₂e), which weight each gas by its global warming potential. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted (ARB 2017d).

Sources of GHG Emissions

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. World-wide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions (U.S. EPA 2018).

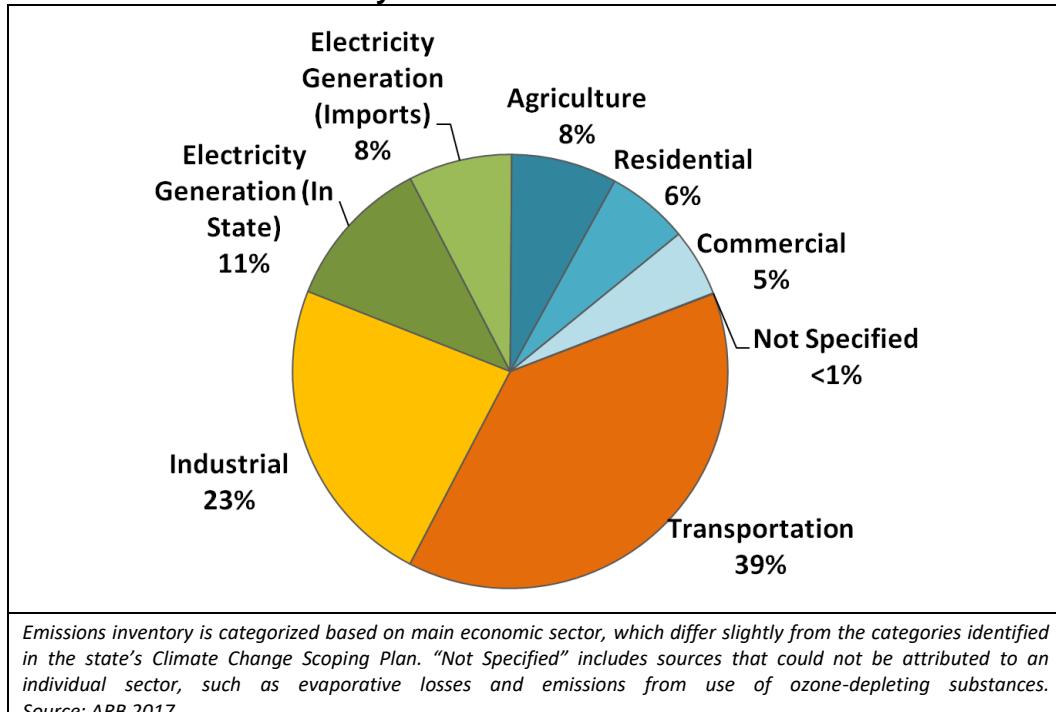
In 2015, GHG emissions within California totaled 440.4 million metric tons of carbon dioxide equivalents (MMTCO₂e). Within California, the transportation sector is the largest contributor, accounting for roughly 39 percent of the total state-wide GHG emissions. Emissions associated with the industrial sector are the second largest contributor, totaling approximately 23 percent. Emissions from in-state electricity generation, imported electricity, agriculture, residential, and commercial uses constitute the remaining major sources on GHG emissions (ARB 2017). The State of California GHG emissions inventory for year 2015 is summarized in Figure 2.

Effects of Global Climate Change

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, increased air pollution episodes, and the consequence of these effects on the economy.

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snow pack is a principal supply of water for the state, providing roughly 50 percent of state's annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the snowpack during spring and summer months. An earlier snowmelt would also impact the State's energy resources. Currently, approximately 20 percent of California's electricity comes from hydropower. An early exhaustion of the Sierra snowpack, may force electricity producers to switch to more costly or non-renewable forms of electricity generation during spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate will likely have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry.

Figure 2
State of California Greenhouse Gases Emissions Inventory
by Main Economic Sector



REGULATORY FRAMEWORK

FEDERAL

At the federal level, the National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. However, the U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) issued the first corporate fuel economy (CAFE) standards in 2010, requiring cars and light-duty vehicles to achieve certain fuel economy targets by 2016, with the intention of gradually increasing the targets and the range of vehicles to which they would apply.

STATE

California has enacted aggressive GHG reduction targets, starting with Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 is California's signature climate change legislation. It set the goal of reducing statewide GHG emissions to 1990 levels by 2020, and required the ARB to develop a Scoping Plan that describes the approach California will take to achieve that goal and to update it every 5 years. In 2015, Governor Jerry Brown enhanced the overall adaptation planning effort with Executive Order (EO) B-30-15, establishing an interim GHG reduction goal of 40 percent below 1990 levels by 2030, and requiring state agencies to factor climate change into all planning and investment decisions (Caltrans 2018).

Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2008, furthered state climate action goals by mandating coordinated transportation and land use planning through preparation of sustainable communities strategies (SCS). The ARB sets GHG emissions reduction targets for passenger vehicles for each region. Each regional metropolitan planning organization must include in its regional transportation plan an SCS proposing actions toward achieving the regional emissions reduction targets.

With these and other State Senate and Assembly bills and executive orders, California advances an innovative and proactive approach to dealing with GHG emissions and climate change (Caltrans 2018).

IMPACTS & MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

CEQA Guidelines Amendments became effective March 18, 2010. Included in the Amendments are revisions to the Appendix G Initial Study Checklist. In accordance with these Amendments, a project would be considered to have a significant impact to climate change if it would:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or,
- b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

METHODOLOGY

Implementation of the proposed project is not projected to result in a change in traffic volumes or vehicle travel speeds within the project area. As a result, the proposed project is not anticipated to result in significant changes in long-term GHG emissions. Construction of the proposed project would, however, result in short-term increases of GHG emissions. Short-term construction GHG emissions associated with the proposed project were calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Modeling includes emissions generated during the widening of N. Willow Avenue and the construction of the proposed stormwater basins. Modeling assumptions and output files are included in Appendix B.

PROJECT IMPACTS

Impact GHG-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? and

Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Implementation of the proposed project is not projected to result in a change in average-daily traffic volumes or average vehicle travel speeds within the project area. As a result, the proposed project is not anticipated to result in long-term increases of GHG emissions. Construction of the proposed project would, however, result in short-term increases of GHG emissions. Construction-generated GHG emissions are summarized in Table 7.

Based on the modeling conducted, annual emissions of greenhouse gases associated with construction of the proposed project would total approximately 1,145 MTCO₂e. When amortized over an assumed 30-year project life, annual emissions would total approximately 38 MTCO₂e/year. A majority of the emission generated during the construction process would be associated primarily with the use of off-road equipment. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions will likely vary, depending on the final construction schedules, equipment required, and activities conducted.

Table 7
Short-term Construction-Generated GHG Emissions

Construction Year	Annual Emissions (MTCO ₂ e)
N. Willow Avenue Widening	950
Stormwater Basins Construction	195
Total Annual Emissions:	1,145
<i>Emissions were quantified using CalEEMod, version 2016.3.2. Total annual emissions assumes road widening and construction of all stormwater basins were to occur within a one-year period. Refer to Appendix B for modeling results and assumptions.</i>	

Given that emissions would be short-term, occurring over an approximate 12-month period, increases in GHG emissions attributable to the proposed project would not result in a significant impact on the environment. Furthermore, it is important to note that the proposed project is consistent with regional transportation plans and, as such, would not conflict with planning efforts for the reduction of mobile-source GHG emissions. For these reasons, this impact would be considered **less than significant**.

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APPENDIX A

REGIONAL TRANSPORTATION PLAN &
AIR QUALITY CONFORMITY PROJECT LISTINGS

2014 RTP & 2015 FTIP PROJECT LISTINGS

Jurisdiction/Agency	TIP/RTP	CTIPs Project ID	Description			Estimated Cost	Conformity Analysis Year (project open to traffic)								
			Project ID (if available)	Type of Improvement	Facility Name/Route		2014	2017	2020	2023	2025	2032	2035	2040	
Clovis	FRE092507	20300000560		Shepherd Ave.: From Willow to 1/2 mile east; widen from 2 LU to 3 LD.	Willow	Willow to 1/2 milw e/o Willow	\$1,623,000	X	X	X	X	X	X	X	
Clovis	FRE111341	20300000751		Construct 2nd & 3rd Lanes; curb & gutter, concrete median, landscaping & irrigation; Signal @ Perrin (part of Measure C Project D1 in the Urban Regional Program-split between FRE's 111332, 111340, 111341, 111342)	Willow Ave	Behymer to International	\$1,985,500		X	X	X	X	X	X	
Clovis	FRE111342	20300000746		Construct 2nd & 3rd Lanes; curb & gutter, concrete median, landscaping & irrigation; Signal @ Perrin (part of Measure C Project D1 in the Urban Regional Program-split between FRE's 111332, 111340, 111341, 111342)	Willow Ave	International to Copper Ave	\$1,985,500		X	X	X	X	X	X	
Clovis	FRE111340	20300000741		Construct 2nd & 3rd NB Lanes; curb & gutter, concrete median, landscaping & irrigation; Signal @ Perrin (part of Measure C Project D1 in the Urban Regional Program-split between FRE's 111332, 111340, 111341, 111342)	Willow Ave	Perrin to Behymer	\$1,985,500		X	X	X	X	X	X	
Clovis	FRE500757			Complete widening to 6LD where needed and add bike lanes	Willow Avenue	Barstow to Copper Ave	\$230,000	X	X	X	X	X	X	X	
Clovis	FRE111332	20300000744		Construct 2nd & 3rd NB Lanes; curb & gutter, concrete median, landscaping & irrigation; Signal @ Perrin (part of Measure C Project D1 in the Urban Regional Program-split between FRE's 111332, 111340, 111341, 111342)	Willow Avenue	Shepherd Ave to Perrin Ave	\$1,985,500		X	X	X	X	X	X	
Fresno	FRE500602			2 LU to 3 LU with bike lanes and sidewalks	American	Orange to Maple	\$2,500,000							X	X
Fresno	FRE092513	20300000566		Ashlan Ave.: From Comelia Ave. to Blythe Ave.; widen from 2 LD to 4 LD.	Ashlan	Cornelia Ave to Blythe Ave	\$400,000	X	X	X	X	X	X	X	
Fresno	FRE500574			2 LD to 4 LD	Ashlan	Grantland to Bryan	\$650,000				X	X	X	X	
Fresno	FRE500617			2 LU to 4 LD with bike lanes and sidewalks	Ashlan	Polk to Comelia	\$1,500,000				X	X	X	X	
Fresno	FRE500618			2 LD to 4 LD with bike lanes and sidewalks	Ashlan	Bryan to Polk	\$3,500,000				X	X	X	X	
Fresno	FRE500632			3 LU to 4 LD (add WB lane), bike lane and sidewalks	Belmont	Fowler to Armstrong	\$900,000				X	X	X	X	
Fresno	FRE500633			2 LU to 4 LD with sidewalks and bike lanes	Belmont	Armstrong to Temperance	\$1,800,000				X	X	X	X	
Fresno	FRE500631			3 LD to 4 LD (add WB Lane), bike lane and sidewalk	Belmont	Clovis to Fowler	\$2,200,000				X	X	X	X	
Fresno	FRE500634			2 LU to 4 LD with bike lanes, sidewalks	Belmont	Grantland to Brawley	\$5,000,000						X	X	
Fresno	FRE500575			2 LU & 4LU to 4 LD with bike lanes and sidewalks	Belmont	Brawley to SR 99	\$12,000,000						X	X	

Source: Fresno County Council of Governments 2014

APPENDIX B

EMISSIONS MODELING

EMISSIONS SUMMARY

Construction Activity	Annual On-Site Emissions (Tons/Year)					Average-Daily On-Site Emissions (Pounds/Day)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Road Widening										
Grubbing/Land Clearing	0.03	0.28	0.2	0.04	0.02	0.2	2.2	1.6	0.3	0.2
Grading/Excavation	0.36	4.01	2.6	0.24	0.18	2.9	32.1	20.8	1.9	1.4
Drainage/Utilities/Sub-Grade	0.14	1.4	1.03	0.05	0.05	1.1	11.2	8.2	0.4	0.4
Paving	0.05	0.34	0.36	0.02	0.02	0.4	2.7	2.9	0.2	0.2
Highest Daily:					2.9	32.1	20.8	1.9	1.4	
<i>SJVAPCD Significance Thresholds:</i>					100	100	100	100	100	
<i>Daily Emissions Exceed SJVAPCD Thresholds/Significant Impact?:</i>					No	No	No	No	No	
Stormwater Basin Construction (Emissions/Basin Constructed)										
Site Preparation	0.002	0.02	0.01	0.003	0.002	0.1	0.7	0.3	0.1	0.1
Excavation & Construction	0.05	0.51	0.3	0.006	0.002	1.7	17.0	10.0	0.2	0.1
Highest Daily:					1.7	17.0	10.0	0.2	0.1	
<i>SJVAPCD Significance Thresholds:</i>					100	100	100	100	100	
<i>Daily Emissions Exceed SJVAPCD Thresholds/Significant Impact?:</i>					No	No	No	No	No	

Average-daily emissions assumes 250 construction days for road construction and 60 days for basin construction. Does not reflect use of Tier 3 off-road equipment. Totals may not sum due to rounding.

Construction Activity	Annual Emissions (Tons/Year; On-Site & Off-Site) without Tier 3 Off-Road Equipment					Annual Emissions (Tons/Year; On-Site & Off-Site) with Tier 3 Off-Road Equipment				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Willow Avenue Widening	0.6	7.1	4.3	0.5	0.3		4.6			
Stormwater Basin Construction	0.2	1.8	1	0.3	0.2		2.0			
<i>Total Emissions¹:</i>	0.8	8.9	5.3	0.8	0.5		6.6			
<i>SJVAPCD Significance Thresholds:</i>	10	10	None	15	None		10			
<i>Annual Emissions Exceed SJVAPCD Thresholds/Significant Impact?:</i>	No	No	NA	No	NA		No			

1. Includes construction of 3 basins and road widening.

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

Willow Avenue Widening Project - Stormwater Basin Const. Only
Fresno County, Annual

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	4.00	User Defined Unit	1.30	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

Project Characteristics - Stormwater basin const. emissions only.

Land Use - Represents construction of one basin. Avg 1.3 acres/basin.

Construction Phase - Based on estimated construction schedule provided. Basin constructed over an approximate 3-month period.

Off-road Equipment - Based on equipment usage derived from SMAQMD Road Const. Emissions Model.

Off-road Equipment - Based on equipment usage provided.

Off-road Equipment - Based on equipment usage provided.

Trips and VMT - Trips are based on model defaults.

Demolition - No demo

Grading - 10,000 cy exported for all basins. Assumes 3,333 cy/basin.

Energy Use -

Construction Off-road Equipment Mitigation - Includes use of T3 equipment, watering exposed surfaces, and onsite speeds limited to 15 mph.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	4.00	60.00
tblConstructionPhase	PhaseEndDate	1/8/2019	3/27/2019
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.50
tblGrading	MaterialExported	0.00	3,333.00
tblLandUse	LotAcreage	0.00	1.30

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00

2.0 Emissions Summary

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr												MT/yr			
2019	0.0535	0.5939	0.3220	7.1000e-004	0.1938	0.0274	0.2211	0.1043	0.0252	0.1295						65.1166
Maximum	0.0535	0.5939	0.3220	7.1000e-004	0.1938	0.0274	0.2211	0.1043	0.0252	0.1295						65.1166

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr												MT/yr			
2019	0.0158	0.3193	0.3512	7.1000e-004	0.0790	0.0125	0.0914	0.0416	0.0125	0.0541						65.1165
Maximum	0.0158	0.3193	0.3512	7.1000e-004	0.0790	0.0125	0.0914	0.0416	0.0125	0.0541						65.1165

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	70.52	46.25	-9.09	0.00	59.25	54.44	58.66	60.12	50.54	58.25	0.00	0.00	0.00	0.00	0.00	0.00

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.6424	0.3329
		Highest	0.6424	0.3329

2.2 Overall OperationalUnmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Area	0.0000	0.0000	4.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000						8.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000							0.0000
Waste							0.0000	0.0000		0.0000	0.0000						0.0000
Water							0.0000	0.0000		0.0000	0.0000						0.0000
Total	0.0000	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000							8.0000e-005

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Area	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						8.0000e-005	
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000	
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Waste						0.0000	0.0000		0.0000	0.0000						0.0000	
Water						0.0000	0.0000		0.0000	0.0000						0.0000	
Total	0.0000	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						8.0000e-005	

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/2/2019	5	2	Site Prep
2	Grading	Grading	1/3/2019	3/27/2019	5	60	Grading & Excavation

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

Acres of Grading (Site Preparation Phase): 1**Acres of Grading (Grading Phase): 1.5****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	0	6.00	187	0.41
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	7.00	247	0.40
Site Preparation	Rubber Tired Dozers	0	7.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Excavators	1	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	417.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5500e-003	0.0000	6.5500e-003	3.3700e-003	0.0000	3.3700e-003						0.0000
Off-Road	1.6300e-003	0.0171	9.8700e-003	2.0000e-005		8.7000e-004	8.7000e-004		8.0000e-004	8.0000e-004						1.5239
Total	1.6300e-003	0.0171	9.8700e-003	2.0000e-005	6.5500e-003	8.7000e-004	7.4200e-003	3.3700e-003	8.0000e-004	4.1700e-003						1.5239

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

3.2 Site Preparation - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Worker	4.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.0572	
Total	4.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.0572	

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Fugitive Dust					2.5600e-003	0.0000	2.5600e-003	1.3100e-003	0.0000	1.3100e-003						0.0000	
Off-Road	4.1000e-004	8.2500e-003	0.0108	2.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004						1.5239	
Total	4.1000e-004	8.2500e-003	0.0108	2.0000e-005	2.5600e-003	3.9000e-004	2.9500e-003	1.3100e-003	3.9000e-004	1.7000e-003						1.5239	

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

3.2 Site Preparation - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Worker	4.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.0572	
Total	4.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.0572	

3.3 Grading - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1817	0.0000	0.1817	0.0994	0.0000	0.0994						0.0000
Off-Road	0.0489	0.5132	0.2960	5.0000e-004		0.0262	0.0262		0.0241	0.0241						45.7176
Total	0.0489	0.5132	0.2960	5.0000e-004	0.1817	0.0262	0.2079	0.0994	0.0241	0.1236						45.7176

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

3.3 Grading - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	1.8000e-003	0.0629	8.3800e-003	1.7000e-004	3.5700e-003	2.4000e-004	3.8100e-003	9.8000e-004	2.3000e-004	1.2100e-003						16.1027	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Worker	1.1300e-003	7.5000e-004	7.4800e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004						1.7152	
Total	2.9300e-003	0.0636	0.0159	1.9000e-004	5.4900e-003	2.5000e-004	5.7400e-003	1.4900e-003	2.4000e-004	1.7300e-003						17.8179	

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Fugitive Dust					0.0708	0.0000	0.0708	0.0388	0.0000	0.0388						0.0000	
Off-Road	0.0124	0.2474	0.3243	5.0000e-004		0.0118	0.0118		0.0118	0.0118						45.7176	
Total	0.0124	0.2474	0.3243	5.0000e-004	0.0708	0.0118	0.0827	0.0388	0.0118	0.0506						45.7176	

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

3.3 Grading - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	1.8000e-003	0.0629	8.3800e-003	1.7000e-004	3.5700e-003	2.4000e-004	3.8100e-003	9.8000e-004	2.3000e-004	1.2100e-003						16.1027	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Worker	1.1300e-003	7.5000e-004	7.4800e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004						1.7152	
Total	2.9300e-003	0.0636	0.0159	1.9000e-004	5.4900e-003	2.5000e-004	5.7400e-003	1.4900e-003	2.4000e-004	1.7300e-003						17.8179	

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00	-	-	-	-
Total	0.00	0.00	0.00	-	-	-	-

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.487139	0.031901	0.169199	0.121386	0.017033	0.004732	0.033028	0.124746	0.002366	0.001590	0.005154	0.001097	0.000629

5.0 Energy Detail

Historical Energy Use: N

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated							0.0000	0.0000		0.0000	0.0000					0.0000
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000					0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000
Total		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000
Total		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0				0.0000
Total					0.0000

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0				0.0000
Total					0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	4.0000e-005	0.0000			0.0000	0.0000		0.0000						8.0000e-005
Unmitigated	0.0000	0.0000	4.0000e-005	0.0000			0.0000	0.0000		0.0000						8.0000e-005

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
SubCategory	tons/yr											MT/yr					
Architectural Coating	0.0000						0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000						0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000						8.0000e-005
Total	0.0000	0.0000	4.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000						8.0000e-005

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
SubCategory	tons/yr											MT/yr					
Architectural Coating	0.0000						0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000						0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000						8.0000e-005
Total	0.0000	0.0000	4.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000						8.0000e-005

7.0 Water Detail

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

7.2 Water by Land Use**Unmitigated**

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0				0.0000
Total					0.0000

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0				0.0000
Total					0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

Willow Avenue Widening Project - Stormwater Basin Const. Only - Fresno County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0				0.0000
Total					0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0				0.0000
Total					0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Willow Avenue Widening Project - Fresno County, Annual

Willow Avenue Widening Project
Fresno County, Annual**1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	10.00	Acre	10.00	435,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Willow Avenue Widening Project - Fresno County, Annual

Project Characteristics - Const. emissions only.

Land Use - 10 acres paved.

Construction Phase - Based on estimated construction schedule provided.

Off-road Equipment - Based on equipment usage derived from the SMAQMD's Road Construction Emissions Model.

Off-road Equipment - Based on equipment usage derived from the SMAQMD's Road Construction Emissions Model.

Off-road Equipment - Based on equipment usage derived from the SMAQMD's Road Construction Emissions Model.

Off-road Equipment - Based on equipment usage derived from SMAQMD Road Const. Emissions Model.

Grading - 40,000 cy exported.

Demolition - No demo

Trips and VMT - Trips are based on model defaults.

Energy Use -

Construction Off-road Equipment Mitigation - Includes use of T3 equipment, watering exposed surfaces, and onsite speeds limited to 15 mph.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Willow Avenue Widening Project - Fresno County, Annual

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	16.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	230.00	72.00
tblConstructionPhase	NumDays	20.00	108.00
tblConstructionPhase	NumDays	20.00	36.00
tblConstructionPhase	NumDays	10.00	24.00
tblGrading	AcresOfGrading	324.00	50.00
tblGrading	MaterialExported	0.00	40,000.00
tblOffRoadEquipment	HorsePower	6.00	65.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.82	0.37

Willow Avenue Widening Project - Fresno County, Annual

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00

Willow Avenue Widening Project - Fresno County, Annual

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Year	tons/yr											MT/yr					
2019	0.6029	6.8184	4.2712	0.0105	0.5597	0.2730	0.8327	0.2580	0.2539	0.5119						949.4726	
2020	0.0505	0.3432	0.3709	5.8000e-004	4.3200e-003	0.0193	0.0236	1.1500e-003	0.0178	0.0190						50.6092	
Maximum	0.6029	6.8184	4.2712	0.0105	0.5597	0.2730	0.8327	0.2580	0.2539	0.5119						949.4726	

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Year	tons/yr											MT/yr					
2019	0.2381	4.4057	4.5815	0.0105	0.2997	0.1692	0.4689	0.1227	0.1689	0.2916						949.4719	
2020	0.0275	0.2579	0.3882	5.8000e-004	4.3200e-003	0.0156	0.0199	1.1500e-003	0.0156	0.0167						50.6092	
Maximum	0.2381	4.4057	4.5815	0.0105	0.2997	0.1692	0.4689	0.1227	0.1689	0.2916						949.4719	

Willow Avenue Widening Project - Fresno County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	59.34	34.88	-7.06	0.00	46.09	36.78	42.92	52.19	32.12	41.92	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	1.9069	1.3817
2	4-1-2019	6-30-2019	2.6429	1.4432
3	7-1-2019	9-30-2019	2.0768	1.2760
4	10-1-2019	12-31-2019	0.7545	0.5038
		Highest	2.6429	1.4432

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Area	0.0373	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						1.9000e-004	
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000	
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Waste						0.0000	0.0000		0.0000	0.0000						0.0000	
Water						0.0000	0.0000		0.0000	0.0000						0.0000	
Total	0.0373	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						1.9000e-004	

Willow Avenue Widening Project - Fresno County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Area	0.0373	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						1.9000e-004	
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000	
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Waste						0.0000	0.0000		0.0000	0.0000						0.0000	
Water						0.0000	0.0000		0.0000	0.0000						0.0000	
Total	0.0373	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						1.9000e-004	

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Willow Avenue Widening Project - Fresno County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2019	3/1/2019	5	24	Site Prep
2	Grading	Grading	3/2/2019	7/31/2019	5	108	Grading & Excavation
3	Building Construction	Building Construction	8/1/2019	11/8/2019	5	72	Utilities, Subgrade, Drainage
4	Paving	Paving	11/9/2020	12/28/2020	5	36	Paving

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 50

Acres of Paving: 10

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	3	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Signal Boards	4	8.00	65	0.37
Grading	Rollers	2	8.00	80	0.38
Grading	Signal Boards	4	8.00	6	0.82

Willow Avenue Widening Project - Fresno County, Annual

Building Construction	Air Compressors	1	8.00	78	0.48
Building Construction	Graders	1	8.00	187	0.41
Building Construction	Plate Compactors	1	8.00	8	0.43
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Scrapers	1	8.00	367	0.48
Building Construction	Signal Boards	4	8.00	6	0.82
Paving	Signal Boards	4	8.00	6	0.82
Paving	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	5,000.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	14	183.00	71.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	18	45.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	12	30.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Willow Avenue Widening Project - Fresno County, Annual

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0745	0.0000	0.0745	0.0401	0.0000	0.0401						0.0000
Off-Road	0.0288	0.2787	0.2015	3.5000e-004		0.0146	0.0146		0.0138	0.0138						31.0210
Total	0.0288	0.2787	0.2015	3.5000e-004	0.0745	0.0146	0.0891	0.0401	0.0138	0.0538						31.0210

Willow Avenue Widening Project - Fresno County, Annual

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0291	0.0000	0.0291	0.0156	0.0000	0.0156						0.0000
Off-Road	8.0100e-003	0.1633	0.2239	3.5000e-004		8.5900e-003	8.5900e-003		8.5900e-003	8.5900e-003						31.0209
Total	8.0100e-003	0.1633	0.2239	3.5000e-004	0.0291	8.5900e-003	0.0377	0.0156	8.5900e-003	0.0242						31.0209

Willow Avenue Widening Project - Fresno County, Annual

3.2 Site Preparation - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0216	0.7536	0.1005	2.0200e-003	0.0428	2.9300e-003	0.0457	0.0118	2.8000e-003	0.0146						193.0779	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Worker	1.0200e-003	6.7000e-004	6.7300e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004						1.5437	
Total	0.0227	0.7543	0.1072	2.0400e-003	0.0445	2.9400e-003	0.0474	0.0122	2.8100e-003	0.0150						194.6215	

3.3 Grading - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Fugitive Dust					0.3517	0.0000	0.3517	0.1816	0.0000	0.1816						0.0000	
Off-Road	0.3580	4.0132	2.5949	4.7500e-003		0.1826	0.1826		0.1683	0.1683						426.2523	
Total	0.3580	4.0132	2.5949	4.7500e-003	0.3517	0.1826	0.5343	0.1816	0.1683	0.3499						426.2523	

Willow Avenue Widening Project - Fresno County, Annual

3.3 Grading - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Worker	0.0115	7.5500e-003	0.0757	1.9000e-004	0.0194	1.3000e-004	0.0196	5.1600e-003	1.2000e-004	5.2800e-003						17.3663	
Total	0.0115	7.5500e-003	0.0757	1.9000e-004	0.0194	1.3000e-004	0.0196	5.1600e-003	1.2000e-004	5.2800e-003						17.3663	

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Fugitive Dust					0.1372	0.0000	0.1372	0.0708	0.0000	0.0708						0.0000	
Off-Road	0.1129	2.2649	2.8489	4.7500e-003		0.1071	0.1071		0.1071	0.1071						426.2518	
Total	0.1129	2.2649	2.8489	4.7500e-003	0.1372	0.1071	0.2443	0.0708	0.1071	0.1779						426.2518	

Willow Avenue Widening Project - Fresno County, Annual

3.3 Grading - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Worker	0.0115	7.5500e-003	0.0757	1.9000e-004	0.0194	1.3000e-004	0.0196	5.1600e-003	1.2000e-004	5.2800e-003						17.3663	
Total	0.0115	7.5500e-003	0.0757	1.9000e-004	0.0194	1.3000e-004	0.0196	5.1600e-003	1.2000e-004	5.2800e-003						17.3663	

3.4 Building Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	0.1392	1.3986	1.0277	1.8700e-003			0.0699	0.0699		0.0663	0.0663						163.3799
Total	0.1392	1.3986	1.0277	1.8700e-003			0.0699	0.0699		0.0663	0.0663						163.3799

Willow Avenue Widening Project - Fresno County, Annual

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Vendor	0.0118	0.3456	0.0589	7.3000e-004	0.0169	2.5100e-003	0.0194	4.8900e-003	2.4000e-003	7.2900e-003						69.7497	
Worker	0.0311	0.0205	0.2053	5.2000e-004	0.0527	3.5000e-004	0.0530	0.0140	3.2000e-004	0.0143						47.0820	
Total	0.0429	0.3660	0.2642	1.2500e-003	0.0696	2.8600e-003	0.0725	0.0189	2.7200e-003	0.0216						116.8317	

Mitigated Construction On-Site

Willow Avenue Widening Project - Fresno County, Annual

3.4 Building Construction - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Vendor	0.0118	0.3456	0.0589	7.3000e-004	0.0169	2.5100e-003	0.0194	4.8900e-003	2.4000e-003	7.2900e-003						69.7497	
Worker	0.0311	0.0205	0.2053	5.2000e-004	0.0527	3.5000e-004	0.0530	0.0140	3.2000e-004	0.0143						47.0820	
Total	0.0429	0.3660	0.2642	1.2500e-003	0.0696	2.8600e-003	0.0725	0.0189	2.7200e-003	0.0216						116.8317	

3.5 Paving - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	0.0351	0.3417	0.3559	5.4000e-004		0.0193	0.0193		0.0178	0.0178						46.8702	
Paving	0.0131					0.0000	0.0000		0.0000	0.0000						0.0000	
Total	0.0482	0.3417	0.3559	5.4000e-004		0.0193	0.0193		0.0178	0.0178						46.8702	

Willow Avenue Widening Project - Fresno County, Annual

3.5 Paving - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Worker	2.3300e-003	1.4800e-003	0.0150	4.0000e-005	4.3200e-003	3.0000e-005	4.3400e-003	1.1500e-003	3.0000e-005	1.1700e-003						3.7390	
Total	2.3300e-003	1.4800e-003	0.0150	4.0000e-005	4.3200e-003	3.0000e-005	4.3400e-003	1.1500e-003	3.0000e-005	1.1700e-003						3.7390	

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	0.0121	0.2564	0.3732	5.4000e-004		0.0156	0.0156		0.0156	0.0156						46.8702	
Paving	0.0131					0.0000	0.0000		0.0000	0.0000						0.0000	
Total	0.0252	0.2564	0.3732	5.4000e-004		0.0156	0.0156		0.0156	0.0156						46.8702	

Willow Avenue Widening Project - Fresno County, Annual

3.5 Paving - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Worker	2.3300e-003	1.4800e-003	0.0150	4.0000e-005	4.3200e-003	3.0000e-005	4.3400e-003	1.1500e-003	3.0000e-005	1.1700e-003						3.7390	
Total	2.3300e-003	1.4800e-003	0.0150	4.0000e-005	4.3200e-003	3.0000e-005	4.3400e-003	1.1500e-003	3.0000e-005	1.1700e-003						3.7390	

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000	

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00	-	-	-	-
Total	0.00	0.00	0.00	-	-	-	-

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.487139	0.031901	0.169199	0.121386	0.017033	0.004732	0.033028	0.124746	0.002366	0.001590	0.005154	0.001097	0.000629

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated							0.0000	0.0000		0.0000	0.0000					0.0000
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000					0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000
Total		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000					0.0000

Willow Avenue Widening Project - Fresno County, Annual

5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000						0.0000
Total		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000						0.0000

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0				0.0000
Total					0.0000

Willow Avenue Widening Project - Fresno County, Annual

5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0				0.0000
Total					0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0373	0.0000	9.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000					1.9000e-004
Unmitigated	0.0373	0.0000	9.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000					1.9000e-004

Willow Avenue Widening Project - Fresno County, Annual

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.0900e-003						0.0000	0.0000		0.0000	0.0000					0.0000
Consumer Products	0.0282						0.0000	0.0000		0.0000	0.0000					0.0000
Landscaping	1.0000e-005	0.0000	9.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000					1.9000e-004
Total	0.0373	0.0000	9.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000					1.9000e-004

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.0900e-003						0.0000	0.0000		0.0000	0.0000					0.0000
Consumer Products	0.0282						0.0000	0.0000		0.0000	0.0000					0.0000
Landscaping	1.0000e-005	0.0000	9.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000					1.9000e-004
Total	0.0373	0.0000	9.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000					1.9000e-004

7.0 Water Detail

Willow Avenue Widening Project - Fresno County, Annual

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

7.2 Water by Land Use**Unmitigated**

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0				0.0000
Total					0.0000

Willow Avenue Widening Project - Fresno County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0				0.0000
Total					0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

Willow Avenue Widening Project - Fresno County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0				0.0000
Total					0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0				0.0000
Total					0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Willow Avenue Widening Project - Fresno County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Appendix B: Biological Resources Assessment

**City of Clovis
North Willow Avenue Widening Project
Stormwater Retention Basin
Biological Resource Assessment Addendum**

20 December 2017

Prepared for:
Blair, Church & Flynn
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452 Clovis Avenue, Suite 200
Clovis, CA 93612

Prepared by:

Stonefly Consulting Inc.
Fresno, CA

Additional Project Features and Analysis

This is an addendum to the biological resource assessment prepared for the City of Clovis North Willow Avenue Widening Project (Project) prepared by Stonefly Consulting Inc. (SCI) in 2016. This addendum addresses habitat conditions related to the addition of three proposed or expanded stormwater retention basins to the Project. Due to the proximity of the basin locations to N. Willow Avenue, the biological and background information, including special-status species records from the broader area—defined and presented in SCI (2016)—is incorporated by reference. Based on prior analysis (discussed below), native habitat is not present at any of the three proposed work locations and field surveys were not performed.

The three proposed stormwater retention basin work locations are shown in Figure 1 and designated as ‘International Basin’, ‘City of Clovis New Basin 1’, and ‘FMFCD Basin AQ’. Each proposed location, surrounding land use, and biological significance are discussed below:

International Basin

The International Basin is a proposed expansion of an existing stormwater retention basin located approximately 1,000 feet east of N. Willow Avenue on the north side of E. International Avenue (36.888984, -119.726242). The proposed expansion of the basin will increase the current basin footprint (at present, roughly 0.9 acre) by approximately 0.2 acre. This location and the land immediately surrounding it were previously dedicated to orchard and agricultural lands, at least as far back as 1957 (UCSB). The existing stormwater basin was constructed around August 2003, when the property was developed (Google Earth, 2013a) for Clovis Hills Community Church. Since the site has been developed previously, native habitat is absent. However, when water is present in the existing basin, it may provide habitat for waterfowl or other birds.

City of Clovis New Basin 1

The City of Clovis New Basin 1 is located at the southeast corner of the intersection of N. Willow Avenue and E. Behymer Avenue (36.880728, -119.729189). The footprint of the proposed basin is approximately 2.65 acres. This site has been subject to agricultural use since at least 1957 (UCSB), including row crops in April 5, 2014 (Google Earth, 2013b), and was recently converted to an orchard (SCI 2016). No native habitat or natural land cover is present at this site. However, during bird nesting season, trees may serve as nesting substrate for passerine bird species.

FMFCD Basin AQ

The FMFCD Basin AQ is located approximately 500 feet east of N. Willow Avenue and just north of the E. Perrin Avenue alignment (36.874381, -119.727662). The footprint of the proposed basin is approximately 0.85 acre and is adjacent to an existing detention basin, presumably for runoff from Derrel’s Mini Storage facility, just to the north of the property. An existing agricultural roadway provides access to the proposed basin location. Native habitat or natural land cover is absent from the site, which has been dedicated primarily to agricultural use since at least 1957 (UCSB) and subject to soil stockpiling or other earth moving activities in the late 1990s, during construction of the storage facility (Google Earth, 2013c).

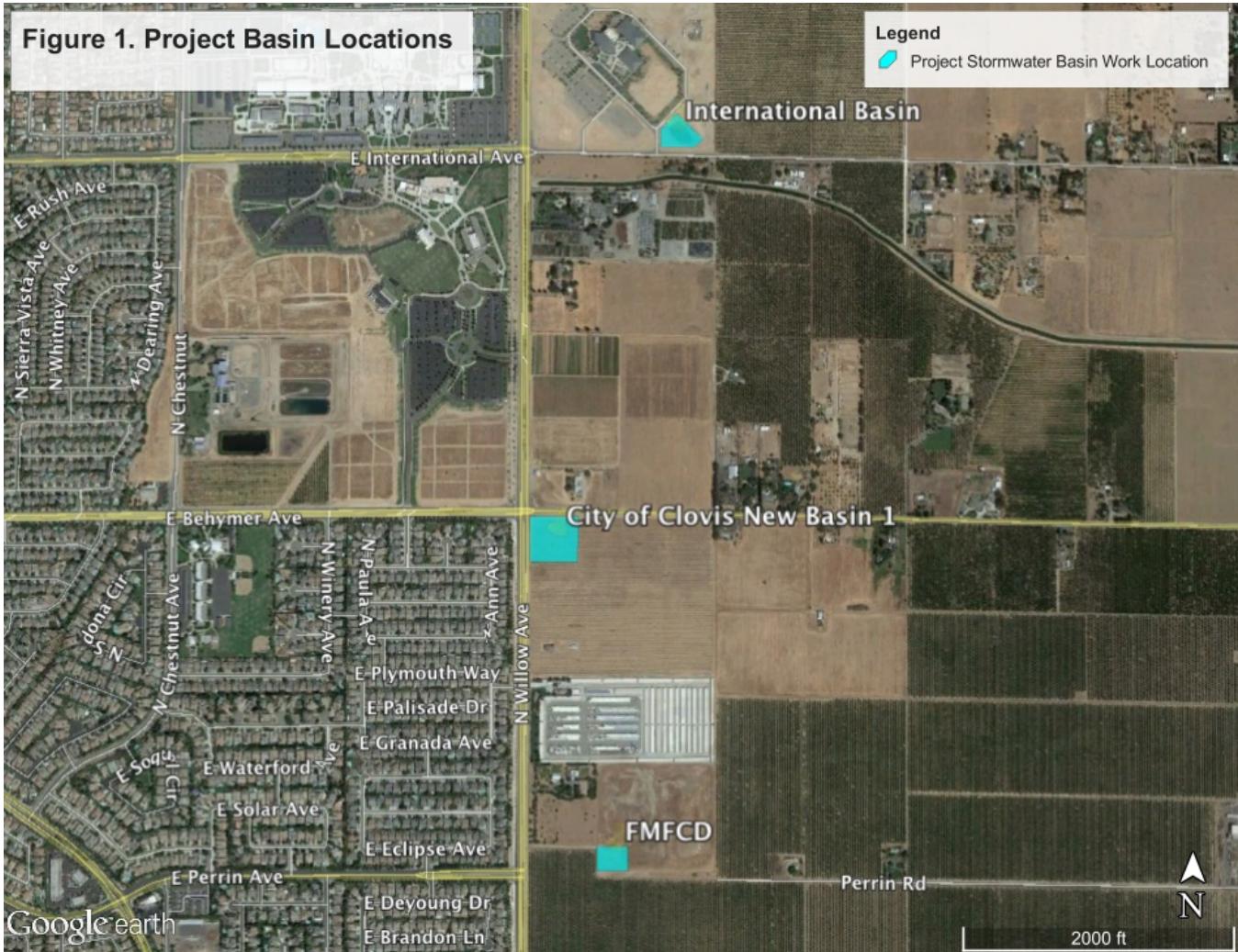


Figure 1. Proposed stormwater retention basin work locations, generally located within 1,000 feet east of N. Willow Avenue.

Discussion

There is no federally designated critical habitat in the area (USFWS 2017a) and none of the three proposed stormwater retention basin work locations are within previously mapped wetland habitat (USFWS 2017b). Due to existing development and human disturbance (e.g., development, agriculture, etc.), natural habitat is not present at any of the three locations and it is unlikely that State or federal listed species will be encountered during construction of the basin facilities. However, depending on the time of year during which construction activity is commenced, it is possible that nesting migratory birds could be encountered and application of the Avoidance and Minimization Measures recommended in the earlier Project assessment (SCI 2016) and repeated below, can be applied to minimize conflict with biological resources.

Proposed Impact Avoidance and Minimization Measures (from SCI 2016)

The following measures, if implemented, would help avoid and minimize impacts to special status or other species:

- To avoid and minimize impacts to migratory bird species, any vegetation, tree, or structure removal (e.g., light posts, signage, etc., that could support or contain the nest of a migratory bird species) should be removed between 1 September and 31 January. The timing of such activity will help reduce the chance of impact to the nest of a migratory bird species. Tree or structure removal during other times of the year (1 February to 31 August) should be performed immediately after a qualified biologist has determined that such activity will not impact the nest of a migratory bird species. If an active nest is detected during such pre-activity surveys, an activity exclusion zone appropriate to the species should be identified and maintained (with flagging, fencing, or other appropriate means) until it is determined that young have fledged and that the nest is no longer active. If no active nests are detected, then no further action would be necessary.
- To avoid disturbance to roosting bats, a qualified biologist should perform a pre-activity surveys to determine whether bats are roosting in trees subject to removal. If an active bat roost is discovered, then a suitable work-exclusion zone should be identified and maintained until an eviction plan has been developed. If roosting bats are not detected, then no further action is required and tree and/or structure removals should commence immediately.

Conclusion

With the implementation of these measures, the proposed project would not result in direct impacts to any special status species that have been reported to occur within the vicinity and would not modify native habitat known to support such species. Riparian, jurisdictional wetland¹ or sensitive natural communities are not present and impacts to such features will not occur. Addition of the proposed basin features to the Project will not impact movement of migratory wildlife or fish species or established wildlife corridors or nursery sites and the proposed work does not conflict with any local biological resource policies or habitat conservation plans.

¹ The US Army Corps of Engineers and the State Water Board do not assert jurisdiction over stormwater basins.

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**City of Clovis
North Willow Avenue Widening Project
Biological Resource Assessment**

23 May 2016

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Clovis, CA 93612

Prepared by:

Stonefly Consulting Inc.
Fresno, CA

Introduction – Purpose, Background and Project Location

The purpose of this biological resource assessment is to evaluate the proposed City of Clovis North Willow Avenue Widening Project (Project) to determine the potential of the proposed Project to affect California or federally listed threatened or endangered species or other special status species. This analysis is based on design data (dated December 1, 2015) provided by Blair, Church & Flynn, which shows the 2-mile segment of North Willow Avenue, which is proposed for widening between East Copper Avenue at the north end, and West Shepherd Avenue at the south end, on the northwest border of the City of Clovis General Plan Area (Fresno County). The Project will expand the width of North Willow Avenue by approximately 50 feet east to facilitate traffic flow with the addition of northbound lanes.

The focus of this biological resource assessment is a study area that includes the Project footprint, as well as a 250-foot buffer surrounding the Project footprint to account for impacts that may occur during construction activities. The Project spans the *Friant* and *Clovis* California 7.5 Minute U.S. Geological Survey quadrangle maps, which indicate that the study area is relatively flat and ranges from approximately 369 to 392 feet above mean sea level. The Project is within the updated Clovis General Plan (City of Clovis 2014).

Environmental Setting and Special Status Species Records

To facilitate the assessment of biological resources that could potentially be affected by the Project, habitat and land use in the study area was reviewed. The Clovis General Plan characterizes habitat and land use in the area as being comprised of three types: agriculture, urban developed, and rural residential. There is no federally designated critical habitat in the area (USFWS 2016a) and no current or previously mapped wetlands overlap the area of the proposed widening (USFWS 2016b).

A list of special status plant and wildlife species that are known from the area was generated from publicly available sources. Special status species are defined as:

- Species listed as endangered or threatened under the Federal Endangered Species Act (or proposed for/candidates for listing);
- Species listed as endangered or threatened under the California Endangered Species Act (or proposed for listing);
- Species designated as endangered or rare pursuant to California Department of Fish and Wildlife (CDFW) code §1901;
- Species designated as fully protected pursuant to CDFW code §3511, §4700 or §5050; or
- Species designated as species of special concern to the CDFW.

Habitat and Species Field Assessment

Prior to performing a field survey, a list of special-status plant and wildlife species was compiled based on species with recorded California Natural Diversity Database (CNDDB) observations within 5 miles (CNDDB 2016) of the Project and those known to occur in the region, per the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation (IPaC) online screening tool (USFWS 2014). Potentially occurring special status plant species are summarized in Table 1; potentially occurring special status wildlife are summarized in Table 2. On 30 April 2015, R. Knutson performed a pedestrian

field survey of the two-mile Project extent, between 1515-1645 hrs. beginning at Shepherd Avenue and moving north along the northbound shoulder of Willow Avenue to Copper Ave.

Habitat type and quality were used in conjunction with published species accounts and publicly available species occurrence records (CNDDB 2016, Calflora 2014, CDFW 2014, Jepson 2016, and Nafis 2016). For each special-status plant species, it was first determined whether suitable habitat was present within the study area. Plants without suitable habitat within the study area were determined to have “No Potential” to occur in the Project footprint and are not considered further. When habitat conditions for a given species were favorable within the Project footprint, then a species was designated as having “low-, moderate-, or high potential” of occurrence. Likewise, for special-status wildlife species, it was determined if suitable habitat was present within the study area. Wildlife species without suitable habitat within the study area were determined to have “No Potential” to occur in the Project footprint and were not considered further. When habitat conditions for a given wildlife species were favorable within the Project footprint, then a species was designated as having a “low-, moderate- or high-potential” of occurrence. An assessment for each species with known or potential occurrence in the area was made and is indicated in Table 1 and Table 2.

During the pedestrian survey, it was found that all of the parcels immediately adjacent to the Project consist of developed and disturbed land, with a majority of the area under agricultural production. Habitats within the study area are comprised of three main habitat types, defined by Mayer and Laudenslayer (1988), as Deciduous Orchard, Urban and Barren. These habitat types are summarized below:

- Deciduous orchard (DOR). Deciduous orchards are typically open, single species tree dominated habitats that include almond, apple, apricot, cherry, fig, nectarine, peach, pear, pecan, pistachio, plum, pomegranate, prune and walnut trees. Trees are planted with a uniform spacing to accommodate mature fruit-bearing trees and facilitate ease of harvest. The understory of deciduous orchards is either managed to prevent any vegetation (i.e., weeds) from growing or to allow only low-growing grasses or herbaceous plants.
- Urban (URB). Urban habitat is comprised of five different types of vegetative structure: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Vegetation composition is highly variable and includes both native and exotic species growing from between 10 cm tall to tree height.
- Barren (BAR). Barren habitat is characterized as an absence of vegetation or any habitat with <2% cover of herbaceous, desert or non-wildland species and <10% cover by tree or shrub species. Impermeable substrate, specific soil chemistry/composition, or constant disturbance by human or natural forces can create barren conditions.

Linear (frontage) distribution of these habitats is along North Willow Avenue can be quantified as DOR, 63.3% (6,668ft); URB, 24.4% (2,580ft); and BAR, 12.3% (1,300ft). These habitat types and locations are shown in Figure 1, which also indicates locations of representative photos (Appendix A) from the area.

Table 1. Habitat Suitability Assessment for Special Status Plant and Wildlife Species Occurring within the Clovis, Friant, Fresno North, and Lanes Bridge USGS 7.5' Quadrangle Maps (CNDBB/IPaC).

Species	Federal/State/ CNPS Status	Typical Habitat Requirements	Potential for Occurrence
Succulent owl's clover <i>Castilleja campestris var. succulenta</i>	FT/SE/1B.2	Vernal pools	No potential; habitat absent
California jewelflower <i>Caulanthus californicus</i>	FE/SE/1B.1	Non-alkaline grassland flats and slopes	No potential; habitat absent
Dwarf downingia <i>Downingia pusilla</i>	--/--/2B.2	Vernal pools, roadside ditches	No potential; habitat absent
Spiny-sepaled button-celery <i>Eryngium spinosulum</i>	--/--/1B.2	Vernal pools, swales, roadside ditches	No potential; habitat absent
California satintail <i>Imperata brevifolia</i>	--/--/2B.1	Wet springs, meadows, streambanks, floodplains	No potential; habitat absent
Madera leptosiphon <i>Leptosiphon serrulatus</i>	--/--/1B.2	Openings in woodlands and chaparral	No potential; habitat absent
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	FE/SE/1B.1	Vernal pools	No potential; habitat absent
Hairy Orcutt grass <i>Orcuttia pilosa</i>	FE/SE/1B.1	Vernal pools	No potential; habitat absent
Hartweg's Golden Sunburst <i>Pseudobahia bahiifolia</i>	FE/SE/1B.1	Grassland, open woodland, in clay soil	No potential; habitat absent
Sanford's arrowhead <i>Sagittaria sanfordii</i>	--/--/1B.2	Ponds, ditches (wetlands)	No potential; habitat absent
Caper-fruited tropidocarpum <i>Tropidocarpum capparideum</i>	--/--/1B.1	Alkaline soils, low hills and valleys	No potential; habitat absent
Greene's tectoria <i>Tectoria greenei</i>	FE/SR/1B.1	Vernal pools	No potential; habitat absent

Status Explanations:

-- = no listing

Federal

FE = listed as endangered under the federal Endangered Species Act

FT = listed as threatened under the federal Endangered Species Act

State

SE = listed as endangered under the California Endangered Species Act

ST = listed as threatened under the California Endangered Species Act

SR = designated as rare under California Fish and Wildlife Code

California Native Plant Society

1B = List 1B species: rare, threatened, or endangered in California and elsewhere

2B = List 2B species: rare, threatened, or endangered in California, but more common elsewhere

Threat Ranks

0.1 = Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)

0.2 = Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)

0.3 = Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Table 2. Habitat Suitability Assessment for Special Status Wildlife Species Occurring within the Clovis, Friant, Fresno North, and Lanes Bridge USGS 7.5' Quadrangle Maps (CNDDB/IPaC).

Species	Federal/State/ CDFW Status	Typical Habitat Requirements	Potential for Occurrence
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE/---	Vernal pools	No potential; vernal pool habitat absent
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT/---	Vernal pools	No potential; vernal pool habitat absent
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT/---	Host plant, <i>Sambucus</i> spp.	No potential; elderberry shrubs absent
Delta smelt <i>Hypomesus transpacificus</i>	FT/SE/--	Sacramento-San Joaquin River Delta	No potential; aquatic habitat absent
Steelhead <i>Oncorhynchus mykiss irideus</i>	FT/---	Pacific Ocean tributaries	No potential; aquatic habitat absent
Hardhead <i>Mylopharodon conocephalus</i>	--/~/SSC	Clear, cool undisturbed streams	No potential; aquatic habitat absent
California tiger salamander <i>Ambystoma californiense</i>	FT/ST/SSC	Annual grasslands with seasonal aquatic habitat (i.e., vernal pools or stock ponds) for breeding	No potential; upland/refuge and aquatic habitat absent
Western spadefoot <i>Spea hammondii</i>	--/~/SSC	Open areas with sandy/gravelly soil and rain pools, which are necessary for breeding	No potential; aquatic habitat absent
Western pond turtle <i>Emys marmorata</i>	--/~/SSC	Permanent or intermittent ponds, lakes and streams	No potential; aquatic habitat absent
Blunt-nosed leopard lizard <i>Gambelia silus</i>	FE/SE/FP	Semiarid grasslands, alkali flats, washes	No potential; habitat absent

Table 2. (Continued)

Giant garter snake <i>Thamnophis gigas</i>	FT/ST/--	Marshes, sloughs, canals, and irrigation ditches	No potential; aquatic habitat absent
Swainson's hawk <i>Buteo swainsoni</i>	--/ST--	Generally, nests in large trees in open riparian habitat	Low potential; no known nests within 0.5 mile; however, could forage in the area
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT/SE/--	Nests near water, in open riparian habitat	No potential; riparian habitat absent
Burrowing owl <i>Athene cunicularia</i>	--/--/SSC	Burrows for roosting and cover amid open, dry grassland and desert habitats	No potential (nesting), with no known nest burrows within 0.5 mile; however, could forage in the area
Least Bell's vireo <i>Vireo bellii pusillus</i>	FE/SE/SSC	Dense riparian vegetation for nesting	No potential; riparian habitat absent
Tricolored blackbird <i>Agelaius tricolor</i>	--/--/SSC	Dense forage crops, cattails or tules required for colonial nesting	No potential; habitat absent
Fresno kangaroo rat <i>Dipodomys nitratoides exilis</i>	FE/SE/--	Alkali scrub with scattered shrubs	No potential; habitat absent
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE/ST/--	Alkali scrub and grasslands	No potential; habitat absent

Status Explanations:

-- = no listing

Federal

FE = listed as endangered under the federal Endangered Species Act

FT = listed as threatened under the federal Endangered Species Act

State

SE = listed as endangered under the California Endangered Species Act

ST = listed as threatened under the California Endangered Species Act

SR = designated as rare under California Fish and Wildlife Code

FP = designated as a fully-protected species under the California Fish and Wildlife Code

SSC = state species of special concern

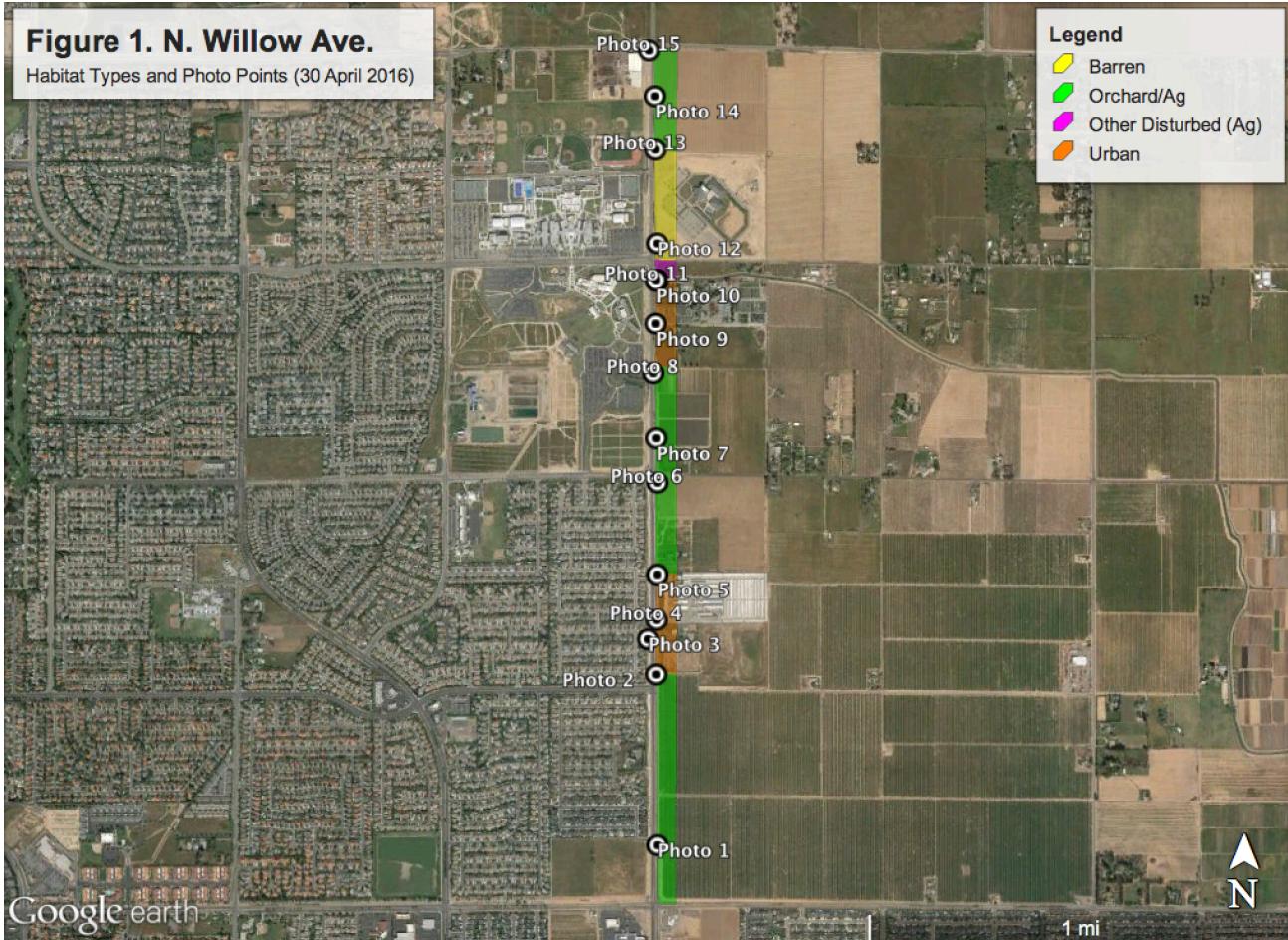


Figure 1. North Willow Avenue habitat types and photo points (30 April 2016).

Vegetation in the Project footprint consists primarily of agricultural crops (strawberry, stone fruit), non-native vegetation, and ornamental trees (redwood, liquid amber, African sumac). Although not recorded in CNDDB or USFWS reports for the vicinity, there is a remote possibility that the larger trees in the Project right-of-way could provide roosting habitat for one or more bat species. Most of the sensitive bat species that could occur in the area, however, are known to roost in caves or manmade structures that are unlikely to be affected by the Project.

No natural riparian or wetland habitat is present within the Project footprint. However, the Enterprise Canal, located just east of North Willow Avenue and south of East International Avenue, supports small patches of emergent vegetation (*Typha* sp.). The canal is approximately 40 feet east of the existing edge-of-pavement and, when wetted, may attract waterfowl or other bird species. Nesting habitat value is considered as marginal to poor.

Ground-nesting habitat for killdeer (*Charadrius vociferous*) was observed in front of the Darrell Mini-storage facility (killdeer were present, but no nest was detected). Other wildlife species observed in vegetation along the Project or flying near the Project alignment included Northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*). House sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*) were also observed during the survey; these species are not protected by the Migratory Bird Treaty Act (MBTA).

Discussion

Although known to occur in the broader Project vicinity, Swainson's hawks are unlikely to nest in trees within the Project footprint, due to lack of suitable nesting substrate. It is possible, however, that Swainson's hawks could hunt in the area during nesting season. Likewise, burrowing owls could hunt in the area, though nesting habitat (burrows) are absent from the Project footprint. These species were not detected during the field survey but could move in/through the Project area at various times during the year (e.g., nesting season, migration). During appropriate season, ornamental and roadside vegetation may support nests of a variety of other avian species, which may be protected by the MBTA and California Department of Fish and Wildlife Code (Section 3500-3516).

There is a remote possibility that larger trees in the Project right-of-way could provide roosting habitat for one or more bat species, however, without cavities or separating bark to provide some cover or protection to bats, roosting is unlikely. Several measures, listed below, may be employed to avoid or minimize impacts to sensitive or protected species that could occur in the Project right-of-way.

Proposed Impact Avoidance and Minimization Measures

The following measures, if implemented, would help avoid and minimize impacts to special status or other species:

- To avoid and minimize impacts to migratory bird species, any vegetation, tree, or structure removal (e.g., light posts, signage, etc., that could support or contain the nest of a migratory bird species) should be removed between 1 September and 31 January. The timing of such activity will help reduce the chance of impact to the nest of a migratory bird species. Tree or structure removal during other times of the year (1 February to 31 August) should be performed immediately after a qualified biologist has determined that such activity will not impact the nest of a migratory bird species. If an active nest is detected during such pre-activity surveys, an activity exclusion zone appropriate to the species should be identified and maintained (with flagging, fencing, or other appropriate means) until it is determined that young have fledged and that the nest is no longer active. If no active nests are detected, then no further action would be necessary.
- To avoid disturbance to roosting bats, a qualified biologist should perform a pre-activity surveys to determine whether bats are roosting in trees subject to removal. If an active bat roost is discovered, then a suitable work-exclusion zone should be identified and maintained until an eviction plan has been developed. If roosting bats are not detected, then no further action is required and tree and/or structure removals should commence immediately.

Conclusion

With the implementation of these measures, the proposed project would not result in direct impacts to any special status species that have been reported to occur within the vicinity and would not modify native or other habitat known to support such species. Riparian, wetland or sensitive natural communities are not present and impacts to such features will not occur. The proposed project will not impact movement of migratory wildlife or fish species or established wildlife corridors or nursery sites and the proposed project does not conflict with any local biological resource policies or habitat conservation plans.

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APPENDIX A: Representative Photographs: 30 April 2016



Photo 1

Looking north along North Willow Ave., just south of East Yeargin Dr., (36.868820, -119.729699).



Photo 2

Looking north along North Willow Ave., approximately 160 feet north of East Perrin Ave. (36.874638, -119.729746).

APPENDIX A: Representative Photographs: 30 April 2016



Photo 3

Looking east across North Willow Ave., ~175 feet north of East Perrin Ave.
(36.875840, -119.730095).



Photo 4

Looking north along North Willow Ave., approximately 500 feet south of Plymouth Ave.
(36.876496, -119.729731).

APPENDIX A: Representative Photographs: 30 April 2016



Photo 5

Looking north along North Willow Ave., approximately 50 feet north of Plymouth Ave. (36.878049, -119.729704).



Photo 6

Looking north along North Willow Ave., just south of East Behymer Ave., (36.881180, -119.729698).

APPENDIX A: Representative Photographs: 30 April 2016



Photo 7

Looking north along North Willow Ave., ~425 feet north of East Behymer Ave., (36.882693, --119.729747).



Photo 8

Looking north along North Willow Ave., ~1,350 feet south of East International Ave., (36.884898, -119.729872).

APPENDIX A: Representative Photographs: 30 April 2016



Photo 9

Looking north along North Willow Ave., ~740 feet south of East International Ave., (36.886612, -119.729772) near the southwest corner of the Willow Garden Nursery.



Photo 10

Looking north along North Willow Ave., ~215 south of East International Ave., (36.888083, -119.729766).

APPENDIX A: Representative Photographs: 30 April 2016



Photo 11

Looking east from the east edge of North Willow Ave., ~215 south of East International Ave., (36.888083, -119.729693).



Photo 12

Looking north along North Willow Ave., ~200 north of East International Ave., (36.889331, -119.729709).

APPENDIX A: Representative Photographs: 30 April 2016



Photo 13

Looking north along North Willow Ave., ~1,280 south of East Copper Ave., (36.892527, -119.729782).



Photo 14

Looking north along North Willow Ave., ~615 south of East Copper Ave., (36.894354, -119.729801).

APPENDIX A: Representative Photographs: 30 April 2016



Photo 15

Looking east across North Willow Ave., immediately south of East Copper Ave., (36.895920, -119.730048).

Appendix C: Phase 1 Archaeological Resources Study

Blair, Church & Flynn Consulting Engineers

Widening of Willow Avenue Project

Archaeological Resources Study

U.S.G.S. Friant and Clovis, CA quadrangles

Prepared for:
Blair, Church & Flynn Consulting Engineers
451 Clovis Ave, Suite 200
Clovis, CA 93612

Prepared by:
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Ashlee M. Bailey, M.A., RPA
and Christopher Duran, M.A., RPA

January 2, 2018



Keywords: USGS Friant and Clovis, CA quadrangles; Fresno County;
Intensive pedestrian survey; City of Clovis; Willow Avenue;
no impact to historical resources

Szromba, M., Bailey, A., and C. Duran

2018 *Archaeological Resources Study for the Widening of Willow Avenue Project, Clovis, Fresno County, California.* Rincon Consultants Project No. 16-02629. Report on file at the Southern San Joaquin Valley Information Center, California State University, Bakersfield.

Widening of Willow Avenue Project

Table of Contents

	Page
Executive Summary	1
1.0 Introduction	2
1.1 Project Site	2
1.2 Project Description	2
1.3 Personnel	2
2.0 Regulatory Setting	5
2.1 California Environmental Quality Act	5
2.1.1 50 Year Threshold for the CRHR	5
2.2 Assembly Bill 52	6
3.0 Setting	6
3.1 Prehistory	6
3.1.1 Paleoindian Period (11,550- 8550 B.C.)	7
3.1.2 Lower Archaic (8,550- 5,550 B.C.)	7
3.1.3 Middle Archaic (5,550- 550 B.C.)	7
3.1.4 Upper Archaic (550 B.C.- A.D. 1100)	8
3.2 Ethnography	9
3.3 History	10
3.3.1 Spanish Period (1769-1822)	10
3.3.2 Mexican Period (1822-1848)	10
3.3.3 American Period (1848-Present)	11
3.3.4 City of Clovis	11
4.0 Background Research	11
4.1 Native American Heritage COmmission	12
4.2 California Historical Resources Information System	12
4.2.1 Previous Studies	12
4.2.2 Previously Recorded Resources	13
5.0 Survey Methods	14
6.0 Results and Discussion	15
7.0 Project Impacts and Recommendations	17
7.1 Unanticipated Discovery of Cultural Resources	17



7.2	Unanticipated Discovery of Human Remains	18
8.0	References	1

Figures

Figure 1.	Project Location.....	3
Figure 2.	Project Site	4

Tables

Table 1	Previous Studies Conducted Within the Project Site	12
Table 2	Previously Studies Conducted Within a 0.5-Mile Radius of the Project Site.....	12

Photographs

Photograph 1.	Overview of existing FMFCD basin on the east side of Willow Avenue, facing southwest.	16
Photograph 2.	Overview of the northern section of the west side of the Willow Avenue road corridor, facing north.....	17

Appendices

Appendix A	Native American Scoping
Appendix B	Records Search Summary



EXECUTIVE SUMMARY

Rincon Consultants, Inc. (Rincon) was retained by Blair, Church & Flynn Consulting Engineers, Inc. (BCF) to conduct a Phase 1 Archaeological Resources Survey for the Widening of Willow Avenue Project (project) in the City of Clovis, Fresno County, California. The current project site includes a 1.5-mile corridor along Willow Avenue, and an additional 38.41-acre area that includes fallow agricultural land, existing water basins, and adjacent properties. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue, and three water basins will be installed adjacent to the road alignment to the east of Willow Avenue. This project was conducted in accordance with the California Environmental Quality Act (CEQA) and presents the results of a cultural resources records search, Native American scoping, and pedestrian survey of the project site.

Native American scoping efforts did not identify any specific resources important to the consulted groups within the project site. No archaeological resources were identified during the background research of the project site for this project. A historic canal (P-10-005934) was identified adjacent to the current project site, but has been evaluated as ineligible for the California Register of Historical Resources (CRHR) and requires no further management consideration. Survey of the project site did not identify any previously unidentified cultural resources. Based on the results of the records search, Native American scoping, and field survey, Rincon recommends a finding of *no impact to historical resources* for the current project under CEQA. No further cultural resources work is recommended for the proposed project. The following measures are recommended in the case of unanticipated discoveries.

UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES

If cultural resources are encountered during ground-disturbing activities, work in the immediate area should be halted 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 necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the project, additional work such as data recovery excavation may be warranted to mitigate any significant impacts to historical resources.

UNANTICIPATED DISCOVERY OF HUMAN REMAINS

The discovery of human remains is always a possibility during ground disturbing activities; if human remains are found, 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, 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.



1.0 INTRODUCTION

Rincon Consultants, Inc. (Rincon) was retained by Blair, Church & Flynn Consulting Engineers, Inc. (BCF) to conduct a Phase I archaeological resources survey for the Widening of Willow Avenue Project (project) located in the City of Clovis, Fresno County, California. The project entails the approximate 40-50-foot widening of a 1.5-mile corridor along Willow Avenue between Shepherd Avenue and Copper Avenue and the installation of three water basins adjacent to the road corridor. All activities were conducted in accordance with the requirements of the California Environmental Quality Act (CEQA), and included a cultural resource records search, Native American scoping, and a pedestrian survey.

1.1 PROJECT SITE

The project site is located within Township 12 S, Range 20 E, Sections 12, 13, 24, 25 and Township 12 S, Range 21 E, Sections 7, 18, 19 and 30 of the U.S. Geological Survey (USGS) *Friant and Clovis, CA* 7.5-minute topographic quadrangle (Figure 1). The project site consists of the 1.5-mile segment of Willow Avenue from Shepherd Avenue and Copper Avenue, and a 38.41-acre area of fallow agricultural land, existing water basins, and adjacent properties to the east of the road (Figure 2).

1.2 PROJECT DESCRIPTION

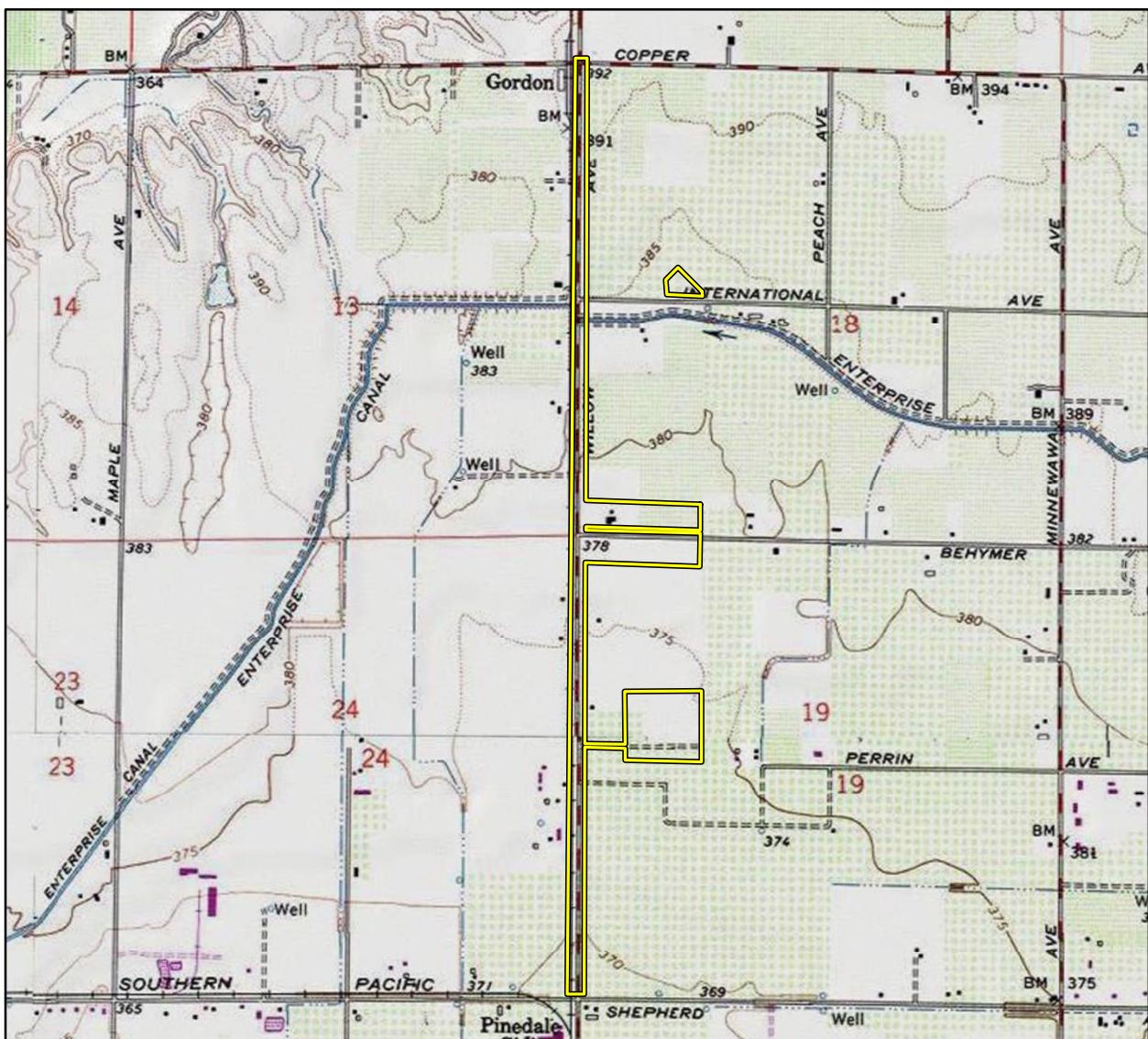
The current project involves the widening of a 1.5-mile corridor of Willow Avenue between Shepherd Avenue and Copper Avenue at 40-50 feet from the current road shoulders. Additionally, per the requirements of the Fresno Metropolitan Flood Control District (FMFCD), the City of Clovis is required to install three water basins adjacent to Willow Avenue. These basins will be constructed to the east of Willow Avenue within existing water basins and extending into agriculture land and adjacent properties. The final locations of the basins have yet to be determined, but will be located within the current study area. Willow Avenue transects International Avenue and Behymer Avenue in the project area. It is bordered by residential housing to the west, private residences and agricultural areas to the east, and is adjacent to a historic canal (P-10-005934). Additional establishments in the project area include small businesses, schools, and churches.

1.3 PERSONNEL

Cultural Resources Principal Investigator Christopher Duran, M.A., Registered Professional Archaeologist (RPA), served as the archaeological principal investigator for the study. Mr. Duran meets the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology (NPS 1983). Rincon Cultural Resource Specialist Ashlee Bailey, M.A. and Rincon Cultural Resources Principal Investigator Robert Ramirez, M.A., RPA conducted the pedestrian surveys. Rincon Archaeologist Meagan Szromba, M.A., served as the primary author of this report. Rincon Cultural Resources Program Manager Kevin Hunt, B.A., managed this cultural resources study and provided program-level oversight. Rincon GIS Analysts prepared the figures found in this report. Rincon Vice President Duane Vander Pluym, D. Env., reviewed this report for quality control.



Willow Ave Widening Project **Archaeological Resources Survey**



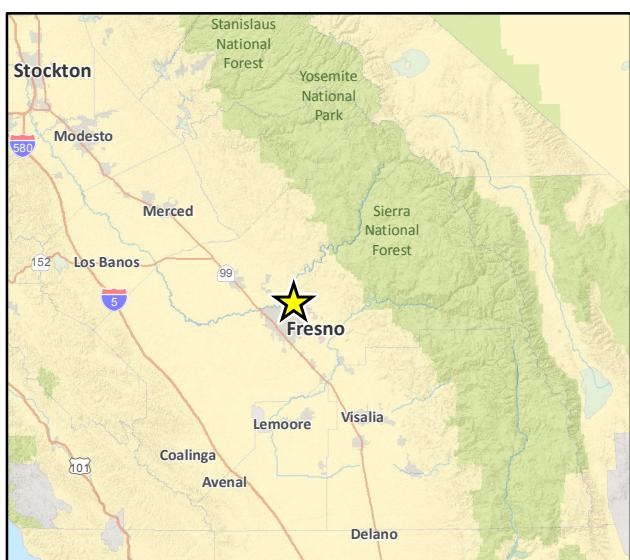
Imagery provided by National Geographic Society, ESRI and its licensors © 2017.
Friant & Clovis Quadrangle. T12S R20E S12,13,24,25 & T12S R21E S07,18,19,30.
The topographic representation depicted in this map may not portray all of the features
currently found in the vicinity today and/or features depicted in this map may have
changed since the original topographic map was assembled.



A yellow-bordered rectangular icon representing a project site.

A scale bar showing distance in feet. The scale is marked at 0, 1,000, and 2,000. The word "Feet" is written below the scale.

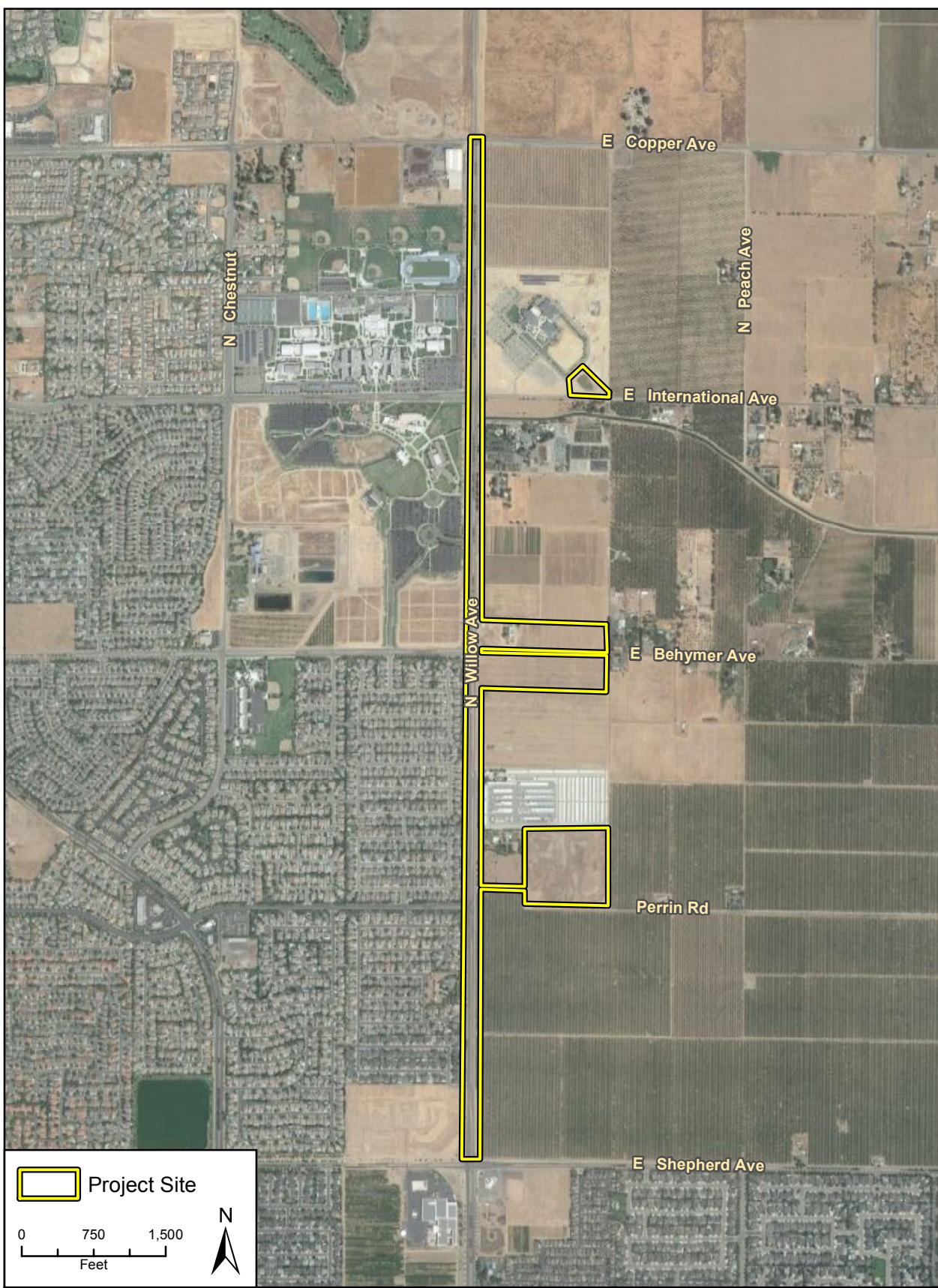
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Project Location Map

Figure 1

Willow Ave Widening Project
Archaeological Resources Survey



Imagery provided by Google and its licensors © 2017.

Project Site Map

Figure 2

Blair, Church & Flynn Consulting Engineers

2.0 REGULATORY SETTING

This section includes a discussion of the applicable federal, state, and local laws, ordinances, regulations, and standards governing cultural resources, which must be adhered to before and during implementation of the proposed project.

2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1). A *historical resource* is a resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (State CEQA Guidelines, Section 15064.5[a][1-3]).

A resource shall be considered historically significant if it meets any of the following criteria:

- 1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- 2) Is associated with the lives of persons important in our past;
- 3) 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; or
- 4) Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, if a project can be demonstrated to cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC, Section 21083.2[a], [b], and [c]).

PRC, Section 21083.2(g) defines a *unique archaeological resource* as an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- 1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
- 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.

2.1.1 50 Year Threshold for the CRHR

According to CEQA, all buildings constructed over 50 years ago and that possess architectural or historical significance may be considered potential historic resources. Most resources must meet the 50-year threshold for historic significance; however, resources less than 50 years in age



may be eligible for listing on the CRHR if it can be demonstrated that sufficient time has passed to understand their historical importance.

2.2 ASSEMBLY BILL 52

As of July 1, 2015, California Assembly Bill (AB) 52 of 2014 (AB 52) was enacted and expands CEQA by defining a new resource category, “tribal cultural resources.” AB 52 establishes that “A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment” (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3). PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and meets either of the following criteria:

- Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
- 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. AB 52 requires that lead agencies “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

3.0 SETTING

The project site is located in the City of Clovis, Fresno County, California in Township 12 S, Range 0 E, Sections 13 and 24 and Township 12 S, Range 21 E, Sections 18 and 19. The project site includes the 40-50 foot widening of Willow Avenue and a 30 meter (m) buffer from the existing road shoulders along Willow Avenue for the entire 1.5-mile corridor. Willow Avenue transects International Avenue and Behymer Avenue in the project area, and is surrounded by residential developments and separated private residences, agricultural areas, small businesses, churches, and schools.

3.1 PREHISTORY

California prehistory is generally divided into three broad time periods: Paleoindian period (ca. 11,550-8,550 B.C.), Archaic Period (8,550 B.C.-A.D. 1100) and Emergent Occupation (A.D. 1000-European Contact) (Fredrickson 1973, Rosenthal et al. 2007). The prehistoric chronological



sequence for the Central Valley presented below is based on Rosenthal et al. (2007) and Moratto (1984).

3.1.1 Paleoindian Period (11,550- 8550 B.C.)

Little is known about the Paleoindian period in the Central Valley. Geoarchaeological studies have demonstrated that erosion and deposition have buried or destroyed early archaeological deposits. Most claims of ancient human occupation have been dismissed by Moratto (1984) based on radiocarbon dating. Currently, the earliest accepted date of human occupation in the Central Valley ranges from 11,550 to 9,550 B.C. and comes from fluted projectile points similar to Clovis points found at sites near Tracy Lake and the Tulare Lake Basin (Rosenthal et al. 2007).

3.1.2 Lower Archaic (8,550- 5,550 B.C.)

Climate change at the end of the Pleistocene caused significant periods of alluvial deposition beginning around 9,050 B.C. The Lower Archaic, like the Paleoindian Period, is represented only by limited isolated finds. Only one Lower Archaic site (KER-116) has been identified in the Central Valley proper and few in the foothills surrounding the valley (Rosenthal et al. 2007; Rosenthal and Meyer 2004).

Typical Lower Archaic artifacts include flaked stone crescents and stemmed points. The identification of projectile points and a diverse faunal assemblage at KER-116 point to hunting being an important subsistence activity. However, milling tools and plant remains are largely absent in the valley, thus plant use during the Lower Archaic remains unclear. Several foothill sites contain milling implements and evidence of the use of nut crops such as acorn and pine (Lajeunesse and Pryor 1996). The relationship between foothill and valley floor adaptations is largely unknown during the Lower Archaic. However, distinct adaptations are apparent in the Middle Archaic, and it is possible that these divergent traditions first emerged in the Lower Archaic (Rosenthal et al. 2007).

3.1.3 Middle Archaic (5,550- 550 B.C.)

The Middle Archaic began with substantial climate change to much warmer, drier conditions. Tulare Lake shrank and eventually disappeared. Fans and floodplains stabilized after an initial period of deposition in 5,550 B.C. Archaeological deposits dating to the Middle Archaic are rare in the Central Valley proper due to these geomorphic changes. The Middle Archaic record has revealed a pattern of organized subsistence strategies and increased residential stability. The archetypal pattern of the Middle Archaic has been identified as the Windmiller Pattern. This pattern is represented by extended burials oriented to the west and a sophisticated material culture (Rosenthal et al. 2007). Middle Archaic sites are relatively common in the foothills surrounding the Central Valley and show relatively little change from the Lower Archaic (McGuire 1995).

During this time, the mortar and pestle become more widespread suggesting a shift toward more intensive subsistence practices. Fishing technologies, such as bone gorges, hooks, and spears, also appear during the Middle Archaic suggesting a new focus on fishing. Several other technologies become apparent during this time. Baked-clay impressions of twined basketry,



simple pottery, and other baked clay objects have been found at several sites. Personal adornment items also become more frequent. Exchange with outside groups is evidenced by the presence of obsidian, shell beads and ornaments (Rosenthal et al. 2007; Moratto 1984). Trade also seemed to be focused on utilitarian items such as obsidian or finished obsidian tools from at least five separate sources (Moratto 1984).

3.1.4 Upper Archaic (550 B.C.- A.D. 1100)

The Upper Archaic began with the onset of the Late Holocene, marked by a cooler, wetter climate. The environmental conditions of the Upper Archaic were characterized by the return of lakes that had disappeared during the Middle Archaic and a renewed fan and floodplain deposition. The Upper Archaic is better represented in the archaeological record than earlier periods. Cultural diversity was more pronounced and is marked by contrasting material cultures throughout the valley (Rosenthal et al. 2007).

During this period, numerous specialized technologies were developed such as bone tools, and implements, manufactured goods such as *Olivella* and *Haliotis* beads and ornaments, well-made ceremonial blades, and ground-stone plummets. People living in the San Joaquin Valley region traded with neighboring groups for obsidian.

Upper Archaic Period economies varied by region throughout the Central Valley. Economies were primarily focused on seasonal resources such as acorns, salmon, shellfish, rabbits, and deer (Rosenthal et al. 2007).

3.1.5 Emergent Occupation (A.D. 1000- Historic)

The stable climatic conditions of the Upper Archaic continued into the Emergent Occupation. Sporadic research has been performed in the San Joaquin Valley on this time period, and thus only the Pacheco Complex on the western edge of the valley has been formally defined. After A.D. 1000, many of the technologies witnessed during the Archaic disappeared to be replaced by cultural traditions witnessed at European contact. During the Emergent Occupation, the bow and arrow replaced the atlatl as the preferred hunting method sometime between A.D. 1000 and 1300.

Increased social complexity is evidenced by increased variation in burial types and offerings and larger residential communities. Grave offerings such as shell beads, ornaments, and ritually "killed" mortars and pestles are often found in burials. Pottery was frequently obtained through trade with groups living in the foothills to the east. The Panoche side-notched point became important in the western side of the San Joaquin Valley (Rosenthal et al. 2007). In addition to the side-notched point, the Panoche Complex featured large circular structures, flexed burials, marine shell beads, bone awls, millingstones, and mortars and pestles (Moratto 1984).

As with the Archaic Period, Emergent Period economies varied geographically, though throughout the Central Valley fishing and plant harvesting increased in importance. Most Emergent residential sites contain diverse assemblages of mammal and bird remains and large



amounts of fish bone. After 1,000 years ago, the mortar and pestle become the dominant tool type and small seeds increase in archaeological deposits over time (Rosenthal et al. 2007).

3.2 ETHNOGRAPHY

The San Joaquin Valley was historically occupied by the Penutian-speaking Yokuts (Kroeber 1925; Wallace 1978; Latta 1999). The project area is located in a transitional zone between the Northern Valley and Southern Valley Yokuts (Wallace 1978). Adjacent native groups include the Salinan and Costanoan to the west, Foothill Yokuts and Sierra Miwok to the east, Kitanemuk and Chumash to the south (Kroeber 1925). The three geographical divisions of the Yokuts are the Northern Valley, Southern Valley, and Foothill Yokuts. The distinction between the three groups is primarily based on language dialect (Mithun 2001).

The Yokuts established permanent villages. Residential structures were most often of two types: single-family dwellings and larger communal residences that housed ten families or more. Villages frequently included mat-covered granaries and a sweathouse (Mithun 2001).

Yokuts subsistence was based on a mixed economy focused on fishing, collecting, and hunting small game. Fishermen employed tule rafts and caught fish with nets, spears, basket traps, and bow and arrow. Yokuts often gathered mussels and hunted turtles in lakes, rivers, and streams. Wild seeds and roots contributed a large portion of the Yokuts diet. Tule roots were gathered, dried, and pounded into a flour to be prepared as a mush. Tule seeds and grass and flowering herb seeds were prepared in the same way. Leaves and stems of certain plants, such as clover and fiddle-neck, were also collected. Acorns, a staple of most California Native Americans, were not readily available in the Yokuts ethnographic territory. Some Yokuts tribes journeyed to neighboring groups to trade for acorns. Waterfowl was frequently hunted with snares, nets, and bow and arrow. Land mammals and birds contributed a smaller part of the Yokuts diet. Small game was occasionally taken in snares or traps or shot with bows and arrows (Wallace 1978).

The basic economic unit among the Yokuts was the nuclear family. Totemic lineages were based on patrilineal descent. Totem symbols were passed from father to offspring and families sharing the same totem formed an exogamous lineage. Totems were associated with one of two moieties, a division which played a role during ceremonies and other social events (Wallace 1978).

Yokuts were split into self-governing local groups, most often including several villages. Each group had a chief who directed ceremonies, mediated disputes, handled punishment of those doing wrong, hosted visitors, and provided aid to the impoverished. In certain cases, settlements had two chiefs, one for each moiety. Other political positions included the chief's messenger and the spokesman (Wallace 1978).

Shamans were also an important part of Yokuts village life. The Yokuts' Shaman gained power through a dream or vision. If, after this vision, the man accepted the role as shaman, he would pray, fast, and acquire talismans to aid him in his future work. Shamans had the ability to heal the sick and served the primary role in religious life (Wallace 1978).



Yokuts technology depended primarily on tule. Stems of the plant served as the raw material for baskets, cradles, boats, housing, and many other items. Tools such as knives, projectile points, and scraping tools were made from imported lithic materials as stone was not readily available in the Central Valley. Marine shells secured through trade with coastal peoples were used in the manufacture of shell money and personal adornment items (Wallace 1978).

3.3 HISTORY

The post-Contact history of California is generally divided into three periods: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Each of these periods is briefly described below.

3.3.1 Spanish Period (1769–1822)

Juan Rodriguez Cabrillo in 1542 led the first European expedition to observe what is now called southern California. For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta (upper) California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003).

Gaspar de Portolá and Franciscan Father Junipero Serra established the first Spanish settlement in Alta California at Mission San Diego de Alcalá in 1769. This was the first of 21 missions erected by the Spanish between 1769 and 1823. Portolá continued north, eventually reaching the San Francisco Bay in 1769. In 1772, Pedro Fages led the first Europeans to enter the San Joaquin Valley (Wallace 1978; Johnson et al. 1993). Fages led a small expedition into the southernmost part of the valley, stopping at a village on the shores of Buena Vista Lake, before heading towards San Luis Obispo (Wallace 1978). The next European to enter the valley was Francisco Garcés in 1776 (Wallace 1978). In the early 1800s numerous expeditions were made into the central valley to search for land for new missions or to recapture runaway neophytes (Hoover et al. 2002). However, the Spanish never succeeded in taking control of the region and no missions were established in the Central Valley.

During this period, Spain also deeded ranchos to prominent citizens and soldiers, though very few in comparison to the subsequent Mexican Period. To manage and expand their herds of cattle on these large ranchos, colonists enlisted the labor of the surrounding Native American population (Engelhardt 1927a). Very few of the Central Valley tribes came under the control of the Spanish missions or ranchos. However, numerous runaway neophytes fled to the Central Valley, influencing local populations (Wallace 1978). The increased local population and contact with diseases brought by Europeans greatly reduced the Native American population (McCawley 1996).

3.3.2 Mexican Period (1822–1848)

The Mexican Period commenced when news of the success of the Mexican Revolution (1810–1821) against the Spanish crown reached California in 1822. This period was an era of extensive interior land grant development and exploration by American fur trappers west of the Sierra Nevada Mountains. Beginning in 1833, mission lands were conferred as rancho grants. Governor Pío Pico and his predecessors made more than 600 rancho grants between 1833 and



1846, putting most of the state's lands into private ownership for the first time (Gumprecht 1999). However, no ranchos were established in the Central Valley proper (Wallace 1978).

3.3.3 American Period (1848-Present)

The American Period officially began with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico \$15 million for the conquered territory, including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. Settlement of southern California continued dramatically in the early American Period.

The discovery of gold in northern California in 1848 led to the California Gold Rush, though the first California gold was actually discovered in Placerita Canyon near the San Fernando Mission in 1842 (Guinn 1915; Workman 1935:26). In 1850, California was admitted into the United States and by 1853, the population of California exceeded 300,000. Thousands of settlers and immigrants continued to move into the state, particularly after the completion of the transcontinental railroad in 1869.

Fresno County was established on April 19, 1856. Fresno County underwent four stages of development: the mining period, which continued into the 1860s; the sheep and cattle raising period from the 1860s to 1874; the general farming period from the 1870s; and the later transition to irrigated row crops. Moses J. Church developed some of the County's first canals, fostering an era of prosperous irrigated row crop farming (Winchell 1933). To this day, Fresno County produces more than 350 commercial crops and is home to 1.88 million acres of the world's most productive farmland (Fresno County Farm Bureau 2007).

3.3.4 City of Clovis

The City of Clovis is located in the San Joaquin Valley in Fresno County, California. Before its founding, this area was inhabited by Native American tribes who were once settled in the foothills near the rivers on the valley floor. In 1806, the area was re-settled by explorers seeking a location for a new mission. Soon after, the area became occupied by missionaries and miners during the California Gold Rush, causing the displacement of Native American groups in the region.

Clovis experienced substantial growth following the construction of the San Joaquin Division of the Southern Pacific Railroad. Additional accomplishments, including logging from the nearby Sierra Nevada Mountains and increased grain production, lead to its official founding in 1891. The City of Clovis was named after Clovis M. Cole, a widely known and revered pioneer in the region. Today, the City of Clovis continues to maintain its small town spirit by providing a strong sense of community to its residents (City of Clovis 2016).

4.0 BACKGROUND RESEARCH

Background research for the current study encompassed both the project site and a half-mile radius surrounding the project site. Background research was conducted to identify any previous studies within proximity to the project and to identify and characterize any previously



recorded resources in and around the project. The background research conducted for this study includes a review of the Sacred Lands File (SLF) maintained by the Native American Heritage Commission (NAHC); Native American scoping for information regarding any Native American cultural resources within or near the project site; a review of cultural resource records at the California Historical Resources Information System (CHRIS) Southern San Joaquin Valley Information Center (SSJVIC); and a review of available historical USGS 7.5- and 15-minute quadrangle and aerial maps.

4.1 NATIVE AMERICAN HERITAGE COMMISSION

On May 4, 2016, Rincon Archaeologist Ashlee Bailey contacted the NAHC to request a review of the SLF and to request a contact list of local Native American groups and individuals who may have knowledge of cultural resources existing within or near the project area (Appendix A). On June 26, 2016, Rincon received a response from the NAHC via email stating that a search of the SLF yielded negative results. The response also provided a list of Native American groups and individuals with whom to communicate regarding the project. Rincon mailed letters to the NAHC-provided contacts on June 30, 2016. As of January 2, 2018, Rincon has received no responses from Native American contacts.

4.2 CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

On May 4, 2016, Rincon requested a search of cultural resource records housed at the SSJVIC located at the California State University, Bakersfield. Rincon requested the search to identify all previously conducted cultural resources work that has occurred within the project site and a 0.5-mile radius around it, as well as to identify previously recorded cultural resources within or near the project site. The CHRIS search included a review of the National Register of Historic Places (NRHP), the California Register of Historic Resources (CRHR), the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. The records search also included a review of all available historic USGS 7.5- and 15-minute quadrangle maps.

On May 11, 2016, Rincon received results from the cultural resources records search from the SSJVIC. The cultural resource records search of the SSJVIC inventory identified six reports that included a portion of the project site and nine reports regarding projects conducted within a 0.5-mile radius of the project site. One cultural resource has been recorded within the project site, and one resource has been recorded within a 0.5-mile radius of the project site (Appendix B).

4.2.1 Previous Studies

The cultural resource records search of the SSJVIC inventory identified six reports that included a portion of the project site and nine reports resulting from projects conducted within a 0.5-mile radius of the project site. Table 1 summarizes the reports for projects conducted that overlap a portion of the project site. Table 2 summarizes the reports for projects conducted within a 0.5-mile radius of the project site.



Table 1. Previous Studies Conducted Within the Project Site.

Study No.	Author	Year	Title
FR-01094	Wren, Donald G.	1993	<i>An Archaeological Survey Copper River Project</i>
FR-00267	Wren, Donald G.	1999	<i>An Archaeological Survey Clovis Unified 5th High School and 5th Intermediate School</i>
FR-01692	Wren, Donald G.	1993	<i>An Archaeological Survey: Clovis/Northeast Fresno Community College</i>
FR-02257	Baloian, Randy	2006	<i>Archaeological Survey Report for the Willow and Shepherd Avenues Signal Light Project in Clovis and Fresno, Fresno County, California</i>
FR-02289	Nettles, Wendy M. and Randy Baloian	2006	<i>Cultural Resources Reconnaissance Survey of the City of Clovis Northwest Urban Center Specific Plan Area, Fresno County, California</i>
FR-02319	Baloian, Randy	2009	<i>Archaeological Survey Report for the Willow Avenue Widening in the City of Fresno Between Decatur and Perrin Avenues, Fresno County, California</i>

Source: Southern San Joaquin Valley Information Center, May 2016.

Table 2. Previous Studies Conducted Within a 0.5-Mile Radius of the Project Site.

Study No.	Author	Year	Title
FR-00273	Bissonnette, Linda Dick	1991	<i>Cultural Resources Survey for the Chestnut/Shepherd Avenues Urban Retention Basin In Fresno County</i>
FR-00282	Bissonnette, Linda Dick	1992	<i>Cultural Resources Assessment for the Fresno Metropolitan Flood Control District, Stormwater Retention Basins BC, BX, BZ, DE, and AQ in Northeast Fresno and North Clovis, Fresno County</i>
FR-01607	Wren, Donald G.	1999	<i>An Archaeological Survey Behymer/Chestnut School Site Clovis Unified School District</i>
FR-01805	Pastron, Allen and Keith R, Brown	2001	<i>Historical and Cultural Resource Assessment for a Proposed Telecommunications Facility NE Fresno, Site No, CV-606-01, 2929 East Copper Avenue, Fresno County, California</i>
FR-02251	Bonner, Wayne	2005	<i>Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate FS-511-04 (Copper/Minnewawa), 33497 East International, Clovis, Fresno County, California</i>
FR-02242	Billat, Lorna	2006	<i>Cellular Facility Installation for Shepherd Well/ SC-10142A</i>
FR-02204	Jones, Kari	2006	<i>Archaeological Literature Review for the Proposed Copper Minnewawa Site (FS-511-C1), Fresno County, California</i>
FR-02258	Nettles, Wendy M.	2006	<i>Historical Resources Evaluation Report for the Willow and Shepherd Avenues Signal Light Project in Clovis and Fresno, Fresno County, California</i>
FR-02344	Varner, Dudley M.	2007	<i>A Cultural Resource Study of the Krum Property, Copper River Ranch Project, Fresno County, California</i>

Source: Southern San Joaquin Valley Information Center, May 2016.

4.2.2 Previously Recorded Resources



The cultural resource records search of the SSJVIC inventory identified one historic resource, identified as P-10-005934, that has been recorded adjacent to the project site. The historic resource consists of an approximately 200-foot segment of the 36.5-mile long Enterprise Canal (canal), constructed between the late-1870s and the early twentieth century to irrigate farmlands throughout the Fresno-Clovis area.

P-10-005934

Applied EarthWorks, Inc. recorded the canal in 2008. In 2013, Randy Baloian of Applied EarthWorks, Inc. updated the record for the Enterprise Canal. The canal was constructed between the late-1870s and the early twentieth century to convey water from the Gould Canal near the Kings River to the center of Fresno. The 200-foot segment of the canal that overlaps with the project site was constructed between 1885 and 1891 and altered between 1911 and 1913. The canal was also realigned between 1921 and 1923. This portion of the canal is unlined and flows from the southeast to the northwest. The canal measures approximately 35 feet in width and approximately 6-8 feet deep (Baloian 2013). Baloian (2013) concluded that this segment of the canal is not considered eligible for the NRHP or the CRHR due to a lack of integrity. Site P-10-005934 does not qualify as a historical resource under CEQA and therefore requires no further management consideration for the current study (Appendix B).

5.0 SURVEY METHODS

Rincon Cultural Resource Specialist Ashlee Bailey conducted a pedestrian survey on May 17, 2016 of the 1.5-mile corridor along Willow Avenue, City of Clovis, Fresno County, California. The surveyed area included a 30 meter) buffer zone from the existing road shoulders along Willow Avenue for the entire 1.5-mile corridor, and was done in 10-15 meter transect intervals. Ms. Bailey's survey began at the junction of Willow Avenue and East Copper Avenue, where she walked south along the east side of Willow Avenue to Shepherd Avenue, before turning northward and walking the west side of Willow Avenue back to East Copper Avenue.

On December 22, 2017, Rincon Cultural Resources Principal Investigator Robert Ramirez conducted a pedestrian survey of an additional 38.41-acre area including fallow agricultural land, existing water basins, and adjacent properties to the east of Willow Avenue. Specifically, this area consisted of: the International Basin (1.63-acres), the Other Basin Option (9.22-acres), the Ricchiuti Property (11.4-acres), the FMFCD Easement (0.56-acres), and the FMFCD Basin Aqueduct (15.6-acres). Transect intervals were spaced no greater than 15 meters apart throughout the survey.

Ms. Bailey and Mr. Ramirez examined all exposed ground surface for artifacts (e.g. flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g. standing exterior walls, postholes, foundations) or historic debris (e.g. metal, glass, ceramics). Ground disturbances, such as animal burrows and drainages, were visually inspected as these disturbances can expose subsurface deposits.



6.0 RESULTS AND DISCUSSION

The entire project site had been previously disturbed, especially the east side of Willow Avenue, which had been disrupted by grading, agriculture, commercial and residential development, and the construction of sidewalks. Visibility along the east side of the road alignment was high, with ground cover estimated at 0-5% in most areas, though some areas had thick ground cover (seasonal grasses and weeds). The survey of the area to the east of Willow Avenue was within fallow agricultural fields, existing basins, an orchard, and residential properties (Photograph 1). Visibility here ranged between 30 to 95 percent and was obstructed in some areas due to overgrown grasses and weeds and modern refuse and debris. The northern portion of the alignment on the east side was bounded by an orchard and a church (north of International Avenue). Visibility was high (100%) along this segment around the orchard.

The majority of the west side was developed with a concrete walking trail and planters with trees and shrubs bounded by private residences and a school in the northern portion of the alignment. The ground alongside the walking trail in the northernmost portion of the project site (closest to Copper Avenue) was primarily covered with decorative bark, while the remainder of the area was left without any ground cover (Photograph 2). Between International Avenue and Behymer Avenue, the west side of the alignment was developed with what appeared to be a nursery and gardens, as well as a private residence and agricultural fields. The segment from just north of Perrin Avenue south to the end of the project alignment at Shepherd Avenue was developed with orchards.

No cultural resources were identified within the project site. The historic canal (P-10-005934) was noted behind a fence line just outside of the project boundary. The resource was not inspected or updated as part of this study as it is outside of the study area.





Photograph 1. Overview of existing FMFCD basin on the east side of Willow Avenue, facing southwest



Photograph 2. Overview of the northern section of the west side of the Willow Avenue road corridor, facing north

7.0 PROJECT IMPACTS AND RECOMMENDATIONS

The background research and pedestrian surveys did not identify any archaeological resources within the current project site. The project site is highly disturbed by modern infrastructure construction, including the grading and paving of Willow Avenue and exiting water basins, and has been additionally disturbed by agricultural activities and residential development. The records search did identify one built-environment resource (P-10-005934) adjacent to the project site consisting of a canal. The resource was found to be ineligible for the CRHR (Boloain 2013) and therefore requires no further management consideration under the current study. Based on the results of the current investigation, Rincon recommends a finding of *no impact to historical resources* under CEQA for the current study. Although no historical resources were identified within the project site, Rincon recommends the following measures for unanticipated discoveries.

7.1 UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES

If cultural resources are encountered during ground-disturbing activities, work in the immediate area should be halted 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 necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR eligibility. If the discovery proves to be significant under



CEQA and cannot be avoided by the project, additional work such as data recovery excavation may be warranted to mitigate any significant impacts to historical resources.

7.2 UNANTICIPATED DISCOVERY OF HUMAN REMAINS

The discovery of human remains is always a possibility during ground disturbing activities; if human remains are found, 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, 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.



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Appendix A

Native American Scoping



Rincon Consultants, Inc.

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San Luis Obispo, California 93401

805 547 0900
FAX 547 0901

info@rinconconsultants.com
www.rinconconsultants.com

May 4, 2016

Cynthia Brown, Executive Director
Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691

**RE: Sacred Lands File Search and Native American Contact List Request
 for the Willow Avenue Widening Project, City of Clovis, Fresno
 County, California**

Dear Ms. Brown:

Rincon Consultants, Inc. (Rincon) has been retained to conduct an archaeological resources survey for the Willow Avenue Widening Project in the City of Clovis, Fresno County, California. The widening of a 1.5-mile section of Willow Avenue is anticipated at 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The survey is intended to support the California Environmental Quality Act environmental review process for the project. The information from these studies will be included in an Initial Study being prepared by Blair, Church & Flynn Consulting Engineers. As part of this effort, Rincon will contact any Native American tribal organizations or individuals who may have knowledge of cultural resources within the project area. The project site is depicted on Township 12 S, Range 20 E, Sections 13 and 24 and Township 12 S, Range 21 E, Sections 18 and 19 of the U.S. Geological Survey *Friant, CA* 7.5-minute topographic quadrangle. The Records Search Map includes a 0.5-mile buffer.

Thank you for your assistance with Rincon's efforts to address possible Native American concerns that may be affected by the proposed project. If you have any questions or need additional information, please contact me at the above phone number, my mobile number (831) 917-0701, or my email abailey@rinconconsultants.com.

Sincerely,

A handwritten signature in black ink that reads "Ashlee M. Bailey".

Ashlee Bailey
Cultural Resources Specialist

Attachment: Records Search Map



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Sacred Lands File & Native American Contacts List Request
Native American Heritage Commission

1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project Title: Willow Avenue Widening Project

County: Fresno

USGS Quadrangle Name: Friant

Township: 12S **Range:** 20E **Sections:** 13, 24

Township: 12S **Range:** 21E **Sections:** 18, 19

Contact Person: Ashlee Bailey

Company/Firm/Agency: Rincon Consultants, Inc.

Street Address: 1530 Monterey Street, Suite D

City: San Luis Obispo **Zip:** 93401

Phone: (805) 547-0900 ext. 120 **Fax:** (805) 547-0901

Email: abailey@rinconconsultants.com

Project Description: Rincon Consultants, Inc. (Rincon) has been retained to conduct an archaeological resources survey for the Willow Avenue Widening Project in the City of Clovis, Fresno County, California. The widening of a 1.5-mile section of Willow Avenue is anticipated at 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The survey is intended to support the California Environmental Quality Act environmental review process for the project. The information from these studies will be included in an Initial Study being prepared by Blair, Church & Flynn Consulting Engineers.

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
Fax (916) 373-5471



June 27, 2016

Ashlee M. Bailey, M.A., RPA
Rincon Consultants

Sent by Email: abailey@rinconconsultants.com

RE: Proposed Cultural Resources Survey, Willow Avenue Widening Project, City of Clovis;
Friant USGS Quadrangle, Fresno County, California

Dear Ms. Bailey:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Gayle Totton".

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

**Native American Contact List
Fresno County
June 24, 2016**

Picayune Rancheria of Chukchansi
Claudia Gonzalea, Chairperson
8080 Palm Ave, Suite 207
Fresno , CA 93711

Chukchansi / Yokut

Table Mountain Rancheria
Michael Russell, Tribal Administrator
P.O. Box 410
Friant , CA 93626
(559) 822-2587

Yokuts

(559) 822-2693 Fax

Santa Rosa Rancheria Tachi Yokut Tribe
Rueben Barrios Sr., Chairperson
P.O. Box 8
Lemoore , CA 93245
(559) 924-1278

Tache
Tachi
Yokut

(559) 924-3583 Fax

Table Mountain Rancheria
Bob Pennell, Cultural Resources Director
P.O. Box 410
Friant , CA 93626
rpennell@tmr.org
(559) 325-0351
(559) 217-9718 - cell
(559) 325-0394 Fax

Yokuts

Table Mountain Rancheria
Leanne Walker-Grant, Chairperson
P.O. Box 410
Friant , CA 93626
(559) 822-2587

Yokuts

(559) 822-2693 Fax

Santa Rosa Rancheria Tachi Yokut Tribe
Lalo Franco, Cultural Coordinator
P.O. Box 8
Lemoore , CA 93245
(559) 924-1278 Ext. 5

Tachi
Tache
Yokut

(559) 924-3583 Fax

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

Yokuts

(559) 781-4610 Fax

Tule River Indian Tribe
Kerri Vera, Environmental Department
P.O. Box 589
Porterville , CA 93258
(559) 783-8892

Yokuts

(559) 783-8932 Fax

Picayune Rancheria of Chukchansi
Mary Matola, THPO
8080 Palm Ave, Suite 207
Fresno , CA 93711

Chukchansi / Yokut

Tule River Indian Tribe
Joey Garfield, Tribal Archeological
P.O. Box 589
Porterville , CA 93258
(559) 783-8892

Yokuts

(559) 783-8932 Fax

This list is current only 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 or agency of statutory responsibility as defined in Public Resources Code Sections 21080.3.1
Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Willow Avenue Widening Project;
City of Clovis; Friant USGS Quadrangle, Fresno County, California.



Rincon Consultants, Inc.

255 W. Fallbrook Avenue, Suite 103
Fresno, California 93711

559 228 9925
FAX 228 9925

info@rinconconsultants.com
www.rinconconsultants.com

June 30, 2016

Chairperson Claudia Gonzalea
Picayune Rancheria of Chukchansi
8080 Palm Ave, Suite 207
Fresno, CA 93711

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Chairperson Claudia Gonzalea:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

As part of the process of identifying cultural resources issues for this project, Rincon contacted the Native American Heritage Commission (NAHC) and requested a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive cultural resources in or near the project area. The NAHC response, dated June 27, 2016, stated that the SLF search returned negative results, but recommended that we consult directly with you regarding your knowledge of the presence of cultural resources that may be impacted by this project. If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or abailey@rinconconsultants.com, or by telephone at (805) 547-0900, extension 120. Thank you for your assistance.

Sincerely,

A handwritten signature in black ink that reads "Ashlee M. Bailey".

Ashlee Bailey
Archaeologist

Enclosure: Records Search Map



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Fresno, California 93711

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FAX 228 9925

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www.rinconconsultants.com

June 30, 2016

THPO Mary Matola
Picayune Rancheria of Chukchansi
8080 Palm Ave, Suite 207
Fresno, CA 93711

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Tribal Historic Preservation Officer Mary Matola:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

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Ashlee Bailey
Archaeologist

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info@rinconconsultants.com
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June 30, 2016

Tribal Administrator Michael Russell
Table Mountain Rancheria
PO Box 410
Friant, CA 93626

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Tribal Administrator Michael Russell:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

As part of the process of identifying cultural resources issues for this project, Rincon contacted the Native American Heritage Commission (NAHC) and requested a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive cultural resources in or near the project area. The NAHC response, dated June 27, 2016, stated that the SLF search returned negative results, but recommended that we consult directly with you regarding your knowledge of the presence of cultural resources that may be impacted by this project. If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or abailey@rinconconsultants.com, or by telephone at (805) 547-0900, extension 120. Thank you for your assistance.

Sincerely,

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Archaeologist

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June 30, 2016

Cultural Resources Director Bob Pennell
Table Mountain Rancheria
PO Box 410
Friant, CA 93626

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Cultural Resources Director Bob Pennell:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

As part of the process of identifying cultural resources issues for this project, Rincon contacted the Native American Heritage Commission (NAHC) and requested a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive cultural resources in or near the project area. The NAHC response, dated June 27, 2016, stated that the SLF search returned negative results, but recommended that we consult directly with you regarding your knowledge of the presence of cultural resources that may be impacted by this project. If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or abailey@rinconconsultants.com, or by telephone at (805) 547-0900, extension 120. Thank you for your assistance.

Sincerely,

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Ashlee Bailey
Archaeologist

Enclosure: Records Search Map



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June 30, 2016

Chairperson Leanne Walker-Grant
Table Mountain Rancheria
PO Box 410
Friant, CA 93626

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Chairperson Leanne Walker-Grant:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

As part of the process of identifying cultural resources issues for this project, Rincon contacted the Native American Heritage Commission (NAHC) and requested a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive cultural resources in or near the project area. The NAHC response, dated June 27, 2016, stated that the SLF search returned negative results, but recommended that we consult directly with you regarding your knowledge of the presence of cultural resources that may be impacted by this project. If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or abailey@rinconconsultants.com, or by telephone at (805) 547-0900, extension 120. Thank you for your assistance.

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Ashlee Bailey
Archaeologist

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June 30, 2016

Chairperson Rueben Barrios, Sr.
Santa Rosa Rancheria Tachi Yokut Tribe
PO Box 8
Lemoore, CA 93245

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Chairperson Rueben Barrios, Sr.:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

As part of the process of identifying cultural resources issues for this project, Rincon contacted the Native American Heritage Commission (NAHC) and requested a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive cultural resources in or near the project area. The NAHC response, dated June 27, 2016, stated that the SLF search returned negative results, but recommended that we consult directly with you regarding your knowledge of the presence of cultural resources that may be impacted by this project. If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or abailey@rinconconsultants.com, or by telephone at (805) 547-0900, extension 120. Thank you for your assistance.

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Ashlee Bailey
Archaeologist

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June 30, 2016

Cultural Coordinator Lalo Franco
Santa Rosa Rancheria Tachi Yokut Tribe
PO Box 8
Lemoore, CA 93245

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Cultural Coordinator Lalo Franco:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

As part of the process of identifying cultural resources issues for this project, Rincon contacted the Native American Heritage Commission (NAHC) and requested a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive cultural resources in or near the project area. The NAHC response, dated June 27, 2016, stated that the SLF search returned negative results, but recommended that we consult directly with you regarding your knowledge of the presence of cultural resources that may be impacted by this project. If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or abailey@rinconconsultants.com, or by telephone at (805) 547-0900, extension 120. Thank you for your assistance.

Sincerely,

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Ashlee Bailey
Archaeologist

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June 30, 2016

Chairperson Neil Peyron
Tule River Indian Tribe
PO Box 589
Porterville, CA 93258

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Chairperson Neil Peyron:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

As part of the process of identifying cultural resources issues for this project, Rincon contacted the Native American Heritage Commission (NAHC) and requested a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of sensitive cultural resources in or near the project area. The NAHC response, dated June 27, 2016, stated that the SLF search returned negative results, but recommended that we consult directly with you regarding your knowledge of the presence of cultural resources that may be impacted by this project. If you have knowledge of cultural resources that may exist within or near the project area, please contact me in writing at the above address or abailey@rinconconsultants.com, or by telephone at (805) 547-0900, extension 120. Thank you for your assistance.

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Ashlee Bailey
Archaeologist

Enclosure: Records Search Map



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www.rinconconsultants.com

June 30, 2016

Kerri Vera, Environmental Department
Tule River Indian Tribe
PO Box 589
Porterville, CA 93258

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Kerri Vera:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

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Sincerely,

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Ashlee Bailey
Archaeologist

Enclosure: Records Search Map



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255 W. Fallbrook Avenue, Suite 103
Fresno, California 93711

559 228 9925
FAX 228 9925

info@rinconconsultants.com
www.rinconconsultants.com

June 30, 2016

Joey Garfield, Tribal Archeological
Tule River Indian Tribe
PO Box 589
Porterville, CA 93258

RE: Cultural Resources Study for the Widening of Willow Avenue Project, City of Clovis, Fresno County, California

Dear Joey Garfield:

Rincon Consultants, Inc. was retained by Blair, Church & Flynn Consulting Engineers, Inc. to conduct a Phase I Archaeological Resources Survey for the widening of a 1.5-mile corridor along Willow Avenue in the City of Clovis, Fresno County, California. The widening of Willow Avenue is anticipated to be 40-50 feet from the current road shoulder between Shepherd Avenue and Copper Avenue. The current project site includes a 1.5 mile corridor along Willow Avenue and a 30 meter (m) buffer from the existing road shoulders. This project was conducted in accordance with the California Environmental Quality Act (CEQA).

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Sincerely,

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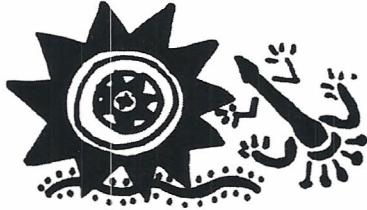
Ashlee Bailey
Archaeologist

Enclosure: Records Search Map

Appendix B

Records Search Summary

**CALIFORNIA
HISTORICAL
RESOURCES
INFORMATION
SYSTEM**



**FRESNO
KERN
KINGS
MADERA
TULARE**

Southern San Joaquin Valley
Information Center
California State University, Bakersfield
Mail Stop: 46 MEC
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289 FAX (661) 654-2415
E-mail: ssjvic@csub.edu

5/11/2016

Ashlee Bailey
Rincon Consultants, Inc.
1530 Monterey Street, Suite D
San Luis Obispo, CA 93401

Re: Willow Ave Widening
Records Search File No.: 16-172

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on the Clovis and Friant 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 shapefiles hand-drawn maps

Resources within project area:	P-10-005934
Resources within 0.5 mile radius:	P-10-005569
Reports within project area:	FR-00267, 01094, 01692, 02257, 02289, 02319
Reports within 0.5 mile radius:	FR-00273, 00282, 01607, 01805, 02204, 02242, 002251, 02258, 02344

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 Historic Properties 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

<u>Caltrans Bridge Survey:</u>	Not available at SSJVIC; please see http://www.dot.ca.gov/hq/structur/strmaint/historic.htm
<u>Ethnographic Information:</u>	Not available at SSJVIC
<u>Historical Literature:</u>	Not available at SSJVIC
<u>Historical Maps:</u>	Not available at SSJVIC; please see http://historicalmaps.arcgis.com/usgs/
<u>Local Inventories:</u>	Not available at SSJVIC
<u>GLO and/or Rancho Plat Maps:</u>	Not available at SSJVIC
<u>Shipwreck Inventory:</u>	Not available at SSJVIC; please see http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp
<u>Soil Survey Maps:</u>	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.

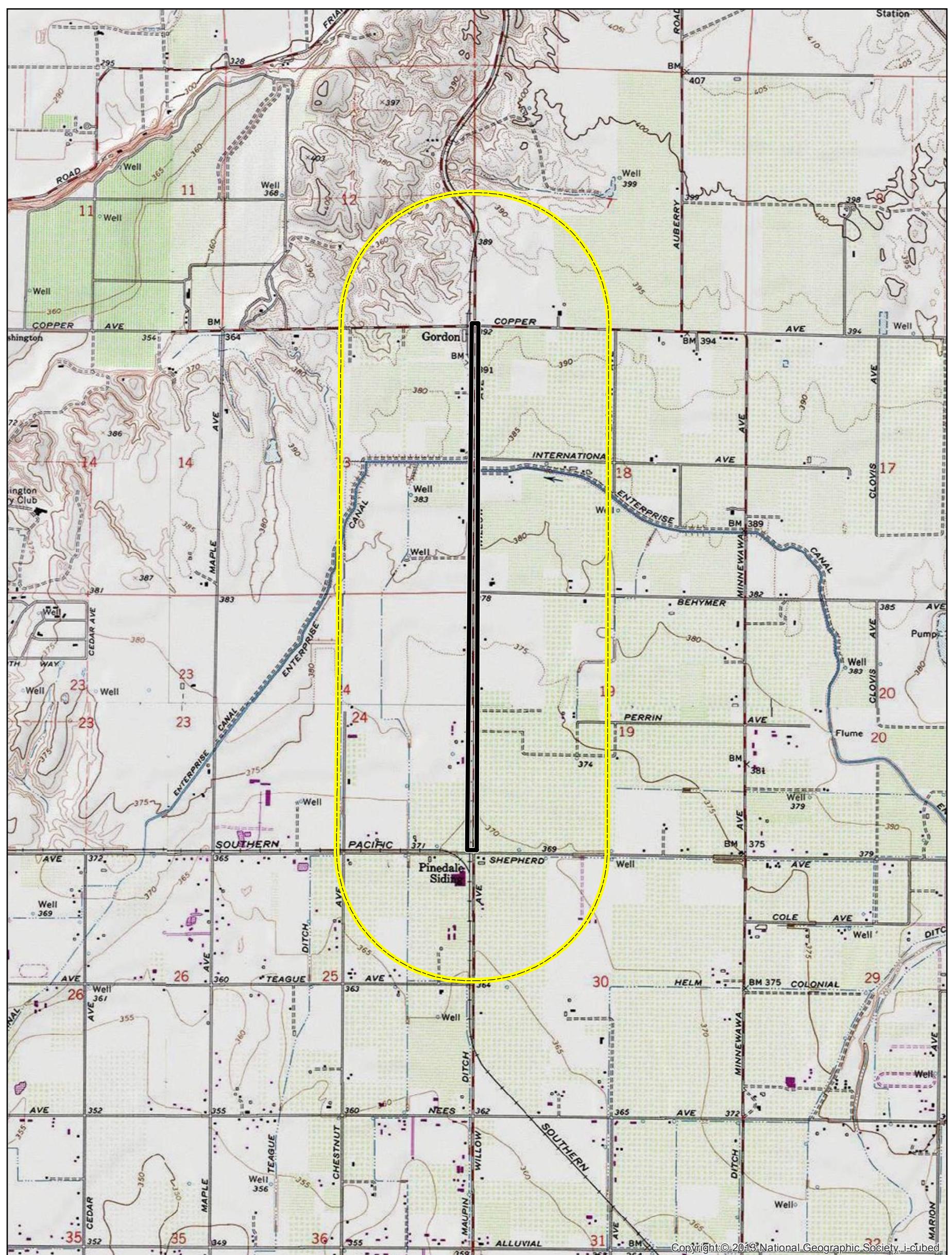
Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that 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



Imagery provided by National Geographic Society, ESRI and its licensors © 2016.

*Imagery provided by National Geographic Society, ESRI and its licensors.
Friant & Clovis Quadrangle. T12S R20E S12,13,24,25 & T12S R21E*

*Plant & Clovis Quadrangle. 112S R20E S12, 13, 24, 25 & 112S R21E
S07, 18, 19, 30. The topographic representation depicted in this map may not
portray all of the features currently found in the vicinity today and/or features
depicted in this map may have changed since the original topographic map was
assembled.*



Project Site



0 1,000 2,000 Feet

0 250 500 Meters

1:24,000

Report List

SSJVIC Record Search 16-172

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
FR-00267		1999	Wren, Donald G.	An Archaeological Survey Clovis Unified 5th High School and 5th Intermediate School	Individual Consultant	
FR-00273		1991	Bissonnette, Linda Dick	Cultural Resources Survey for the Chestnut/Shepherd Avenues Urban Retention Basin In Fresno County	Michael Paoli and Associates	
FR-00282		1992	Bissonnette, Linda Dick	Cultural Resources Assessment for the Fresno Metropolitan Flood Control District, Stormwater Retention Basins BC, BX, BZ, DE, and AQ in Northeast Fresno and North Clovis, Fresno County	Michael Paoli and Associates	
FR-01094		1993	Wren, Donald G.	An Archaeological Survey Copper River Project	Individual Consultant	
FR-01607		1999	Wren, Donald G.	An Archaological Survey Behymer/Chestnut School Site Clovis Unified School District	Individual Consultant	
FR-01692		2000	Wren, Donald G.	An Archaeological Survey: Clovis/Northeast Fresno Community College	Individual Consultant	
FR-01805		2001	Pastron, Allen and Brown, R. Keith	Historical and Cultural Resource Assessment for a Proposed Telecommunications Facility NE Fresno, Site No. CV-606-01, 2929 East Copper Avenue, Fresno County, California	Brown and Mills, Inc.	
FR-02204	Submitter - PL#1735-03	2006	Jones, Kari	Archaeological Literature Review for the Proposed Copper Minnewawa Site (FS-511-C1), Fresno County, California	Pacific Legacy, Inc.	
FR-02242		2006	Billat, Lorna	Cellular Facility Installation for Shepherd Well / SC-10142A	EarthTouch, LLC.	
FR-02251		2005	Bonner, Wayne	Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate FS-511-04 (Copper/Minnewawa), 33497 East International, Clovis, Fresno County, California	Michael Brandman Associates	
FR-02257		2006	Baloian, Randy	Archaeological Survey Report for the Willow and Shepherd Avenues Signal Light Project in Clovis and Fresno, Fresno County, California	Applied EarthWorks, Inc.	
FR-02258		2006	Nettles, Wendy M.	Historical Resources Evaluation Report for the Willow and Shepherd Avenues Signal Light Project in Clovis and Fresno, Fresno County, California	Applied EarthWorks, Inc.	

Report List

SSJVIC Record Search 16-172

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
FR-02289		2006	Wendy M. Nettles and Randy Baloian	Cultural Resources Reconnaissance Survey of the City of Clovis Northwest Urban Center Specific Plan Area, Fresno County, California	Applied EarthWorks, Inc.	
FR-02319		2009	Baloian, Randy	Archaeological Survey Report for the Willow Avenue Widening in the City of Fresno Between Decatur and Perrin Avenues, Fresno County, California	Applied EarthWorks, Inc.	
FR-02344		2007	Varner, Dudley M.	A Cultural Resource Study of the Krum Property, Copper River Ranch Project, Fresno County, California	Varner Associates	

Resource List

SSJVIC Record Search 16-172

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-10-005569		Resource Name - Brown Farm	Building	Historic	HP02 (Single family property); HP44 (Adobe building/structure)	2006 (R. Baloian, Applied EarthWorks, Inc.)	
P-10-005934	CA-FRE-003564H	Resource Name - Enterprise Canal	Structure	Historic	HP20 (Canal/aqueduct)	2007 (R. Baloian, Applied EarthWorks, Inc.); 2013 (Randy Baloian, Applied EarthWorks, Inc.)	FR-02615

UPDATE

**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD**

Primary # 10-005934 (UPDATE)

HRI #

Trinomial CA-FRE-3564H

NRHP Status Code

Other Listings
Review Code

Reviewer

Date

Page 1 of 8

Resource Name or # Enterprise Canal

Map Reference #: 2

P1. Other Identifier:

- *P2. Location: a. County: Fresno Not for Publication Unrestricted
 b. USGS 7.5' Quad: Fresno North, CA Date: 1965 (photorev. 1981) T13S, R20E; Sections 3, 9, 10, 17, 20 MD B.M.
 Friant, CA 1964 T12S, R20E; Sections 23, 26, 33, 34, 35
 Clovis, CA 1964 (photorev. 1981) T12S, R21E; Sections 13, 24
 Round Mountain, CA 1964 (photoinsp. 1978) T12S, R21E; Sections 17, 18, 20
 Piedra, CA 1965 T12S, R22E; Sections 20, 27, 28, 29, 34, 35
 T13S, R21E; Sections 1, 2, 12
 T13S, R22E; Section 7
 T13S, R23E; Sections 18, 19, 30, 31
 T13S, R23E; Sections 20, 27, 28, 29, 32, 33
- c. Address: n/a
 d. UTM: NAD 83, Zone 11; Head: 248275 mE / 4075461 mN Terminus: 280769 mE / 4071936 mN
 e. Other Locational Data: The Enterprise canal heads on the Gould Canal near the Kings River and flows approximately 36.5 miles.

*P3a. Description: The Enterprise Canal is an irrigation conveyance that transports water for the farmlands east, northeast, and north of the Fresno-Clovis area. Applied EarthWorks, Inc. initially recorded a segment of the canal near State Highway 168 in 2008. The current record, which serves as an update to the original record, also documents a short 200-foot segment of the canal at its intersection with Leonard Avenue in the city of Clovis. A detailed description of this segment is contained in the attached linear feature record.

*P3b. Resource Attributes: HP 20 (Canal)

*P4. Resources Present: Building Structure Object Site District Element of District Other:

*P5a. Photograph or Drawing:



P5b. Description of Photo: Enterprise Canal northwest of Leonard Avenue.

*P6. Date Constructed/Age and Sources:
 Prehistoric Historic Both
 See BSO for construction dates.

*P7. Owner and Address:
 Fresno Irrigation District

*P8. Recorded By: Randy Baloian
 Applied EarthWorks, Inc.
 1391 W. Shaw Ave., Suite C
 Fresno, CA 93711

*P9. Date Recorded: December 2013

*P10. Survey Type: Intensive
 Reconnaissance Other

Describe: Built-environment survey

*P11. Report Citation: Baloian, Randy

2014 *Historical Resources Evaluation Report: Leonard Avenue Bridge Replacement Project, City of Clovis, Fresno County, California*. Applied EarthWorks, Inc., Fresno, California. Prepared for City of Clovis Planning Department, Clovis, California. Submitted to California Department of Transportation, District 6, Fresno.

*Attachments: NONE Location Map Sketch Map Continuation Sheet
 Building, Structure, Archaeological Record District Record Linear Feature Record
 and Object Record Milling Station Record Rock Art Record Artifact Record
 Photograph Record Other (list):

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code

Page 2 of 8

Resource Name or #: Enterprise Canal

Map Reference #: 2

- B1. Historic Name:** Enterprise Canal
B2. Common Name: Enterprise Canal
B3. Original Use: Irrigation Conveyance **B4. Present Use:** Same
***B5. Architectural Style:** N/A
***B6. Construction History (construction date, alterations, and dates of alterations):**

General Canal History

Although local sources are not specific about the construction dates of the Enterprise Canal or its parent company, the Enterprise Canal Company (ECC), circumstantial evidence suggests that construction began sometime in the mid-1870s and continued episodically until the early 20th century when the canal appears to have reached its present-day length of 36.5 miles.

According to Willison's (1980:76, 84) account, the Kings River and Fresno Canal Company (KRFCC) agreed to supply water to the ECC following the completion of the KRFCC's Gould Canal in 1873. This agreement was the basis for the eventual creation of the Enterprise Canal. Although the Enterprise Canal is not represented on an 1875 map of the county (Willison 1980), construction may have begun shortly thereafter. Moreover, Hall's (1885) serial maps depicting irrigation in Fresno County as well as later county atlases suggest that the canal was built in stages. Whereas the first 15 miles of the Enterprise Canal (or "Enterprise Ditch") as well as its head gate on the Gould Canal are shown and labeled on the Centerville and Kingsburg Sheet of the series, the lower reaches of the canal do not appear on the Fresno Sheet. Taken at face value, Hall's (1885) maps indicate that in 1885, the Enterprise Canal terminated at Frolic Creek (present-day Dog Creek), less than a mile east from the project area. By the time of the 1891 Fresno County atlas, the canal had been lengthened through the Clovis area and to its northern most extent; however, the canal's existing southwesterly leg through what is today north Fresno had not been built yet (Thompson 1891).

Whatever the specific date(s) of the canal's construction, the ECC's dependence on the KRFCC and its Gould Canal clearly proved to be its undoing. In 1875, the KRFCC emerged from a court battle with the dominant Fresno Canal and Irrigation Company (FCIC) with its water rights still intact (Willison 1980:77–83). Ten years later, however, the companies faced-off again, but this time the FCIC succeeded in enjoining the KRFCC from drawing water from the Kings River (Mead 1901:277; Willison 1980:84). With no water rights and without access to water from the river, the KRFCC and ECC were forced to sell their canals to the FCIC. The court decision thus left the FCIC in control of all three canal systems.

Under the ownership of the FCIC, the Enterprise Canal continued to irrigate the farmlands north and east of the Fresno-Clovis area. It gave rise to several secondary canals along its route—including such Clovis-area branches as the Maupin Ditch, the Jefferson Canal, the Clovis Ditch, the Teague Ditch, and Helm Colonial Ditch—as well as numerous unnamed laterals (Willison 1980:283–285). As early as 1900, the canal and its branches irrigated about 15,000 acres (Willison 1980:76). By 1913, the lower portion of the canal

Sketch Map

See Attached

This space reserved for official comments.

Page 3 of 8

Resource Name or #: Enterprise Canal

Map Reference #: 2

appears to have been completed, bringing irrigation water to the area historically known as Forkner's Fig Gardens (Progressive Map Service 1913:19).

The Enterprise Canal, along with the rest of the FCIC's system, was acquired by the Fresno Irrigation District in 1920 (Willison 1980:115).

***B7. Moved?:** No Yes Unknown **Date:** 1911–1913; 1920–1921 **Original Location:** See B6.

***B8. Related Features:** metal and concrete irrigation gate

B9. a. Architect: Unknown **b. Builder:** Enterprise Canal Company

***B10. Significance:** **Theme:** 20th Century Agricultural Diversification/Development **Area:** Fresno-Clovis
Period of Significance: 1874–1900 **Property Type:** Irrigation Canal **Applicable Criteria:** None
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
Evaluation of the Enterprise Canal follows the guidelines contained in the National Register Bulletin *How to Apply the National Register Criteria for Evaluation* published by the National Park Service (2002). The resource is evaluated for eligibility under the National Register Criteria A–D. Given the similarity between federal and state significance criteria, the results of the NRHP evaluation are equally applicable to determinations of eligibility for the California Register of Historical Resources (CRHR) under Criteria 1–4. Additionally, the current evaluation is partially based on a previous evaluation of the Enterprise Canal (Baloian 2008).

Classification

The evaluated resource is an irrigation canal. Segments of the canal have been recorded as a linear resource/feature (see DPR 523E), a category that also includes roads, transmission lines, and railroad lines. The current investigation recorded a 200-foot segment of the aboveground portion of the canal. In 2009, Applied EarthWorks, Inc. recorded a segment of the canal near State Highway 168.

Context, Period, Themes, and Geographical Scope

Four fairly broad periods comprise the history of agrarian development in the Clovis/Fresno area: the pioneer days in and around the Dry Creek drainage (1853–1874); the initial development of agriculture (1874–1900); the continuing development and diversification of agriculture and growing water issues (1900–1950); and modern water management (1950 to present). Research indicates that the original course of the Enterprise Canal was built sometime between 1873 and 1875. While the canal continues to operate to the present, its construction is most closely associated with the events and trends of this period regarding the early stages of agricultural development. The canal is most appropriately evaluated within a local geographical context and, thematically, as an example of the impact of irrigation in the Fresno-Clovis area.

Application of Significance Criteria

Generally speaking, a canal's significance under Criterion A/1 is largely measured by (1) its construction date relative to the beginnings of the industry, (2) its economic importance, and (3) the extent to which it created new opportunities. The Enterprise Canal fairs extremely well in all three respects. While the Enterprise was not the first major canal built in the Fresno-Clovis area, its construction occurred only a few years after the completion of the Fresno Canal and Gould Canal. At 36.5 miles, it is one of (if not the) longest canal in the area. As early as 1900, the canal and its branches irrigated about 15,000 acres or the equivalent of over 23 square miles (Willison 1980:76).

Perhaps most importantly, the Enterprise Canal—like the Fresno Canal and Gould Canal systems—brought water to the previously unirrigated areas in the Fresno-Clovis area. The canal proceeds northwest from its head gate a mile west of the Kings River, crossing the rural lands east and north of Clovis, to a point within about 3 miles from the San Joaquin River; it then turns southwest towards Pinedale and through the lands that became the Fig Garden area, before terminating in present-day central Fresno. Because the Fresno Canal and Gould Canal predominantly serviced the properties south and east of Fresno, respectively, agricultural development in the north and northeast lands of the Fresno-Clovis area would have been severely retarded without the Enterprise Canal and its various branches. The subject canal is particularly representative of the impact of irrigation in local history. Consistent with previous evaluations of the canal (Baloian 2008), the Enterprise Canal is considered a significant resource at the local level under Criterion A/1.

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code

Page 4 of 8

Resource Name or #: Enterprise Canal

Map Reference #: 2

Archival research found no evidence to suggest that the Enterprise Canal is directly linked to individuals significant in the history of the Fresno-Clovis area. For this reason, the Enterprise Canal is not considered significant under Criterion B/2.

Significance under Criterion C/3, when applied to canals and similar linear structures, is measured by distinctive or innovative design, methods of construction, or use of technology. Built in the 1870s, the Enterprise Canal may have garnered some significance under this criterion *in its original form*. Unfortunately, archival research uncovered little data about the original dimensions of the channel (i.e., its shape, width, depth, etc.) or related features, such as distribution gates. While it is possible that the canal did display innovative design, methods of construction, or use of technology, there is no evidence to demonstrate that the canal ever possessed these characteristics. The canal is thus not considered significant under Criterion C/3.

Criterion D/4 is most relevant for archaeological sites, but it can apply to built-environment resources if further study has the potential to yield information that cannot be obtained from other sources. Here again, if the canal's original form were somehow preserved within the recorded segment, further field examination of such a vestige would greatly add to descriptions about the Enterprise Canal in particular and early irrigation in general. However, no such remnant exists within the recorded segment. The canal—including its features—generally appears to be a modern structure. The Enterprise Canal is thus not considered significant under Criterion D/4.

Integrity

Application of the NRHP and CRHR significance criteria found that the Enterprise Canal is significant at the local level under Criterion A/1. Whereas questions of significance involve evaluation of the full linear resource (i.e., the entirety of the Enterprise Canal), assessment of integrity involves focusing on a particular segment, given that a linear resource, which can extend dozens of miles, can display varying levels of integrity and that it is usually not feasible to assess the integrity of the entire resource in a single study. For instance, even though a previous evaluation of the canal found that a segment near Highway 168 possesses poor integrity (Baloian 2008), it is unwarranted to presume that all portions of the canal demonstrate the same level of integrity (or lack thereof). Similarly, the Leonard Avenue segment of the Enterprise Canal is not considered eligible for the NRHP or the CRHR due to a lack of integrity.

B11. Additional Resource Attributes (list attributes and codes): None.

***B12. References:**

Baloian, Randy

2008 *Cultural Resources Inventory for the City of Clovis Research and Technology Business Park Expansion Project, Fresno County, California*. Applied EarthWorks, Inc., Fresno, California. Prepared for City of Clovis Planning Division, Clovis, California.

Hall, William Hammond

1885 *Irrigation Maps of Fresno County*. California Department of Engineering, Sacramento, California.

Mead, Elwood

1901 *Irrigation Investigations in California*. U.S. Department of Agriculture, Office of Experiment Stations Bulletin No. 100. Government Printing Office, Washington, D.C.

Progressive Map Service

1913 *Progressive Atlas of Fresno County*. Progressive Map Service, Fresno, California.

1920 *Progressive Atlas of Fresno County*. Progressive Map Service, Fresno, California.

Thompson, Thomas H.

1891 *Atlas of Fresno County*. Thos. H. Thompson, Tulare, California.

Willison, Paul H.

1980 *Past, Present, and Future of the Fresno Irrigation District*. Fresno Irrigation District, Fresno, California.

B13. Remarks:

***B14. Evaluator:** Randy Baloian

Date of Evaluation: June 5, 2012

**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD**

Primary # 10-005934 (UPDATE)
HRI #/Trinomial CA-FRE-3564H

Page 5 of 8

Resource Name or #: Enterprise Canal (Leonard Ave. Segment)

Map Reference #: 2

L1. Historic and/or Common Name: Enterprise Canal

L2a. Portion Described: Entire Resource Segment Point Observation **Designation:** Main Branch

b. Location of point or segment: Intersection of the canal and Leonard Avenue in Clovis: 264800 mE / 4078213 mN

L3. Description: The current investigation recorded a 200-foot segment of the Enterprise Canal, which, in its entirety, flows 36.5 miles from its head gate on the Gould Canal near the Kings River to the center of the Fresno. The recorded segment is an unlined portion of the canal, flowing in southeast to northwest direction. It measures 35 feet from bank to bank; the canal right of way, including its shoulder banks, appears to be about 75 feet wide. The banks are even with surface level (i.e., they are not built up above the ground). At the time of documentation, water filled the canal to near capacity, preventing an accurate measure of its depth; based on prior observations, the canal is estimated to be 6–8 feet deep. One feature was observed within the recorded segment: an irrigation gate with a small circular concrete containment well set into the canal's south bank. The gate appears modern and currently functioning and presumably opens into an underground conduit, but it could not be determined what properties are irrigated by the pipe.

Segment-Specific History

The canal reached Section 12 (T13S, R21E) sometime between 1885 and 1891, yet, as depicted in the 1891 Fresno County atlas, its alignment was considerably different than its existing course through this section (Thompson 1891). The canal crossed the north/south midline of the section (i.e., present-day Leonard Avenue) at a point approximately 150–250 feet north from the recorded segment.

The portion of the canal through Section 12 was again altered sometime between 1911 and 1913. The 1913 and 1920 atlases both depict the canal with a wide but gradual bend through the northern half of the section (Progressive Map Service 1913, 1920). This realignment appears to be a transitional course between the original and existing paths of the canal. The canal flowed about 1,000 feet south of the location of the recorded segment.

Not more than a decade had passed before the course of the canal once again was changed within Section 12—this time to its existing alignment. In 1921, the newly formed Fresno Irrigation District (FID) set out to upgrade the aging system of the old FCIC, including the replacement main head gates and thousands of outlets. Rechannelization of existing canals, although not explicitly mentioned in Willison's (1980:181–182) history of the district, also appears to have been among these improvements. The 1923 Clovis, California, USGS 7.5-minute topographic quadrangle, which was based on data collected from a 1921 survey, indicates that the FID removed the single bend and re-constructed the canal in Section 12 (T13S, R21E) with a double bend, presumably to make its course more closely conform to the contours of the natural terrain. The route of the canal shown on the 1923 map mirrors that of its existing alignment. The recorded segment is thus not an original part of the canal but was built in the early 1920s.

L4. Dimensions:

L4e. Sketch or Cross Section attached **Facing:**

none

a. Top Width: 35 feet

b. Bottom Width: estimated 20 feet

c. Height or Depth: estimated 6–8 feet

d. Length of Segment: 200 feet

L5. Associated Resources: Bridge 42C0494

L6. Setting: Rural

L7. Integrity Considerations: Application of the state and national significance criteria found that the Enterprise Canal is significant at the local level under Criterion A/1. The following discussion addresses whether the recorded segment retains sufficient integrity to convey the general significance of the canal. Whereas questions of significance involve evaluation of the full linear resource (i.e., the entirety of the Enterprise Canal), assessment of integrity involves focusing on the recorded segment, given that a linear resource, which can cross dozens of miles, can display varying levels of integrity and that it is usually not feasible to assess the integrity of the entire resource in a single study. For instance, even though the previous evaluation of the canal by Applied EarthWorks, Inc. found that a segment of the canal near Highway 168 possesses poor integrity (Baloian 2009 [see BSO for reference]), it is unwarranted to presume that the current segment demonstrates the same level of integrity (or lack thereof) as the previously recorded segment. In making this assessment, the current evaluation employs the seven aspects of integrity outlined in National Register Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, issued by the National Park Service (revised for the Internet 2002): association, setting, materials, workmanship, feeling, location, and design.

**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD**

Primary # 10-005934 (UPDATE)
HRI #/Trinomial CA-FRE-3564H

Page 6 of 8

Resource Name or #: Enterprise Canal (Leonard Ave. Segment)

Map Reference #: 2

With a couple minor exceptions, the recorded segment shows a clear lack of integrity. Certainly, the recorded segment and canal in general retain integrity of **association**, given that the Enterprise Canal still serves its initial purpose as an irrigation conveyance. And even though much of east Clovis is rapidly converting from agricultural land to residential development, the **setting** of the canal remains decidedly rural.

However, because the recorded segment appears to be operationally a modern structure, it wholly lacks integrity of **materials** and **workmanship**; any remaining aspects of the canal's original construction were no doubt lost during the FID's improvement in the early 1920s. Moreover, there is nothing within the recorded segment that imparts the **feeling** that the canal is a historical structure dating to the late nineteenth century.

By far, most debilitating to integrity is the loss of **location** and **design**. The recorded segment does not share the same location as the original canal, and its existing alignment is much different than the initial route through Section 12. The recorded segment was built in the early 1920s, about 20 years after the canal's period of significance defined in this evaluation.

In sum, this segment of the canal does not approach the level of overall integrity necessary to convey its significance under Criterion A/1.

L8a. Photo, Map, or Drawing:



L8b. Description of Photo, Map, or Drawing:

Description: Enterprise Canal at Leonard Avenue, looking southeast; Bridge 42C0494 in center.

L9. Remarks: Applied EarthWorks, Inc. initially recorded a segment of the Enterprise Canal near State Highway 168 in 2009. This record serves as an update to the original documentation.

L10. Form Prepared By: Randy Baloian

L11. Date: December 2013

UPDATE

**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP**

Primary # 10-005934

Trinomial CA-FRE-3564H

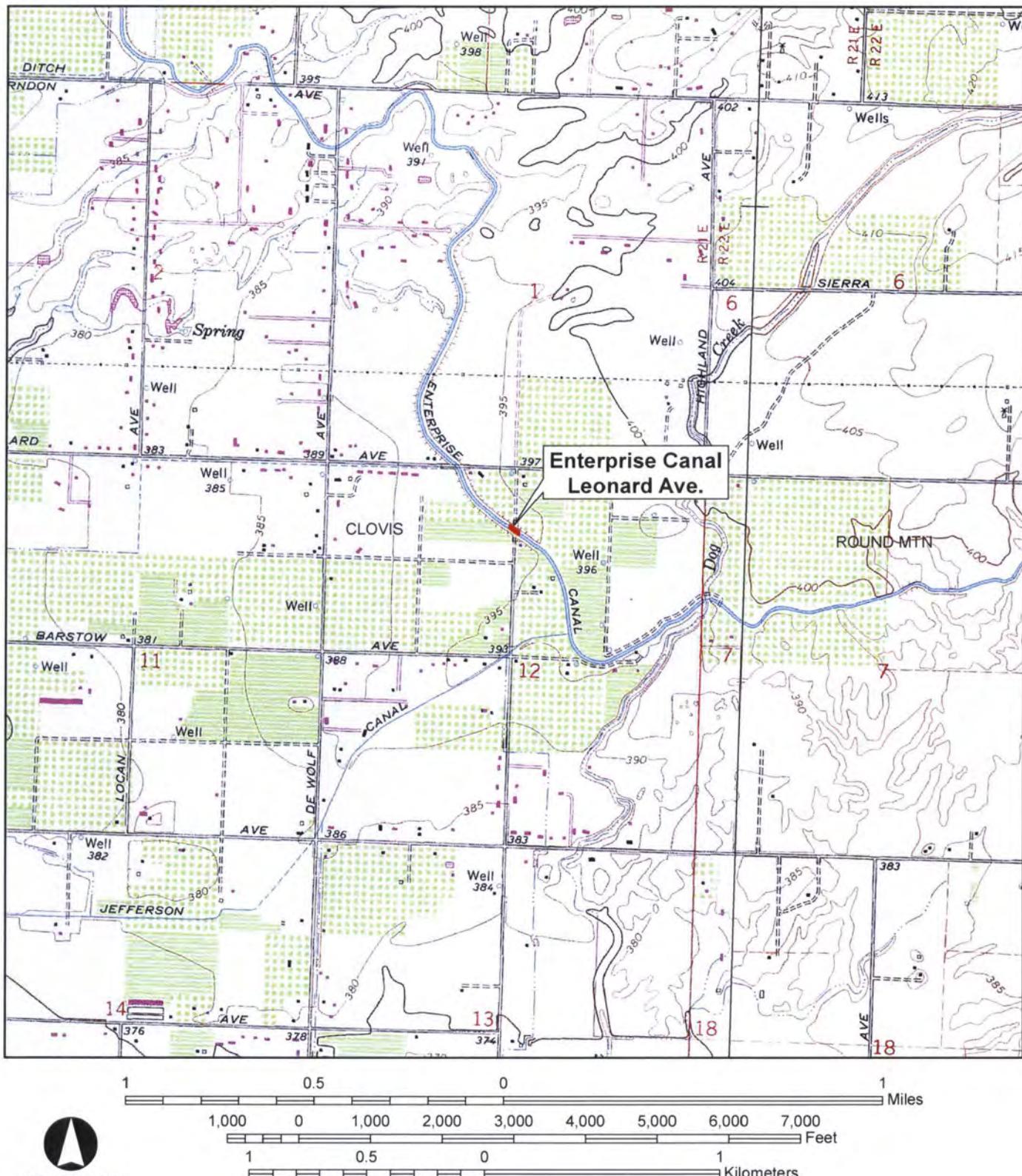
Page 7 of 8

***Resource Name or #:** Enterprise Canal

*Scale: 1:24,000

***Map Name:** Clovis, CA USGS 7.5' quadrangle

***Date:** 1964 (1981)



TRUE NORTH

**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP**

Page 8 of 8

*Resource Name or # Enterprise Canal

Primary# 10-005934

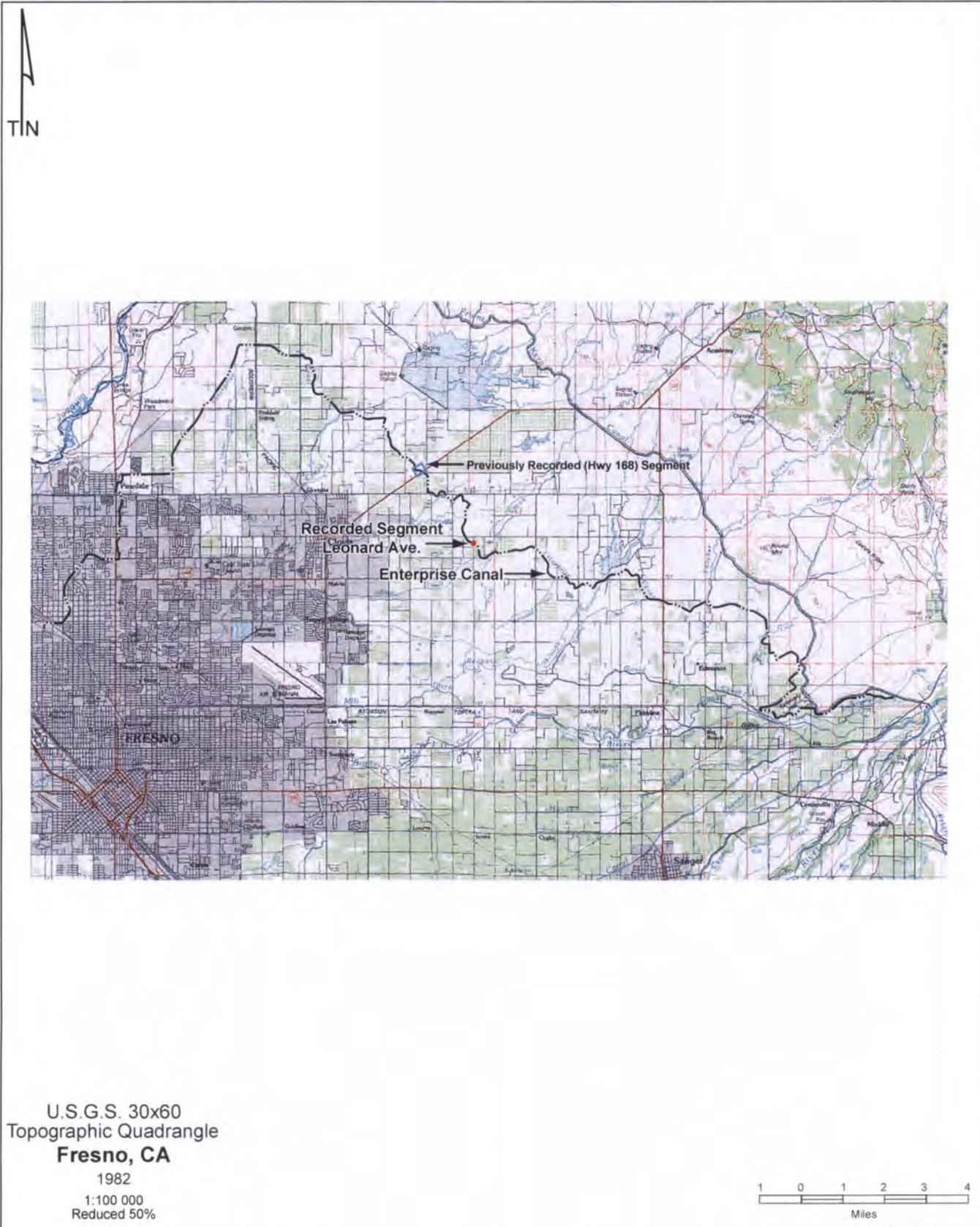
HRI#

Trinomial CA-FRE-3564H

Map Reference #: 2

*Drawn By: R. Baloian, E. Rapp

*Date: 1/13/2014



**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD**

Primary # D 10-005934

HRI #

Trinomial CA-FRE-3564 H

NRHP Status Code

Page 1 of 6

Other Listings
Review Code

Reviewer

Date

*P1. Temporary Number/Resource Name: Enterprise Canal

*P2. Location: a. County: Fresno

b. USGS 7.5' Quad: Clovis, CA

c. Address:

d. UTM: NAD 27, Zone 11; Canal's intersection with SR 168

Not for Publication

Unrestricted

Date 1964 (revised 1981) T12S; R21E; NW 1/4 of Section 34

Mt. Diablo B.M.

e. Other Locational Data: The canal can be accessed by proceeding approximately 0.125 mile west from the cul-de-sac of Locan Avenue at State Route 168.

*P3a. Description: The Enterprise Canal is a bulk capacity irrigation conduit. It branches-off from the Gould Canal about 2 miles from the latter's head gate on the Kings River. The 36.5 mile course of the canal proceeds from its source in a northwesterly direction through the farmlands east and north of present-day Clovis; it reaches its northernmost extent about 5 miles from the center of town, at which point it abruptly turns southwest and flows through north Fresno and the area historically known as Forkner's Fig Gardens, where it empties into the Herndon Canal.

The recorded segment measures approximately 1,500 feet, include a 850-foot earthen section and a 650-foot concrete-lined section. Just north of State Route 168, the segment forms an elbow-like bend in the generally northwesterly trending canal.

*P3b. Resource Attributes: (List attributes and codes): HP20 Canal/Aqueduct

*P4. Resources Present: Building Structure Object Site District Element of District Other:

*P5a. Photograph or Drawing (photograph required for buildings, structures, and objects): Earthen section of the Enterprise Canal, facing northwest (DSCN 0010).



*P6. Date Constructed/Age: 1875–1880

Prehistoric
 Historic
 Both

*P7. Owner and Address:

Fresno Irrigation District

*P8. Recorded By: R. Baloian

Applied EarthWorks, Inc.
5090 N. Fruit Ave. #101
Fresno, CA 93711

*P9. Date Recorded: 5 September 2007

*P10. Survey Type:

Intensive
 Reconnaissance
 Other

Describe: Survey for Research and Technology Business Park Expansion

*P11. Report Citation:

Baloian, Randy

2008 *Cultural Resources Inventory for the City of Clovis Research and Technology Business Park Expansion Project, Fresno County, California*. Applied EarthWorks, Inc., Fresno, California. Prepared for City of Clovis Planning Division.

*Attachments: NONE

Building, Structure,
and Object Record
 Photograph Record

Location Map

Archaeological Record
 Milling Station Record
 Other (list):

Site/Sketch Map

District Record
 Rock Art Record

Continuation Sheet

Linear Feature Record
 Artifact Record

**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP**

Primary # P-10-005934
Trinomial CA-FAE-3564 H

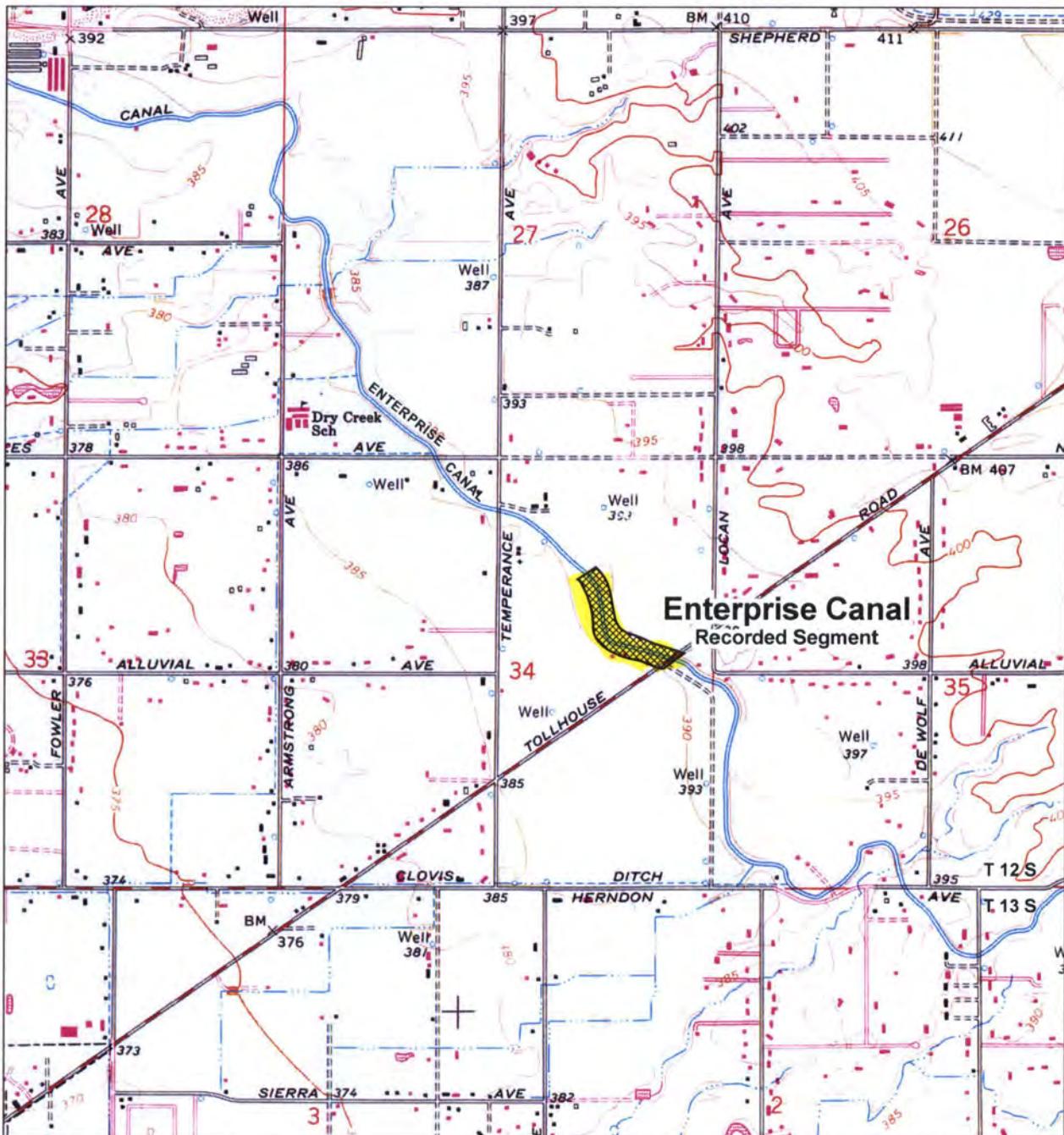
Page 2 of 6

*Resource Name or #: Enterprise Canal

*Map Name: Clovis, CA, 7.5-min. quad

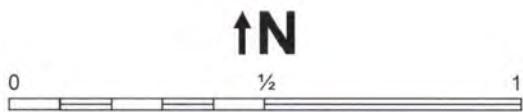
*Scale: 1:24,000

*Date of Map: 1964, photorev. 1982



Confidential: Not for Public Distribution

Prepared by Applied EarthWorks, Inc.

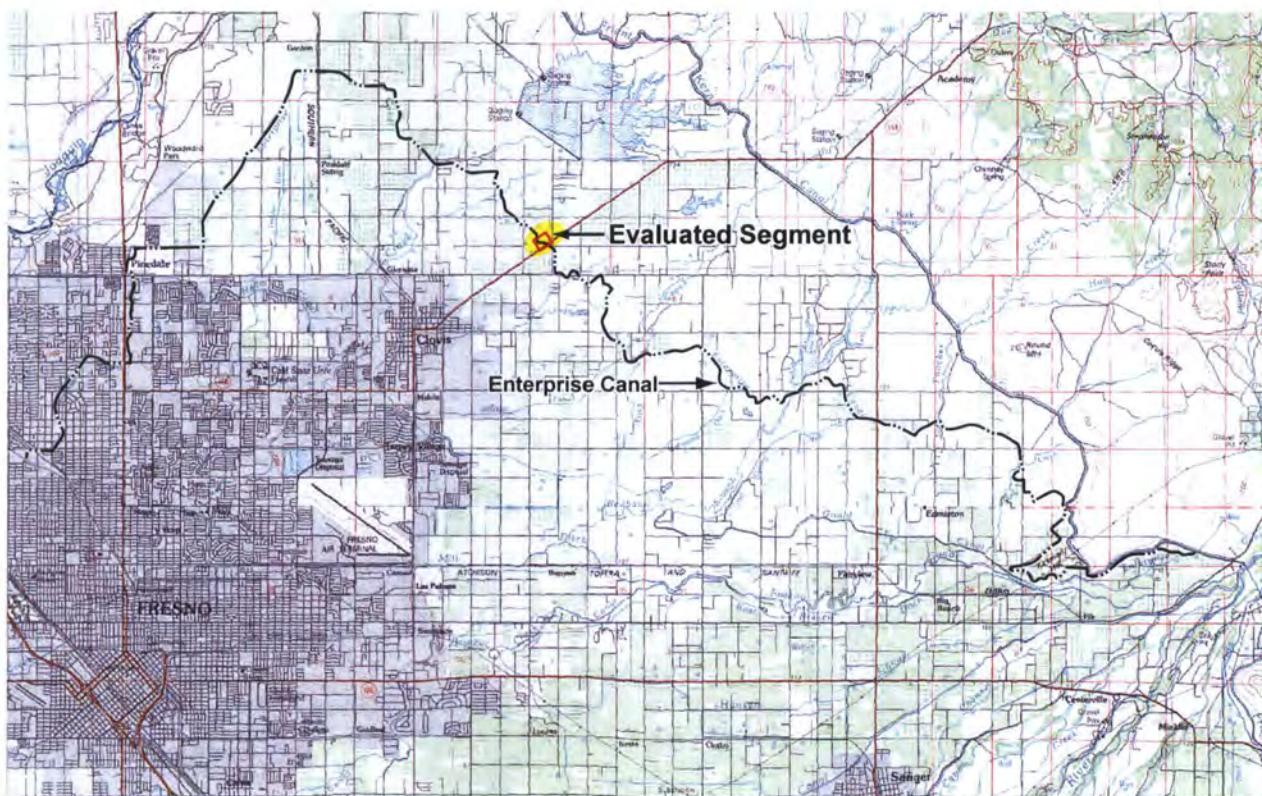


**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP**

Primary # P-10-005934
HRI #/Trinomial CA-FAE-3564 H

Page 3 of 6

Temporary Number/Resource Name: Enterprise Canal



Confidential: Not for Public Distribution

Prepared by Applied EarthWorks, Inc.

U.S.G.S. 30x60
Topographic Quadrangle
Fresno, CA
1982
1:100 000
Reduced 50%

↑N

1 0 1 2 3 4
Miles

**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD**

Primary # 7-10-005934

HRI #

Trinomial CA - FAE - 3564 H

Page 4 of 6

Resource Name or No.: Enterprise Canal

L1. Historic and/or Common Name: Enterprise Canal

- L2a. Portion Described:** Entire Resource Segment Point Observation **Designation:** Main Branch
b. Location of point or segment: south end (at SR 168) 263100mE /4080350 mN
north end 262750mE /4081150 mN

L3. Description: Built sometime in the mid- or late 1870s, the 36.5 mile long Enterprise Canal provides bulk irrigation water to the greater Clovis area as well as north Fresno. It gave rise to several secondary canals—including such Clovis-area branches as the Maupin Ditch, the Jefferson Canal, the Clovis Ditch, the Teague Ditch, and Helm Colonial Ditch—as well as numerous unnamed laterals. As early as 1900, the Enterprise Canal and its scions irrigated about 15,000 acres—the equivalent of over 23 sections.

L4. Dimensions:

- a. **Top Width:** 50 feet
- b. **Bottom Width:** (approximate) 30 feet
- c. **Height or Depth:** (approximate) 6–10 feet
- d. **Length of Segment:** 1,500 feet

L4e. Sketch or Cross Section attached **Facing:**

none

L5. Associated Resources: A concrete culvert, constructed in the early 2000, carries water underneath State Route 168.

L6. Setting: Shortly following Moses Church and A. Y. Easterby's initial irrigation project in the early 1870s, a network of canals and ditches sprouted from the banks of the Kings River to provide water to various other farm colonies. In particular, the agricultural lands surrounding Clovis are primarily irrigated by the Enterprise Canal and the Gould Canal, built in 1873 by nurseryman L. A. Gould. For Church and other wealthy landowners, the intended effect of irrigation was to increase the value of their properties so that they could be subdivided and sold to newly arriving homesteaders at a hefty profit. While this primary purpose was certainly achieved, the advent of intensive irrigation additionally led to a shift in both the types of crops grown and the size of a typical farm. Pioneers initially grew wheat and other grain crops or raised cattle—both large-scale ventures requiring substantial acreage. As irrigation water became more readily available, individual farmers realized that premium crops like grapes, citrus, and tree fruit could be profitably grown on lots as small as 20 acres.

L7. Integrity Considerations: The overall canal was probably substantially altered in the early 1920s when the Fresno Irrigation District began making changes to its newly acquired irrigation system. Regarding the segment, the course of the canal appears to have been shifted on at least two occasions—sometime between 1907 and 1909 and more recently in early 2000. In addition, a 650-foot section of this segment has been lined with concrete.

L8. Photo, Map, or Drawing: See Primary Record.

L9. Remarks: See Building, Structure and Object Record for evaluation.

L10. Form Prepared By: Randy Baloian

L11. Date: 25 September 2007

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary # P-10-005934
HRI #/Trinomial LH-FRE-3564 H

*NRHP Status Code

Page 5 of 6

Resource Name or No.: Enterprise Canal

B1. Historic Name: Enterprise Canal

B2. Common Name: Enterprise Canal

B3. Original Use: Bulk Irrigation Canal

B4. Present Use: Same

***B5. Architectural Style:** N/A

***B6. Construction History (construction date, alterations, and dates of alterations):** The available evidence indicates that the Enterprise Canal was conceived and marketed by the Fresno Canal and Irrigation Company in the mid-1870s. While the Enterprise Canal is not depicted on an October 1875 map of the Kings River irrigation system, it seems likely that construction was underway, if not partially completed, at that time (Willison 1980).

The current investigation revealed at least three episodes of modifications to the canal in general, including the evaluated segment. Archival research found no data regarding the initial dimensions of the Enterprise Canal, which may have substantiated its probable enlarged capacity. Based on comparisons of Fresno County atlases, the channel of the canal appears to have shifted sometime between 1907 and 1909, giving the evaluated segment its distinctive elbow or dogleg shape (Guard 1909; Harvey 1907). In the first five years after the Fresno Irrigation District purchased the assets of the Fresno Canal and Irrigation Company in 1921, the district spent over \$438 million on improvements to the decaying system (Willison 1980:182). While it is not known whether any specific modifications to the recorded segment occurred at this time, the overall canal no doubt lost much of its integrity during this period of its history. The most recent and obvious alterations to the evaluated segment were related to the construction of State Route 168—specifically, the installation of 650 feet of concrete lining and the replacement of the previous two-lane bridge (or culvert) with a new concrete 4-lane highway culvert. In addition, comparisons of current and 1998 aerials indicate that the alignment of the canal has been slightly modified to give it an even more acute elbow-like shape.

***B7. Moved?:** No Yes Unknown Date: Original Location:

***B8. Related Features:** A recently constructed concrete culvert carries water underneath State Route 168.

B9. a. Architect: **b. Builder:** Unknown

***B10. Significance:** Theme: Initial Development of Agriculture and Irrigation Area: greater Fresno/greater Clovis
Period of Significance: 1875–1900 Property Type: Irrigation Canal Applicable Criteria: A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
Throughout its history, the Enterprise Canal has contributed to the agribusiness of the greater Fresno area. In particular, the Enterprise Canal demonstrates themes and trends associated with the initial period of irrigation. Without it, the grain yields of Dry Creek and other area farms would have been limited, and the successful cultivation of premium crops such as grapes, tree fruit, and citrus would not have been possible until the widespread use of the electrical well pump, some 25 years after the construction of the canal. Moreover, the early history of the canal aptly illustrates how the unresolved litigious issues of water rights during the late 19th century had major

This space reserved for official comments.

Sketch Map

See full-page Sketch Map

**State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD**

Primary # P-10-005934
HRI #/Trinomial CA-FRE-3564 H

*NRHP Status Code

Page 6 of 6

Resource Name or No.: Enterprise Canal

repercussions in the economic sphere and, especially, on the structure of the irrigation industry. Thus, due its integral role in the development of irrigation and agricultural in the greater Fresno area during the period of significance 1875–1900, the Enterprise Canal qualifies as a significant local resource under National Register Criterion A.

Current observations, however, indicate that the evaluated segment no longer retains integrity. The Enterprise Canal continues essentially to function as it did 130 years ago, but most of its original features and characteristics have long been lost in the continual process of upgrades and additions. In particular, the construction and path of the evaluated segment bears little resemblance to the corresponding segment from the late 1800s; thus, this segment no longer retains integrity from the canal's period of significance. Consequently, due to a loss of integrity, the evaluated segment of Enterprise Canal is not eligible for inclusion in the National Register or Historic Places or the California Register of Historical Resources.

B11. Additional Resource Attributes (list attributes and codes):

***B12. References:**

Clough, Charles W., and William B. Secrest, Jr.

1984 Fresno County—The Pioneer Years: From the Beginnings to 1900. Panorama West Books, Fresno, California.

Guard, W. C.

1909 *Atlas of Fresno County*. W. C. Guard, Fresno, California.

Harvey, William, Sr.

1907 *Atlas of Fresno County*. William Harvey, Sr., Fresno, California.

Willison, Paul H.

1980 Past, Present, & Future of the Fresno Irrigation District. District manuscript, August 1.

B13. Remarks:

***B14. Evaluator:** Randy Baloian

Date of Evaluation: September 25, 2007

Appendix D: Acoustical Analysis

ACOUSTICAL ANALYSIS

**WILLOW AVENUE ROAD WIDENING PROJECT
CLOVIS, CALIFORNIA**

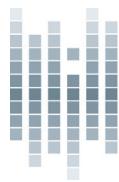
WJVA Project No. 16-013

PREPARED FOR

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PREPARED BY

**WJV ACOUSTICS, INC.
VISALIA, CALIFORNIA**



wjv acoustics

MAY 16, 2016

1. INTRODUCTION

Project Description:

The City of Clovis (City) proposes widening the east side of Willow Avenue for a 2-mile stretch north of Shepherd Avenue, up to Copper Avenue. This would involve developing a concrete median, lanes 2 and 3, curb and gutter, landscape and irrigation, bike lane and sidewalk. The City, as part of the Project, would make minor modifications to street signs, street striping, and electrical equipment within the Willow Avenue right-of-way. The Project includes the installation of a traffic signal at Willow Avenue and Perrin Avenue, as well as the installation of the electrical equipment necessary for the operation of the new traffic signal.

Environmental Noise Assessment:

This environmental noise assessment has been prepared to determine if significant noise impacts will be produced by the project and to describe mitigation measures for noise if significant impacts are determined. The environmental noise assessment, prepared by WJV Acoustics, Inc. (WJVA), is based upon the project site plan dated December 1, 2015, traffic and noise information provided in the City's General Plan and a project site visit on May 3, 2016. Revisions to the site plan, traffic volumes and traffic noise levels described in the City's General Plan, or other project-related information available to WJVA at the time the noise assessment was prepared may require a reevaluation of the findings and/or recommendations of the report.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise.

2. THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines indicate that significant noise impacts occur when the project exposes people to noise levels in excess of standards established in local noise ordinances or general plan noise elements, or causes a substantial permanent or temporary increase in noise levels above levels existing without the project. Because the project site is bounded to the west by property within the City of Fresno and to the east by property within the City of Clovis (Sphere of Influence), each City's applicable noise level standards will apply to their respective properties.

a. Noise Level Standards

City of Clovis

The noise element of the City of Clovis General Plan establishes noise level standards for both transportation and non-transportation (stationary) noise sources. Table I provides the maximum interior and exterior transportation noise level standards for various land use categories, in terms of the CNEL. The CNEL (Community Noise Equivalent Level) is the time-weighted average noise

level for a 24-hour day with penalties of 4.77 dB added to noise levels occurring during the evening hours (7:00 p.m.-10:00 p.m.) and 10 dB added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.).

TABLE I			
Land Use Categories		Energy Average (CNEL)	
Primary Land Use	Additional Uses Allowed	Interior	Exterior
Residential	Single Family, Multi Family	45 ³ /55 ⁴	65 ⁷
	Mobile Home	--	65 ⁵
Commercial/Industrial	Hotel, Motel, Transient Lodging	45	65 ⁶
	Commercial, Retail, Bank, Restaurant	55	--
	Office Building, Professional Office, Research & Development	50	--
	Gymnasium (Multipurpose)	50	--
	Health Clubs	55	--
	Manufacturing, Warehousing, Wholesale, Utilities	65	--
	Hospital, School Classroom	45	65
Institutional	Church Library	45	--
Open Space	Parks	--	65

Source: City of Clovis General 2-12 Plan Environmental and Safety Element, 2014.

Notes:

¹ Interior environment excludes bathrooms, toilets, closets, and corridors.

² Outdoor environment limited to private yard of single family or multifamily residences private patio which is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.

³ Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1208 of UBC.

⁴ Noise level requirement with open windows, if they are used to meet natural ventilation requirement.

⁵ Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

⁶ Exterior noise level shall be such that interior noise level will not exceed 45 CNEL.

⁷ Except those areas affected by aircraft noise.

For non-transportation noise sources (e.g., commercial property), the noise element establishes an L₂₅ (15-minute) statistical performance standard for various land use designations. Table II summarizes the applicable L₂₅ noise level standards.

TABLE II
MAXIMUM EXTERIOR NOISE STANDARDS
STATIONARY NOISE SOURCES
CITY OF CLOVIS GENERAL PLAN AND DEVELOPMENT CODE

Maximum Acceptable Noise Level, dB			
Noise Zone	Land Use Type	Allowable Exterior Noise Level (15-Minute L _{eq})	
		Day (7a-10p)	Night (10p-7a)
I	Single-, two- or multiple-family residential	55	50
II	Commercial	60	55
III	Residential Portions of mixed-use properties	65	60
IV	Industrial or manufacturing	70	65

Source: City of Clovis General Plan and Development Code Update Draft PEIR

City of Fresno

The City of Fresno Noise Element of the General Plan (adopted 12/18/14) sets noise compatibility standards for transportation noise sources in terms of the Day-Night Average Level (L_{dn}). The L_{dn} is the time-weighted energy average noise level for a 24-hour day with a penalty of 10 dB added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The L_{dn} and CNEL are considered to be equivalent descriptors of the community noise environment for the purposes of this study. Additionally, for some land uses not typically associated with 24-hour activities, the City of Fresno establishes noise compatibility standards for transportation noise sources in terms of the hourly energy average (L_{eq}). Table III provides the applicable maximum exterior (outdoor activity areas) and interior noise level standards for transportation noise sources.

The City of Fresno Noise Element of the General Plan sets compatibility standards for non-transportation (stationary) sources in terms of the hourly L_{eq} , for both daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) conditions. Although not directly stated in the Noise Element, it is assumed that the standards for stationary noise sources are to be applied to residential and other typically noise-sensitive land uses. Table IV provides the City of Fresno noise standards for stationary noise sources.

TABLE III

**MAXIMUM NOISE STANDARDS
TRANSPORTATION NOISE SOURCES
CITY OF FRESNO GENERAL PLAN**

NOISE SENSITIVE LAND USE	Outdoor Activity Areas ¹	Interior Spaces	
	L _{dn} /CNEL	L _{dn} /CNEL	L _{eq} dB ²
Residential	65	45	
Transient Lodging	65	45	
Hospitals, Nursing Homes	--	--	35
Theaters, Auditoriums, Etc.	65	--	45
Churches, Meeting Halls	--	--	45
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45

¹ Where the location of outdoor activity areas is unknown or is not applicable, the exterior noise level standard shall be applied to the property line of the receiving land use.

² As determined for a typical worst-case hour during periods of use.

Source: City of Fresno General Plan

TABLE IV

**MAXIMUM EXTERIOR NOISE STANDARDS
STATIONARY NOISE SOURCES¹
CITY OF FRESNO GENERAL PLAN**

Sound Level Descriptor	Daytime (7:00 a.m.-10:00 p.m.)	Nighttime (10:00 p.m.-7:00 a.m.)
Hourly Equivalent Sound Level (L _{eq}), dBA	50	45
Maximum Allowable Sound Level (L _{max}), dBA	70	60

1. The Department of Development and Resource Management Director, on a case-by-case basis, may designate land uses other than those shown in this table to be noise-sensitive, and may require appropriate noise mitigation measures.

2. As determined at outdoor activity areas. Where the location of outdoor activity areas is unknown or not applicable, the noise exposure standard shall be applied at the property line of the receiving land use. When ambient noise levels exceed or equal the levels in this table, mitigation shall only be required to limit noise to the ambient plus five dB.

Source: City of Fresno General Plan

State of California

There are no state noise standards that are applicable to the project.

Federal Noise Standards

There are no federal noise standards that are applicable to the project.

Substantial Noise Increases:

CEQA does not define what constitutes a substantial increase in noise levels. Some guidance is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed changes in ambient noise levels resulting from aircraft operations. The FICON recommendations are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of the L_{dn} (or CNEL). Annoyance is a summary measure of the general adverse reaction of people to noise that results in speech interference, sleep disturbance, or interference with other daily activities.

Although the FICON recommendations were specifically developed to address aircraft noise impacts, they are used in this analysis for all transportation noise sources that are described in terms of cumulative noise exposure metrics such as the L_{dn} or CNEL. Table V summarizes the FICON recommendations.

TABLE V	
MEASURES OF SUBSTANTIAL NOISE INCREASE FOR TRANSPORTATION SOURCES	
Ambient Noise Level Without Project (L_{dn} /CNEL)	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels By:
<60 dB	+ 5 dB or more
60-65 dB	+3 dB or more
>65 dB	+1.5 dB or more

Source: FICON, 1992, as applied by WJV Acoustics, Inc.

For noise sources that are not transportation related, which usually includes commercial or industrial activities and other stationary noise sources, it is common to assume that a 3-5 dB increase in noise levels represents a substantial increase in ambient noise levels. This is based on laboratory tests that indicate that a 3 dB increase is the minimum change perceptible to most people, and a 5 dB increase is perceived as a “definitely noticeable change.”

b. Construction Noise

City of Clovis

Section 5.27.604 of the Clovis Municipal Code establishes permissible hours for construction activity. The codes states “Unless otherwise expressly provided by permit, construction activities are only permitted between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturday and Sunday. From June 1st through September 15th, permitted construction activity may commence after 6:00 a.m. Monday through Friday. Extended construction work hours must at all times be in strict compliance with the permit”.

City of Fresno

Section 10-109 of the Fresno Municipal Code states that construction activities can take place between the hours of 7:00 a.m. and 10:00 p.m. on any day except Sunday.

3. SETTING

This Project would be located within the Northwest Urban Center described in the General Plan. The Project location extends 2 miles north along the east side of Willow Avenue in the northerly portion of the Fresno-Clovis metropolitan area. The Project alignment is bounded on the north by Copper Avenue and on the south by Shepherd Avenue. To the west is primarily residential between Shepherd and Behymer Avenues, and between Behymer and Copper is a Clovis Unified campus (Clovis North High School) and Willow International Community College, all within Fresno City Limits. To the east is un-incorporated land within Fresno County containing primarily agricultural use properties with few rural residential, a single commercial storage site, and large church from south to north respectively. The project site location is provided as Figure 1.

a. Background Noise Level Measurements

Measurements of existing ambient noise levels in the project vicinity were conducted at three (3) locations on May 3, 2016. Ambient noise measurements were conducted for 15-minute intervals at each location. Noise monitoring equipment utilized for the measurements consisted of a Larson-Davis Laboratories Model LDL-820 sound level analyzer equipped with a B&K Type 4176 1/2" microphone. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meter was calibrated in the field prior to use with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements. The locations of the measurement sites are shown in Figure 2. Ambient noise levels at the three monitoring site locations were in the range of 61-67 dB L_{eq}. These levels are considered to be typical of mid-morning conditions in the project vicinity.

4. PROJECT IMPACTS AND MITIGATION MEASURES

a. Project Traffic Noise Impacts on Existing Noise-Sensitive Land Uses (Less Than Significant)

The implementation of the project would not directly result in an increase in traffic volume along the roadway. The project is intended to support the implementation of the General Plan and increase capacity of northbound traffic on Willow Avenue, and to complete the roadway with multimodal access.

The implementation of the project would generally result in changes to the roadway centerline distances for land uses located adjacent to Willow Avenue. Essentially, for a receiver located west of Willow Avenue, the project would result in a slight increase in the distance between the receiver to the total volume of traffic along the roadway and for a receiver located east of Willow

Avenue, the project would result in a slight decrease in in the distance between the receiver to the total volume of traffic along the roadway.

In order to predict project-related changes in traffic noise exposure that would be expected to occur as a result of project implementation, WJVA utilized the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA Model is a standard analytical method used for roadway traffic noise calculations. The model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within ± 1.5 dB.

In addition to describing typical ambient noise levels in the project vicinity, the above-described ambient noise measurements were also utilized to evaluate the accuracy of the FHWA Model in describing traffic noise exposure within the project site. Noise measurements were conducted in terms of the equivalent energy sound level (L_{eq}). Measured L_{eq} values were compared to L_{eq} values calculated (predicted) by the TNM Model using as inputs the traffic volumes, truck mix and vehicle speed observed during the noise measurements. The results of that comparison are shown in Table VI.

TABLE VI			
COMPARISON OF MEASURED AND PREDICTED (FHWA MODEL) NOISE LEVELS WILLOW AVENUE, CLOVIS			
	Site 1	Site 2	Site 3
Measurement Date	May 3, 2016		
Measurement Start Time	9:10 a.m.	9:30 a.m.	9:50 a.m.
Observed # Autos/Hr.	312	936	624
Observed # Medium Trucks/Hr.	12	24	0
Observed # Heavy Trucks/Hr.	0	0	0
Posted Speed (MPH)	50		
Distance, ft. (from center of roadway)	70	70	42
L_{eq} , dBA (Measured)	62.2	65.2	66.8
L_{eq} , dBA (Predicted/Modeled)	61.2	65.7	66.6
Difference between Measured and Predicted L_{eq}, dBA	+1.0	-0.5	+0.2
Note: FHWA "soft" site assumed for calculations.			
Source: WJV Acoustics, Inc.			

From Table VI it may be determined that the traffic noise levels predicted by the FHWA Model were all within 1 dB of those measured for the traffic conditions observed at the time of the noise measurements. This is considered excellent agreement between modeled and measured noise

levels, and indicates that the model can be used without adjustment to predict site specific traffic noise levels.

WJVA calculated project-related changes in traffic noise exposure for nine (9) individual receiver locations located along Willow Avenue, in the project vicinity. The analyzed receiver locations included four (4) located along the west side of Willow Avenue and five (5) located along the east side of Willow Avenue. Analyzed receiver land uses included residential, rural-residential, church and school. The locations of the nine analyzed receivers are provided in Figure 3.

Table VII describes the project-related changes in traffic noise exposure that would be expected to occur at each of the nine analyzed receiver locations.

TABLE VII		
PREDICTED PROJECT-RELATED CHANGES TO TRAFFIC NOISE EXPOSURE WILLOW AVENUE, CLOVIS		
Receiver	Land Use	Project-Related Change in Traffic Noise Exposure, dB CNEL
R1	Residential	-1.1
R2	Residential	-1.0
R3	Residential	+0.3
R4	Residential	-0.8
R5	Residential	+0.5
R6	Residential	+0.3
R7	Residential	+0.3
R8	Church	+0.2
R9	School	-0.3

Note: FHWA "soft" site assumed for calculations.
Source: WJV Acoustics, Inc.

Table VII indicates the traffic noise exposure for the four analyzed receivers located west of Willow Avenue (R1, R2, R4 and R9) would be expected to decrease in the range of 0.3 to 1.1 dB as a result of the project. Additionally, traffic noise exposure for the five analyzed receivers located east of Willow Avenue (R3, R5, R6, R7 and R8) would be expected to increase in the range of 0.2 to 0.5 dB as a result of the project. The higher relative changes in traffic noise exposure at the receiver locations west of Willow Avenue are the result of these receivers being located closer to Willow Avenue in comparison to the receivers located east of Willow Avenue.

The City of Clovis Noise Element of the General Plan provides a detailed analysis of traffic noise exposure for General Plan Buildout (post 2035) conditions. WJVA applied the project-related changes in traffic noise exposure described in Table VII to the traffic noise levels provided in the Noise Element of the General Plan. Additionally, for each analyzed receiver, WJVA considered

acoustical shielding that is provided by existing sound walls and structures to determine future traffic noise exposure for each analyzed receiver.

A sound wall insertion loss program based on the FHWA Model was used to calculate the insertion loss (noise reduction) provided by existing sound walls and structures. The model calculates the insertion loss of a barrier of a given height based on the effective height of the noise source, height of the receiver, distance from the receiver to the wall, and distance from the noise source to the wall. The standard assumptions used in the sound barrier calculations are effective source heights of 8, 2 and 0 feet above the roadway for heavy trucks, medium trucks and automobiles, respectively. The standard height of a residential receiver is five feet above the ground elevation.

There is an existing six-foot sound wall constructed along residential land uses on the west side of Willow Avenue. The six-foot sound wall is constructed upon a grade that is approximately two feet above roadway elevation, providing an effective barrier height of eight feet. Using the above-described insertion loss program, it was determined that the sound walls provide a minimum of 6 dB of noise level reduction for receivers R1, R2 and R4. As individual outdoor activity areas are considered to be the backyards of single family homes, the house structures provide a minimum of 7 dB of noise level reduction to the outdoor activity areas of receivers R3, R5 and R7. The outdoor activity area (backyard) of receiver R6 faces the roadway, and therefore no acoustic shielding is provided. Additionally, no acoustic shielding was assumed at receivers R8 (church) and R9 (school).

Table VIII describes the traffic noise exposure that would be expected to occur at the nine analyzed receivers for both no project and plus project conditions. The noise levels provided in Table VIII take into account the above-described acoustical shielding provided by existing sound walls and structures at receivers R1-R5 and R7.

TABLE VIII
FULL BUILD-OUT TRAFFIC NOISE EXPOSURE, dB CNEL
WILLOW AVENUE, CLOVIS

Receiver	Land Use	No Project Traffic Noise Exposure	Project-Related Change in Traffic Noise Exposure	Plus Project Traffic Noise Exposure	Significant Impact (Yes/No?)
R1	Residential	66.1	-1.1	65.0	No ¹
R2	Residential	65.8	-1.0	64.8	No
R3	Residential	54.6	+0.3	54.9	No
R4	Residential	65.8	-0.8	65.0	No ¹
R5	Residential	58.8	+0.5	59.3	No
R6	Residential	63.8	+0.3	64.1	No
R7	Residential	57.5	+0.3	57.8	No
R8	Church	61.6	+0.2	61.8	No
R9	School	64.8	-0.3	64.5	No

Note: FHWA "soft" site assumed for calculations.
¹Although receiver exposure is at applicable standard, the project resulted in a decrease in traffic noise exposure, and therefore does not indicate a significant impact.

Source: WJV Acoustics, Inc.

As described in Table VIII, the project would not be expected to result in a significant noise impact at any of the nine analyzed receiver locations. Noise levels at two analyzed receiver locations (R1 and R4) are expected to approximately equal the applicable noise level standards, however, this is not a result of project implementation, and it should be noted that project implementation would be expected to result in a slight decrease in traffic noise exposure at these locations. Additionally, project-related noise levels will not result in a significant increase in noise levels above existing ambient noise levels, as defined by Table V. No further mitigation is required.

The City of Fresno and the City of Clovis interior noise level standard is 45 dB CNEL/L_{dn}. In respect to the analyzed receivers, the worst-case exterior noise level is approximately 65 dB CNEL. Therefore, residential land uses along Willow Avenue would need to provide an outdoor-to-indoor noise level reduction (NLR) of approximately 20 dB (65-45=20).

A specific analysis of interior noise levels was not performed. However, it may be assumed that residential construction methods complying with current building code requirements will reduce exterior noise levels by approximately 25 dB if windows and doors are closed. This will be sufficient for compliance with the 45 dB CNEL/L_{dn} interior standard.

b. Noise from Construction (Less Than Significant)

Construction noise could occur at various locations within and near the project site through the construction period. Table IX provides typical construction-related noise levels at distances of 50 feet and 100 feet. Construction activities would be temporary in nature and would most likely

occur only during the daytime hours. Construction noise could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained.

TABLE IX		
TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS, dBA		
Type of Equipment	50 Ft.	100 Ft.
Backhoe	78	72
Concrete Saw	90	84
Crane	81	75
Excavator	81	75
Front End Loader	79	73
Jackhammer	89	83
Paver	77	71
Pneumatic Tools	85	79
Dozer	82	76
Rollers	80	74
Trucks	86	80
Pile Drivers	93	87
Rock Drills	96	90
Pumps	80	74
Scrapers	87	81
Portable Generators	80	74
Front Loader	86	80
Backhoe	86	80
Excavator	86	80
Grader	86	80

Source: FHWA
Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987

Construction noise would not be considered a significant impact if project-related construction activities comply the construction noise criteria described above in Section 2B. In addition, all construction equipment should be equipped with adequate mufflers and be properly maintained. No further mitigation is required.

FIGURE 1: PROJECT LOCATION



FIGURE 1: Project Site Map
Widening Willow Avenue
City of Clovis


NOT TO SCALE

FIGURE 2: NOISE MEASUREMENT SITE LOCATIONS

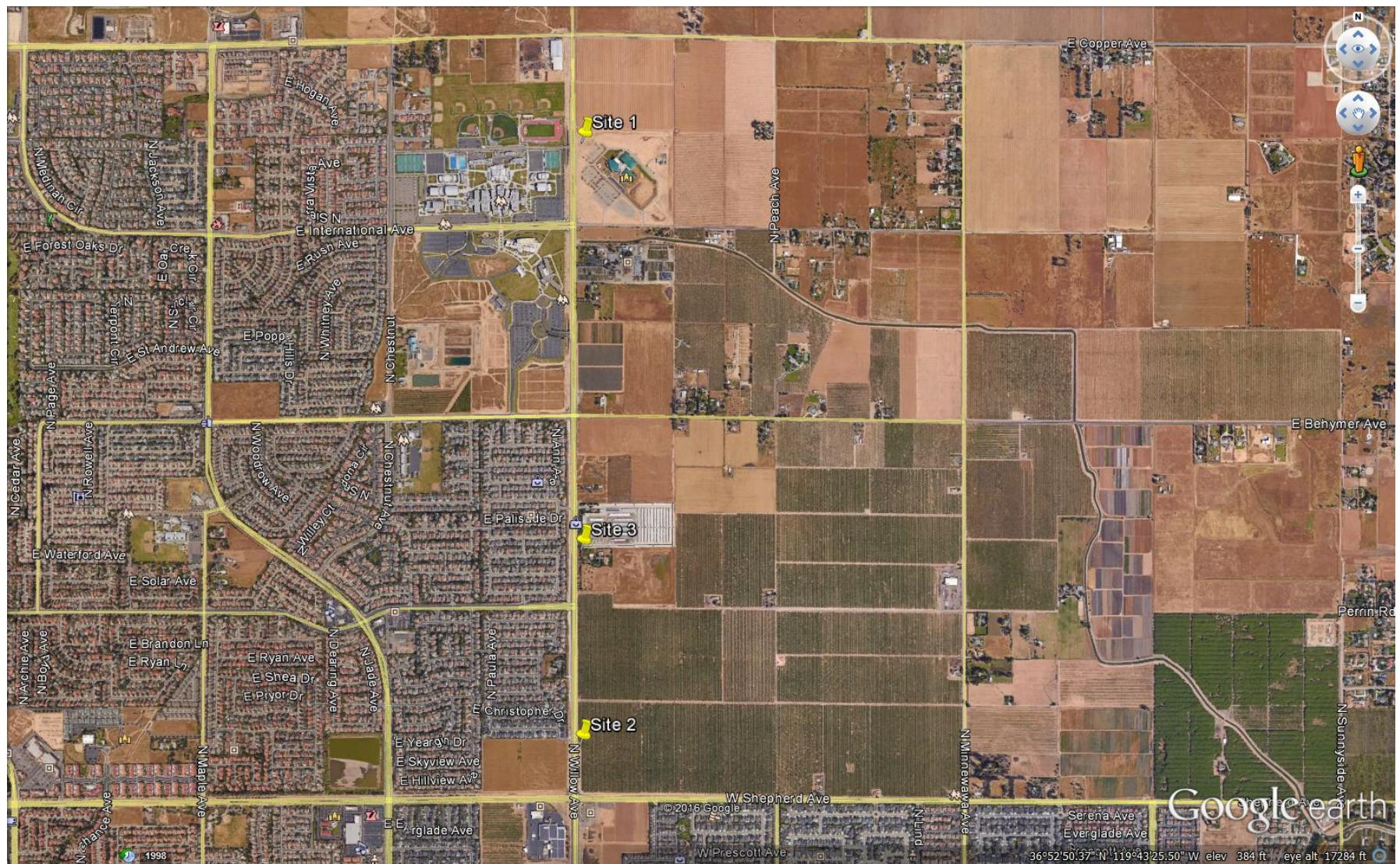
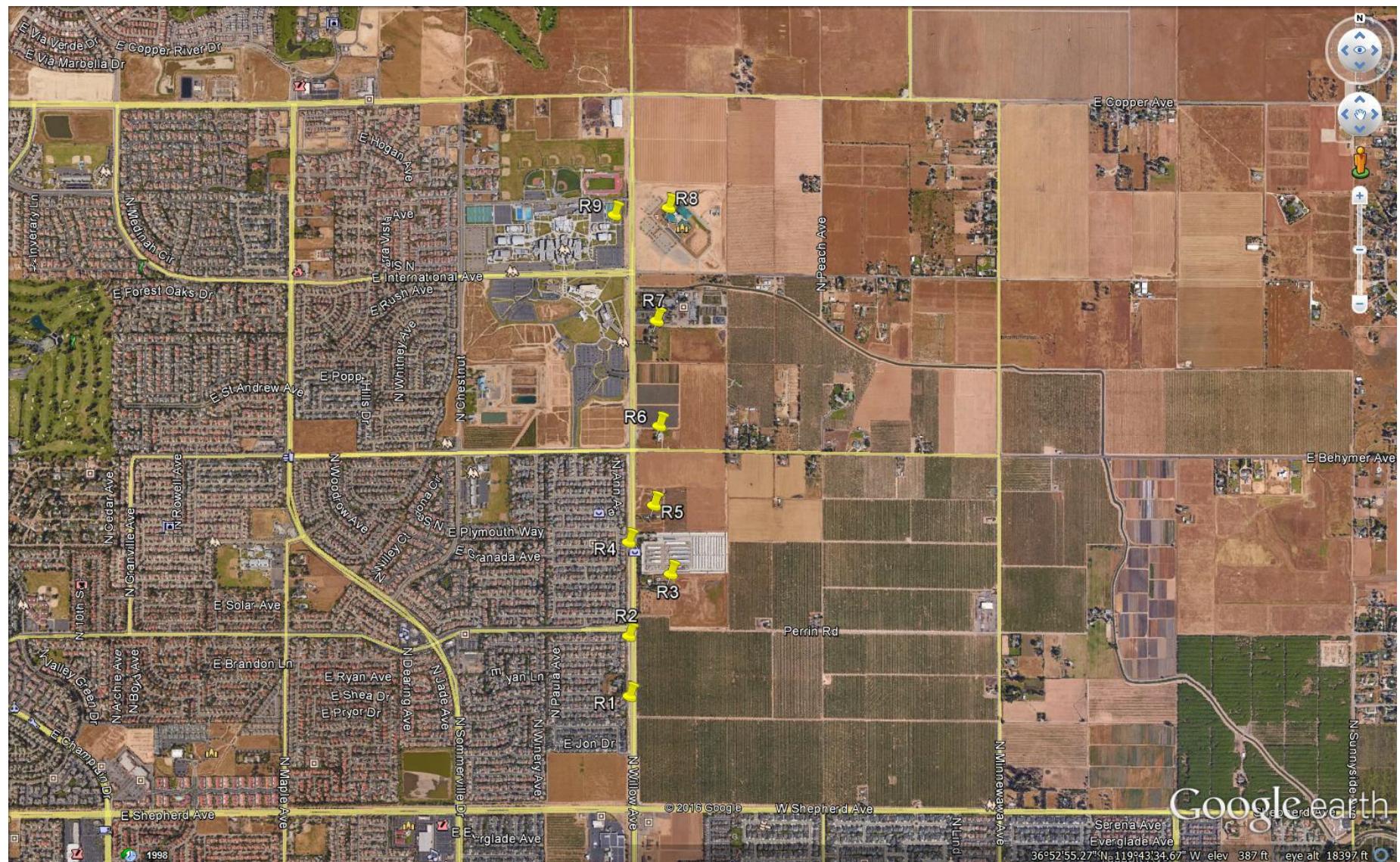


FIGURE 3: LOCATIONS OF ANALYZED RECEIVERS



APPENDIX A

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
CNEL:	Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
DECIBEL, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
DNL/L_{dn}:	Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
L_{eq}:	Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L _{eq} is typically computed over 1, 8 and 24-hour sample periods.
NOTE:	The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L _{eq} represents the average noise exposure for a shorter time period, typically one hour.
L_{max}:	The maximum noise level recorded during a noise event.
L_n:	The sound level exceeded "n" percent of the time during a sample interval (L ₉₀ , L ₅₀ , L ₁₀ , etc.). For example, L ₁₀ equals the level exceeded 10 percent of the time.

A-2

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE

CONTOURS:

Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL

REDUCTION (NLR):

The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

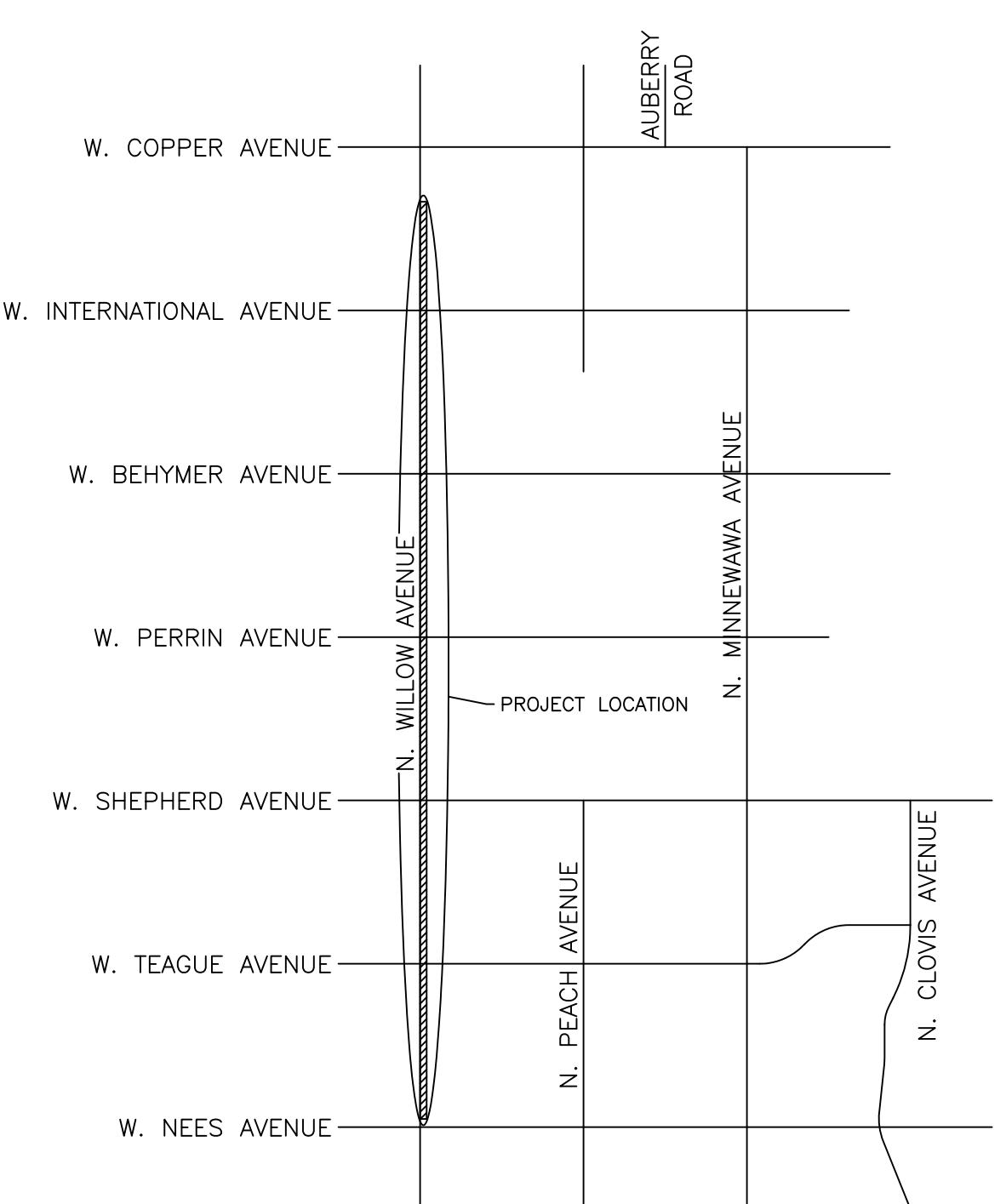
SOUND LEVEL: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION

CLASS (STC):

The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

Appendix E: Construction Plans

VICINITY MAP
N.T.S.

CITY of CLOVIS

PLANNING & DEVELOPMENT
CITY ENGINEER - MICHAEL J. HARRISON
PROJECT ENGINEER - ERIC G. EASTERLING
PLANS FOR CONSTRUCTION OF

GEOTECHNICAL REPORT

- IT SHALL BE BROUGHT TO THE CONTRACTOR'S ATTENTION THAT A GEOTECHNICAL ENGINEERING INVESTIGATION REPORT (GEO TECH REPORT), TRINITY LABORATORIES JOB NO. 15-16, DATED 12/10/2015, WAS PREPARED FOR THE CITY OF CLOVIS' N. WILLOW AVENUE STREET WIDENING PROJECT.
- THIS GEOTECH REPORT HAS BEEN INCORPORATED IN TO THE PROJECT SPECIFICATIONS FOR THE CONTRACTOR'S REFERENCE ONLY. CHANGES IN CONDITIONS OF THE SITE COULD HAVE OCCURRED SINCE THE GEOTECH REPORT WAS PREPARED. HOWEVER, IT IS ADVISED THAT THE CONTRACTOR FAMILIARIZE HIMSELF WITH THE EXISTING SITE CONDITIONS AND RECOMMENDED CONCLUSIONS AS OUTLINED IN THIS GEOTECH REPORT.

BASIS OF BEARINGS

THE LINE BETWEEN THE NORTHWEST CORNER OF SECTION 30 (N. WILLOW & W. SHEPHERD AVENUES) AND THE NORTHWEST CORNER OF SECTION 18 (N. WILLOW & COPPER AVENUES) OF TOWNSHIP 12 SOUTH, RANGE 21 EAST, MOUNT DIABLO BASE AND MERIDIAN, TAKEN TO BE NORTH 00°14'39" EAST PER CITY OF CLOVIS COORDINATE SYSTEM.

BENCHMARK

CITY OF CLOVIS BM C1020 - FOUND CHISELED SQUARE IN THE SOUTHWEST CORNER OF CONCRETE AROUND COMMUNICATION BOX AT THE SOUTHEAST CORNER OF N. WILLOW AVENUE AND W. SHEPHERD AVENUE, EAST OF THE EAST RETURN.

ELEVATION= 370.156 FEET NAVD88
367.845 FEET NGVD29

CITY OF FRESNO BM 970 - FOUND BRASS CAP ON CURB, WEST RETURN, SOUTHWEST CORNER OF PERRIN AND WILLOW.

ELEVATION= 375.52 FEET NAVD88
373.203 FEET NGVD29

CITY OF FRESNO TBM 4699 - FOUND CHISELED SQUARE ON CURB, SOUTH SIDE OF PLYMOUTH, WEST SIDE OF WILLOW.

ELEVATION= 379.61 FEET NAVD88
377.288 FEET NGVD29

CITY OF FRESNO BM 992 - FOUND BRASS CAP ON CURB, WEST RETURN, SOUTHWEST CORNER OF WILLOW AND BEHYMER.

ELEVATION= 379.62 FEET NAVD88
377.354 FEET NGVD29

CITY OF FRESNO TBM 470 - FOUND CHISELED SQUARE ON CURB, SOUTH RETURN, SOUTHWEST CORNER OF WILLOW AND ENTRANCE TO WILLOW-INTERNATIONAL COMPLEX.

ELEVATION= 382.91 FEET NAVD88
380.685 FEET NGVD29

CITY OF FRESNO BM 993 - FOUND BRASS CAP ON CURB, NORTH RETURN, NORTHWEST CORNER OF WILLOW AND INTERNATIONAL.

ELEVATION= 387.54 FEET NAVD88
385.214 FEET NGVD29

CITY OF FRESNO TBM 4707 - FOUND CHISELED SQUARE ON CURB, WEST SIDE OF WILLOW, 680' SOUTH OF COPPER.

ELEVATION= 392.82 FEET NAVD88
390.472 FEET NGVD29

COUNTY OF FRESNO BM 1K49 - FOUND BRASS CAP, 26' WEST OF WILLOW, 78' SOUTH OF COPPER, 2' SOUTH OF POWER POLE.

ELEVATION= 394.20 FEET NAVD88
391.809 FEET NGVD29

NOTE: TO CONVERT FROM NAVD88 ELEVATIONS TO NGVD29 ELEVATIONS, SUBTRACT 2.311 FEET.

GEOTECHNICAL REPORT

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CIP PROJECT NO. 15-16

N. WILLOW AVENUE STREET WIDENING PROJECT

CONSTRUCTION NOTES

PERMITS

- AN ENCROACHMENT PERMIT IS REQUIRED FOR ANY TRAFFIC CONTROL MEASURES OR WORK WITHIN EXISTING CITY, STATE RIGHT-OF-WAY. CITY PERMITS MAY BE OBTAINED AT CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT, CONSTRUCTION MANAGEMENT DIVISION AT (559) 324-2370. CONTACT THE APPLICABLE PERMITS DIVISION OF THE COUNTY OF FRESNO OR CALTRANS FOR THE APPLICABLE PERMIT.
- FOR TRAFFIC SIGNAL INSTALLATION OR MODIFICATION, A SEPARATE ENCROACHMENT PERMIT IS REQUIRED FROM THE CITY OF CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT.
- A GRADE PERMIT IS REQUIRED FROM THE CITY OF CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT FOR ANY GRADING. THE CONTRACTOR SHALL CONTACT THE CITY BUILDING INSPECTION DIVISION AT (559) 324-2390 FOR NECESSARY PERMIT AND REQUIREMENTS. (SEE "GRADING" SECTION)
- A BUILDING PERMIT IS REQUIRED FOR THE CONSTRUCTION OF ANY MASONRY WALL, WOOD FENCE, TRASH ENCLOSURE, RETAINING WALL, WRECK FENCE OR ANY FENCE THEREOF. THE CONTRACTOR SHALL CONTACT THE CITY BUILDING INSPECTION DIVISION AT (559) 324-2390 FOR NECESSARY PERMIT AND REQUIREMENTS. RETAINING WALLS OR FENCES CONSTRUCTED WITHIN THE PUBLIC RIGHT OF WAY SHALL BE MASONRY CONSTRUCTION.
- A BUILDING PERMIT IS REQUIRED FROM THE CITY OF CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT FOR ANY WELL AND SEPTIC TANK TO BE ABANDONED. THE CONTRACTOR SHALL CONTACT THE CITY BUILDING INSPECTION DIVISION AT (559) 324-2390 FOR NECESSARY PERMIT AND REQUIREMENTS. (SEE "GRADING" SECTION)

STANDARDS/PROCEDURES

- ALL WORK SHOULD BE DONE IN ACCORDANCE WITH THE CITY OF CLOVIS STANDARD DRAWINGS AND SPECIFICATIONS, DATED OCTOBER 1, 2015, AND/OR ANY REFERENCED APPlicable SECTIONS OF THE CALTRANS STANDARD SPECIFICATIONS AND STANDARD PLANS.
- PRIOR TO BEGINNING CONSTRUCTION, ADVANCE WARNING SIGNS SHALL BE PLACED SEVEN (7) DAYS PRIOR TO COMMENCING WORK IN ORDER TO NOTIFY THE PUBLIC OF THE IMMINENCE OF CONSTRUCTION AND OF POSSIBLE DELAYS. SEE "TRAFFIC CONTROL SECTION".
- ALL EXISTING MAINS, UTILITIES, SIGNS, STRIPPING, ETC., FOUND TO BE IN CONFLICT WITH THIS PLAN, WHETHER SPECIFICALLY IDENTIFIED ON THE PLANS AND PROJECT SPECIFICATIONS OR NOT, SHALL BE CONSIDERED AS PART OF THE REQUIRED WORK TO BE PERFORMED.
- BEFORE COMMENCING WORK, THE CONTRACTOR SHALL NOTIFY ALL UTILITY AUTHORITIES OR UTILITY COMPANIES HAVING POSSIBLE INTEREST IN THE WORK OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE CITY OF CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT OF THE EXISTING UTILITIES ON-SITE. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ANY UTILITIES IN THE WORK AREA. THE CONTRACTOR SHALL NOTIFY U.S.A. TWO (2) WORK DAYS PRIOR TO BEGINNING ANY EXCAVATION.

TRAFFIC CONTROL

- TRAFFIC CONTROL SHALL CONFORM TO THE PROVISIONS OF SECTION 12 OF THE CLOVIS STANDARD SPECIFICATIONS AND, FOR CITY PROJECTS, THE PROJECT SPECIAL PROVISIONS. TRAFFIC CONTROL SHALL ALSO CONFORM TO THE LATEST VERSION OF THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, PART 6, TEMPORARY TRAFFIC CONTROL. COMPLIANCE WITH THE REQUIREMENTS OF SAID MANUAL SHALL BE CONSIDERED AS A MINIMUM STANDARD. THE CONTRACTOR SHALL MAINTAIN A COPY OF THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, PART 6, TEMPORARY TRAFFIC CONTROL, AND OTHER APPROPRIATE STANDARDS AND SPECIFICATIONS ON-SITE. PRIOR TO COMPLETION OF EACH WORK DAY, THE CONTRACTOR SHALL BACKFILL AND PROVIDE TEMPORARY TRENCH RESURFACING BEFORE LEAVING THE SITE.
- THE CONTRACTOR SHALL NOTIFY THE CITY PUBLIC UTILITIES DEPARTMENTS STREETS MANAGER AT (559) 324-2639 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO POURING SIDEWALKS, AND/OR STOPS, CROSS WALKS, ETC. THE CITY STREET MANAGER SHALL BE INFORMED OF ALL LOCATIONS, TYPES, DATES AND SCHEDULE OF INSTALLATION. ANY CHANGES PROPOSED TO THE PLANS SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO INSTALLATION.
- AN APPROVED TRAFFIC CONTROL PLAN IS REQUIRED PRIOR TO BEGINNING CONSTRUCTION, UNLESS OTHERWISE PRESCRIBED IN THE PLAN, AS A MINIMUM ON MAJOR STREETS, AND FOR THE INSTALLATION OF NEW UTILITY FACILITIES. THE CONTRACTOR SHALL NOTIFY THE CITY PUBLIC UTILITIES DEPARTMENTS STREETS MANAGER AT (559) 324-2639 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO POURING SIDEWALKS, AND/OR STOPS, CROSS WALKS, ETC. THE CITY STREET MANAGER SHALL BE INFORMED OF ALL LOCATIONS, TYPES, DATES AND SCHEDULE OF CONSTRUCTION.

DRY UTILITIES

- THE CONTRACTOR SHALL NOTIFY THE CITY PUBLIC UTILITIES DEPARTMENTS STREETS MANAGER AT (559) 324-2639 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO POURING SIDEWALKS, AND/OR STOPS, CROSS WALKS, ETC. THE CITY STREET MANAGER SHALL BE INFORMED OF ALL LOCATIONS, TYPES, DATES AND SCHEDULE OF CONSTRUCTION.
- THE CONTRACTOR SHALL OBTAIN WRITTEN AUTHORIZATION FROM ANY ADJACENT PROPERTY OWNER GIVING HIM PERMISSION TO ENTER HIS PROPERTY FOR PURPOSES OF CONSTRUCTING THE IMPROVEMENTS DELINEATED ON THESE PLANS AND TRANSITIONS THERETO. THE CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY PRIOR TO START OF WORK.
- ANY DIRT OR DEBRIS TRACKED ON ANY CITY STREET FROM THIS PROJECT SHALL BE REMOVED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE CITY PUBLIC UTILITIES DEPARTMENTS STREETS MANAGER AT (559) 324-2639 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO POURING SIDEWALKS, AND/OR STOPS, CROSS WALKS, ETC. THE CITY STREET MANAGER SHALL BE INFORMED OF ALL LOCATIONS, TYPES, DATES AND SCHEDULE OF CONSTRUCTION.

WET UTILITIES NOTES

- ALL EXISTING OVERHEAD AND ANY NEW UTILITY FACILITIES LOCATED ON-SITE OR WITHIN THE PUBLIC RIGHT-OF-WAY OR ON ADJACENT TO A DEVELOPMENT SITE SHALL BE PLACED UNDERGROUND UNLESS OTHERWISE DESIGNATED ON THE PLANS OR APPROVED BY THE CITY ENGINEER IN WRITING.
- ALL ELECTRICAL POWER SUPPLY LINES ARE TO BE PLACED WITHIN SCHEDULE-80 PVC CONDUIT, EXCEPT UNDER PAVEMENT, WHERE PVC CONDUITS SHALL BE PLACED IN CAULKED STEEL SLEEVES.

25. ALL STREETLIGHTS SHALL BE 70-WATT EQUIVALENT LED, UNLESS OTHERWISE NOTED. STREETLIGHTS SHALL BE INSTALLED BELOW THE SIDEWALK EXCEPT WHERE FULL WIDTH SIDEWALK, PARK STRIP OR MEandering SIDEWALK IS TO BE INSTALLED. AT THOSE LOCATIONS, LIGHTS ARE TO BE PLACED THIRTY (30) INCHES BEHIND FACE OF CURB. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT ALL STREET LIGHTS ARE NUMBERED CORRECTLY.

26. ALL UTILITY VAULTS (PULL BOXES) REQUIRED TO BE INSTALLED SHALL BE SITED AND APPROVED BY THE CITY. ANY RETAINING STRUCTURES REQUIRED WITH THE INSTALLATION OF THESE PULL BOXES SHALL BE A MAXIMUM DEPTH OF 18" AND SHALL NOT EXCEED THE DEPTH OF THE SIDEWALK AS IT WAS PROVIDED WITH THIS DOCUMENTATION. THE REASON FOR THE FAILURE AND SUCCESSFUL RETESTING OF THE SECTION, CITY STAFF SHALL BE PRESENT AT ALL MANDREL TESTS.

27. THE CONTRACTOR SHALL DEMONSTRATE THAT ALL CONDUITS BETWEEN PULL BOXES ARE CONTINUOUS AND FREE OF OBSTRUCTIONS BY PULLING A MANDREL THROUGH EACH CONDUIT SECTION. THE USE OF A MANDREL TEST SHALL BE APPROVED FOR RETESTING OF THE SECTION TEST UNTIL CONSTRUCTION IS COMPLETE. THE REASON FOR THE FAILURE AND SUCCESSFUL RETESTING OF THE SECTION, CITY STAFF SHALL BE PRESENT AT ALL MANDREL TESTS.

28. TRENCH CUTS IN EXISTING STREETS THAT ARE NOT TO BE RECONSTRUCTED OR OVERLAI

- SHALL HAVE PERMANENT TRENCH RESURFACING INSTALLED WITHIN SEVEN (7) DAYS AFTER INITIAL STREET CUT.

PLACEMENT/REPLACEMENT AND CERTIFICATION SHALL BE COMPLETED BEFORE FINAL ACCEPTANCE OF THE PROJECT/WORK BY THE CITY. BRASS CAPS REQUIRED FOR THE

REMOVAL OF THE TRENCHES SHALL BE INSTALLED WITHIN THE APPROVED TRENCHES. IN CASES WHERE OBSTRUCTIONS ARE ENCOUNTERED AND A CHANGE IN VERTICAL ALIGNMENT IS REQUIRED, THE MINIMUM COVER ALLOWABLE SHALL BE 3' FOR 6" PIPE; 3.5' FOR 8'; 4' FOR 12" PIPE; 4.5' FOR 14" OR LARGER PIPE. NO CHANGE IN GRADE SHALL BE MADE WITHOUT THE APPROVAL OF THE CITY.

TRENCH RESURFACING

29. TRENCH CUTS IN EXISTING STREETS THAT ARE NOT TO BE RECONSTRUCTED OR OVERLAI

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36. TRENCH CUTS IN EXISTING STREETS THAT ARE NOT TO BE RECONSTRUCTED OR OVERLAI

SHALL HAVE PERMANENT TRENCH RESURFACING INSTALLED WITHIN SEVEN



CITY of CLOVIS
PLANNING & DEVELOPMENT

CONSTRUCTION NOTES

- ① ADJUST EXISTING IMPROVEMENT(S), SUCH AS, BUT NOT LIMITED TO, MANHOLES, VALVE BOXES AND VAULTS, TO FINISH GRADE.
- ② CONSTRUCT CONCRETE CURB AND GUTTER PER CITY STD. ST-5. SEE DETAIL B ON SHEET 47 FOR LOCATIONS WHERE CURB AND GUTTER IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
- ③ CONSTRUCT 8" CONCRETE MEDIAN CURB AND 12" WIDE CONCRETE MAINTENANCE STRIP PER CITY STD. ST-25. CONCRETE STAMPED MAINTENANCE STRIP SHALL MATCH EXISTING MAINTENANCE STRIP WIDTH, COLOR AND STAMP PATTERN. BOMANITE PATTERN, OR APPROVED EQUAL. 12"x12" SLATE AT 45° COLOR: BRICK RED BASE WITH NATURAL GRAY RELEASE, BY DAVIS OR APPROVED EQUAL. SEE DETAIL B ON SHEET 47 FOR LOCATIONS WHERE MEDIAN CURB IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
- ④ CONSTRUCT CURB RAMP PER CITY STD. ST-11, EXCLUDING GROoved BORDERS.
- ⑤ INSTALL 2-3"x6" COMMERCIAL SIDEWALK DRAINS, AT S=0.0500±, PER CITY STD. SD-4.
- ⑥ CONSTRUCT TYPE "A" ASPHALT CONCRETE DIKE PER CALTRANS STD. A87B. TOP LIFT OF ASPHALT CONCRETE PAVEMENT (2" MIN.) SHALL EXTEND BEHIND DIKE AND TACK COAT APPLIED TO PAVEMENT PRIOR TO CONSTRUCTION OF DIKE.
- ⑦ NOT USED.
- ⑧ INSTALL STREET LIGHT PER CITY STD. ST-33. REFER TO PG&E ELECTRICAL PLANS FOR FURTHER DETAILS.
- ⑨ REINSTALL EXISTING TRAFFIC SIGNAL HEAD TO NEW 1-A POLE, PER CITY STD. TS-7. REFER TO TRAFFIC SIGNAL AND PG&E ELECTRICAL PLANS FOR FURTHER DETAILS.
- ⑩ REINSTALL EXISTING TRAFFIC SIGNAL HEADS, LUMINAIRE, AND STREET SIGN, TO NEW POLE AND MAST ARM PER CITY STD. TS-7. REFER TO TRAFFIC SIGNAL AND PG&E ELECTRICAL PLANS FOR FURTHER DETAILS.
- ⑪ REINSTALL EXISTING TRAFFIC SIGNAL, INCLUDING POLE, MAST ARM AND LUMINAIRE, PER CITY STD. TS-7. REFER TO TRAFFIC SIGNAL AND PG&E ELECTRICAL PLANS FOR FURTHER DETAILS.
- ⑫ REINSTALL EXISTING TRAFFIC SIGNAL, INCLUDING 1-A POLE, PER CITY STD. TS-7A. REFER TO TRAFFIC SIGNAL AND PG&E ELECTRICAL PLANS FOR FURTHER DETAILS.
- ⑬ INSTALL ASPHALT CONCRETE OVERLAY PER DETAIL A, CONDITION 3, ON SHEET 47. REFER TO DEMOLITION PLANS FOR FURTHER DETAILS.
- ⑭ INSTALL PAVEMENT STRUCTURAL SECTION PER DETAIL A, ON SHEET 47.
- ⑮ INSTALL TEMPORARY PAVEMENT SECTION, 4" ASPHALT CONCRETE PAVEMENT (PG 70-10, TYPE A, ¾" MAX. MEDIUM) / 6" CLASS II AGGREGATE BASE / 12" MINIMUM COMPACTED NATIVE SOIL, AT 95% RELATIVE COMPACTION.
- ⑯ CONSTRUCT 4± LF OF CONCRETE VALLEY GUTTER AND DEPRESSED INLET, 5' RADIUS AND 9" DEPTH, PER CITY STD. SD-5. A VARYING HEIGHT MONOLITHIC CONCRETE CURB SHALL BE CONSTRUCTED ALONG THIS WEST SIDE OF DEPRESSED INLET AND EDGES OF DEPRESSED INLET SHALL TERMINATE AT CURB AND MATCH TOP OF CURB ELEVATION. VALLEY GUTTER SHALL BE ANCHORED TO EXISTING VALLEY GUTTER, PER CITY STD. ST-16, AND FLUSH WITH EDGE OF SAW-CUT LINE. TOP OF CURB AND FLOWLINE ELEVATION SHOWN ON STREET PLANS.
- ⑰ TRANSITION MEDIAN CURB HEIGHT FROM 8" TO 6". LENGTH SHOWN ON STREET PLANS.
- ⑱ PROPOSED STORM DRAIN INFRASTRUCTURE. REFER TO UTILITY PLANS FOR FURTHER DETAILS.
- ⑲ CONSTRUCT 8" CONCRETE MEDIAN CURB FOR MID-BLOCK MEDIAN ISLAND LEFT TURN POCKET PER CITY STD. ST-24 & ST-25, INCLUDING CONCRETE MAINTENANCE STRIP(S), 12" MINIMUM WIDTH. CONCRETE STAMPED MAINTENANCE STRIP SHALL MATCH EXISTING MAINTENANCE STRIP WIDTH, COLOR AND STAMP PATTERN. BOMANITE PATTERN, OR APPROVED EQUAL. 12"x12" SLATE AT 45° COLOR: BRICK RED BASE WITH NATURAL GRAY RELEASE, BY DAVIS OR APPROVED EQUAL. SEE DETAIL B ON SHEET 47 FOR LOCATIONS WHERE MEDIAN CURB IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
- ⑳ CONSTRUCT 8" CONCRETE CURB FOR MEDIAN ISLAND INTERSECTION LEFT TURN POCKET PER CITY STD. ST-23 & ST-25, INCLUDING CONCRETE MAINTENANCE STRIP(S), 12" MINIMUM WIDTH. CONCRETE STAMPED MAINTENANCE STRIP SHALL MATCH EXISTING MAINTENANCE STRIP WIDTH, COLOR AND STAMP PATTERN. BOMANITE PATTERN, OR APPROVED EQUAL. 12"x12" SLATE AT 45° COLOR: BRICK RED BASE WITH NATURAL GRAY RELEASE, BY DAVIS OR APPROVED EQUAL. SEE DETAIL B ON SHEET 47 FOR LOCATIONS WHERE MEDIAN CURB IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
- ㉑ CONSTRUCT 8" CONCRETE CURB AND GUTTER FOR MEDIAN ISLAND INTERSECTION LEFT TURN POCKET PER CITY STD. ST-5 & ST-23, INCLUDING CONCRETE CAP. CONCRETE CAP SHALL MATCH EXISTING MAINTENANCE STRIP WIDTH, COLOR AND STAMP PATTERN. BOMANITE PATTERN, OR APPROVED EQUAL. 12"x12" SLATE AT 45° COLOR: BRICK RED BASE WITH NATURAL GRAY RELEASE, BY DAVIS OR APPROVED EQUAL. SEE DETAIL B ON SHEET 47 FOR LOCATIONS WHERE CURB AND GUTTER IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
- ㉒ CONSTRUCT 12" WIDE CONCRETE DRAIN CHANNEL PER DETAIL D ON SHEET 47.
- ㉓ INSTALL TEMPORARY ASPHALT CONCRETE DRIVE APPROACH BEHIND DEPRESSED CURB PER DETAIL C ON SHEET 47. THROAT WIDTH AND SQUARE FOOTAGE SHOWN ON STREET PLANS.
- ㉔ CONSTRUCT CONCRETE DRIVE APPROACH PER CITY STD. ST-7. THROAT WIDTH AND SQUARE FOOTAGE SHOWN ON STREET PLANS.
- ㉕ STORM DRAIN IMPROVEMENTS. SEE UTILITY AND FMFCD PLANS FOR FURTHER DETAILS.
- ㉖ INSTALL TEMPORARY PAVEMENT SECTION, 2" ASPHALT CONCRETE PAVEMENT (PG 70-10, TYPE A, ¾" MAX. MEDIUM) / 12" MINIMUM COMPACTED NATIVE SOIL, AT 95% RELATIVE COMPACTION. SQUARE FOOTAGE SHOWN ON STREET PLANS.
- ㉗ EXCAVATE _____ ± CY OF DIRT TO EXPAND EXISTING STORM DRAIN BASIN. EXCAVATED SIDES OF BASIN SHALL NOT EXCEED A 3:1 SLOPE. CONTRACTOR SHALL CONNECT TO EXISTING FENCE AND INSTALL 233± LF OF 6" CHAIN LINK FENCE, NO MOW STRIP, ALONG PERIMETER TO ENCLOSE BASIN. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXCAVATED MATERIAL. REFER TO UTILITY PLANS FOR FURTHER DETAILS.

TOP OF BASIN = XXXX / HIGH WATER Elevation = XXXXX / TOE of BASIN = XXXXX

- ㉘ EXCAVATE _____ ± CY OF DIRT FOR PROPOSED STORM DRAIN BASIN PER CITY STD. SD-2. EXCAVATED BOTTOM SHALL SLOPE AWAY FROM BASIN OUTLET AT 0.5% MINIMUM AND EXCAVATED SIDES OF BASIN SHALL NOT EXCEED A 2:1 SLOPE. CONTRACTOR SHALL INSTALL 477± LF OF 6" CHAIN LINK FENCE, NO MOW STRIP, WITH A MINIMUM 10' CHAIN LINK DOUBLE GATE, PER CITY STD'S. M-8 & M-9, ALONG PERIMETER TO ENCLOSE BASIN. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXCAVATED MATERIAL. REFER TO UTILITY PLANS FOR FURTHER DETAILS.

TOP OF BASIN = XXXX / HIGH WATER LEVEL = 378.95 / TOE of BASIN = 368.50 (NW, SW & SE CORNERS)

- ㉙ EXCAVATE _____ ± CY OF DIRT TO INSTALL OUTFALL STRUCTURE TO FINISH DIRT GRADE. EXCAVATED SIDES OF BASIN SHALL NOT EXCEED A 2:1 SLOPE. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXCAVATED MATERIAL.

- ㉚ PROPOSED SWALE. GRADE SWALE TO DRAIN.

- ㉛ GRADE SLOPE NOT TO EXCEED 3:1.

- ㉜ INSTALL NEW STREET SIGN(S) AND POST PER CITY STD. ST-19. REFER TO STRIPING AND SIGNAGE PLANS FOR FURTHER DETAILS.

- ㉝ REINSTALL EXISTING STREET SIGN(S) AND POST PER CITY STD. ST-19. REFER TO STRIPING AND SIGNAGE PLANS FOR FURTHER DETAILS.

- ㉞ REINSTALL EXISTING STREET SIGN(S) ON A NEW POST PER CITY STD. ST-19. REFER TO STRIPING AND SIGNAGE PLANS FOR FURTHER DETAILS.

- ㉟ REINSTALL EXISTING STREET SIGN(S) TO STREET LIGHT POST. REFER TO STRIPING AND SIGNAGE PLANS FOR FURTHER DETAILS.

UTILITY CONSTRUCTION NOTES

- ① REMOVE EXISTING 21" SEWER MAIN CAP AND CONNECT TO EXISTING 21" SEWER MAIN WITH 48" SEWER MANHOLE PER CITY STD. S-2 & S-5.
- ② CONSTRUCT 60" SEWER MANHOLE PER CITY STD. S-3 & S-5.
- ③ CONSTRUCT 48" SEWER MANHOLE PER CITY STD. S-2 & S-5.
- ④ INSTALL SEWER MAIN CAP. SIZE SHOWN ON PLAN.
- ⑤ INSTALL SDR-35 SEWER MAIN PIPE. SIZE AND LENGTH SHOWN ON PLAN.
- ⑥ BORE AND JACK 100'± LF OF 15" SDR-35 SEWER MAIN PIPE PER CITY STD. S-10.
- ⑦ NOT USED.
- ⑧ NOT USED.
- ⑨ NOT USED.
- ⑩ CONNECT TO EXISTING 12" WATER MAIN.
- ⑪ INSTALL PVC C-900 WATER MAIN PIPE. SIZE AND LENGTH SHOWN ON PLAN.
- ⑫ INSTALL PVC C-905 WATER MAIN PIPE. SIZE AND LENGTH SHOWN ON PLAN.
- ⑬ INSTALL DUCTILE IRON WATER MAIN PIPE. SIZE AND LENGTH SHOWN ON PLAN.
- ⑭ INSTALL 12" PRATT RD-SERIES CHECK VALVE, OR APPROVED EQUAL. CHECK VALVE SHALL BE INSTALLED INSIDE A CHRISTY R33 PIT (4"x5') WITH A STEEL CHECKER PLATE COVER (TRAFFIC RATED), OR APPROVED EQUAL. PIT SHALL BE CENTERED ON CHECK VALVE AND ORIENTED WITH THE WIDER DIMENSION PERPENDICULAR TO PIPE.
- ⑮ INSTALL 2" AIR RELEASE/VACUUM BREAKER PER DETAIL E ON SHEET 47.
- ⑯ INSTALL A 2" WATER SERVICE, EXCLUDING PIPE AND APPURTENANCES DOWNSTREAM OF ANGLE METER STOP, PER CITY STD. W-6 & W-6A.
- ⑰ INSTALL 285± LF OF 6" SCHEDULE 80 PVC PIPE (SLEEVE), WITH 36" MINIMUM COVER, AND ENDS CAPPED. INSTALL A 17"x30" BOX (CHRISTY FL 36 OR APPROVED EQUAL), NO CONCRETE COLLAR, AT EACH END OF SLEEVE.
- ⑲ INSTALL TYPE "D" OUTLET PER FMFCD STD. D-1 & D-3.
- ⑳ INSTALL TYPE "A", CASE I, MANHOLE PER FMFCD STD. B-1.
- ㉑ INSTALL TYPE "A", CASE I, MANHOLE PER FMFCD STD. B-1. SEE FMFCD PLANS FOR FURTHER DETAILS.
- ㉒ INSTALL TYPE "D" INLET PER FMFCD STD. A-4. SEE STREET AND FMFCD PLANS FOR FURTHER DETAILS.
- ㉓ INSTALL TEMPORARY BASIN OUTLET PER CITY STD. SD-1, SD-1A & SD-2. GRADE ELEVATION SHOWN ON PLAN. SEE STREET PLANS FOR FURTHER DETAILS.
- ㉔ INSTALL DOUBLE TYPE "D" INLET PER FMFCD STD. A-5. SEE STREET AND FMFCD PLANS FOR FURTHER DETAILS.
- ㉕ INSTALL DOUBLE TYPE "D" INLET PER FMFCD STD. A-5. SEE STREET PLANS FOR FURTHER DETAILS.
- ㉖ INSTALL BRICK AND MORTAR PLUG PER FMFCD REQUIREMENTS.
- ㉗ CHAMFER ENDS OF EXISTING STORM DRAIN PIPE, AS NECESSARY, AND CONSTRUCT CONCRETE FIELD COLLAR AT POINT OF CONNECTION PER FMFCD STD. G-3.
- ㉘ TRANSITION MEDIAN CURB HEIGHT FROM 8" TO 6". LENGTH SHOWN ON STREET PLANS.
- ㉙ PROPOSED STORM DRAIN INFRASTRUCTURE. REFER TO UTILITY PLANS FOR FURTHER DETAILS.
- ㉚ CONSTRUCT 8" CONCRETE MEDIAN CURB FOR MID-BLOCK MEDIAN ISLAND LEFT TURN POCKET PER CITY STD. ST-24 & ST-25, INCLUDING CONCRETE MAINTENANCE STRIP(S), 12" MINIMUM WIDTH. CONCRETE STAMPED MAINTENANCE STRIP SHALL MATCH EXISTING MAINTENANCE STRIP WIDTH, COLOR AND STAMP PATTERN. BOMANITE PATTERN, OR APPROVED EQUAL. 12"x12" SLATE AT 45° COLOR: BRICK RED BASE WITH NATURAL GRAY RELEASE, BY DAVIS OR APPROVED EQUAL. SEE DETAIL B ON SHEET 47 FOR LOCATIONS WHERE MEDIAN CURB IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
- ㉛ CONSTRUCT 8" CONCRETE CURB FOR MEDIAN ISLAND INTERSECTION LEFT TURN POCKET PER CITY STD. ST-23 & ST-25, INCLUDING CONCRETE CAP. CONCRETE CAP SHALL MATCH EXISTING MAINTENANCE STRIP WIDTH, COLOR AND STAMP PATTERN. BOMANITE PATTERN, OR APPROVED EQUAL. 12"x12" SLATE AT 45° COLOR: BRICK RED BASE WITH NATURAL GRAY RELEASE, BY DAVIS OR APPROVED EQUAL. SEE DETAIL B ON SHEET 47 FOR LOCATIONS WHERE MEDIAN CURB IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
- ㉜ CONSTRUCT 8" CONCRETE CURB AND GUTTER FOR MEDIAN ISLAND INTERSECTION LEFT TURN POCKET PER CITY STD. ST-5 & ST-23, INCLUDING CONCRETE CAP. CONCRETE CAP SHALL MATCH EXISTING MAINTENANCE STRIP WIDTH, COLOR AND STAMP PATTERN. BOMANITE PATTERN, OR APPROVED EQUAL. 12"x12" SLATE AT 45° COLOR: BRICK RED BASE WITH NATURAL GRAY RELEASE, BY DAVIS OR APPROVED EQUAL. SEE DETAIL B ON SHEET 47 FOR LOCATIONS WHERE CURB AND GUTTER IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
- ㉝ CONSTRUCT 12" WIDE CONCRETE DRAIN CHANNEL PER DETAIL D ON SHEET 47.
- ㉞ INSTALL TEMPORARY ASPHALT CONCRETE DRIVE APPROACH BEHIND DEPRESSED CURB PER DETAIL C ON SHEET 47. THROAT WIDTH AND SQUARE FOOTAGE SHOWN ON STREET PLANS.
- ㉟ CONSTRUCT CONCRETE DRIVE APPROACH PER CITY STD. ST-7. THROAT WIDTH AND SQUARE FOOTAGE SHOWN ON STREET PLANS.
- ㉟ STORM DRAIN IMPROVEMENTS. SEE UTILITY AND FMFCD PLANS FOR FURTHER DETAILS.
- ㉟ INSTALL TEMPORARY PAVEMENT SECTION, 4" ASPHALT CONCRETE PAVEMENT (PG 70-10, TYPE A, ¾" MAX. MEDIUM) / 12" MINIMUM COMPACTED NATIVE SOIL, AT 95% RELATIVE COMPACTION. SQUARE FOOTAGE SHOWN ON STREET PLANS.
- ㉟ EXCAVATE _____ ± CY OF DIRT TO EXPAND EXISTING STORM DRAIN BASIN. EXCAVATED SIDES OF BASIN SHALL NOT EXCEED A 3:1 SLOPE. CONTRACTOR SHALL CONNECT TO EXISTING FENCE AND INSTALL 233± LF OF 6" CHAIN LINK FENCE, NO MOW STRIP, ALONG PERIMETER TO ENCLOSE BASIN. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXCAVATED MATERIAL. REFER TO UTILITY PLANS FOR FURTHER DETAILS.

FMFCD NOTES

1. THE CONTRACTOR SHALL NOTIFY THE FMFCD INSPECTION MANAGER AT (559) 456-3292 FORTY-EIGHT (48) HOURS PRIOR TO COMMENCING WORK AROUND THE EXISTING FMFCD INLETS.
2. WHERE THE EXISTING INLET SLOPE COPIES WITH ADA STANDARDS, THE CONTRACTOR SHALL PROTECT THE INLET IN PLACE AND TRANSITION NEW SIDEWALK TO THE EXISTING INLET.
3. WHERE THE EXISTING INLET SLOPE DOES NOT COMPLY WITH ADA STANDARDS, THE CONTRACTOR SHALL REMOVE AND REPLACE AT MINIMUM THE TOP EIGHTEEN (18") INCHES OF THE EXISTING INLET TO MATCH NEW SIDEWALK SLOPE.
4. IN ALL OTHER CASES, REMOVE THE PROPOSED SIDEWALK AROUND THE EXISTING INLET BOX AND PROTECT IN PLACE.
5. ADJUST STORM DRAIN MANHOLE FRAME AND COVER TO FINISH GRADE PER FMFCD STANDARD DRAWING B-1. NOTIFY FMFCD CONSTRUCTION DEPARTMENT UPON COMPLETION OF STORM DRAIN MANHOLE.
6. ALL STORM DRAIN WORK SHALL BE DONE IN ACCORDANCE WITH FMFCD STANDARD PLANS AND SPECIFICATIONS, DATED APRIL 1, 2011, AND REVISIONS THEREOF.
7. INSTALL WATER LINE IN A STRAIGHT LINE FROM THE EXISTING INLET BOX TO THE NEW SIDEWALK. SLEEVES TO BE 30" MINIMUM BELOW CONCRETE.
8. CONTRACTOR SHALL VERIFY EXISTING SEWER STUB ELEVATION AND CONFIRM THE DESIGN WITH THE ENGINEER PRIOR TO CONSTRUCTING THE SEWER MAIN.
9. WATER MAINS ARE TO BE INSTALLED AND TESTED PER CITY OF CLOVIS STANDARD SPECIFICATIONS SECTION 66, "POTABLE WATER SYSTEMS."
10. ANY SALVAGED WATER VALVES AND BLOW-OFFS REMOVED FROM EXISTING WATER MAINS SHALL BE SALVAGED TO THE CITY CORPORATION YARD LOCATED AT 155 N. SUNNYSIDE AVENUE.
11. NO WATER MAIN VALVES SHALL BE CLOSED BY THE CONTRACTOR EXCEPT IN THE CASE OF AN EMERGENCY SUCH AS A BROKEN MAIN. THE CONTRACTOR SHALL NOTIFY THE CITY WATER DIVISION IMMEDIATELY WHENEVER A VALVE IS CLOSED AFTER A LINE IS BROKEN. IN ALL OTHER CASES, SUCH AS MAKING CONNECTIONS TO EXISTING MAINS, ARRANGEMENTS SHALL BE MADE A MINIMUM OF FORTY-EIGHT (48) HOURS IN ADVANCE WITH THE CITY WATER DIVISION FOR CLOSURE OF ANY VALVES.
12. WATER MAINS SHALL BE INSTALLED TO THE LINES AND GRADES ESTABLISHED IN THE APPROVED PLANS. IN CASES WHERE OBSTRUCTIONS ARE ENCOUNTERED AND A CHANGE IN VERTICAL ALIGNMENT IS REQUIRED, THE MINIMUM COVER ALLOWABLE SHALL BE 3" FOR 6" PIPE, 3.5" FOR 8", 4" FOR 12" PIPE, 4.5" FOR 14" OR LARGER PIPE. NO CHANGE IN GRADE SHALL BE MADE WITHOUT THE APPROVAL OF THE CITY.
13. TRACER WIRE SHALL BE INSTALLED WITH ALL WATER MAINS AND FIRE HYDRANT RUNS. TRACER WIRE SHALL BE NO. 10 STRANDED COPPER, WHITE INSULATION.
14. CONNECTIONS MADE TO EXISTING WATER MAINS SHALL BE PERFORMED WITH A TAPPING SADDLE, WHERE POSSIBLE.
15. WHEN POLYVINYL CHLORIDE (PVC) C900 PIPE IS USED FOR WATER MAINS, A CORING CUTTER IS REQUIRED FOR EACH TAPPING. A CITY WATER DEPARTMENT REPRESENTATIVE MUST BE ON SITE DURING ALL WORK ON EXISTING CITY WATER MAINS.
16. PHYSICAL SEPARATION/GAPS BETWEEN WATER MAINS WILL BE REQUIRED ON NEW WATER MAINS AT CONNECTIONS TO EXISTING MAINS. THE CONTRACTOR IS RESPONSIBLE FOR CONNECTING NEW WATER MAINS TO ANY EXISTING WATER MAINS. CITY PUBLIC UTILITIES WATER DIVISION STAFF SHALL BE PRESENT AT ALL WATER MAIN TIE-UPS.
17. ALL WATER MAIN BLOW-OFFS SHALL BE INSTALLED PER CITY OF CLOVIS STANDARD DRAWING W-13, "BLOW-OFF VALVE INSTALLATION."
18. ALL FIRE HYDRANTS REQUIRED FOR THIS PROJECT SHALL BE IDENTIFIED AND INSTALLED PER CITY OF CLOVIS STANDARD W-2A, "COMMERCIAL FIRE HYDRANT". INSTAL "BLUE DOT" PAVEMENT MARKER IN THE STREET PAVEMENT AT THE END HYDRANT LOCATIONS PER FIRE DEPARTMENT STANDARD 7. FIRE SERVICE LINES WITHOUT HYDRANTS AT THE END SHALL BE EQUIPPED WITH BLOW-OFFS. HYDRANTS SHALL BE PAINTED YELLOW WITH ALL CAPS PAINTED BLUE. CURBS SHALL BE PAINTED RED 7½ FEET EITHER SIDE OF HYDRANT UNLESS INTERRUPTED BY A DRIVEWAY OR CORNER CURB RETURN.
19. IN THE CASE OF NEW BUILDING/HOME CONSTRUCTION, ALL FIRE HYDRANTS SHALL BE IN WORKING ORDER BEFORE CONSTRUCTION BEGINS.
20. ANY BACKFLOW PREVENTION ASSEMBLY INSTALLED SHALL BE OF AN APPROVED TYPE AND BE INSTALLED DOWNSTREAM AND ADJACENT TO WATER METERS. THE BACKFLOW PREVENTION ASSEMBLY SHALL BE TESTED AND APPROVED BY AN APPROVED AWWA CERTIFIED TESTER WITHIN FIVE (5) DAYS OF INSTALLATION WITH THE RESULTS SENT TO THE CITY PUBLIC UTILITIES WATER DIVISION.
21. A SEPARATE BUILDING PERMIT IS REQUIRED FOR THE INSTALLATION OF FIRE SPRINKLER SYSTEMS IN BUILDINGS. SUCH INSTALLATIONS ARE NOT A PART OF THESE PLANS. THE EXACT LOCATIONS OF THE FIRE SERVICE FACILITIES MAY BE ALTERED FROM THESE PLANS BY FIELD CONDITIONS AND THE SEPARATE FIRE SPRINKLER PERMIT.
22. SEWER MAINS ARE TO BE INSTALLED AND TESTED PER CITY OF CLOVIS STANDARD SPECIFICATIONS SECTION 64, "SANITARY SEWER FACILITIES".
23. PRIOR TO THE INSTALLATION OF, AND/OR CONNECTION TO, ANY SEWERS, THE CONTRACTOR SHALL FIELD VERIFY AND COMPARE ALL EXISTING FLOWLINES WITH THOSE INDICATED ON THE APPROVED CONSTRUCTION PLANS PRIOR TO CONNECTING TO ANY EXISTING SEWER MAINS. ANY DISCREPANCIES AND/OR CONFLICTS WITH THE APPROVED PLANS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE CITY AND THE DESIGN ENGINEER. AN ALTERNATE DESIGN SHALL BE PREPARED AND SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
24. EXCEPT AT CUL-DE-SACS, NO SEWER LATERAL OR SERVICES SHALL BE ALLOWED TO CONNECT DIRECTLY INTO SANITARY SEWER MANHOLES (THIMBLES).
25. MANHOLES SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE PLANS. NO CHANGES SHALL BE MADE IN LOCATION WITHOUT THE APPROVAL OF THE CITY.

DEMOLITION NOTES

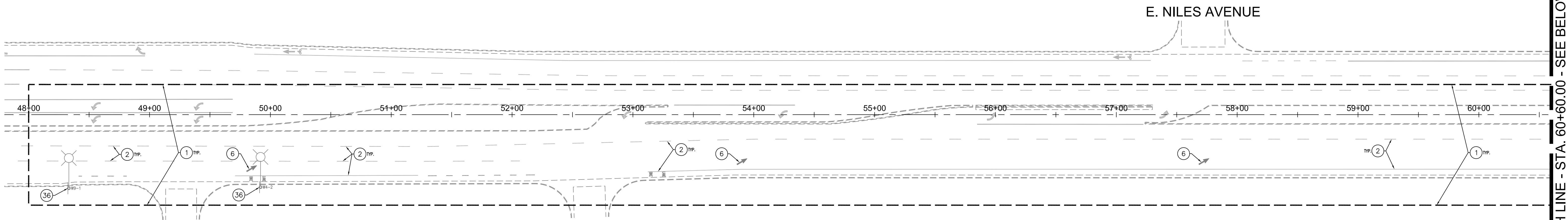
- ① LIMITS OF WORK. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL DELETERIOUS MATERIALS IDENTIFIED TO BE DEMOLISHED, SUCH AS, BUT NOT LIMITED TO, ASPHALT CONCRETE PAVEMENT, DRIVEWAYS, PATHWAYS, DIKES, SWALES, AND SHOULDERS (GRINDINGS), AGGREGATE BASE, GRAVEL, COBBLE, TREES, FENCING, GATES, TRAFFIC SIGNAL LOOPS, AND CONCRETE PADS, CURBS, GUTTERS, SIDEWALKS, DRIVE APPROACHES, COLLARS, STRIPS AND RAMPS, WITHIN THE LIMITS OF WORK.
- ② PROTECT EXISTING IMPROVEMENT(S) IN-PLACE.
- ③ SAW-CUT LINE. SAW-CUTTING SHALL LEAVE A CLEAN STABLE EDGE, AND WHERE APPLICABLE, SHALL OCCUR AT THE NEAREST JOINT/SCORE LINE.
- ④ GRIND EXISTING ASPHALT PAVEMENT PER DETAIL A, CONDITION 3, ON SHEET 47. REMOVE AND DISPOSE OF ASPHALT GRINDINGS. REFER TO SITE PLANS FOR FURTHER DETAILS.
- ⑤ REMOVE AND DISPOSE OF EXISTING ASPHALT CONCRETE PAVEMENT, INCLUDING, BUT NOT LIMITED TO, DRIVEWAYS, PATHWAYS, DIKES, SWALES, AND/OR TREATED SHOULDERS (AC GRINDINGS, GRAVEL, ETC.).
- ⑥ GRIND OFF EXISTING STRIPPING AND APPLY SLURRY SEALANT PER CITY STANDARDS. CONTRACTOR SHALL SLURRY ENTIRE GRIND AREA FOR Lane SHIFT STRIPPING LOCATED AT SOUTH LEG OF W. SHEPHERD AVENUE (NORTH BOUND DIRECTION) AND NORTH LEG OF E. PERRIN AVENUE (SOUTH BOUND DIRECTION). REFER TO STRIPPING PLAN FOR FURTHER DETAILS.
- ⑦ REMOVE AND DISPOSE OF EXISTING ASPHALT CONCRETE MEDIAN DIKE.
- ⑧ PROTECT EXISTING PEDESTRIAN BARRICADE AND SIGN IN-PLACE.
- ⑨ SALVAGE EXISTING SIGN AND POST, WHERE POST EXISTS, TO THE COUNTY OF FRESNO, PUBLIC WORKS DEPARTMENT.
- ⑩ RELOCATE EXISTING SIGN AND POST. SALVAGE ANY UNUSED POSTS TO THE COUNTY OF FRESNO, PUBLIC WORKS DEPARTMENT.
- ⑪ SALVAGE EXISTING SIGN AND POST, WHERE POST EXISTS, TO THE CITY OF FRESNO, PUBLIC WORKS DEPARTMENT.
- ⑫ EXISTING BARBED WIRE FENCE, INCLUDING ANY GATES, TO BE RELOCATED BY OTHERS.
- ⑬ EXISTING ORCHARD TREES, INCLUDING RELATED IRRIGATION INFRASTRUCTURE, TAIL WATER DITCHES, AND/OR OILED DIRT ROAD(S), ARE TO BE RELOCATED, OR REMOVED OR DISPOSED OF, BY OTHERS.
- ⑭ REMOVE AND DISPOSE OF EXISTING TREE(S).
- ⑮ RELOCATE EXISTING DRY UTILITY IMPROVEMENT(S). REFER TO SEPARATE UTILITY AGENCY PLAN FOR FURTHER DETAILS.
- ⑯ RELOCATE EXISTING TRAFFIC SIGNAL IMPROVEMENTS, AND REMOVE AND DISPOSE OF ANY CONCRETE COLLARS AND FOUNDATIONS. REFER TO STREET AND TRAFFIC SIGNAL PLANS FOR FURTHER DETAILS.
- ⑰ RELOCATE EXISTING SIGN AND POST. SALVAGE ANY UNUSED POSTS TO THE CITY OF FRESNO, PUBLIC WORKS DEPARTMENT. REFER TO STRIPPING PLAN FOR FURTHER DETAILS.
- ⑱ EXISTING CHAIN LINK FENCE, INCLUDING ANY GATES, TO BE RELOCATED BY OTHERS.
- ⑲ REMOVE AND DISPOSE OF EXISTING CONCRETE DRIVEWAY, INCLUDING CONCRETE CURB AND ANY STEEL REINFORCEMENT.
- ㉑ RELOCATE EXISTING MAILBOX(S). CONTRACTOR SHALL ACQUIRE APPROVAL OF MAILBOX LOCATION FROM THE U.S. POST OFFICE PRIOR TO INSTALLATION.
- ㉒ REMOVE AND DISPOSE OF EXISTING CONCRETE DRIVEWAY, INCLUDING CONCRETE CURB AND ANY STEEL REINFORCEMENT.
- ㉓ EXISTING IRRIGATION PIPE AND STANDPIPE(S), SIZES SHOWN ON PLAN, TO BE RELOCATED BY OTHERS, INCLUDING THE REMOVAL AND DISPOSAL OF ABOVE AND BELOW GROUND PIPING.
- ㉔ EXISTING STRUCTURE TO BE RELOCATED BY OTHERS.
- ㉕ EXISTING CAMERA POLE AND APPURTENANCES TO BE RELOCATED BY OTHERS.
- ㉖ EXISTING ENTRY FEATURE, INCLUDING, BUT NOT LIMITED TO, BRICK WALL, SIGN AND AREA LIGHT, TO BE RELOCATED BY OTHERS.
- ㉗ REMOVE AND DISPOSE OF EXISTING STORM DRAIN INLET.
- ㉘ EXISTING PIPE POLE TO BE



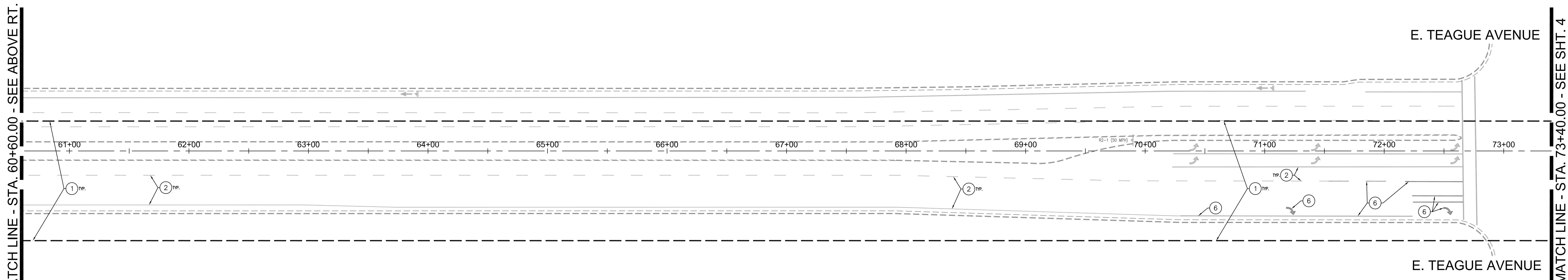
CITY of CLOVIS
PLANNING & DEVELOPMENT



PLAN VIEW
GRAPHIC SCALE
1'=40'
0' 20' 40' 60' 80'

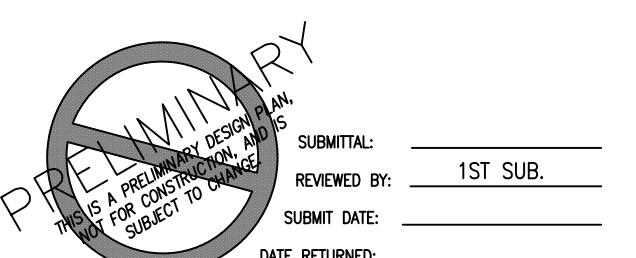


N. WILLOW AVENUE

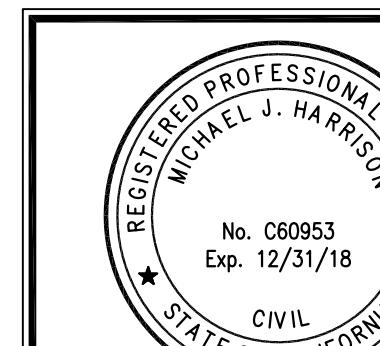


N. WILLOW AVENUE

PLAN VIEW
GRAPHIC SCALE
1'=40'
0' 20' 40' 60' 80'



CITY of CLOVIS		PLANNING AND DEVELOPMENT SERVICES DEPARTMENT	
PROJECT TITLE	N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE		PROJECT NO.
SHEET DESCRIPTION	TOPOGRAPHIC & DEMOLITION PLAN N. WILLOW AVENUE - STA. 48+33.3± TO STA. 73+40.00		SHEET NO.
REVISIONS	APPROVALS	APPROVED	
NO. DATE INITIAL	PROJECT ENGINEER CAPITAL PROJECTS CONSTRUCTION MANAGEMENT STREETS UTILITIES PLANNING TRAFFIC PARKS FIRE/POLICE	NA NA NA NA NA NA NA	





CITY of CLOVIS
PLANNING & DEVELOPMENT



E. TEAGUE AVENUE
MATCH LINE - STA. 73+40.00 - SEE SHT. 3

PLAN VIEW
GRAPHIC SCALE
1'=40'
0 20' 40' 60' 80'

E. TEAGUE AVENUE

MATCH LINE - STA. 86+20.00 - SEE BELOW LT.

N. WILLOW AVENUE

MATCH LINE - STA. 86+20.00 - SEE ABOVE RT.

W. POWERS AVENUE

MATCH LINE - STA. 99+00.00 - SEE SHT. 5

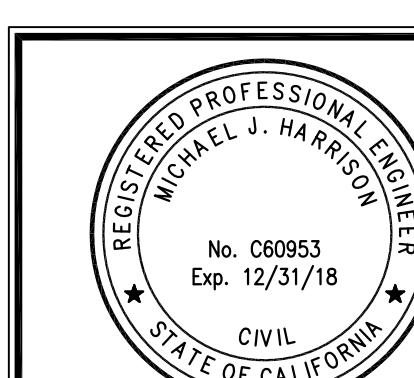
PLAN VIEW
GRAPHIC SCALE
1'=40'
0 20' 40' 60' 80'

N. WILLOW AVENUE

PRELIMINARY
THIS IS A PRELIMINARY DRAWING.
SUBMITTED FOR CONTRACT REVIEW
SUBMIT DATE:
DATE RETURNED:

1ST SUB.

CITY of CLOVIS		PLANNING AND DEVELOPMENT SERVICES DEPARTMENT	
PROJECT TITLE	N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE		PROJECT NO.
SHEET DESCRIPTION	TOPOGRAPHIC & DEMOLITION PLAN N. WILLOW AVENUE - STA. 73+40.00 TO STA. 99+00.00		SHEET NO.
REVISIONS	APPROVALS	APPROVED	
NO. DATE INITIAL	PROJECT ENGINEER CAPITAL PROJECTS CONSTRUCTION MANAGEMENT STREETS UTILITIES PLANNING TRAFFIC PARKS FIRE/POLICE	NA NA NA NA NA NA NA	





CITY of CLOVIS

PLANNING & DEVELOPMENT

E. SHEPHERD AVENUE

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

PLAN VIEW
GRAPHIC SCALE
1"=40'

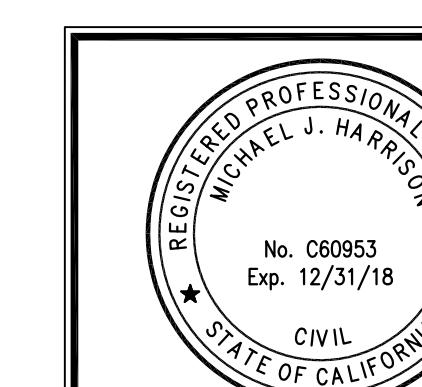
E. YEARGIN AVENUE

**MATCH LINE - STA. 21+20.00 - SEE SHT. 9
W. SHEPHERD AVENUE**

N. WILLOW AVENUE

MATCH LINE - STA. 111+50.00 - SEE ABOVE RT.

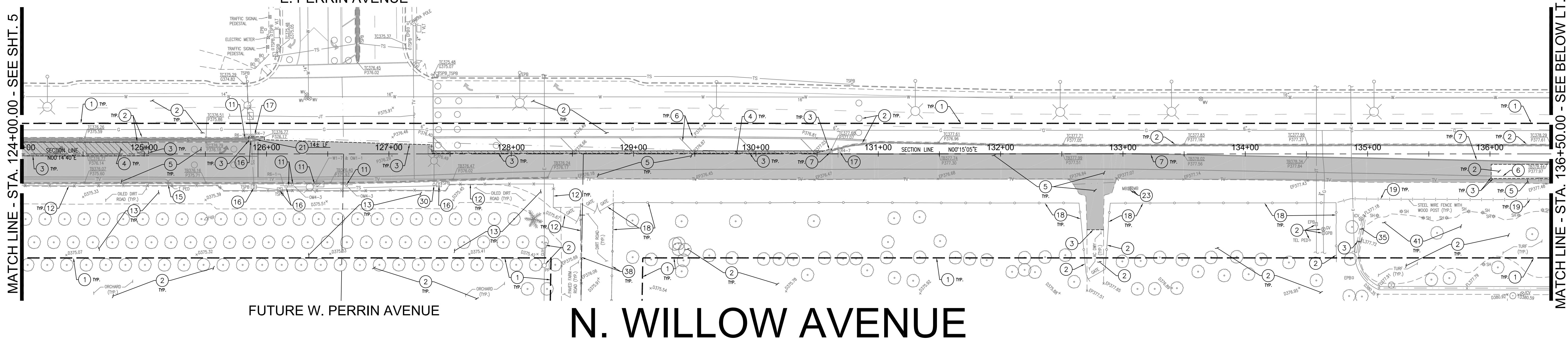
N. WILLOW AVENUE



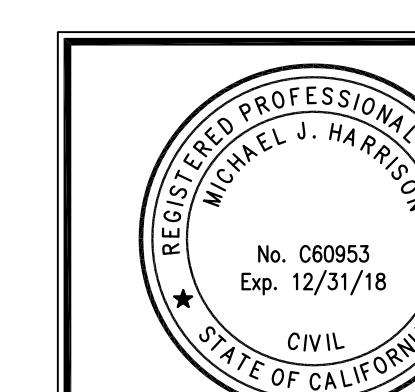
CITY of CLOVIS		PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
PROJECT TITLE	PROJECT NO.	
N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE	15-16	
HEET DESCRIPTION	SHEET NO.	
TOPOGRAPHIC & DEMOLITION PLAN N. WILLOW AVENUE - STA. 99+00.00 TO STA. 124+00.00	5 OF XX	



CITY of CLOVIS
PLANNING & DEVELOPMENT



PRELIMINARY
THIS IS A PRELIMINARY DRAWING.
SUBMITTED:
REVIEWED BY:
SUBMIT DATE:
DATE RETURNED:



REVISIONS

NO. DATE INITIAL

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PROJECT ENGINEER
CAPITAL PROJECTS
CONSTRUCTION MANAGEMENT
STREETS
UTILITIES
PLANNING
TRAFFIC
PARKS
FIRE/POLICE

APPROVED
NA
NA
NA
NA
NA
NA

APPROVED
NA
NA
NA
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NA
NA

CITY of CLOVIS

PLANNING AND DEVELOPMENT
SERVICES DEPARTMENT

PROJECT TITLE
N. WILLOW AVENUE STREET WIDENING
W. SHEPHERD AVENUE TO W. COPPER AVENUE

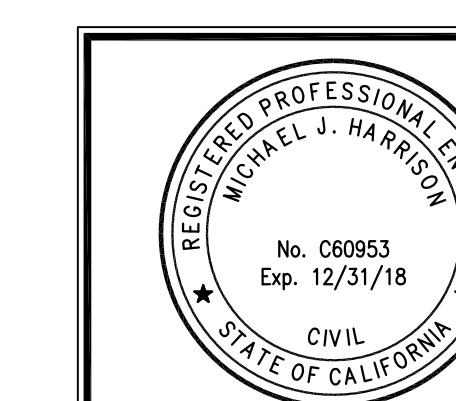
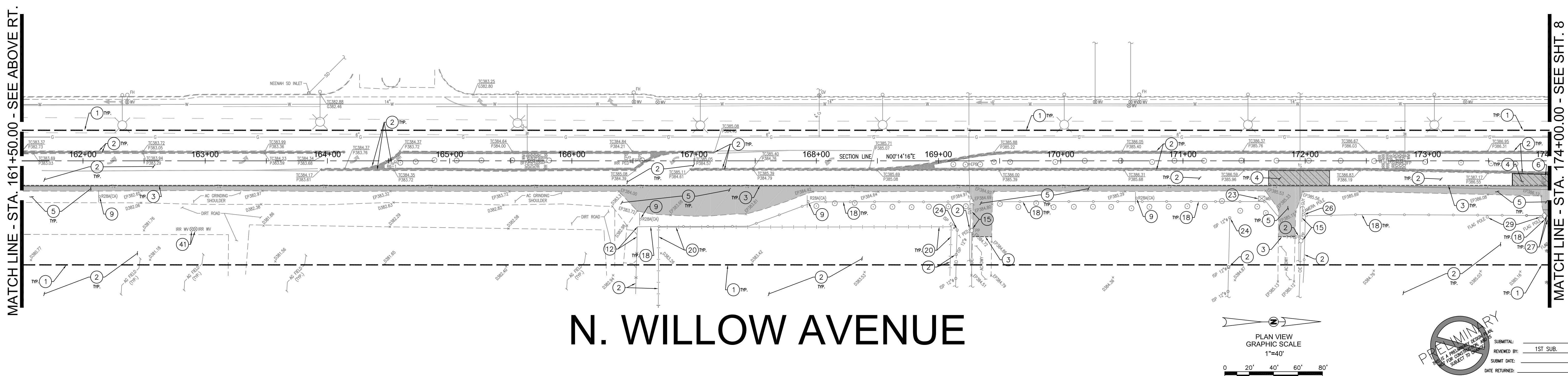
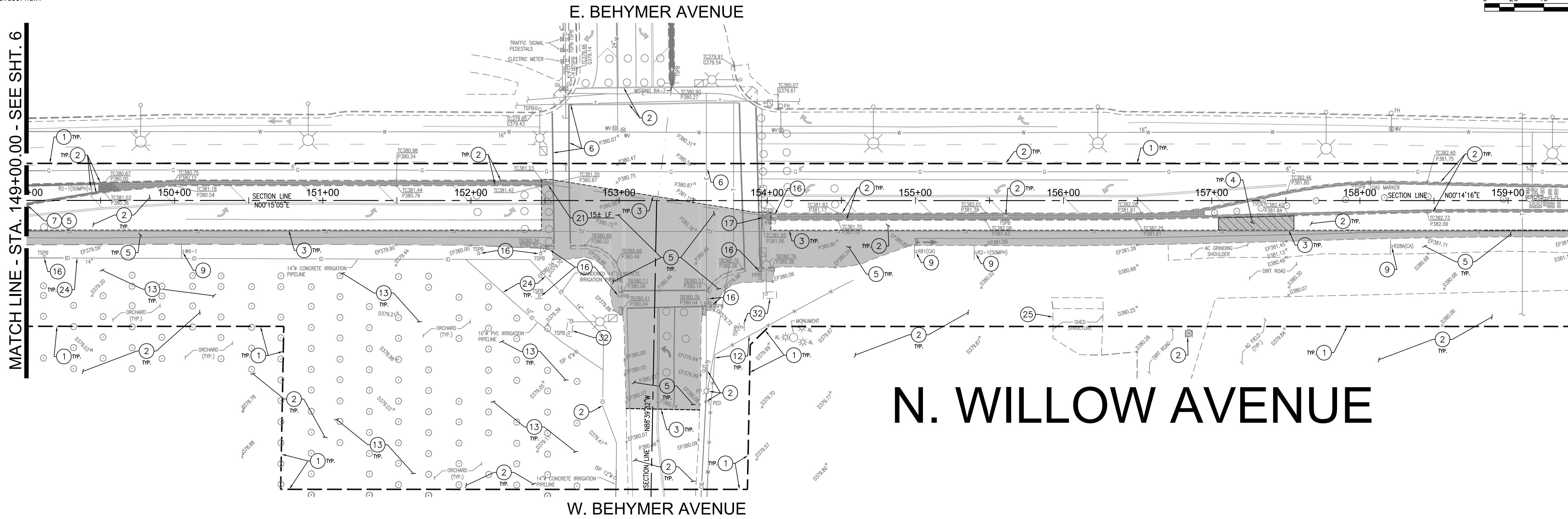
PROJECT NO.
15-16

SHEET DESCRIPTION
TOPOGRAPHIC & DEMOLITION PLAN
N. WILLOW AVENUE - STA. 124+00.00 TO STA. 149+00.00

SHEET NO.
6 of XX



CITY of CLOVIS
PLANNING & DEVELOPMENT



REVISIONS		
NO.	DATE	INITIAL
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APPROVALS		
PROJECT ENGINEER	CAPITAL PROJECTS	APPROVED (INITIAL)
	CONSTRUCTION MANAGEMENT	
	STREETS	
	UTILITIES	
	PLANNING	
	TRAFFIC	
	PARKS	
	FIRE/POLICE	

CITY of CLOVIS
PLANNING AND DEVELOPMENT
SERVICES DEPARTMENT

PROJECT TITLE:
N. WILLOW AVENUE STREET WIDENING
W. SHEPHERD AVENUE TO W. COPPER AVENUE

PROJECT NO.
15-16

SHEET DESCRIPTION:
TOPOGRAPHIC & DEMOLITION PLAN
N. WILLOW AVENUE - STA. 149+00.00 TO STA. 174+00.00

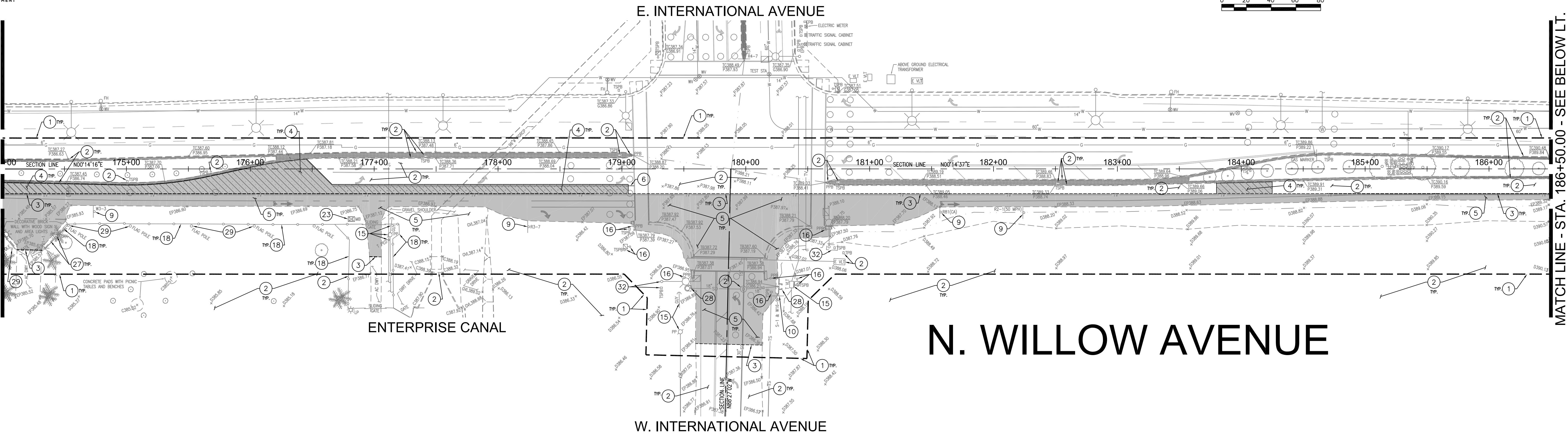
SHEET NO.
7 of XX



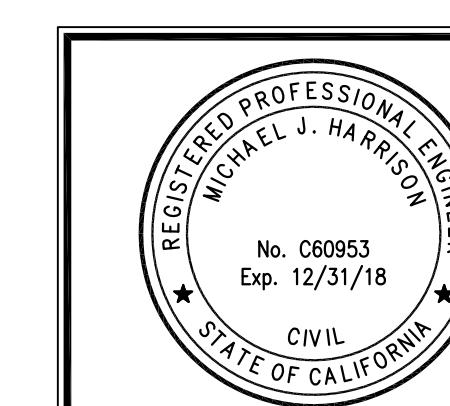
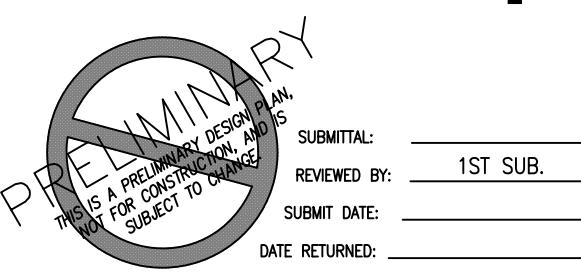
CITY of CLOVIS
PLANNING & DEVELOPMENT



MATCH LINE - STA. 174+00.00 - SEE SHT. 7



MATCH LINE - STA. 186+50.00 - SEE ABOVE RT.



REVISIONS

NO. DATE INITIAL

PROJECT ENGINEER

CAPITAL PROJECTS

CONSTRUCTION MANAGEMENT

STREETS

UTILITIES

PLANNING

TRAFFIC

PARKS

FIRE/POLICE

APPROVALS

APPROVED (INITIAL)

CITY of CLOVIS
PLANNING AND DEVELOPMENT
SERVICES DEPARTMENT

PROJECT TITLE
N. WILLOW AVENUE STREET WIDENING
W. SHEPHERD AVENUE TO W. COPPER AVENUE

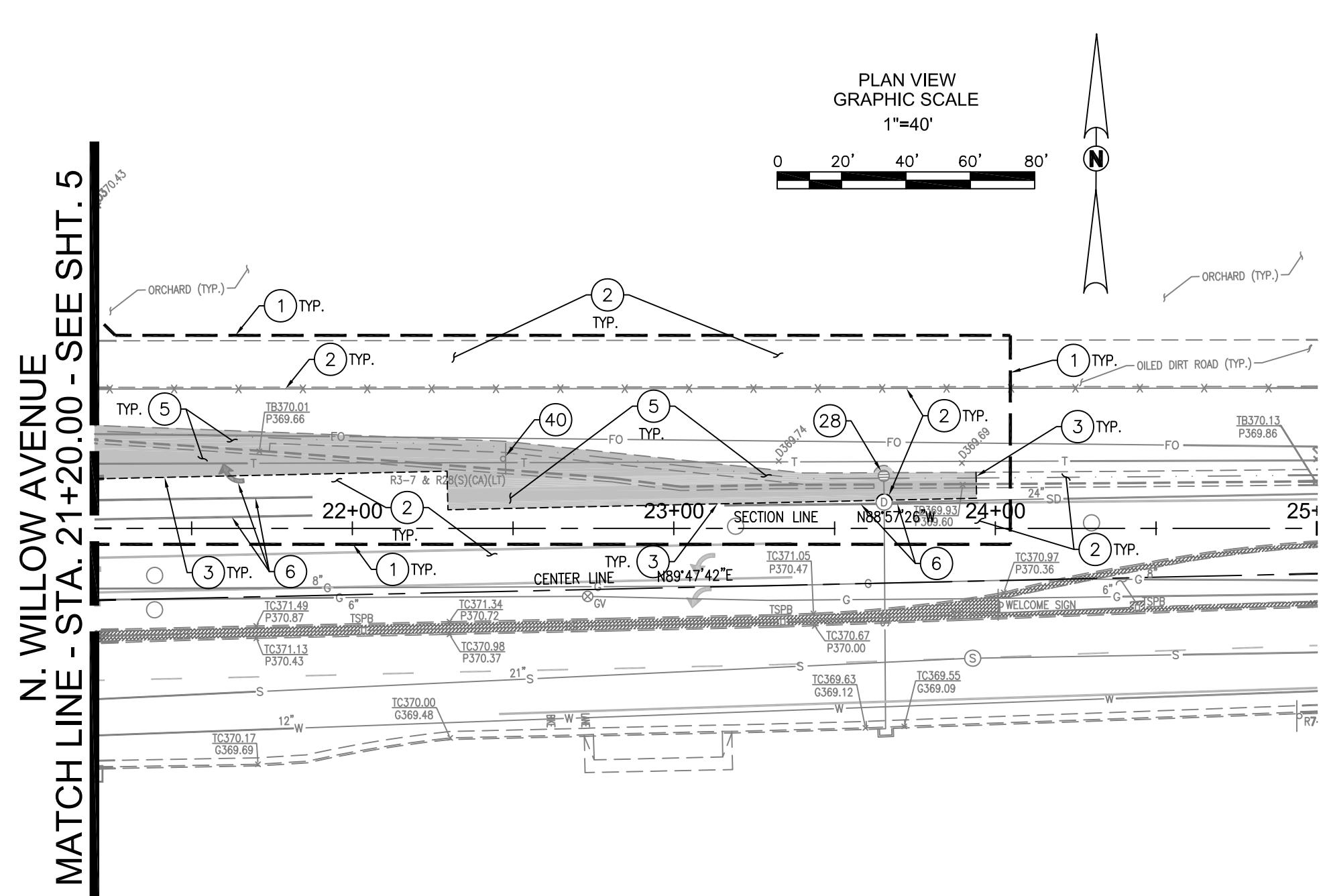
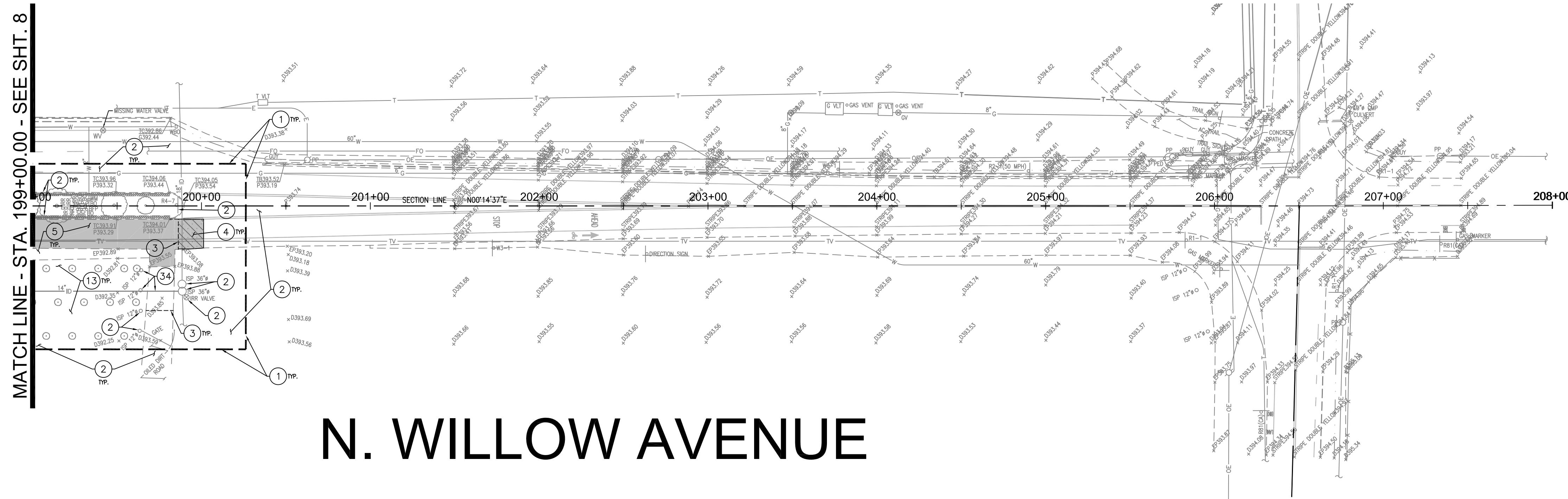
PROJECT NO.
15-16

SHEET DESCRIPTION
TOPOGRAPHIC & DEMOLITION PLAN
N. WILLOW AVENUE - STA. 174+00.00 TO STA. 199+00.00

SHEET NO.
8 of XX



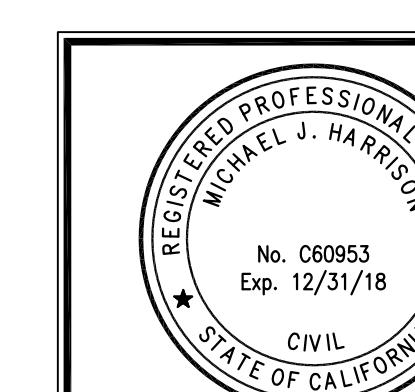
CITY of CLOVIS
PLANNING & DEVELOPMENT



PRELIMINARY

THIS IS PRELIMINARY DRAWINGS.
SUBMITTED FOR CONTRACTOR'S USE.
SUBMIT TO OWNER FOR APPROVAL.
DATE RETURNED: _____

1ST SUB.



REVISIONS

NO. DATE INITIAL

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APPROVALS

PROJECT TITLE

PLANNING AND DEVELOPMENT

SERVICES DEPARTMENT

15-16

PROJECT TITLE

15-16

W. SHEPHERD AVENUE TO W. COPPER AVENUE

W. SHEPHERD AVENUE TO W. COPPER AVENUE

TOPOGRAPHIC & DEMOLITION PLAN

9 or XX

N. WILLOW AVENUE - STA. 199+00.00 TO STA. 207+XX.X±

W. SHEPHERD AVENUE - STA. 21+20.00 TO STA. 23+94.2±

FILE LAST MODIFIED 10/26/2017

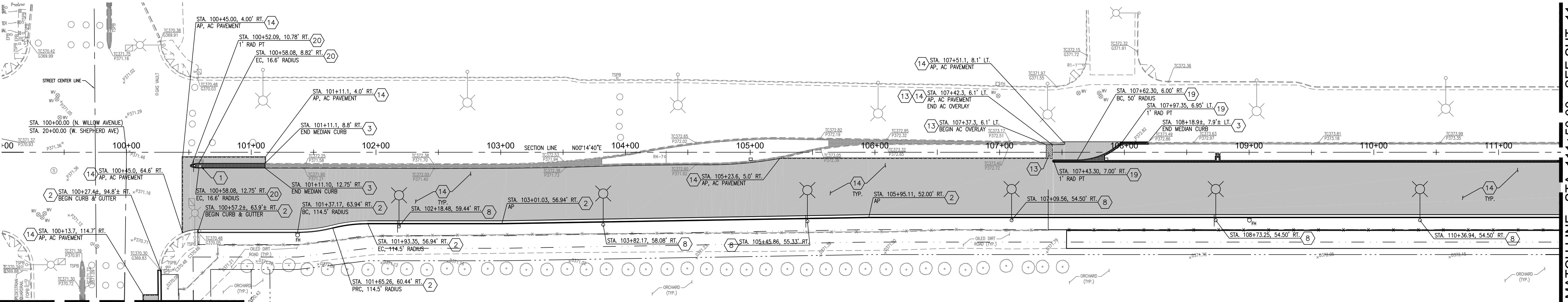


CITY of CLOVIS

PLANNING & DEVELOPMENT

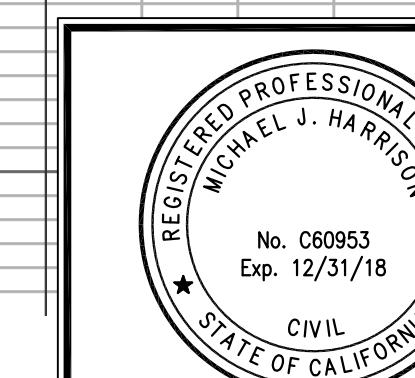
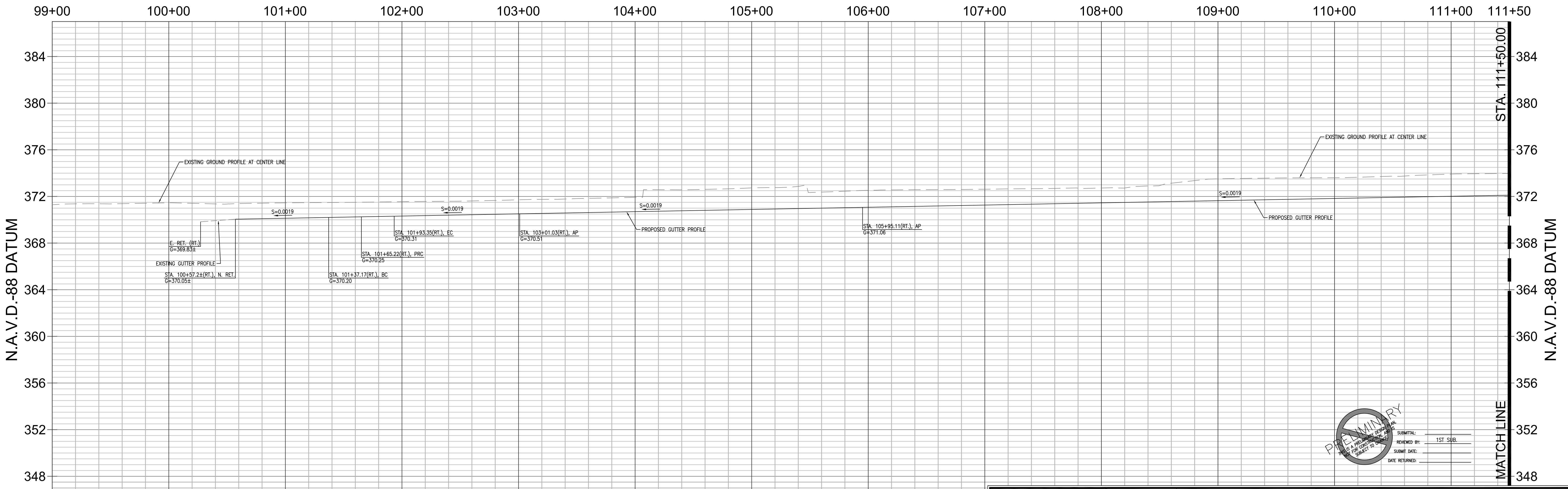
E

E. SHEPHERD AVENUE



**MATCH LINE - STA. 21+20.00 - SEE SHT. 19
W. SHEPHERD AVENUE**

N. WILLOW AVENUE



NO
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REVISION
DATE _____

S
INITIAL

CITY of CLOVIS

PROJECT TITLE
N. WILLOW AVENUE STREET WIDENING
W. CHURCHARD AVENUE TO W. CORPUS AVENUE

W. SHEPHERD AVENUE TO W. COPPER AVENUE

SHEET DESCRIPTION

STREET IMPROVEMENT PLAN

N. WILLOW AVENUE - STA. 100+44.5± TO STA. 111+50.00

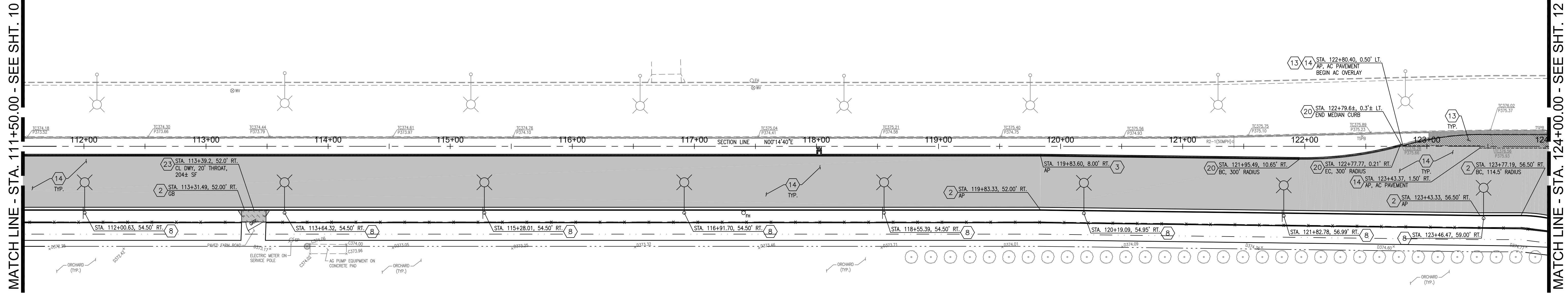


CITY of CLOVIS
PLANNING & DEVELOPMENT

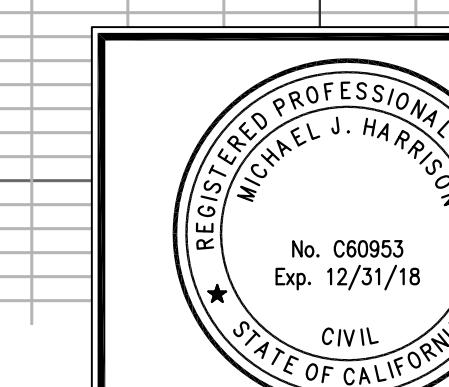
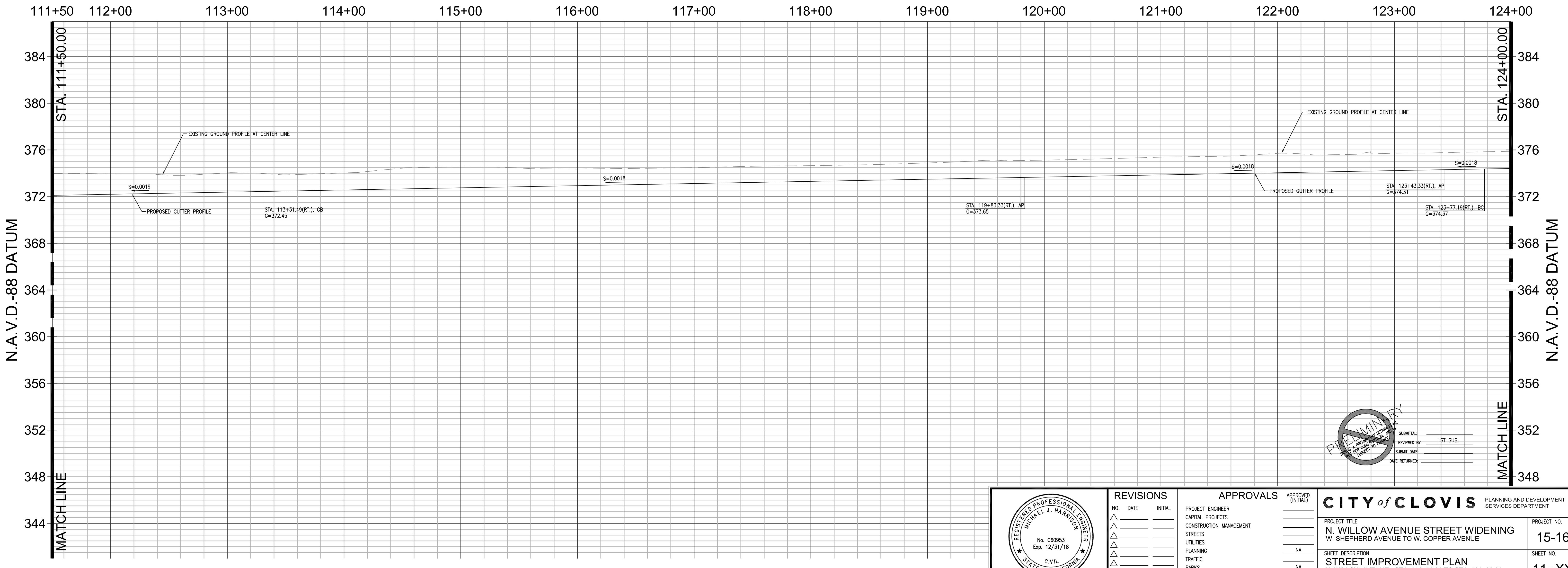


Know what's below.
Call before you dig.

PLAN VIEW
GRAPHIC SCALE
1"=40'
0 20' 40' 60' 80'



N. WILLOW AVENUE



REVISIONS

NO. DATE INITIAL

△ □ △ □ △ □ △ □ △ □ △ □ △ □ △ □

APPROVALS

APPROVED

- PROJECT ENGINEER
- CAPITAL PROJECTS
- CONSTRUCTION MANAGEMENT
- STREETS
- UTILITIES
- PLANNING
- TRAFFIC
- PARKS
- FIRE/POLICE

CITY of CLOVIS
PLANNING AND DEVELOPMENT
SERVICES DEPARTMENT

PROJECT TITLE
N. WILLOW AVENUE STREET WIDENING
W. SHEPHERD AVENUE TO W. COPPER AVENUE

PROJECT NO.
15-16

SHEET DESCRIPTION
STREET IMPROVEMENT PLAN
N. WILLOW AVENUE - STA. 111+50.00 TO STA. 124+00.00

SHEET NO.
11 or XX

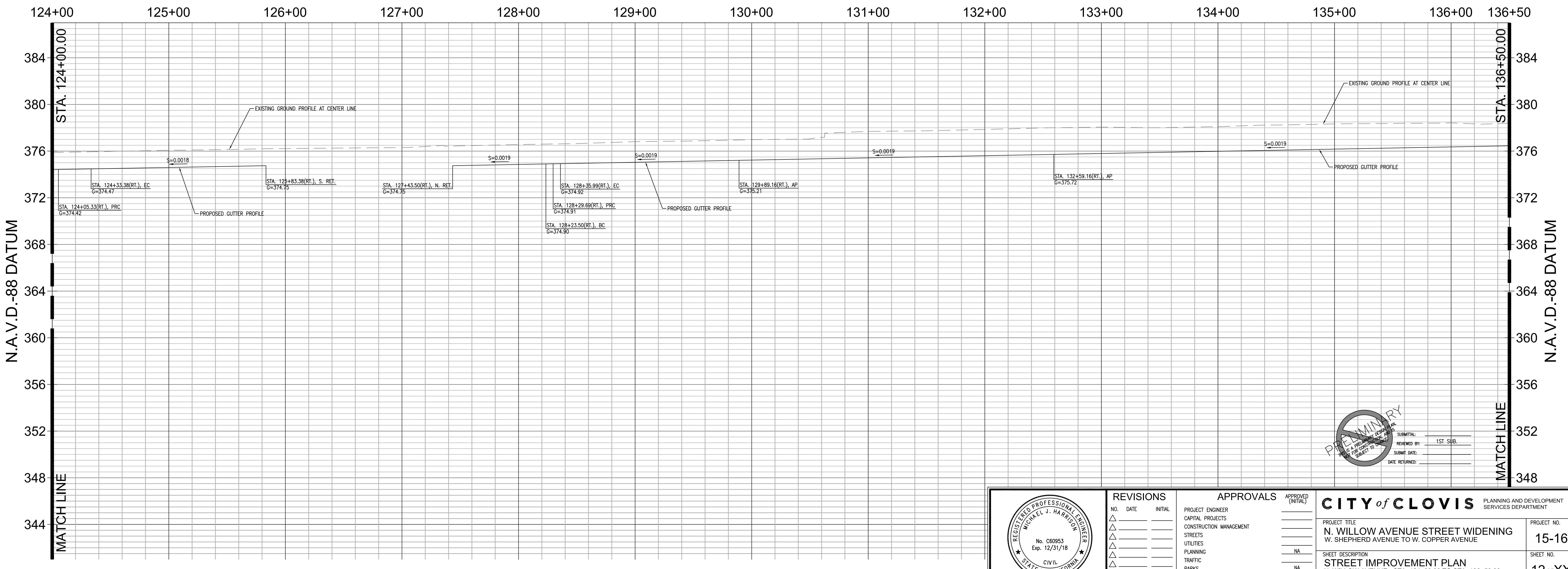


CITY of CLOVIS

PLANNING & DEVELOPMENT

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

N. WILLOW AVENUE

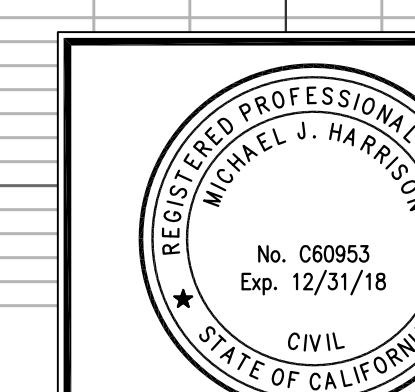
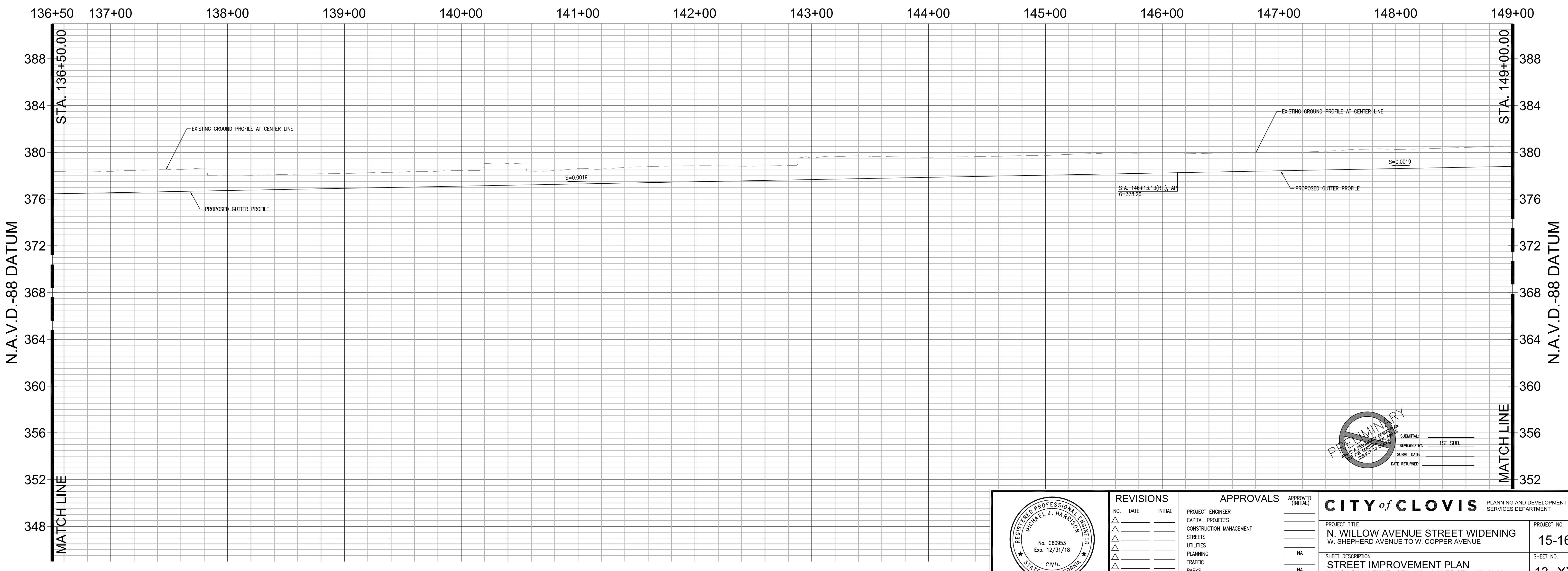
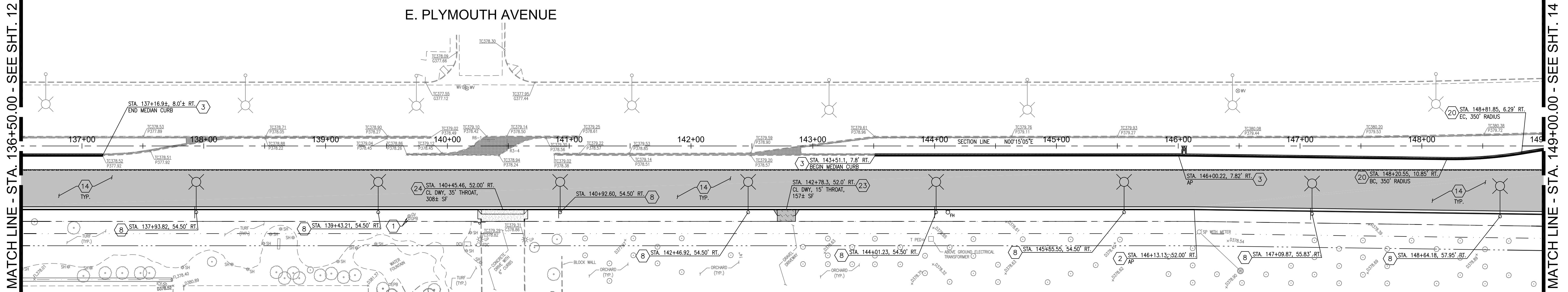




CITY of CLOVIS
PLANNING & DEVELOPMENT



PLAN VIEW
GRAPHIC SCALE
1"=40'
0 20' 40' 60' 80'



REVISIONS

NO. DATE INITIAL

△ □ △ □ △ □ △ □ △ □ △ □ △ □

APPROVALS

PROJECT ENGINEER
CAPITAL PROJECTS
CONSTRUCTION MANAGEMENT
STREETS
UTILITIES
PLANNING
TRAFFIC
PARKS
FIRE/POLICE

APPROVED
NA
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CITY of CLOVIS
PLANNING AND DEVELOPMENT
SERVICES DEPARTMENT

PROJECT TITLE
N. WILLOW AVENUE STREET WIDENING
W. SHEPHERD AVENUE TO W. COPPER AVENUE

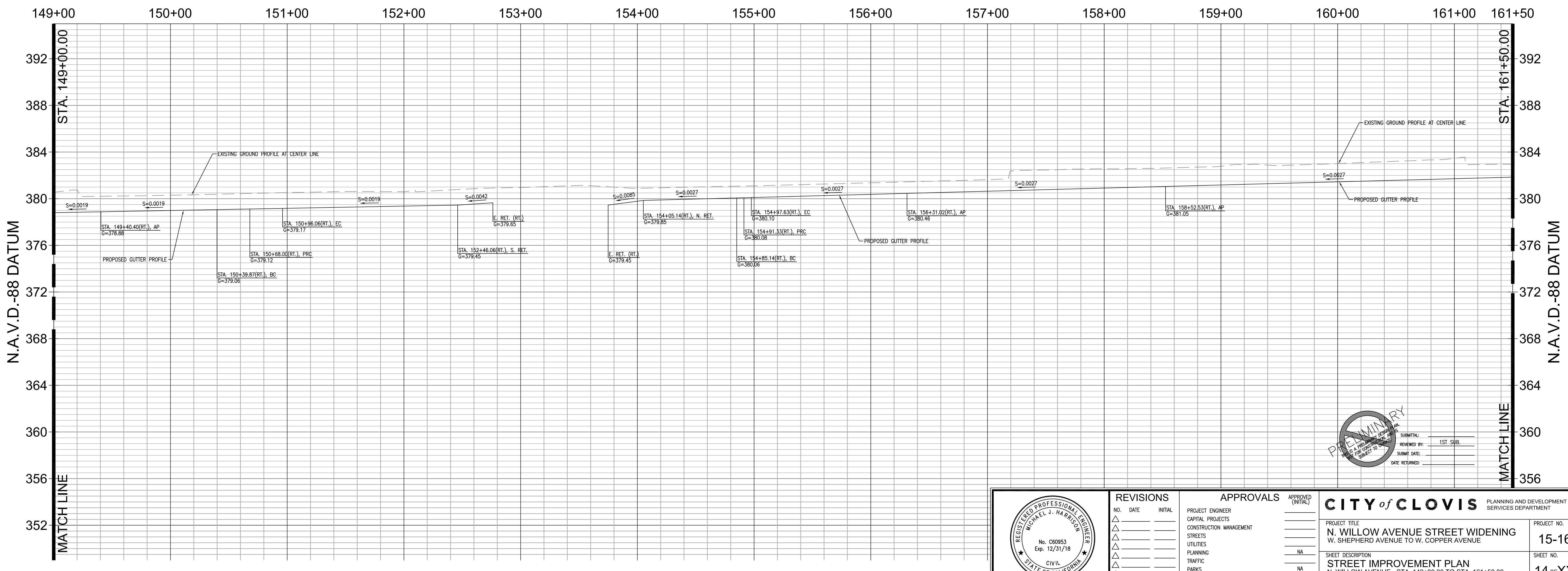
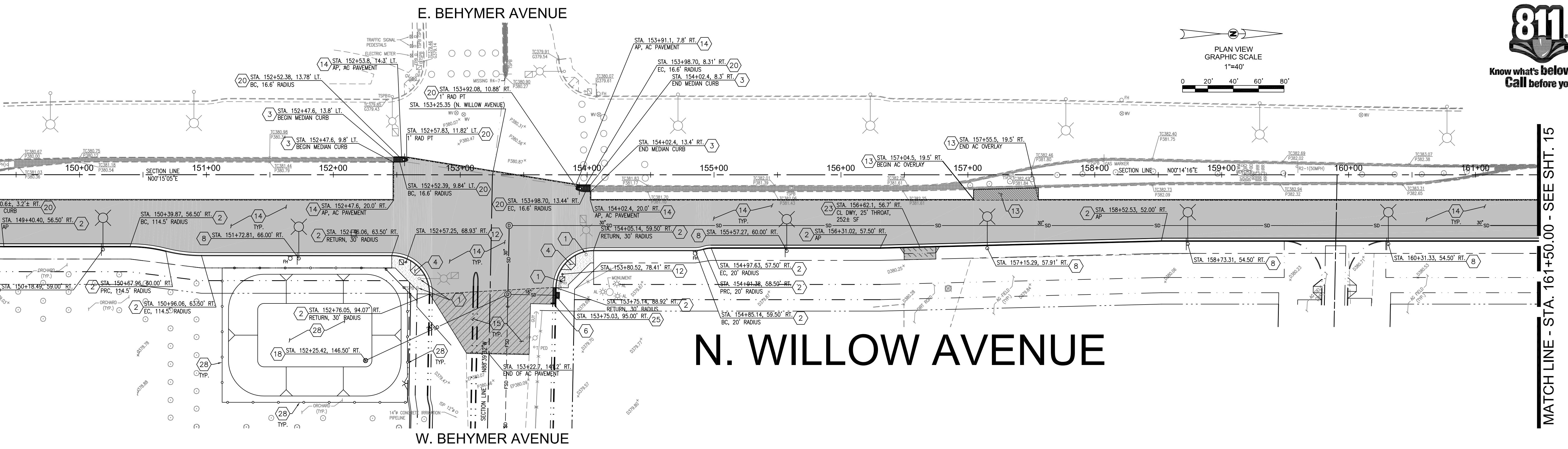
PROJECT NO.
15-16

SHEET DESCRIPTION
STREET IMPROVEMENT PLAN
N. WILLOW AVENUE - STA. 136+50.00 TO STA. 149+00.00

SHEET NO.
13 of XX

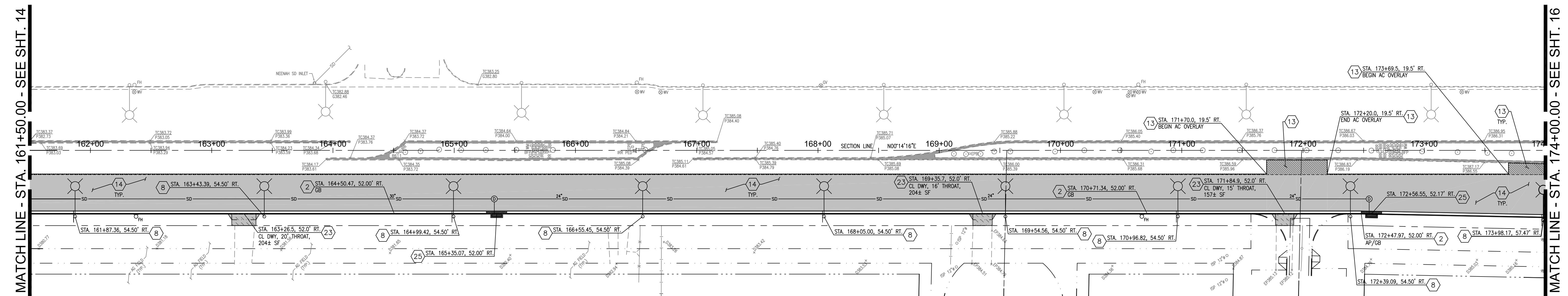


CITY of CLOVIS
PLANNING & DEVELOPMENT

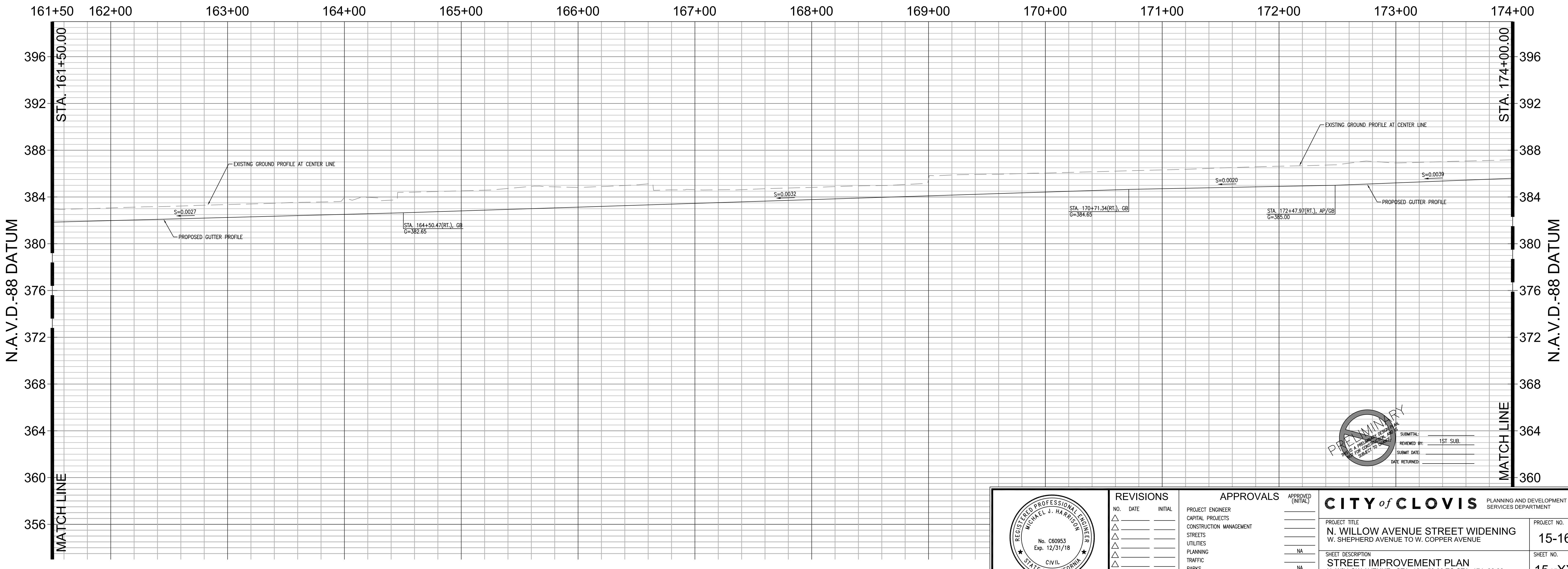




CITY of CLOVIS
PLANNING & DEVELOPMENT

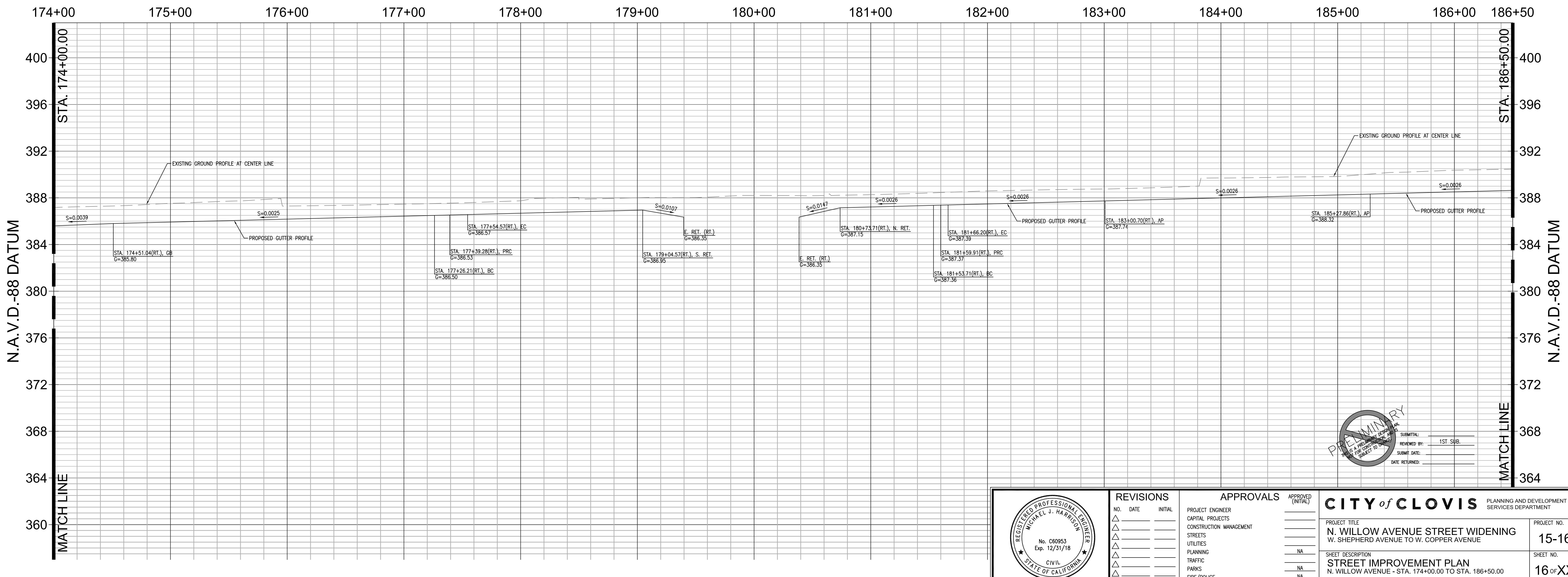
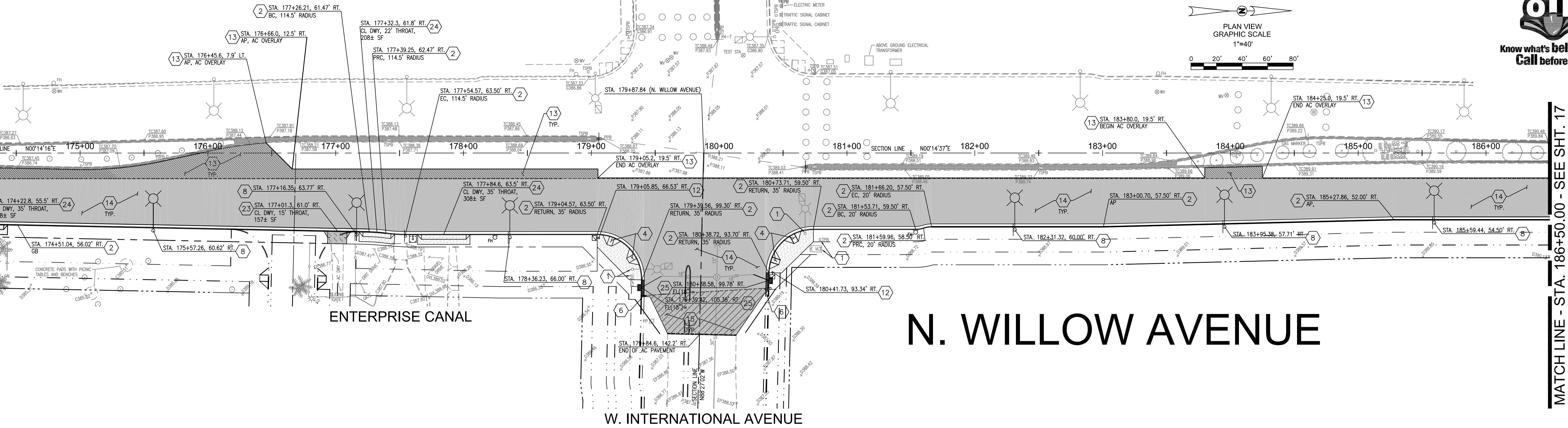


N. WILLOW AVENUE





CITY of CLOVIS
PLANNING & DEVELOPMENT

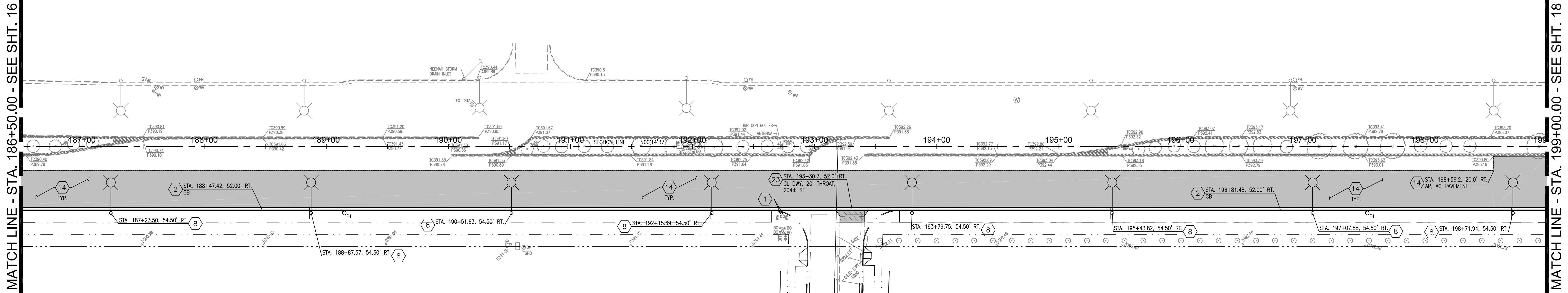




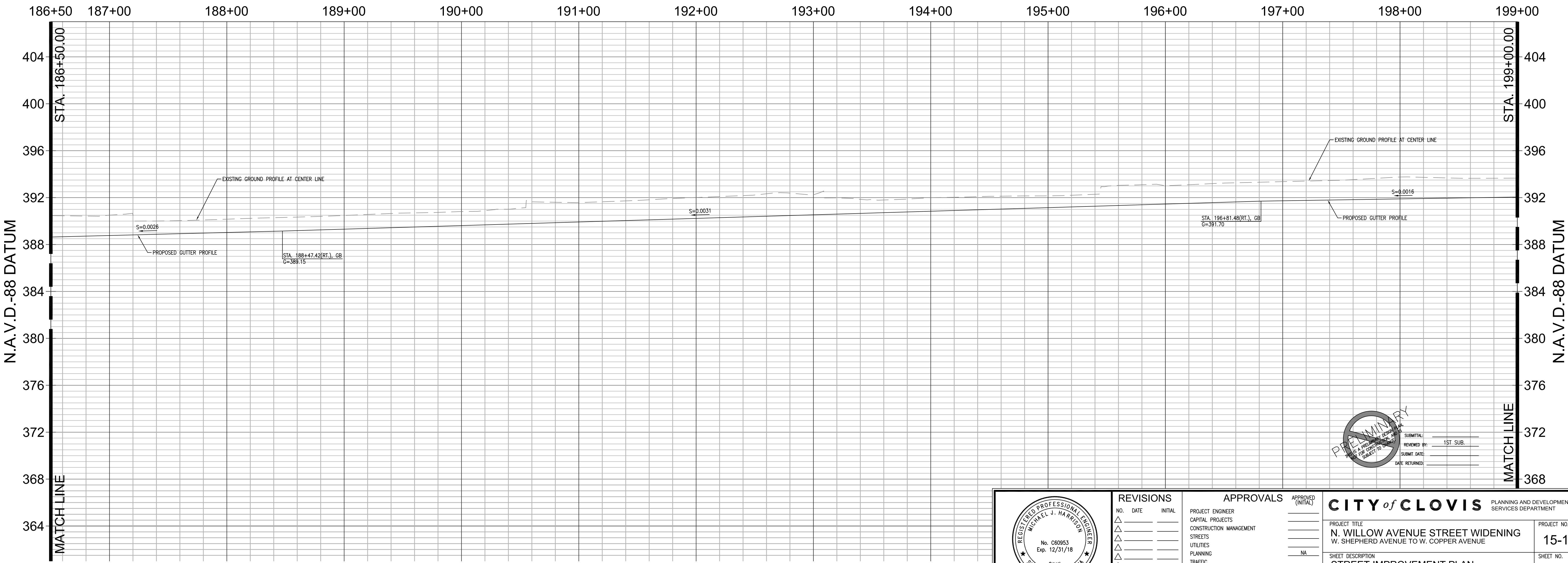
CITY of CLOVIS
PLANNING & DEVELOPMENT



PLAN VIEW
GRAPHIC SCALE
1"=40'
0 20' 40' 60' 80'



N. WILLOW AVENUE





CITY of CLOVIS
PLANNING & DEVELOPMENT



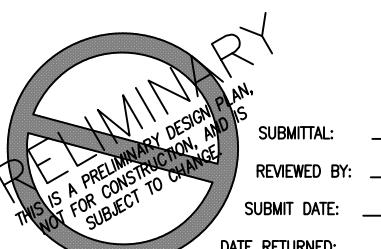
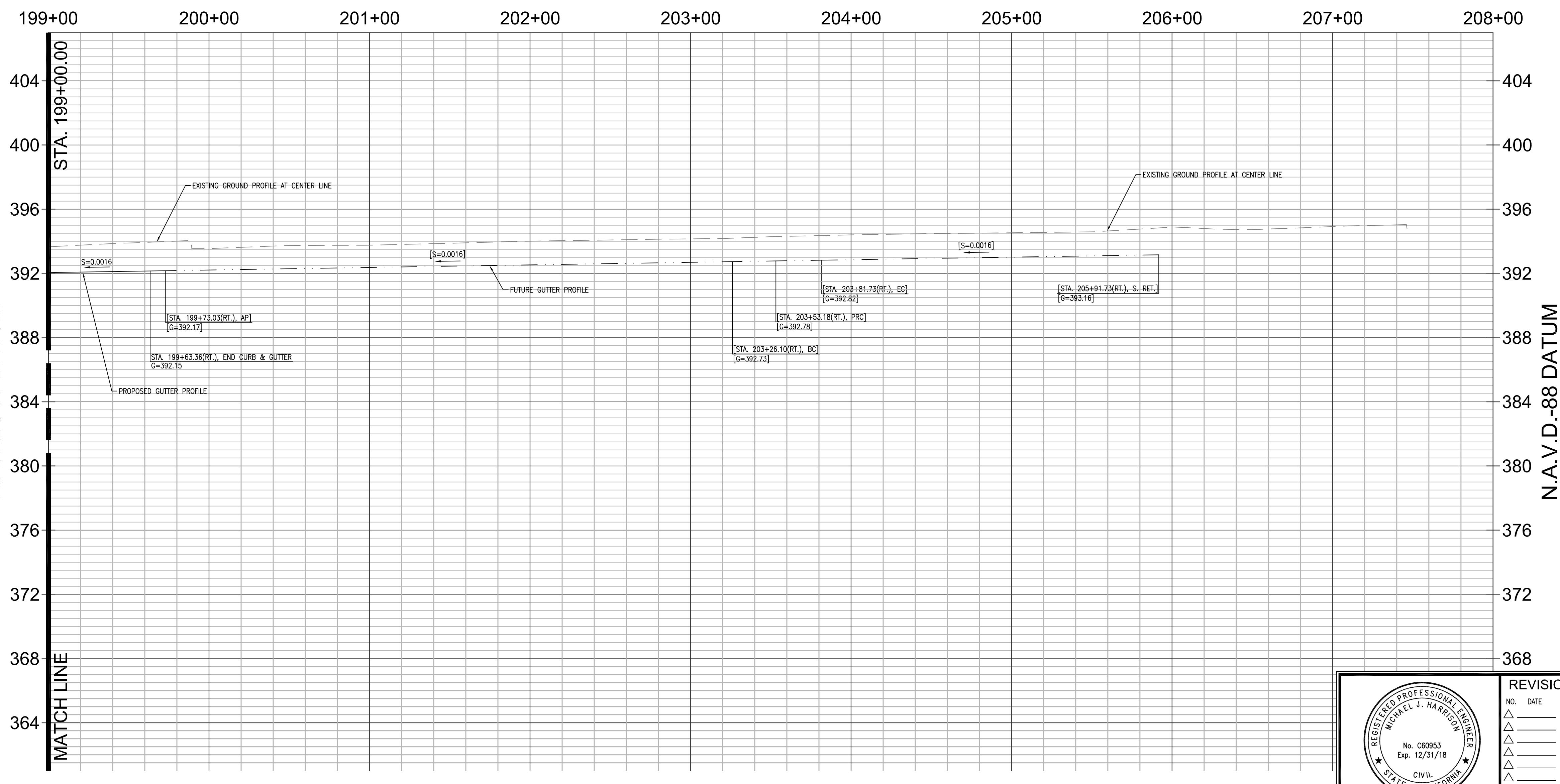
**now what's below.
Call before you dig.**

E. COPPER AVENUE

MATCH LINE - STA. 199+00.00 - SEE SHT. 17

N. WILLOW AVENUE

W. COPPER AVENUE



1ST SUB.

A circular notary seal with a double-line border. The outer ring contains the text "REGISTERED PROFESSIONAL" at the top and "CIVIL ENGINEER" at the bottom. The inner circle contains "MICHAEL J. HARRISON" at the top and "STATE OF CALIFORNIA" at the bottom. In the center is a five-pointed star to the left of the registration number "No. C60953" and expiration date "Exp. 12/31/18".

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REVISION
D. DATE

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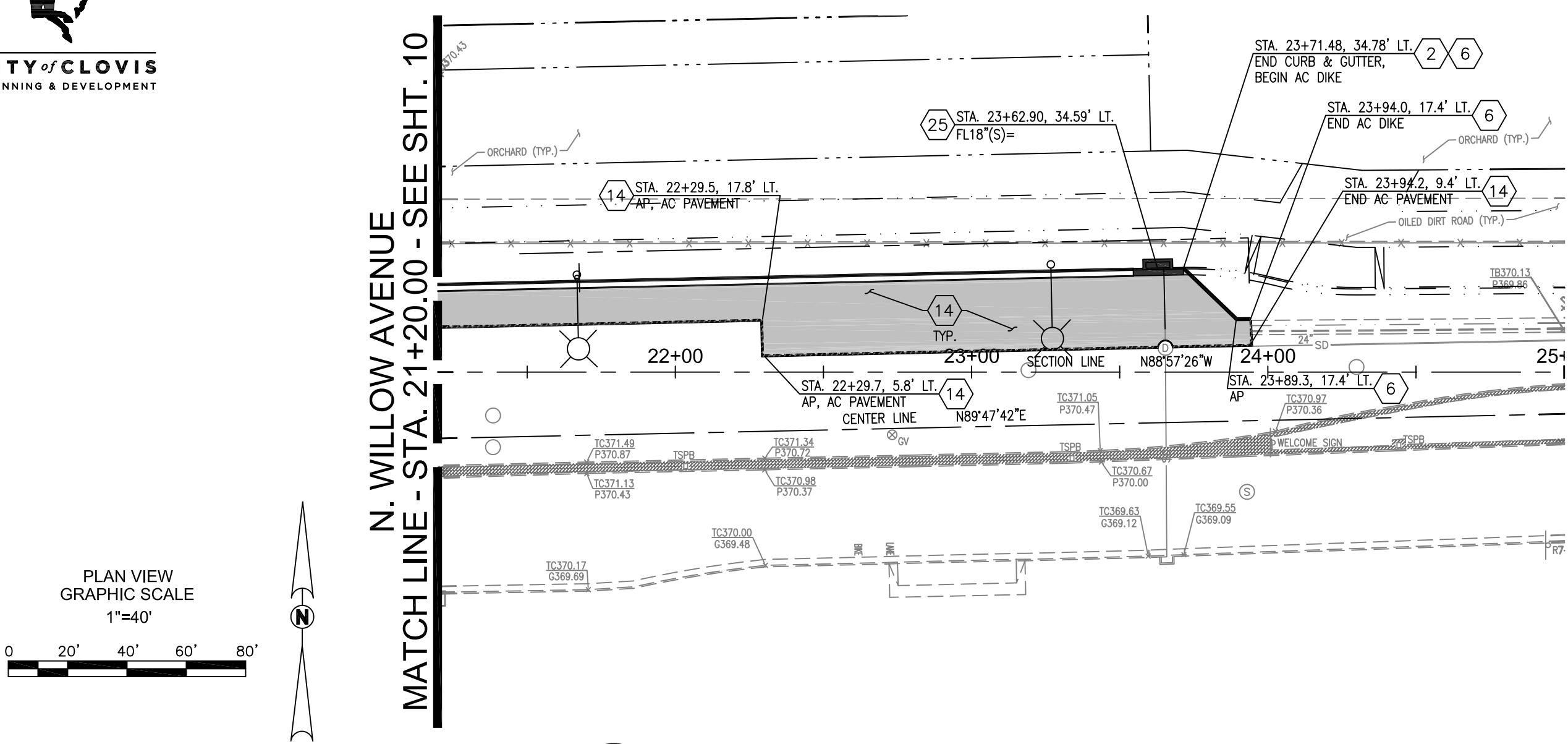
APPROVED (INITIAL)	CITY of CLOVIS	PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
NA	PROJECT TITLE N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE	PROJECT NO. 15-16
NA	SHEET DESCRIPTION STREET IMPROVEMENT PLAN N. WILLOW AVENUE - STA. 199+00.00 TO STA. 207+XX.XX±	SHEET NO. 18 OF XX
NA		



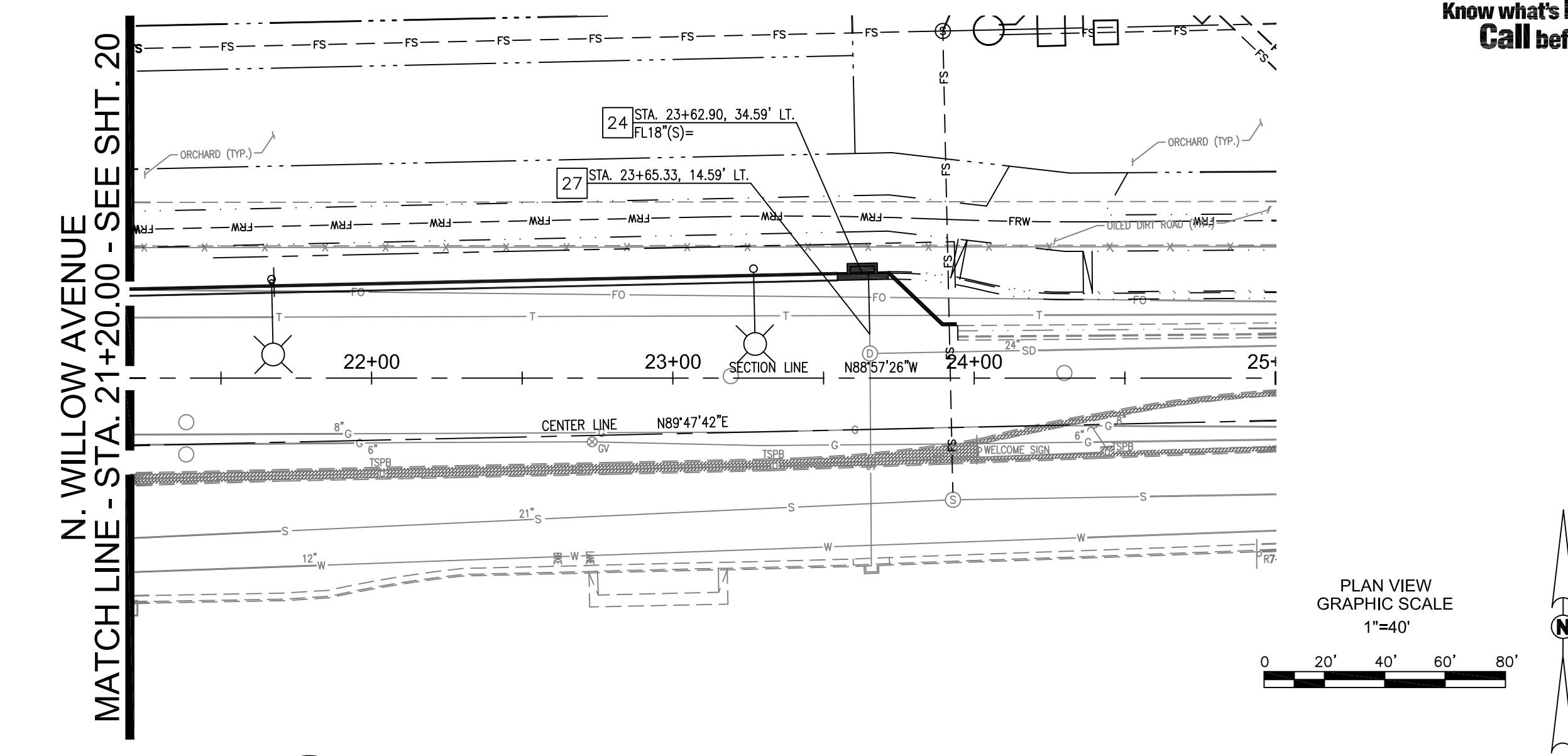
CITY of CLOVIS
PLANNING & DEVELOPMENT



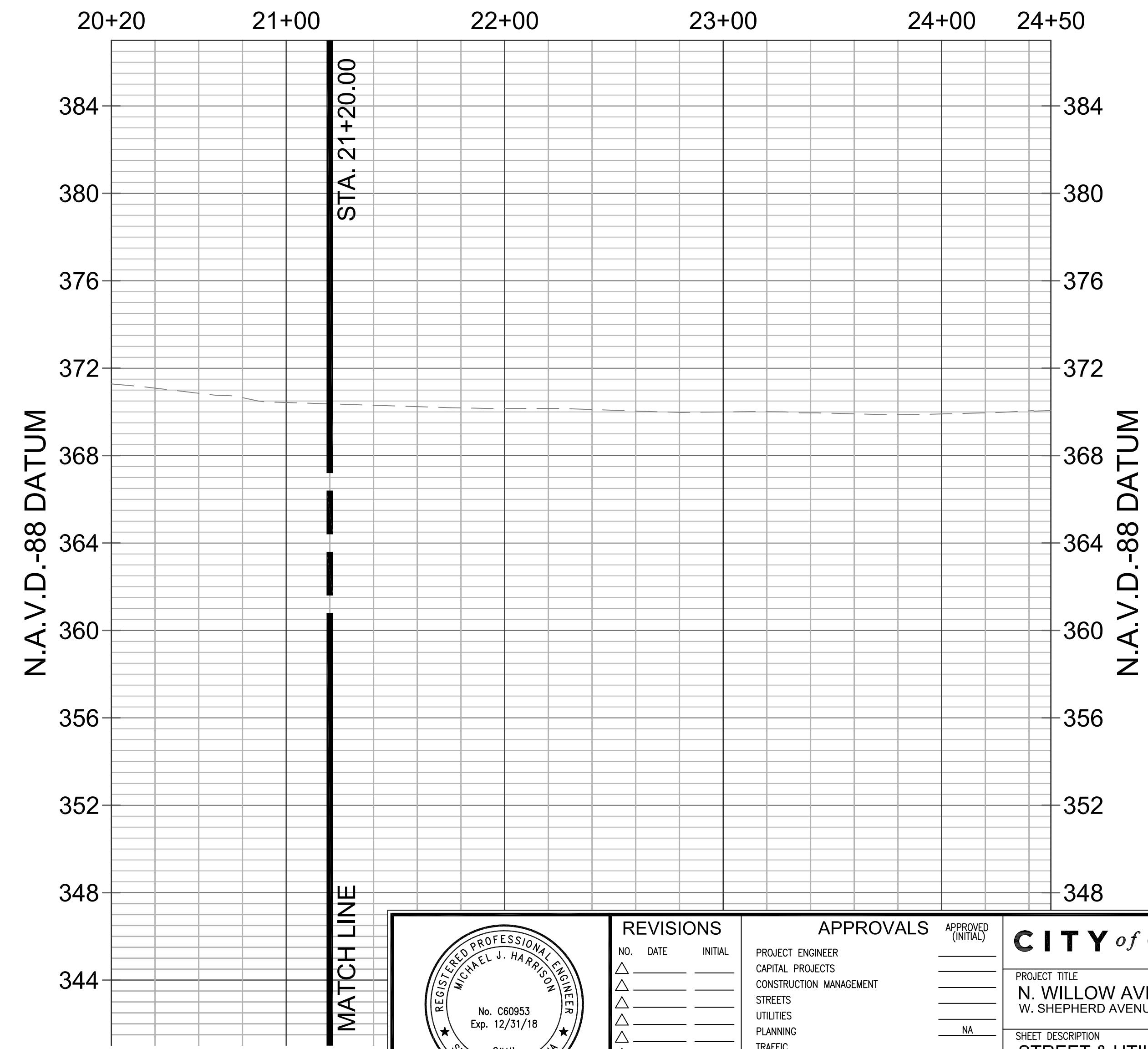
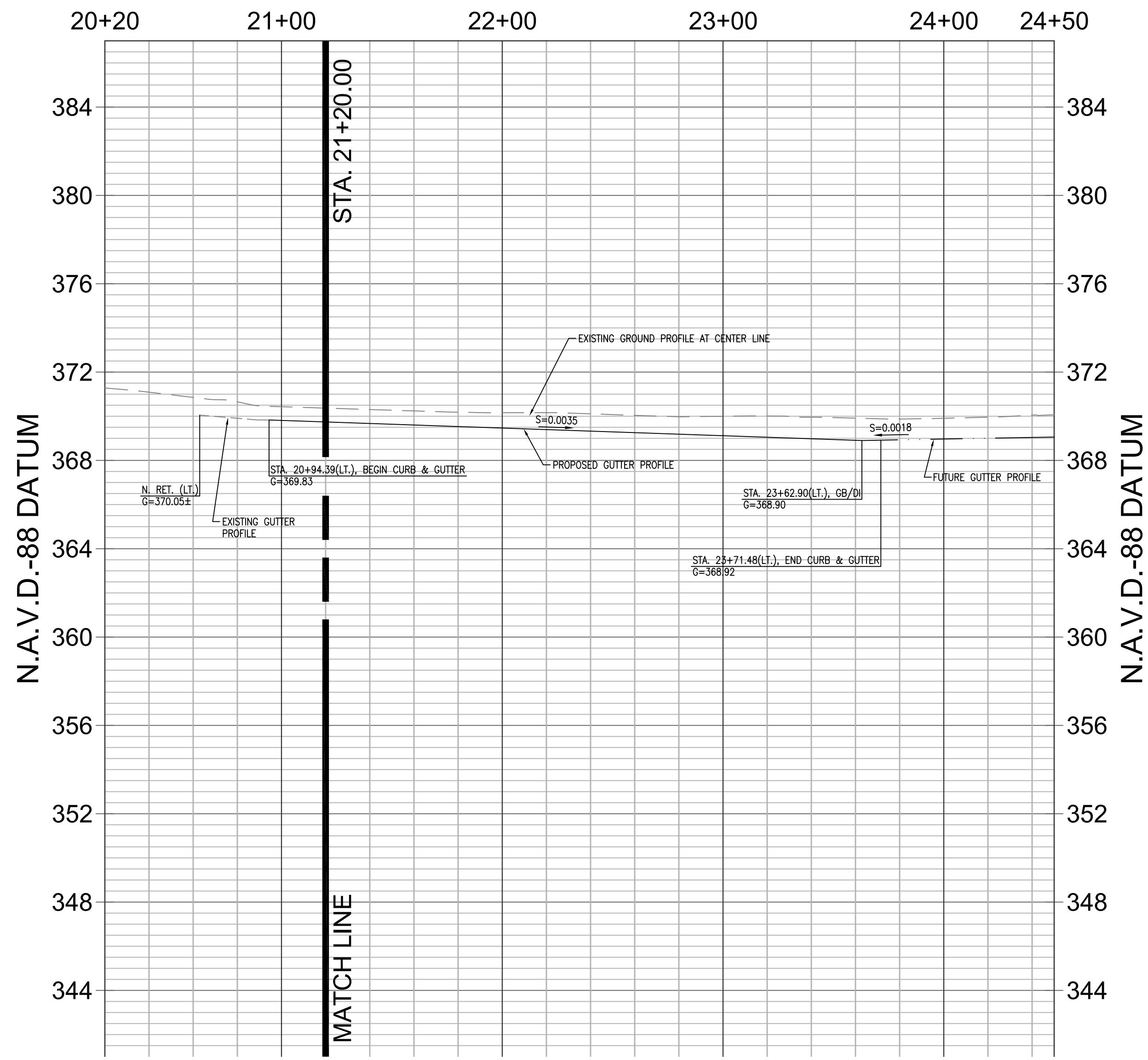
**Know what's below.
Call before you dig.**



W. SHEPHERD AVENUE (STREET IMPROVEMENT PLAN)



W. SHEPHERD AVENUE (UTILITY IMPROVEMENT PLAN)



C:\USERS\FRICE\Desktop\PROJECTS\CIP\2015\15-16\DESIGN\15-16 BASE DWG

FILE LAST MODIFIED 10/26/2017

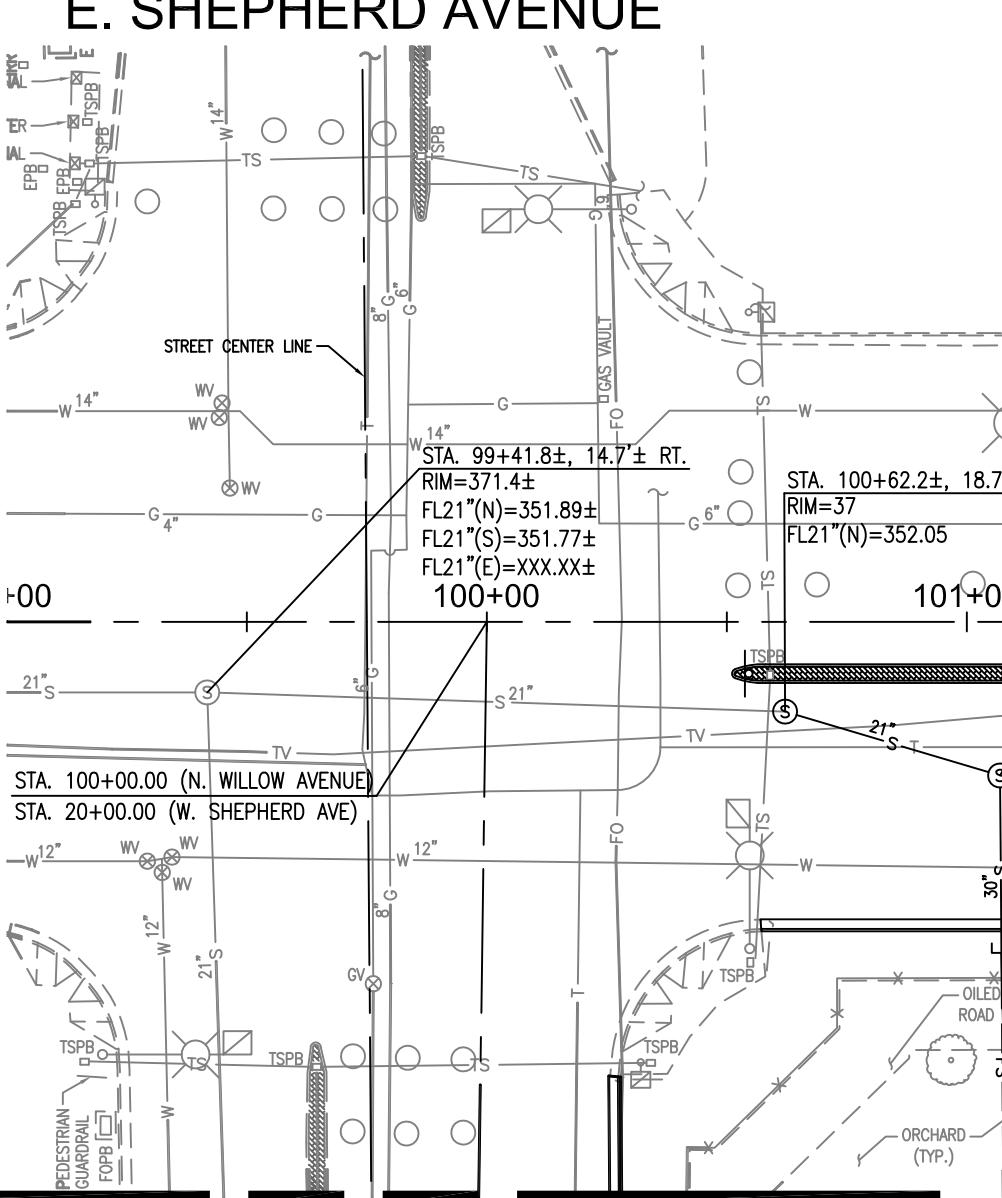


CITY of CLOVIS

PLANNING & DEVELOPMENT

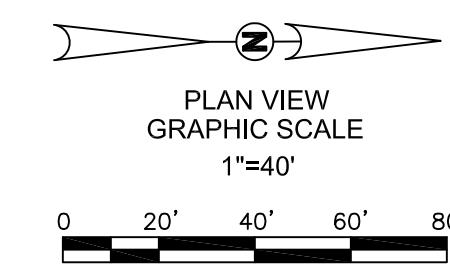
5

E. SHEPHERD AVENUE



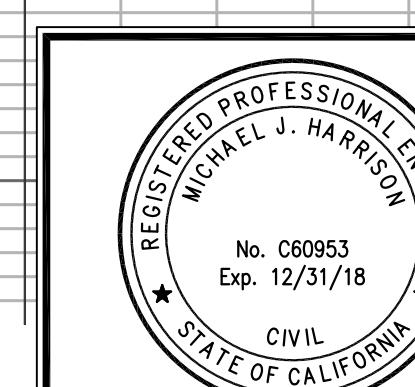
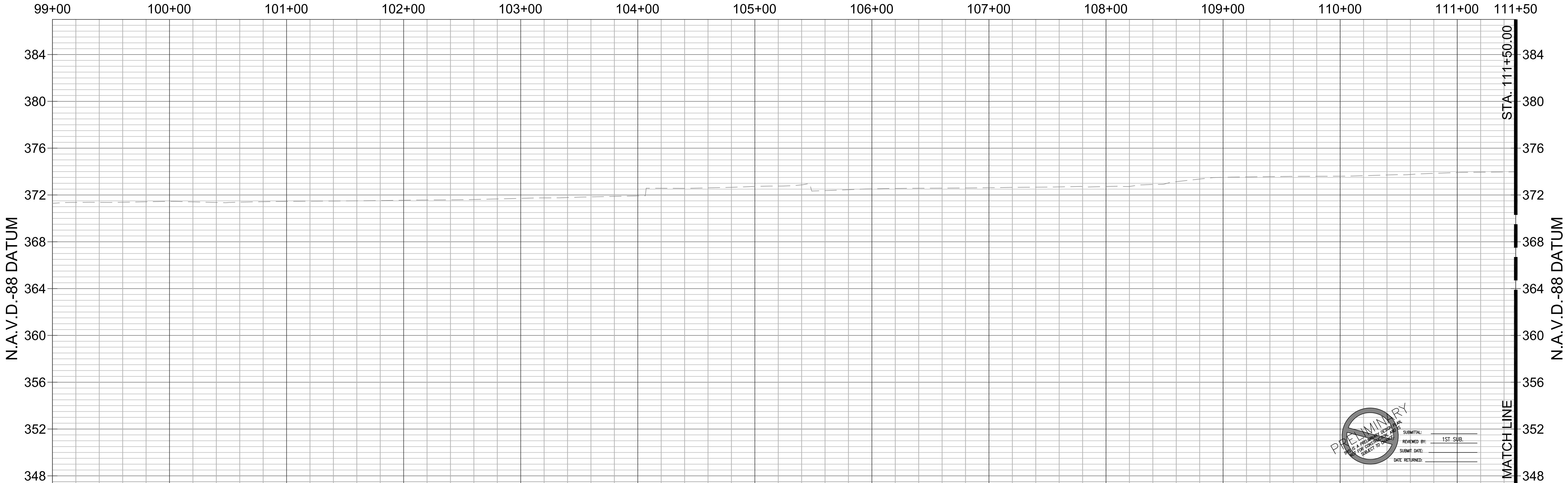
**MATCH LINE - STA. 21+20.00 - SEE SHT. 19
W. SHEPHERD AVENUE**

E. YEARGIN AVENUE



N. WILLOW AVENUE

99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 111+50



REVISIONS			APPROVALS	APPROVED (INITIAL)
NO.	DATE	INITIAL		
△	_____	_____	PROJECT ENGINEER	_____
△	_____	_____	CAPITAL PROJECTS	_____
△	_____	_____	CONSTRUCTION MANAGEMENT	_____
△	_____	_____	STREETS	_____
△	_____	_____	UTILITIES	_____
△	_____	_____	PLANNING	NA
△	_____	_____	TRAFFIC	NA
△	_____	_____	PARKS	_____
△	_____	_____		

CITY *of* CLOVIS

SERVICES DEPARTMENT

PROJECT TITLE	WILLOW AVENUE STREET WIDENING	PROJECT NO.
---------------	-------------------------------	-------------

1. WILLOW AVENUE STREET WIDENING
/ SHEPHERD AVENUE TO W. COPPER AVENUE

WONDER AVENUE TO W. COPPER AVENUE

UTILITY IMPROVEMENT PLAN

WILLOW AVENUE - STA. 100+62.2± TO STA. 111+50.00

2023-2024 BUDGET
SERVICES DEPARTMENT

PROJECT TITLE	WILLOW AVENUE STREET WIDENING	PROJECT NO.
---------------	-------------------------------	-------------

1. WILLOW AVENUE STREET WIDENING
/ SHEPHERD AVENUE TO W COPPER AVENUE

WONDER AVENUE TO W. COPPER AVENUE

UTILITY IMPROVEMENT PLAN

WILLOW AVENUE - STA. 100+62.2± TO STA. 111+50.00



CITY of CLOVIS

PLANNING & DEVELOPMENT



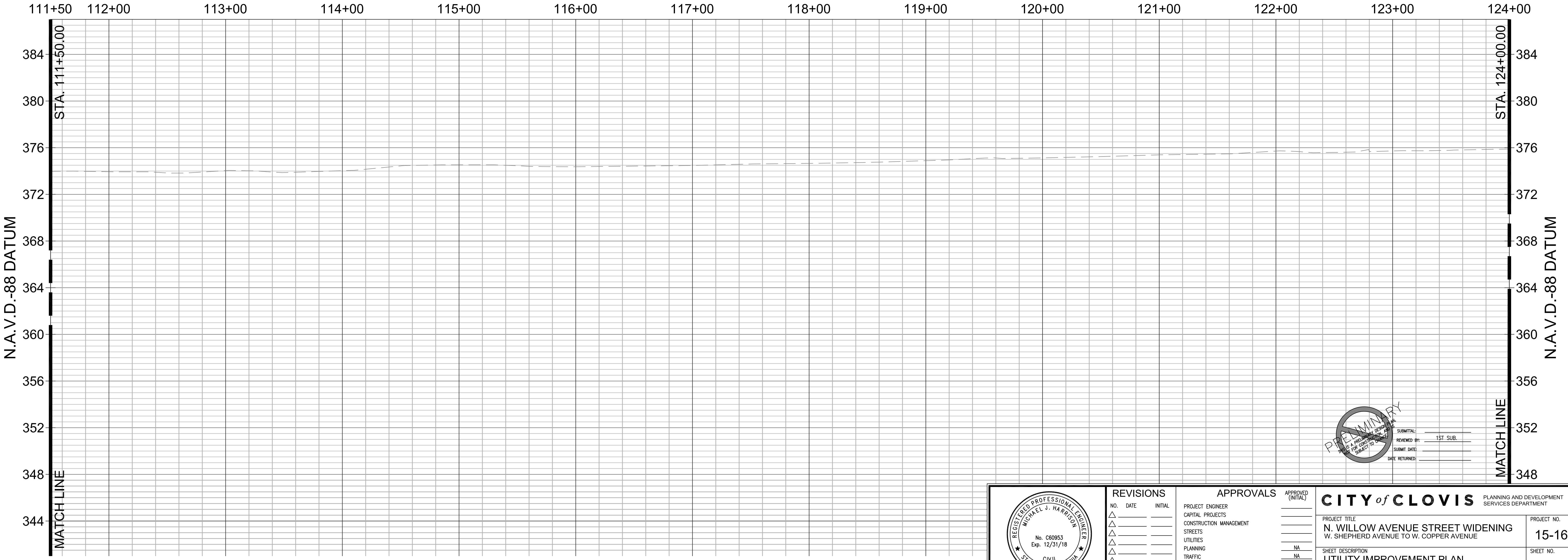
**Know what's below.
Call before you dig.**

**PLAN VIEW
GRAPHIC SCALE**

1"=40'

0	20'	40'	60'	80'

N. WILLOW AVENUE



C:\USERS\ERICE\DESKTOP\PROJECTS\CIP\2015\15-16\DESIGN\15-16 BASE.DWG

FILE LAST MODIFIED 10/26/2017



CITY of CLOVIS
PLANNING & DEVELOPMENT

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

PLAN VIEW
GRAPHIC SCALE

1"=40'

0 20' 40' 60' 80'

E. PERRIN AVENUE

MATCH LINE - STA. 124+00.00 - SEE SHT. 21

SECTION LINE
N00°14'40"E

TRAFFIC SIGNAL PEDESTAL
ELECTRIC METER
TRAFFIC SIGNAL PEDESTAL
EPB
TSPB
BO
BO
TSPB
W
W
WV
WV
WV
TS
TS
W
14" W
16" W
JT
STA. 126+62.98 (N. WILLOW AVENUE)
G
G
G
00 125+00 126+00 127+00
2 STA. 126+42.43, 32.00' RT.
RIM=37
FL24"(N,S)=355.26
TV
TV
S
24" S
24" S
W
W
WV
FH
16 STA. 125+03.38, 66.00' RT.
STA. 126+24.19, 46.00' RT.
INSTALL:
1-12" TEE
3-12" GATE VALVES (N,S,E)
ORCHARD (TYP.)
FW
STA. 126+23.82, 67.91' RT.
INSTALL 12" CAP
FUTURE W. PERRIN AVENUE

N. WILLOW AVENUE

A circular black and white stamp with a double-line border. The outer ring contains the text "REGISTERED PROFESSIONAL" at the top and "CIVIL ENGINEER" at the bottom. The inner circle contains "MICHAEL J. HARRISON" at the top and "STATE OF CALIFORNIA" at the bottom. In the center is a five-pointed star on the left and the registration number "No. C60953" above the expiration date "Exp. 12/31/18".

NO
△△△△△△△△

IONS	APPROVALS
INITIAL	PROJECT ENGINEER
	CAPITAL PROJECTS
	CONSTRUCTION MANAGEMENT
	STREETS
	UTILITIES
	PLANNING
	TRAFFIC
	PARKS

CITY of CLOVIS		PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
PROJECT TITLE	N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE	PROJECT NO. 15-16
SHEET DESCRIPTION	UTILITY IMPROVEMENT PLAN N. WILLOW AVENUE - STA. 124+00.00 TO STA. 136+50.00	SHEET NO. 22 OF X



CITY of CLOVIS

PLANNING & DEVELOPMENT

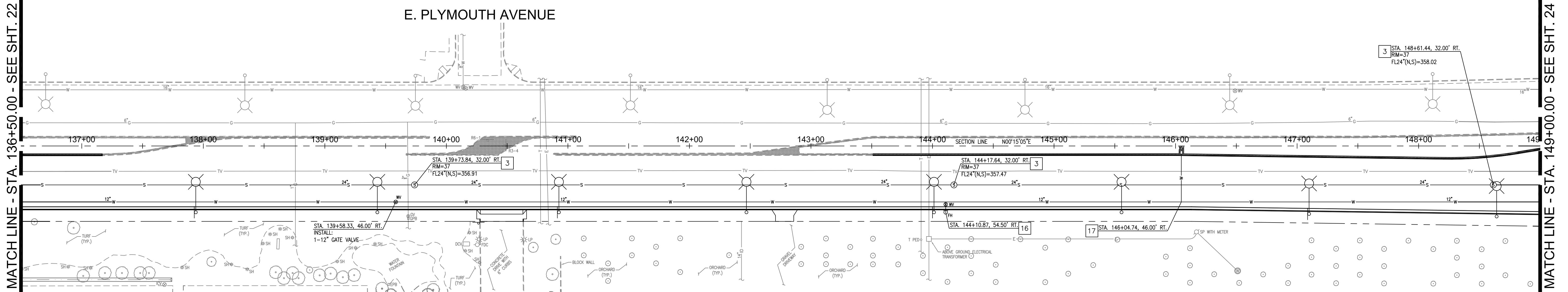


**Know what's below.
Call before you dig.**

PLAN VIEW
GRAPHIC SCALE
1"=40'

0 20' 40' 60' 80'

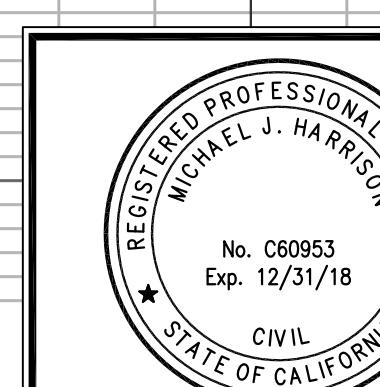
E. PLYMOUTH AVENUE



N. WILLOW AVENUE

136+50 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00

N.A.V.D.-88 DATUM



REVISIONS			APPROVALS	
NO.	DATE	INITIAL	PROJECT ENGINEER	APPROVED (INITIAL)
<input type="triangle"/>	_____	_____	CAPITAL PROJECTS	_____
<input type="triangle"/>	_____	_____	CONSTRUCTION MANAGEMENT	_____
<input type="triangle"/>	_____	_____	STREETS	_____
<input type="triangle"/>	_____	_____	UTILITIES	_____
<input type="triangle"/>	_____	_____	PLANNING	NA
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CITY *of* CLOVIS

PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE
I. WILLOW AVENUE STREET WIDENING
W. SHERIFF AVENUE TO W. COPPER AVENUE

15-16

W. CHESTER AVENUE TO W. COPPER AVENUE STREET DESCRIPTION **UTILITY IMPROVEMENT PLAN**

9+00.00



CITY of CLOVIS
PLANNING & DEVELOPMENT

CITY of CLOVIS
PLANNING & DEVELOPMENT

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

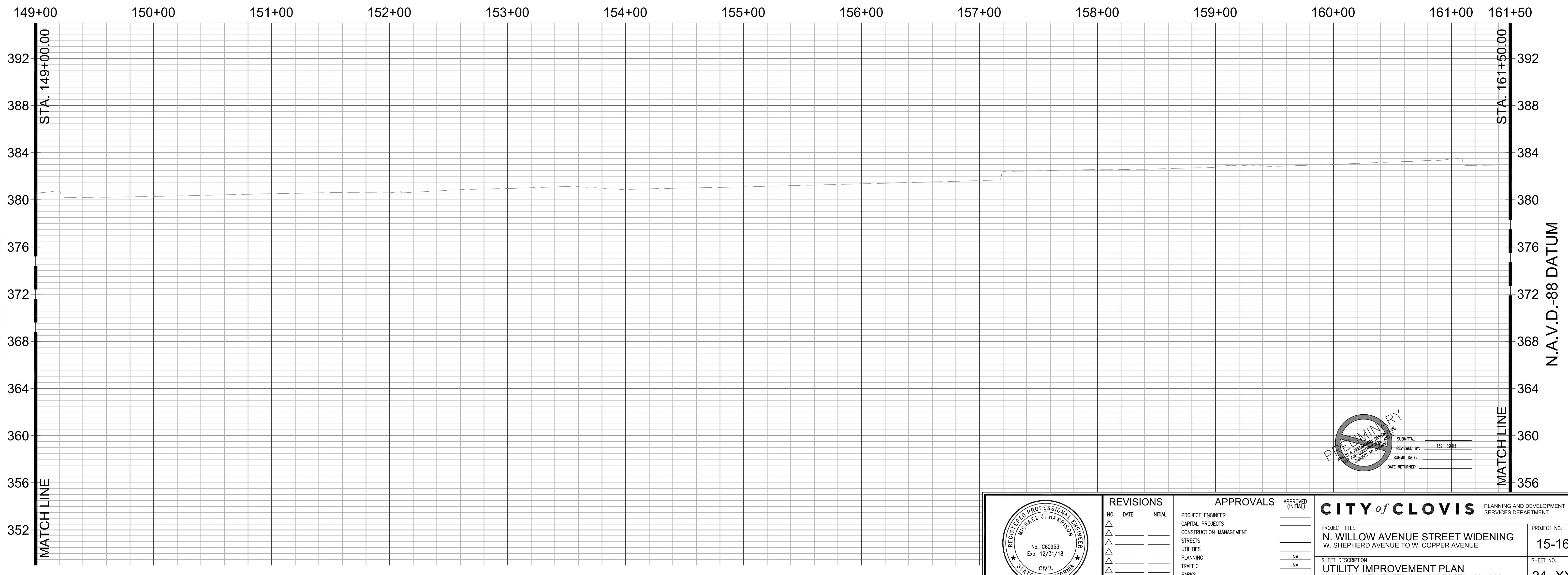
E. BEHYMER AVENUE

MATCH LINE - STA. 149+00.00 - SEE SHT. 23

MATCH LINE - STA 161+50 00 - SEE SHT 25

N. WILLOW AVENUE

W. BEHYMER AVENUE

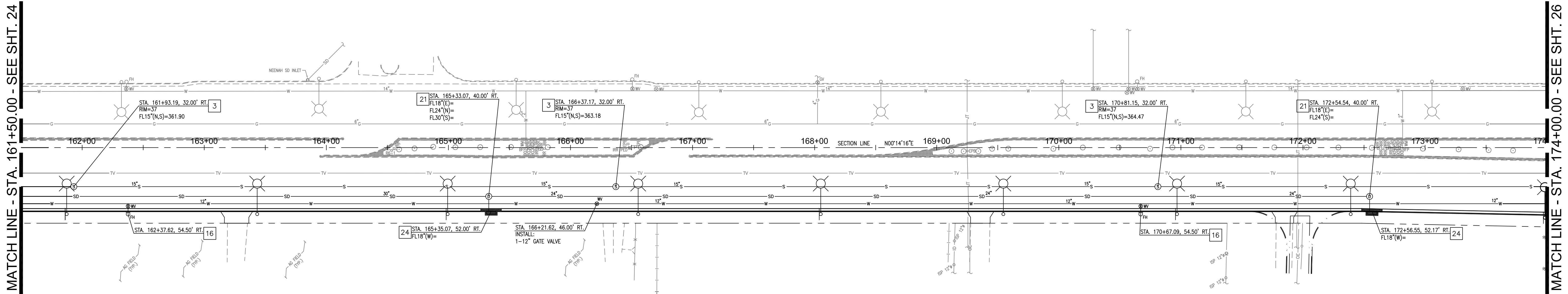




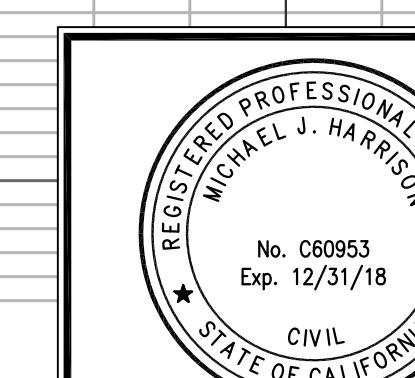
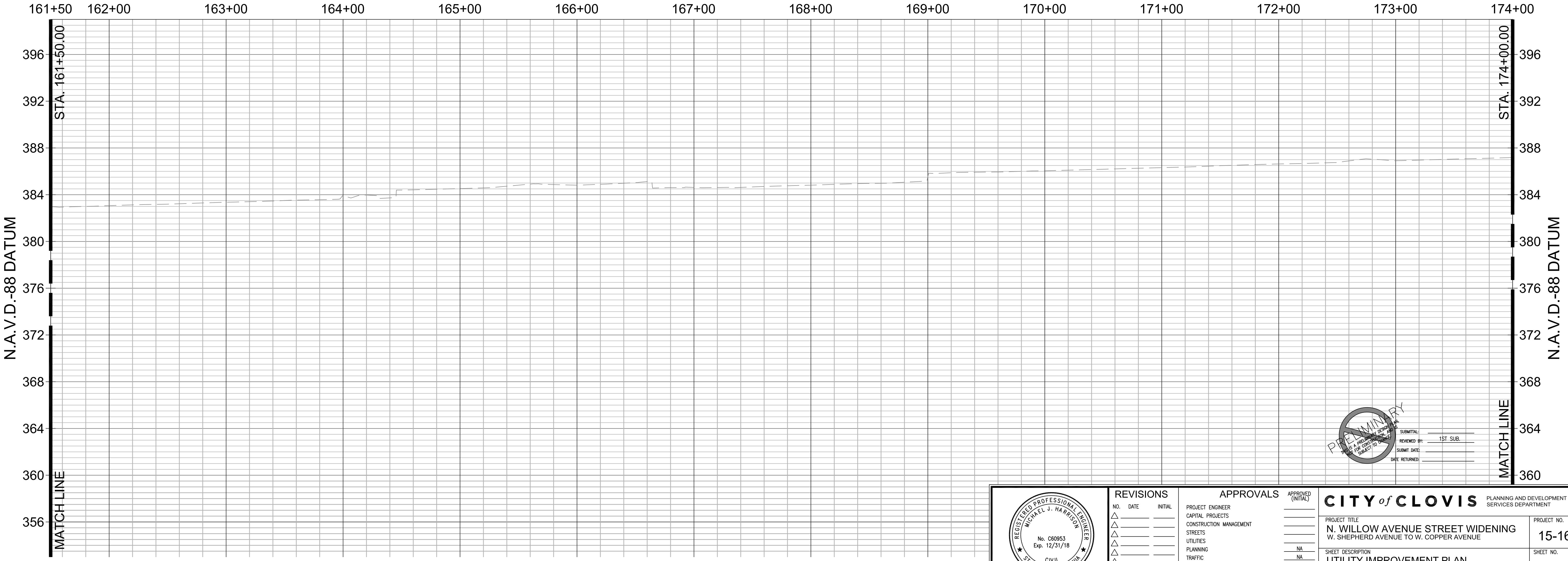
CITY of CLOVIS
PLANNING & DEVELOPMENT



PLAN VIEW
GRAPHIC SCALE
1"=40'
0 20' 40' 60' 80'



N. WILLOW AVENUE



REVISIONS

APPROVALS

APPROVED

CITY of CLOVIS

PLANNING AND DEVELOPMENT
SERVICES DEPARTMENT

PROJECT TITLE
N. WILLOW AVENUE STREET WIDENING
W. SHEPHERD AVENUE TO W. COPPER AVENUE

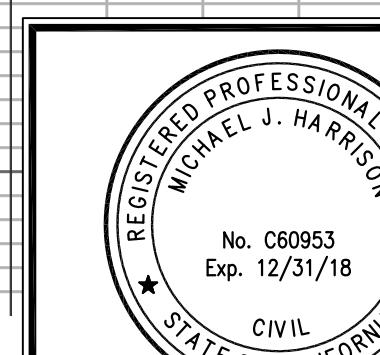
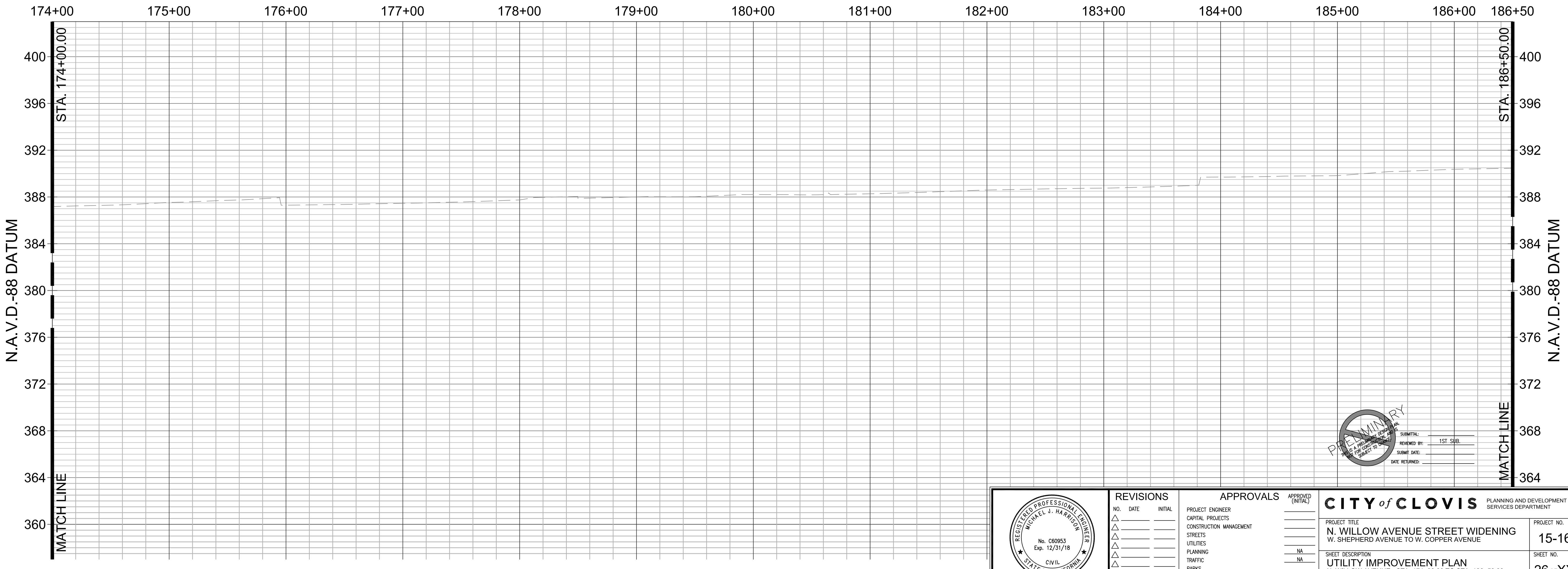
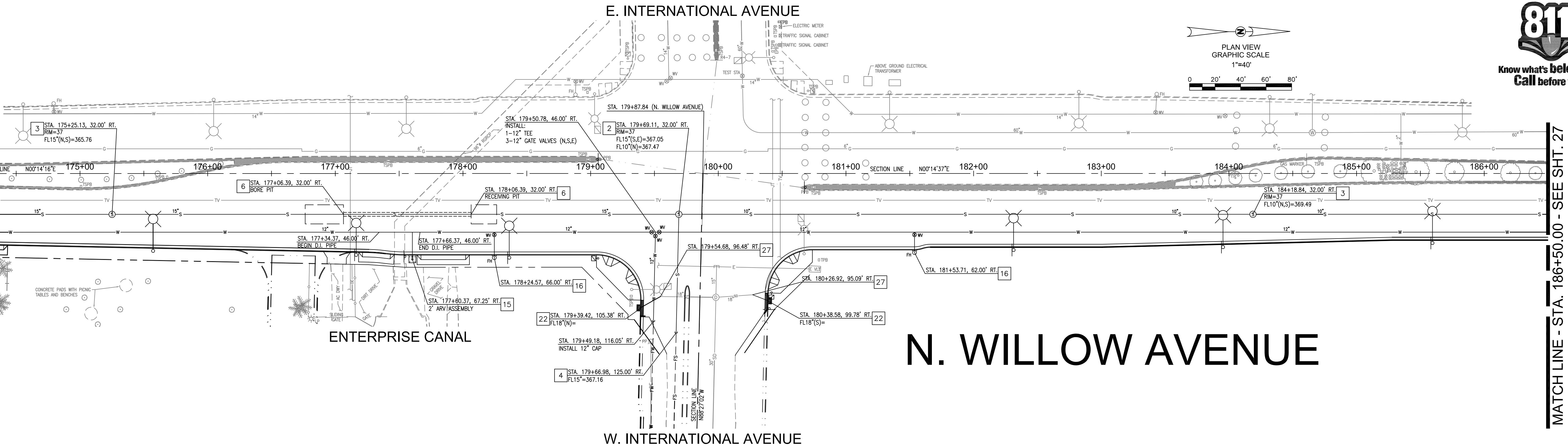
PROJECT NO.
15-16

SHEET DESCRIPTION
UTILITY IMPROVEMENT PLAN
N. WILLOW AVENUE - STA. 161+50.00 TO STA. 174+00.00

SHEET NO.
25 of XX



CITY of CLOVIS
PLANNING & DEVELOPMENT



REVISIONS

NO. DATE INITIAL

PROJECT ENGINEER
CAPITAL PROJECTS
CONSTRUCTION MANAGEMENT
STREETS
UTILITIES
PLANNING
TRAFFIC
PARKS
FIRE

APPROVED
NA
NA

CITY of CLOVIS
PLANNING AND DEVELOPMENT
SERVICES DEPARTMENT

PROJECT TITLE
N. WILLOW AVENUE STREET WIDENING
W. SHEPHERD AVENUE TO W. COPPER AVENUE

PROJECT NO.
15-16

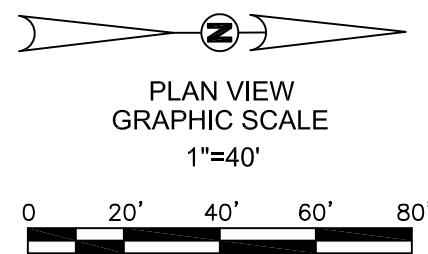
SHEET DESCRIPTION
UTILITY IMPROVEMENT PLAN
N. WILLOW AVENUE - STA. 174+00.00 TO STA. 186+50.00

SHEET NO.
26 of XX

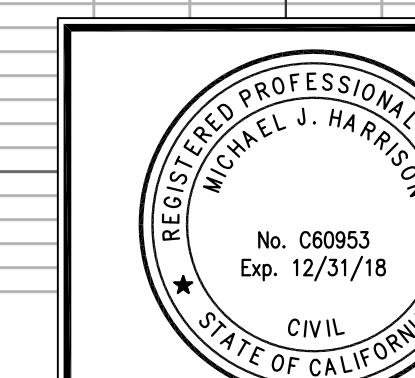
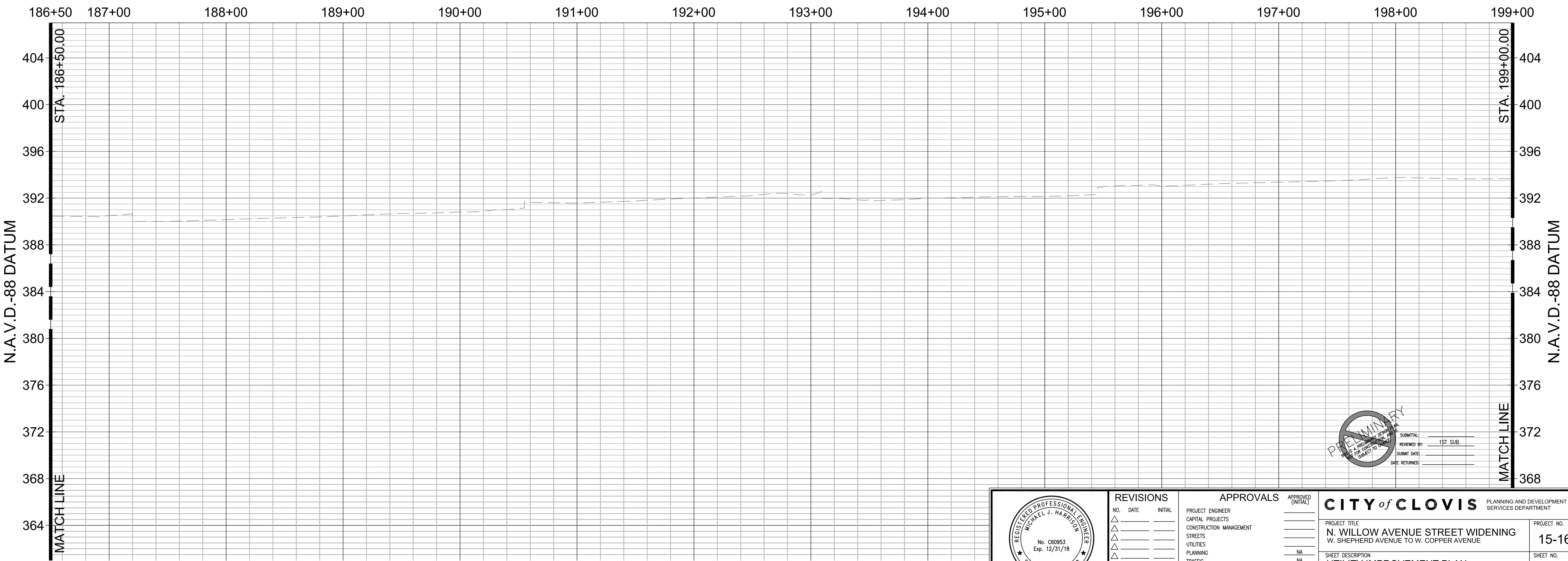
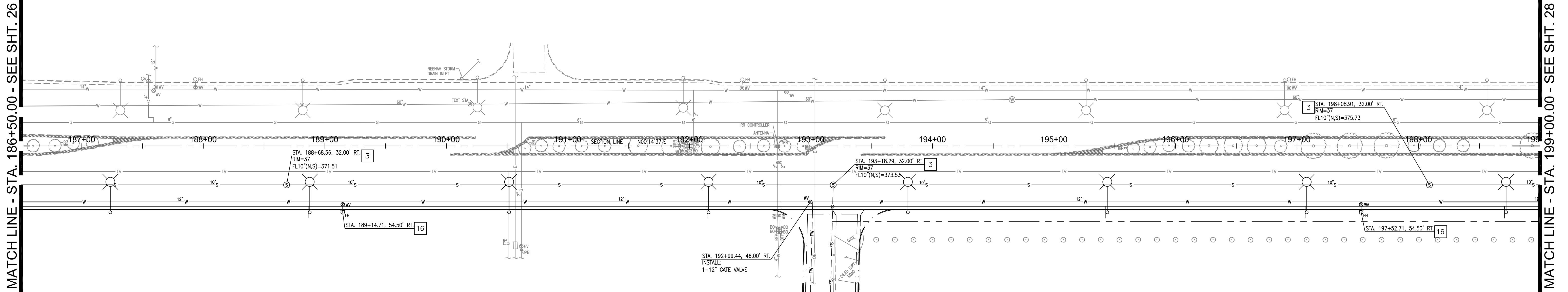


CITY of CLOVIS

PLANNING & DEVELOPMENT

Know what's below.
Call before you dig.PLAN VIEW
GRAPHIC SCALE
1"=40'

0 20' 40' 60' 80'



REVISIONS

NO. DATE INITIAL

△ □ △ □ △ □ △ □ △ □ △ □ △ □ △ □ △ □

APPROVALS

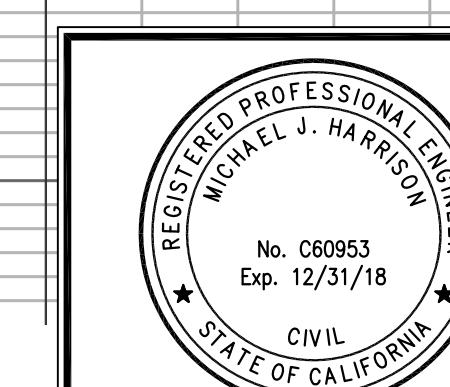
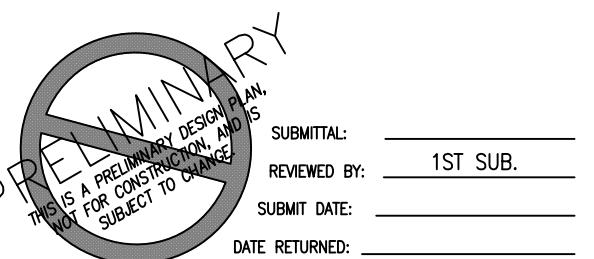
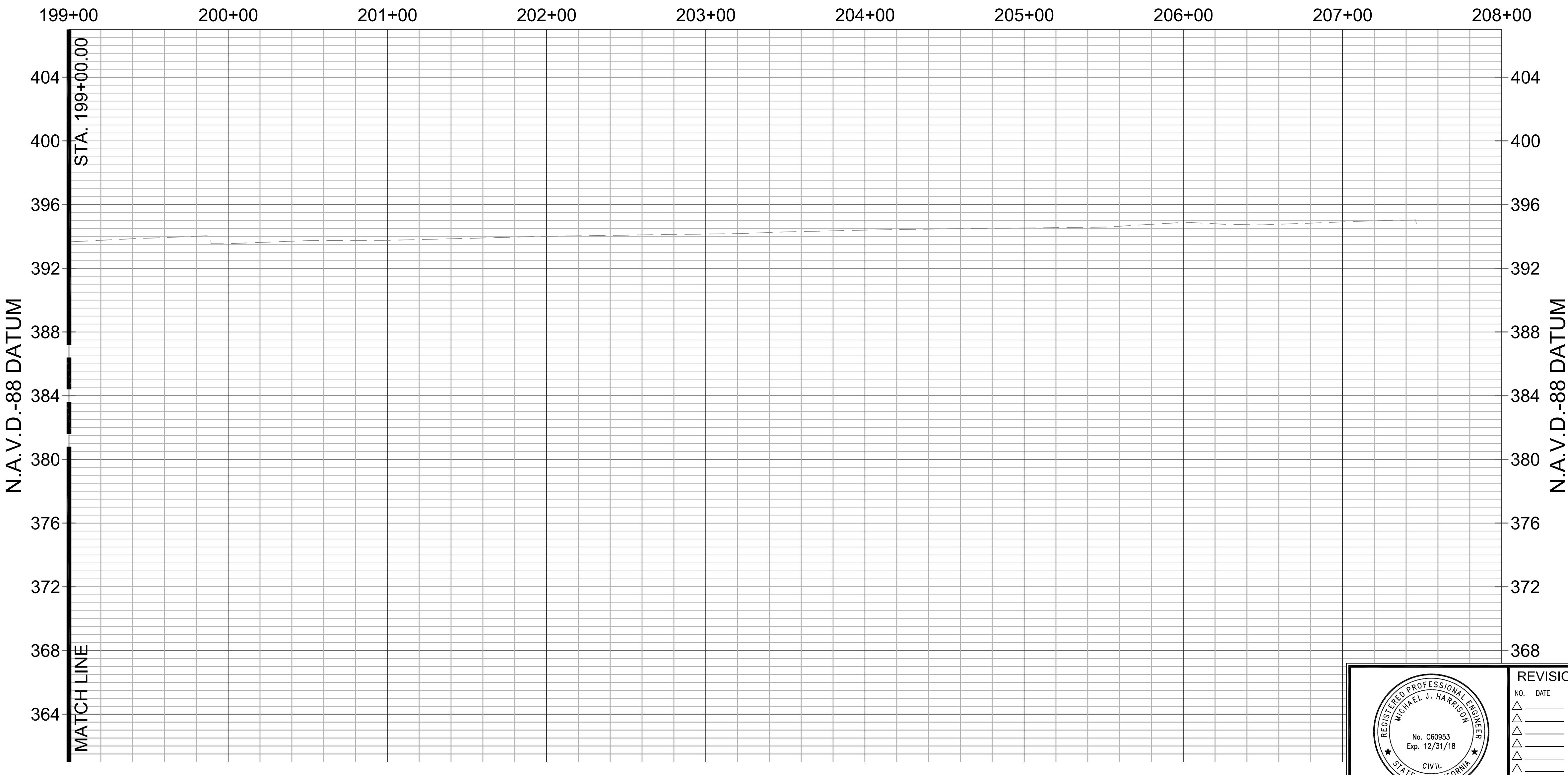
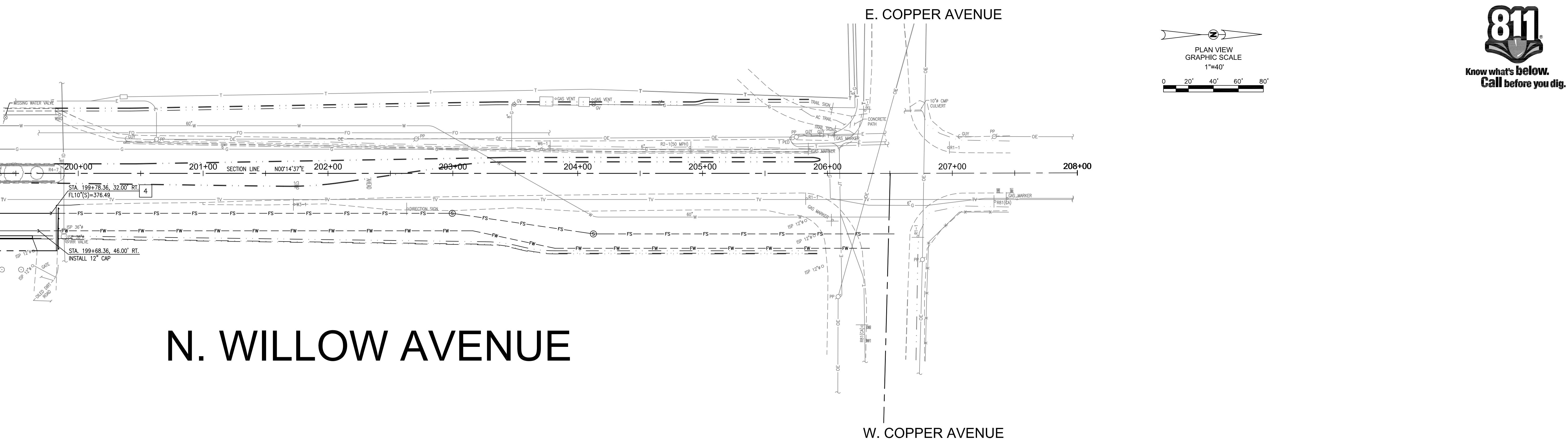
PROJECT ENGINEER
CAPITAL PROJECTS
CONSTRUCTION MANAGEMENT
STREETS
UTILITIES
PLANNING
TRAFFIC
PARKS
FIREAPPROVED
NA NA NA NA

CITY of CLOVIS

PLANNING AND DEVELOPMENT
SERVICES DEPARTMENTPROJECT TITLE
N. WILLOW AVENUE STREET WIDENING
W. SHEPHERD AVENUE TO W. COPPER AVENUEPROJECT NO.
15-16SHEET DESCRIPTION
UTILITY IMPROVEMENT PLAN
N. WILLOW AVENUE - STA. 186+50.00 TO STA. 199+00.00SHEET NO.
27 of XX



CITY of CLOVIS
PLANNING & DEVELOPMENT



REVISIONS

PROJECT ENGINEER
CAPITAL PROJECTS
CONSTRUCTION MANAGEMENT
STREETS
UTILITIES
PLANNING
TRAFFIC
PARKS
FIRE

APPROVALS

APPROVED
INITIAL

NA
NA

CITY of CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE PROJECT NO. 15-16

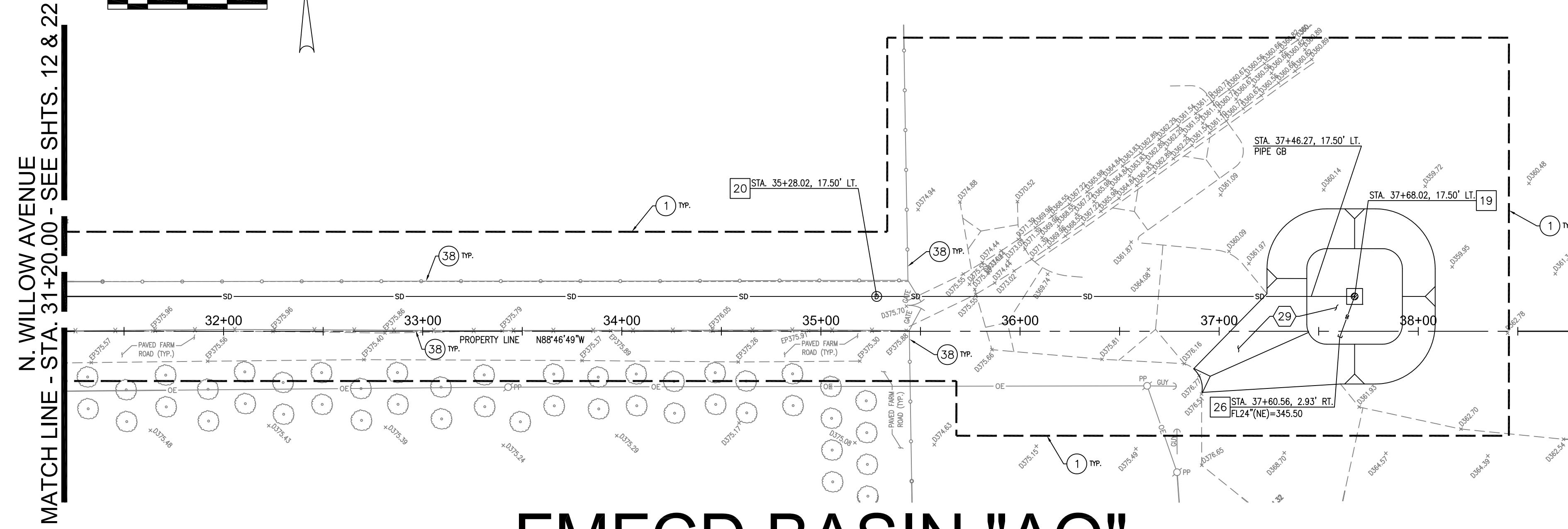
SHEET DESCRIPTION: UTILITY IMPROVEMENT PLAN N. WILLOW AVENUE - STA. 199+00.00 TO STA. 207+XX.XX± SHEET NO. 28 of XX



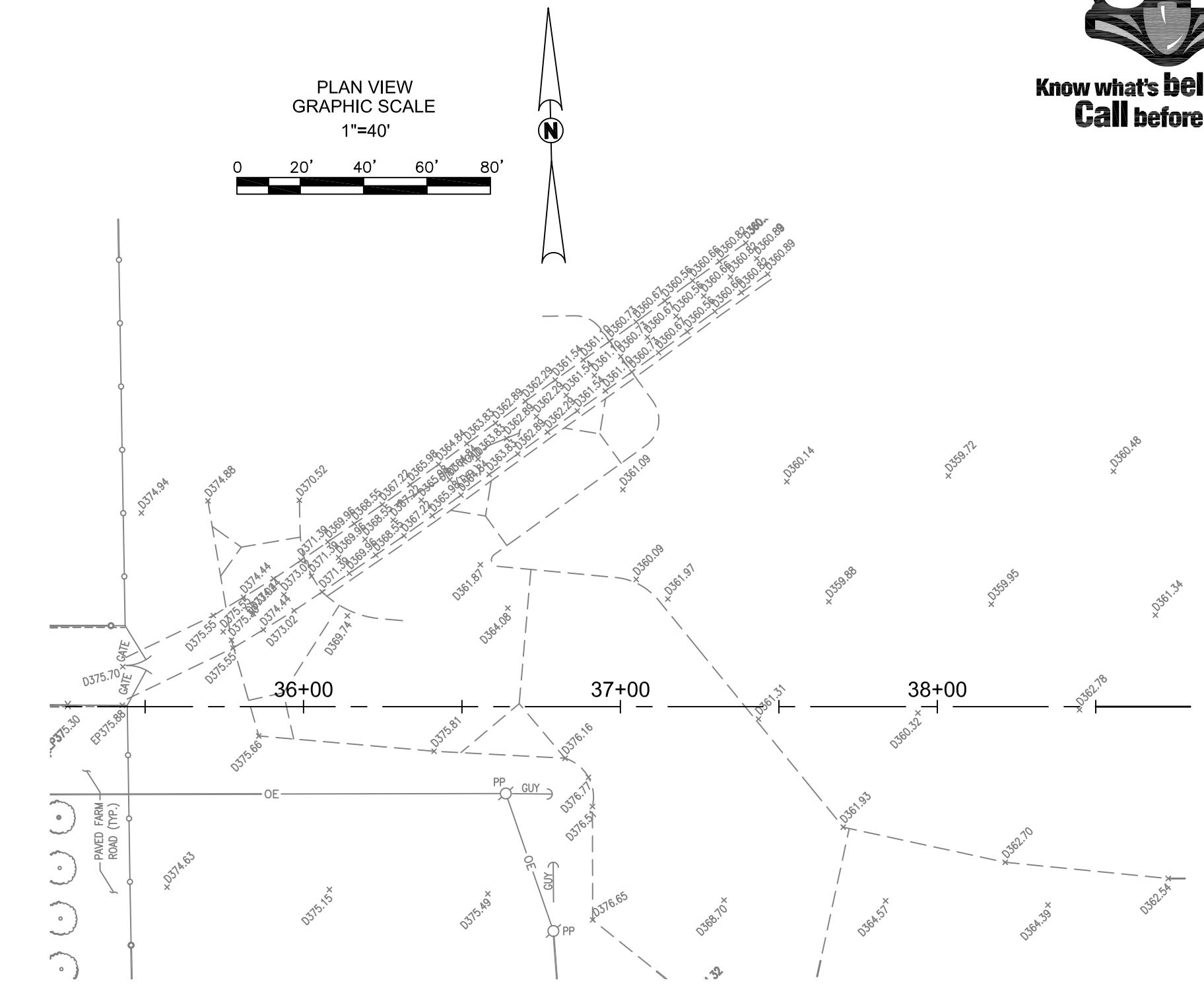
CITY of CLOVIS
PLANNING & DEVELOPMENT

The 811 logo features the numbers '811' in large, bold, black letters with a registered trademark symbol. Below the numbers is a stylized illustration of a shovel digging into the ground.

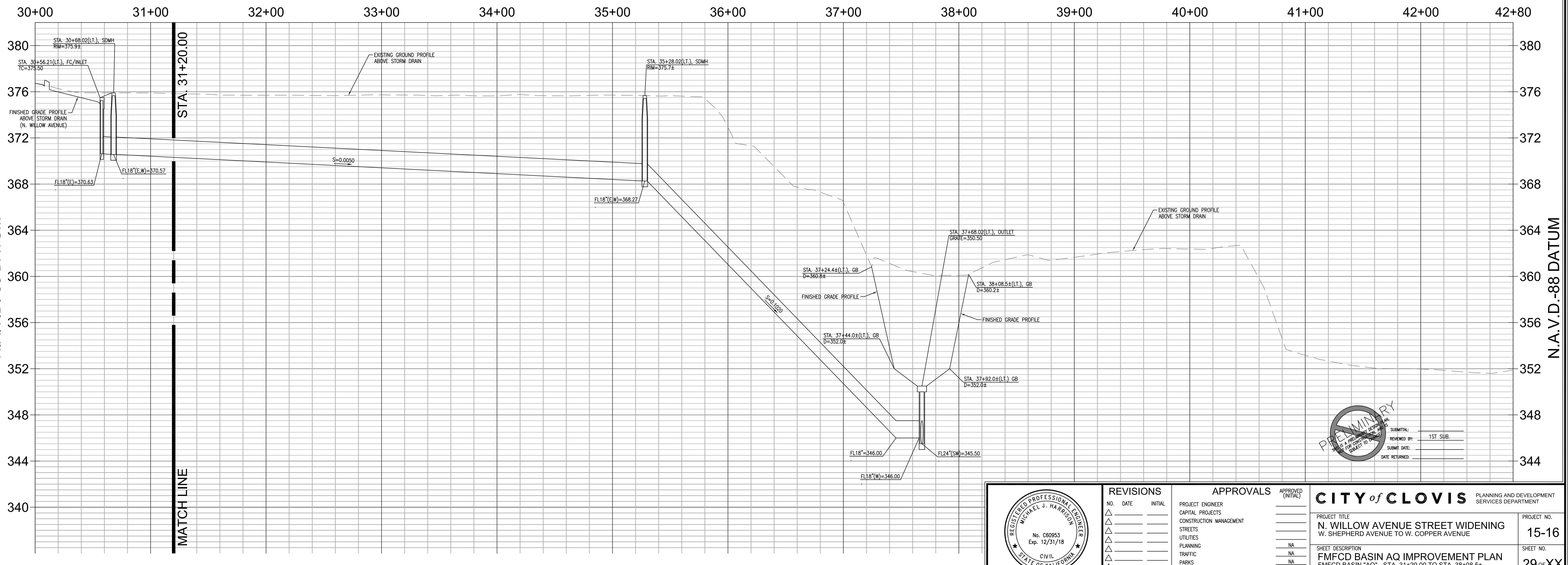
**Know what's below.
Call before you dig.**



FMFCD BASIN "AQ"

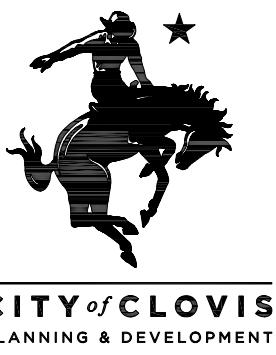


(TOPOGRAPHIC PLAN)



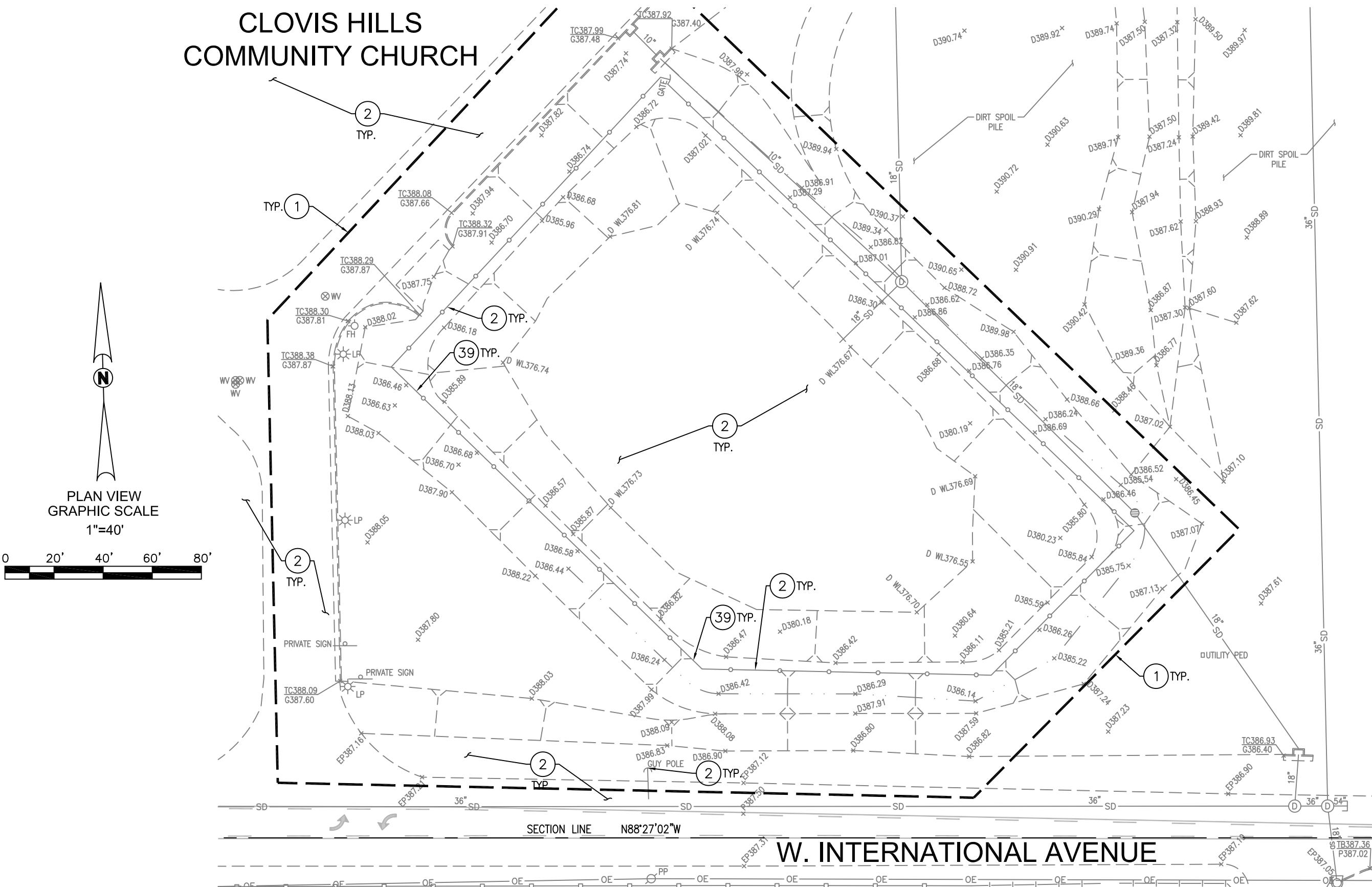
C:\USERS\ERICE\DESKTOP\PROJECTS\CIP\2015\15-16\DESIGN\15-16 BASE.DWG

FILE LAST MODIFIED 10/26/2017



CITY of CLOVIS

PLANNING & DEVELOPMENT





CITY of CLOVIS

PLANNING & DEVELOPMENT



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

**PLAN VIEW
GRAPHIC SCALE**

E. NILES AVENUE

MATCH LINE - STA. 60+60.00 - SEE BELOW LT.

The diagram illustrates a road profile with the following key features and markings:

- Stations:** The profile is marked with stations 48+00, 49+00, 50+00, 51+00, 52+00, 53+00, 54+00, 55+00, 56+00, 57+00, 58+00, 59+00, and 60+00.
- Curbs:** Curbs are shown as solid lines with arrows indicating direction. Curb nosings are marked with small circles.
- Painting Instructions:**
 - PAINT TOP & FACE OF CURB NOSE WHITE FOR 3' IN BOTH DIRECTIONS
 - PAINT DETAIL 39 STRIPE
 - PAINT DETAIL 9 STRIPE (TYP.)
 - PAINT DETAIL 9 STRIPE (TYP.)
- Object Markers:** OM2-1V object markers are indicated at stations 57+00 and 58+00.
- Lane Labels:** BIKE LANE labels are placed near the shoulders.

N. WILLOW AVENUE

MATCH LINE - STA. 60+60.00 - SEE ABOVE RT.

E. TEAGUE AVENUE

F. FEAGUE AVENUE

~~OM.
OSE~~ MATCH LINE - STA. 73+40.00 - SEE SHT. 32

N. WILLOW AVENUE

PLAN VIEW
GRAPHIC SCALE
1"=40'

0 20' 40' 60' 80'



		REVISIONS	APPROVALS	APPROVED (INITIAL)	CITY of CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
NO.	DATE	INITIAL	PROJECT ENGINEER	_____	
△	_____	_____	CAPITAL PROJECTS	_____	PROJECT NO. 15-16
△	_____	_____	CONSTRUCTION MANAGEMENT	_____	
△	_____	_____	STREETS	_____	
△	_____	_____	UTILITIES	NA	
△	_____	_____	PLANNING	NA	
△	_____	_____	TRAFFIC	_____	
△	_____	_____	PARKS	NA	
△	_____	_____	FIRE/POLICE	NA	
PROJECT TITLE				N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE	
SHEET DESCRIPTION				STRIPING AND SIGNAGE PLAN N. WILLOW AVENUE - STA. 48+33.3± TO STA. 73+40.00	SHEET NO. 31 OF XX



CITY of CLOVIS

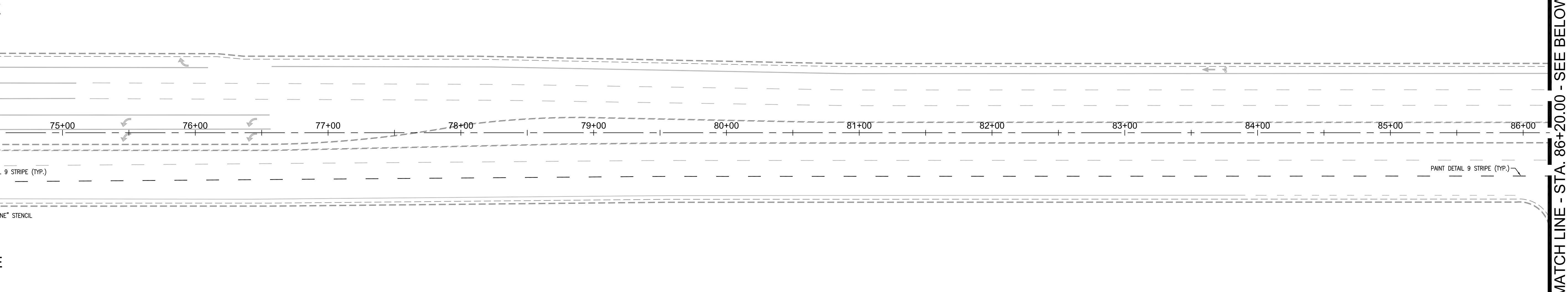
PLANNING & DEVELOPMENT



E. TEAGUE AVENUE

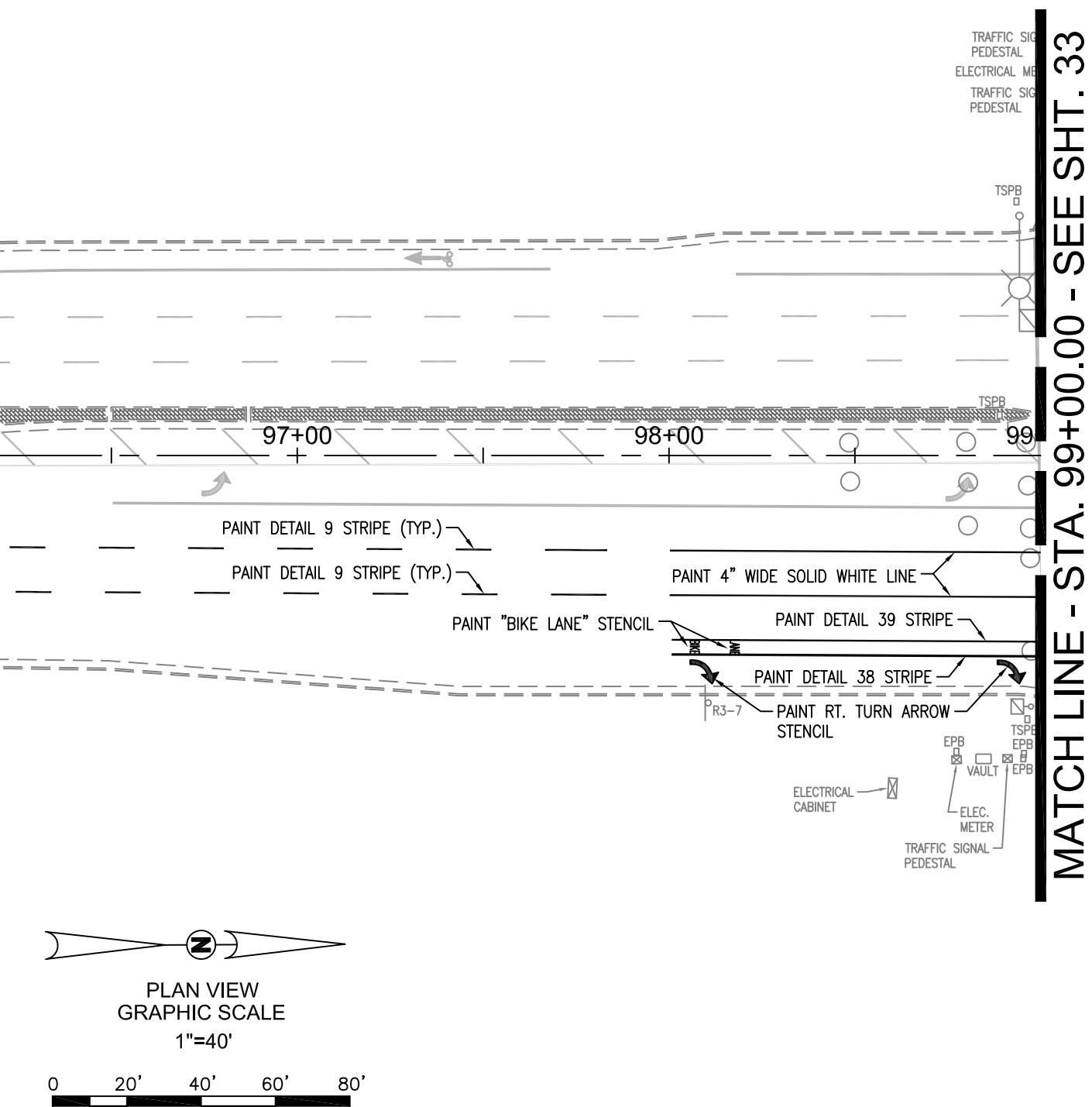
MATCH LINE - STA. 73+40.00 - SEE SHT. 31

PLAN VIEW
GRAPHIC SCALE
1'=40'
0' 20' 40' 60' 80'



N. WILLOW AVENUE

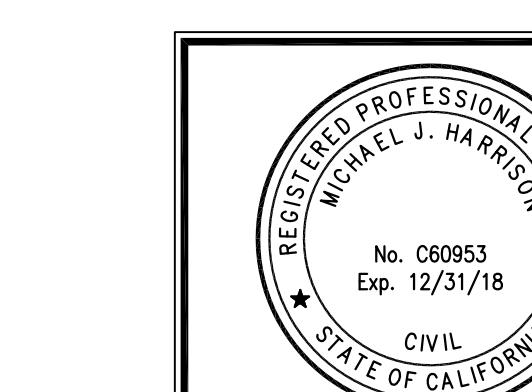
MATCH LINE - STA. 86+20.00 - SEE ABOVE RT.
W. POWERS AVENUE



N. WILLOW AVENUE

PLAN VIEW
GRAPHIC SCALE
1'=40'
0' 20' 40' 60' 80'

PRELIMINARY
THIS IS A PRELIMINARY DRAWING.
SUBMIT: _____
REVISED BY: _____
DATE SUBMITTED: _____
SUBMIT DATE: _____
DATE RETURNED: _____



REVISIONS

NO. DATE INITIAL

APPROVALS

APPROVED
(INITIAL)

PROJECT ENGINEER

CAPITAL PROJECTS

CONSTRUCTION MANAGEMENT

STREETS

UTILITIES

NA

CITY of CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE
SHEET DESCRIPTION: STRIPING AND SIGNAGE PLAN N. WILLOW AVENUE - STA. 73+40.00 TO STA. 99+00.00
FILE LAST MODIFIED 10/26/2017

PROJECT NO. 15-16

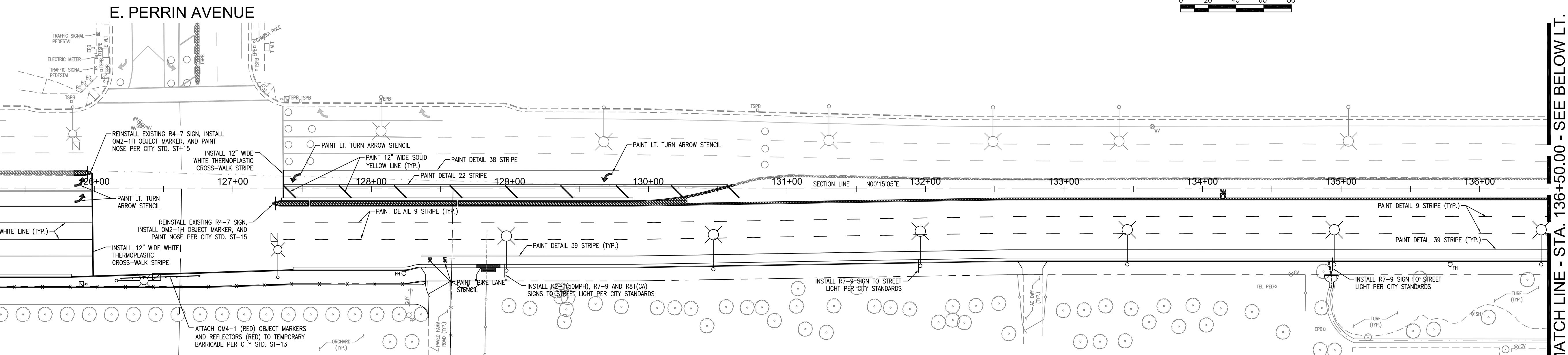
SHEET NO. 32 of XX



CITY of CLOVIS
PLANNING & DEVELOPMENT



MATCH LINE - STA. 124+00.00 - SEE SHT. 33



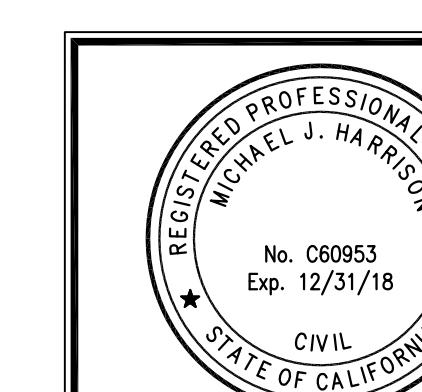
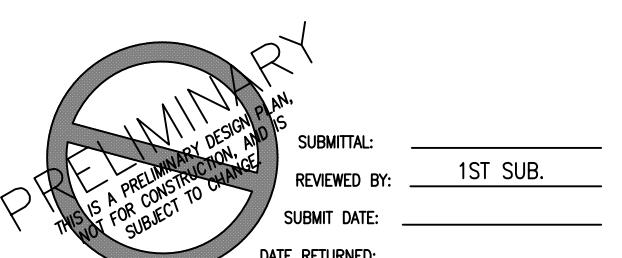
MATCH LINE - STA. 136+50.00 - SEE ABOVE RT.

E. PLYMOUTH AVENUE

N. WILLOW AVENUE

PLAN VIEW
GRAPHIC SCALE
1=40'

MATCH LINE - STA. 149+00.00 - SEE SHT. 35



REVISIONS

NO. DATE INITIAL

△ □ □

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PROJECT ENGINEER	APPROVED
CAPITAL PROJECTS	_____
CONSTRUCTION MANAGEMENT	_____
STREETS	NA
UTILITIES	NA
PLANNING	NA
TRAFFIC	NA
PARKS	NA
FIRE/POLICE	NA

CITY of CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE

PROJECT NO. 15-16

SHEET DESCRIPTION: STRIPING AND SIGNAGE PLAN N. WILLOW AVENUE - STA. 124+00.00 TO STA. 149+00.00

SHEET NO. 34 of XX



CITY of CLOVIS
PLANNING & DEVELOPMENT



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

MATCH LINE - STA. 149+00.00 - SEE SHT. 34

E. BEHYMER AVENUE

MATCH LINE STA 161 + 50.00 SEE BEI OWI T

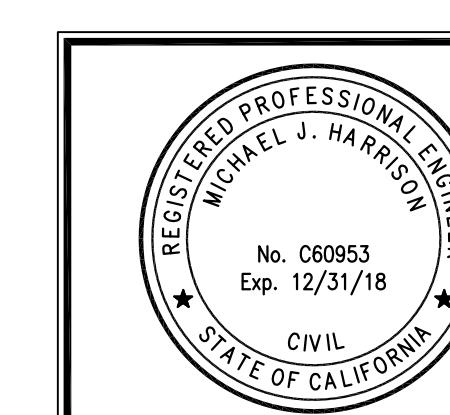
N. WILLOW AVENUE

W. BEHYMER AVENUE

MATCH LINE - STA. 161+50.00 - SEE ABOVE RT.

N. WILLOW AVENUE

A circular stamp with a double-lined border. The word "PRELIMINARY" is written diagonally across the top half. Inside the circle, the text "THIS IS A PRELIMINARY DESIGN PLAN, NOT FOR CONSTRUCTION, AND IS SUBJECT TO CHANGE" is printed in a smaller font. Handwritten notes above the stamp read "SUBMITTAL: _____" and "REVIEWED BY: 1ST SUB.". Handwritten notes below the stamp read "SUBMIT DATE: _____" and "DATE RETURNED: _____".



REVISIONS			APPROVALS	APPROVED (INITIAL)
NO.	DATE	INITIAL		
△	_____	_____	PROJECT ENGINEER	_____
△	_____	_____	CAPITAL PROJECTS	_____
△	_____	_____	CONSTRUCTION MANAGEMENT	_____
△	_____	_____	STREETS	_____
△	_____	_____	UTILITIES	NA
△	_____	_____	PLANNING	NA
△	_____	_____	TRAFFIC	_____
△	_____	_____	PARKS	NA
△	_____	_____	FIRE/POLICE	NA

CITY of CLOVIS		PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
PROJECT TITLE	N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE	PROJECT NO. 15-16
HEET DESCRIPTION	STRIPING AND SIGNAGE PLAN N. WILLOW AVENUE - STA. 149+00.00 TO STA. 174+00.00	SHEET NO. 35 OF XX



CITY of CLOVIS
PLANNING & DEVELOPMENT

The logo consists of the number "811" in large, bold, black letters. A registered trademark symbol (®) is positioned to the right of the "1". Below the numbers is a stylized graphic of a shovel, also in black, with its handle pointing towards the left and its blade pointing downwards.

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

MATCH LINE - STA. 174+00.00 - SEE SHT. 35

MATCH LINE - STA. 186+50.00 - SEE BELOW LT.

E. INTERNATIONAL AVENUE

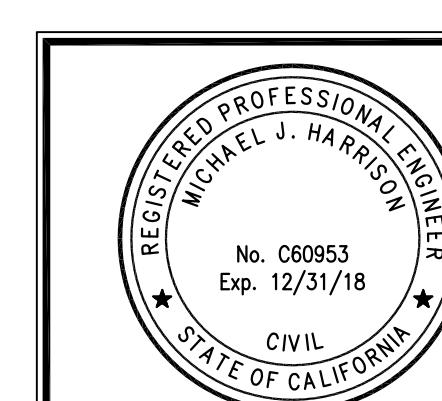
N. WILLOW AVENUE

W. INTERNATIONAL AVENUE

MATCH LINE - STA. 186+50.00 - SEE ABOVE RT.

MATCH LINE - STA. 199+00.00 - SEE SHT. 37

N. WILLOW AVENUE



REVISIONS			APPROVALS	APPROVED (INITIAL)	
NO.	DATE	INITIAL	PROJECT ENGINEER		C
△	_____	_____	CAPITAL PROJECTS	_____	PROJ
△	_____	_____	CONSTRUCTION MANAGEMENT	_____	N.
△	_____	_____	STREETS	_____	W.
△	_____	_____	UTILITIES	NA	SHEE
△	_____	_____	PLANNING	NA	ST
△	_____	_____	TRAFFIC	_____	N. V.
△	_____	_____	PARKS	NA	
△	_____	_____	FIRE / POLICE	NA	

PRELIMINARY

This is a PRELIMINARY DESIGN PLAN,
NOT FOR CONSTRUCTION, AND IS
SUBJECT TO CHANGE.

SUBMITTAL: _____
REVIEWED BY: _____ 1ST SUB.
SUBMIT DATE: _____
DATE RETURNED: _____

CITY of CLOVIS		PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
PROJECT TITLE	N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE	PROJECT NO. 15-16
HEET DESCRIPTION	STRIPING AND SIGNAGE PLAN N. WILLOW AVENUE - STA. 174+00.00 TO STA. 199+00.00	SHEET NO. 36 OF XX



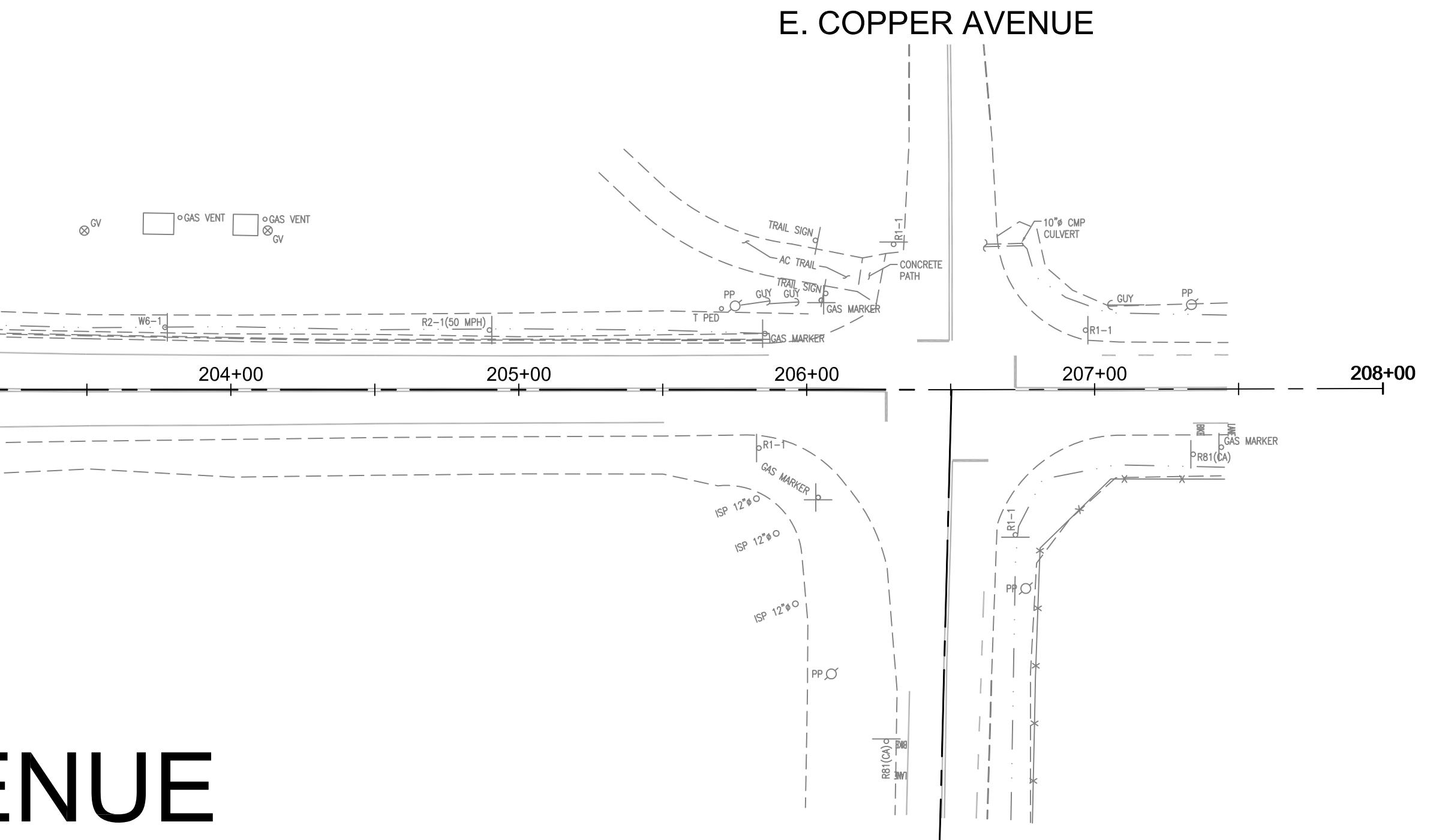
CITY of CLOVIS
PLANNING & DEVELOPMENT



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

PLAN VIEW
GRAPHIC SCALE
1"=40'

MATCH LINE STA 100+00 00 SEE SHT 36



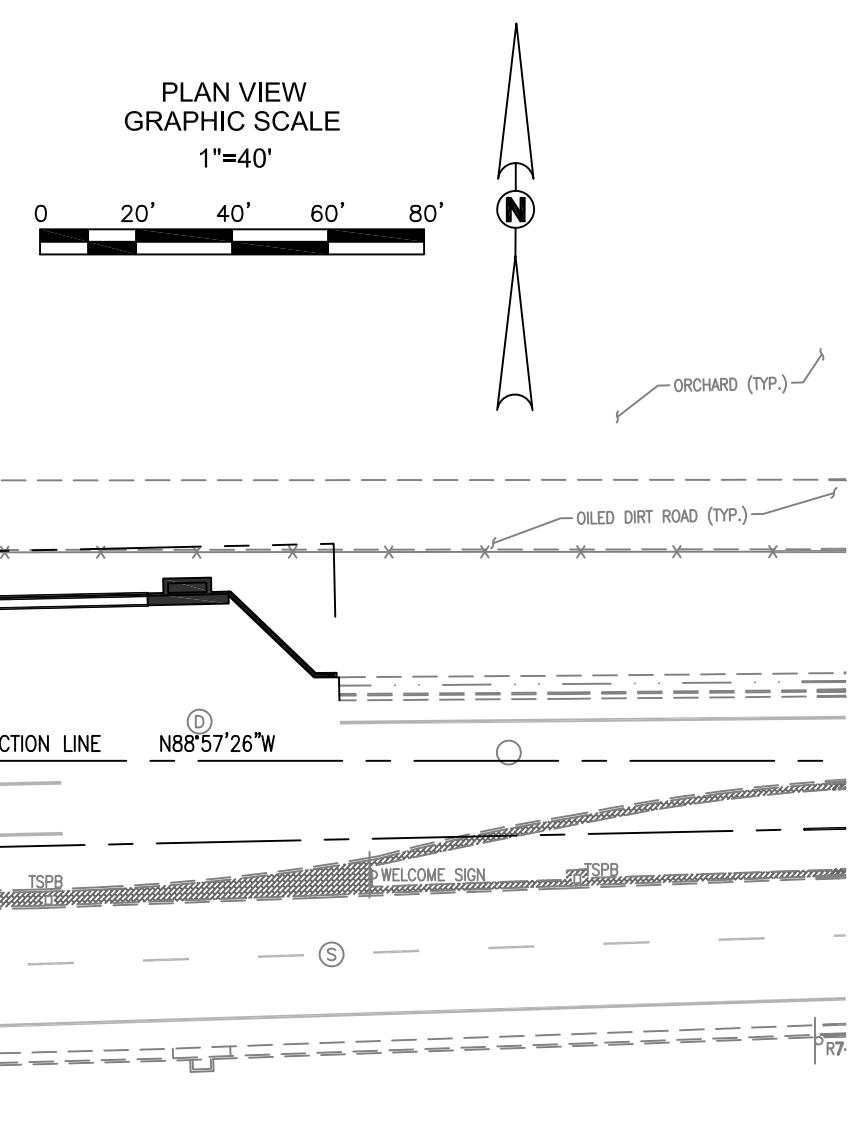
N. WILLOW AVENUE

W. COPPER AVENUE

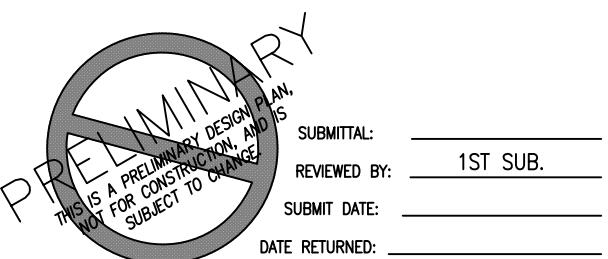
STRIPING NOTES:

1. A STRIPING PLAN APPROVED BY THE CITY ENGINEER IS REQUIRED PRIOR TO ANY SIGNING OR STRIPING INSTALLATION. THE CONTRACTOR SHALL NOTIFY THE PUBLIC UTILITIES STREET SECTION AT (559) 324-2600 AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY WORK. THE STREETS SECTION SHALL BE INFORMED OF ALL LOCATIONS AND TYPES AND DATES OF INSTALLATIONS. ANY CHANGES TO THE APPROVED PLAN SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO ANY WORK THEREON.
 2. APPLICATION EQUIPMENT FOR PAINT SHALL COMPLY WITH SECTION 84-3.04 "APPLICATION EQUIPMENT" OF THE STATE STANDARD SPECIFICATIONS, EXCEPT FOR THE USE OF "AIRSPRAY" EQUIPMENT. ONLY "AIRLESS" TYPE EQUIPMENT WILL BE ALLOWED TO BE USED TO APPLY TRAFFIC PAINT FOR STRIPING OR STENCILING. THE USE OF "AIRSPRAY" TYPE OF EQUIPMENT IS NOT ALLOWED IN THE CITY OF CLOVIS.
 3. THE CONTRACTOR SHALL ACQUIRE ALL PERMITS AS MAY BE REQUIRED FROM OTHER AGENCIES.
 4. ALL TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST VERSION OF THE STATE OF CALIFORNIA'S "MANUAL OF TEMPORARY TRAFFIC CONTROLS" FOR CONSTRUCTION AND MAINTENANCE WORK ZONES.
 5. ANY EXISTING SIGNING AND/OR BARRICADES DESIGNATED TO BE REMOVED SHALL BE SALVAGED TO THE CITY OF CLOVIS CORPORATION YARD LOCATED AT 155 N. SUNNYSIDE AVENUE (BY APPOINTMENT ONLY).
 6. STRIPING DESIGNATED TO BE REMOVED SHALL BE REMOVED COMPLETELY AND THE SURFACE SEALED WITH A "WALKMASTER" OR CITY APPROVED EQUIVALENT SLURRY PRIOR TO RE-STRIPING. ANY VOIDS CREATED BY GRINDING SHALL BE FILLED BY USING TYPE "II" SLURRY AS DETERMINED BY THE CITY ENGINEER.
 7. ALL LEGENDS (ARROWS INCLUDED) DESIGNATED TO BE REMOVED SHALL BE DONE IN A MANNER TO PROVIDE A RECTANGULAR SHAPE ENCOMPASSING THE AREA OF THE REMOVED LEGEND. NO GRINDING SHALL "SHADOW" THE SHAPE OF THE STENCILING TO BE REMOVED.
 8. CITY STENCILS SHALL BE USED WHEN PAINTING ALL LEGENDS WITHIN THE CITY OF CLOVIS. ALL TURN ARROWS SHALL BE NINETY DEGREES (90°). THE CONTRACTOR SHALL NOTIFY THE CITY PUBLIC UTILITIES STREET SECTION AT (559) 324-2600 AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF THE TIME STENCILS WILL BE NEEDED. THE CONTRACTOR SHALL RETURN ALL STENCILS IN THE SAME CONDITION THEY WERE RECEIVED OR BETTER.
 9. ALL CROSSWALKS TO BE INSTALLED SHALL MEET THE REQUIREMENTS OF CITY STANDARD TS-7 UNLESS OTHERWISE NOTED ON THESE PLANS. PROVIDE YELLOW CROSSWALKS AT INTERSECTIONS WITHIN 600' OF ANY SCHOOL FACILITY. CROSSWALKS SHALL BE INSTALLED USING EXTRUDED TYPE ALKYD BINDER THERMOPLASTIC MATERIAL APPLIED AT A THICKNESS OF 125 MILS (± 15 MILS). TYPE 1 GLASS BEADS SHALL BE 25-30 PERCENT OF MATERIAL BEFORE APPLICATION AND SHALL BE APPLIED TO THE EXTRUDED MATERIAL IMMEDIATELY AFTER APPLICATION
 10. TYPE OF MARKERS SHALL BE AS STATED IN SECTION 85-1.02 "TYPE OF MARKERS" OF THE STATE STANDARD SPECIFICATIONS AND AS SHOWN ON THE STRIPING PLAN(S). ALL PAVEMENT MARKERS AND ROAD SIGNS INSTALLED SHALL CONFORM TO THE PROVISIONS IN THE LATEST EDITION OF THE CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), SECTION 85 OF THE STATE STANDARD SPECIFICATIONS, STATE STANDARD PLANS, PAGES A20-A THROUGH D AND PAGES A73-A THROUGH C ALONG WITH THE CITY OF CLOVIS STANDARD SPECIFICATIONS.
 11. STRIPING DETAILS 9, 12, AND 38 STRIPING SHALL BE PROVIDED WITH TYPE "C" (RED-CLEAR RETROREFLECTIVE) MARKERS.
 12. ALL CONCRETE MEDIAN NOSE FACES SHALL BE PAINTED FOR A DISTANCE OF THREE (3) FEET ALONG BOTH SIDES WITH REFLECTIVE "YELLOW" OR "WHITE" PAINT AS SHOWN ON THE PLANS OR AS REQUIRED BY THE CITY ENGINEER.
 13. "OM2-1H" OBJECT MARKERS (MUTCD) INSTALLED ON MEDIAN NOSES SHALL BE PLACED 3'-5" BACK FROM THE NOSE CURB FACE. WHERE PEDESTRIAN PUSH BUTTON POLES ARE TO BE PLACED ON MEDIAN NOSES, INSTALL THE "OM2-1H" OBJECT MARKER ON THE PUSH BUTTON POLE.
 14. "H" MARKERS SHALL BE INSTALLED IN THE PAVEMENT ALONG BOTH SIDES OF THE MEDIAN ISLAND CURB FACE. THE SPACING OF THE "H" MARKERS SHALL BE TWENTY-FOUR (24) FEET ON CENTER (O.C.).
 15. REFER TO CITY OF CLOVIS STANDARD SPECIFICATIONS, SECTION 84-2.4 'TRAFFIC SIGNS', FOR SIGN REFLECTIVE SHEETING AND PROTECTIVE ANTI-GRAFFITI FILM. SIGNS ARE TO BE MADE FROM A 0.08" THICK ALUMINUM SHOCK. SIGN SHALL CONFORM TO CURRENT CALIFORNIA MUTCD SPECIFICATIONS.
 16. SIGNS SHALL BE PLACED A MINIMUM OF FOUR (4) FEET FROM THE EDGE OF PAVEMENT WHEN INSTALLING ALONG STREETS WHERE CURB AND GUTTER ARE NOT PRESENT.
 17. STREET SIGN INSTALLATION ON METAL STREET LIGHT POLES OR SIGNAL POLES SHALL REQUIRE THE USE OF STAINLESS STEEL BANDING MATERIAL. NO HOSE CLAMPS ARE ALLOWED.
 18. WHERE SIGNS ARE TO BE INSTALLED, METAL STREET LIGHT POLES SHOULD BE USED, IN LIEU OF POSTS, WHEREVER POSSIBLE. WHERE POSTS ARE REQUIRED, SQUARE 2"X2"X12 GAUGE GALVANIZED POSTS SHALL BE USED. SIGNS SHOULD BE INSTALLED AT A HEIGHT OF TEN (10) FEET AND SHALL BE A MINIMUM OF SEVEN (7) FEET ABOVE FINISHED GRADE.
 19. EXISTING SIGNING, STRIPING, OR LEGENDS DAMAGED OR FADED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED AS DIRECTED BY THE CITY ENGINEER.
 20. ALL EXISTING SIGNS AND STRIPING FOUND TO BE IN CONFLICT WITH THIS PLAN, WHETHER SPECIFICALLY IDENTIFIED ON THE PLANS AND PROJECT SPECIFICATIONS; OR NOT, SHALL BE CONSIDERED AS PART OF THE REQUIRED WORK TO BE PERFORMED.
 21. INSTALL "BLUE DOT" PAVEMENT MARKERS IN THE STREET PAVEMENT AT ALL FIRE HYDRANT LOCATIONS PER FIRE DEPARTMENT STANDARD 7 AND STANDARD DRAWING W-2A. CURBS SHALL BE PAINTED "RED" FOR SEVEN AND ONE-HALF FEET (7.5') ON EITHER SIDE OF THE FIRE HYDRANT (15' IN TOTAL) UNLESS INTERRUPTED BY A DRIVEWAY OR CORNER CURB RETURN.
 22. THE CONTRACTOR SHALL CAT-TRACK PROPOSED STRIPING AND SHALL OBTAIN THE CITY'S APPROVAL OF THE CAT-TRACKING PRIOR TO APPLYING FINAL STRIPING.

MATCH LINE N. WILLOW AVENUE STA 31+20 00 SEE SHT 33



W. SHEPHERD AVENUE

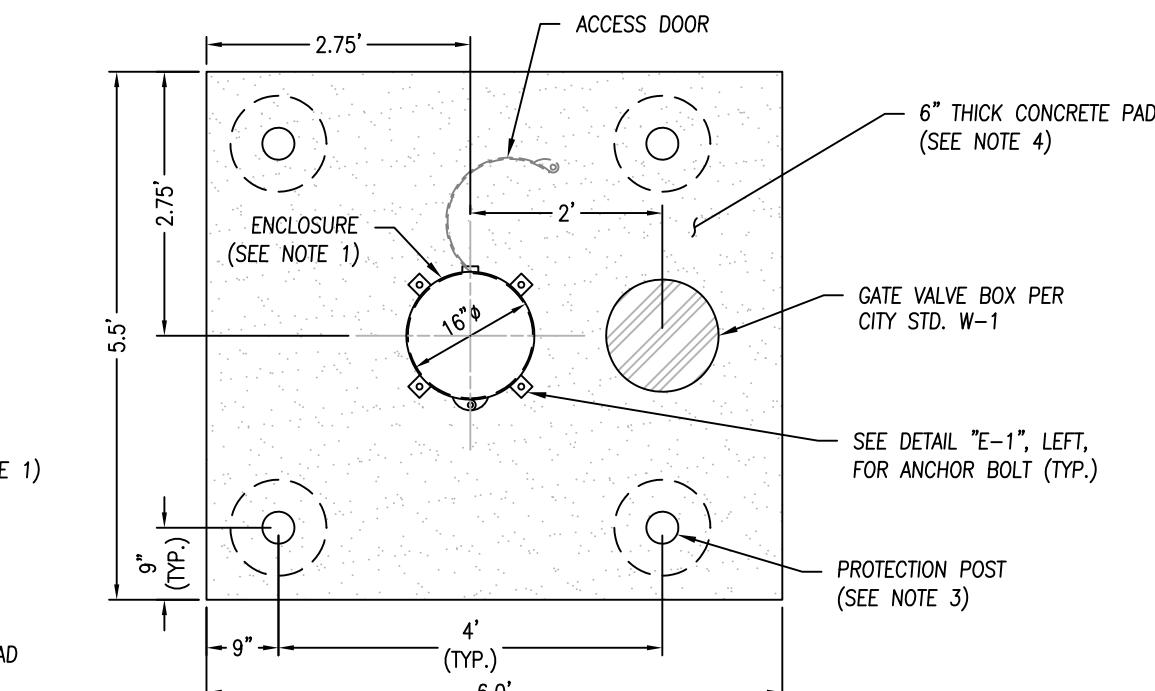


	REVISIONS			APPROVALS		CITY of CLOVIS PLANNING AND DEVELOPMENT SERVICES DEPARTMENT PROJECT TITLE N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE SHEET DESCRIPTION STRIPING AND SIGNAGE PLAN N. WILLOW AVENUE - STA. 199+00.00 TO STA. 207+XX.X± W. SHEPHERD AVENUE - STA. 21+20.00 TO STA. 23+94.2±
	NO.	DATE	INITIAL	PROJECT ENGINEER		
	△			CAPITAL PROJECTS		
	△			CONSTRUCTION MANAGEMENT		
	△			STREETS		
	△			UTILITIES	NA	
	△			PLANNING	NA	
	△			TRAFFIC		
△			PARKS	NA		
△			FIRE/POLICE	NA		



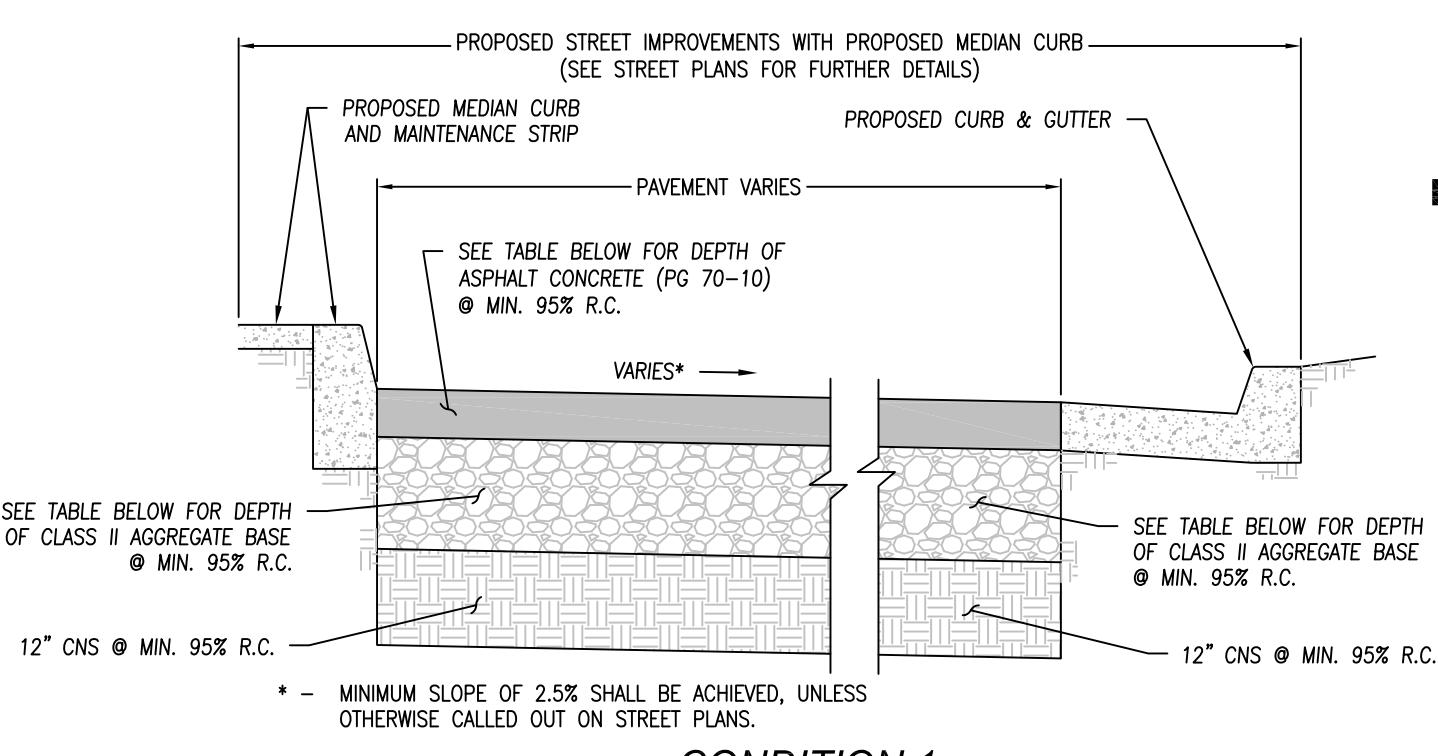
CITY of CLOVIS

PLANNING & DEVELOPMENT



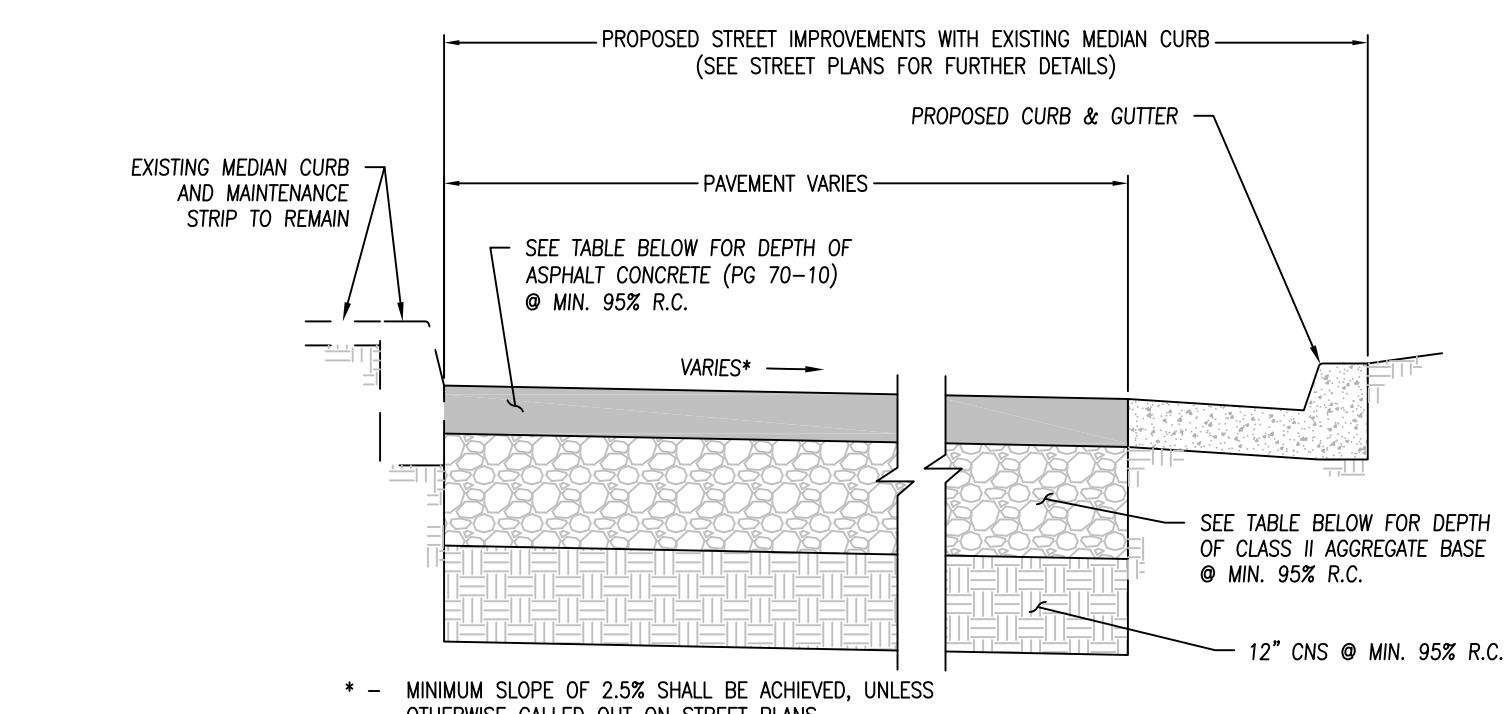
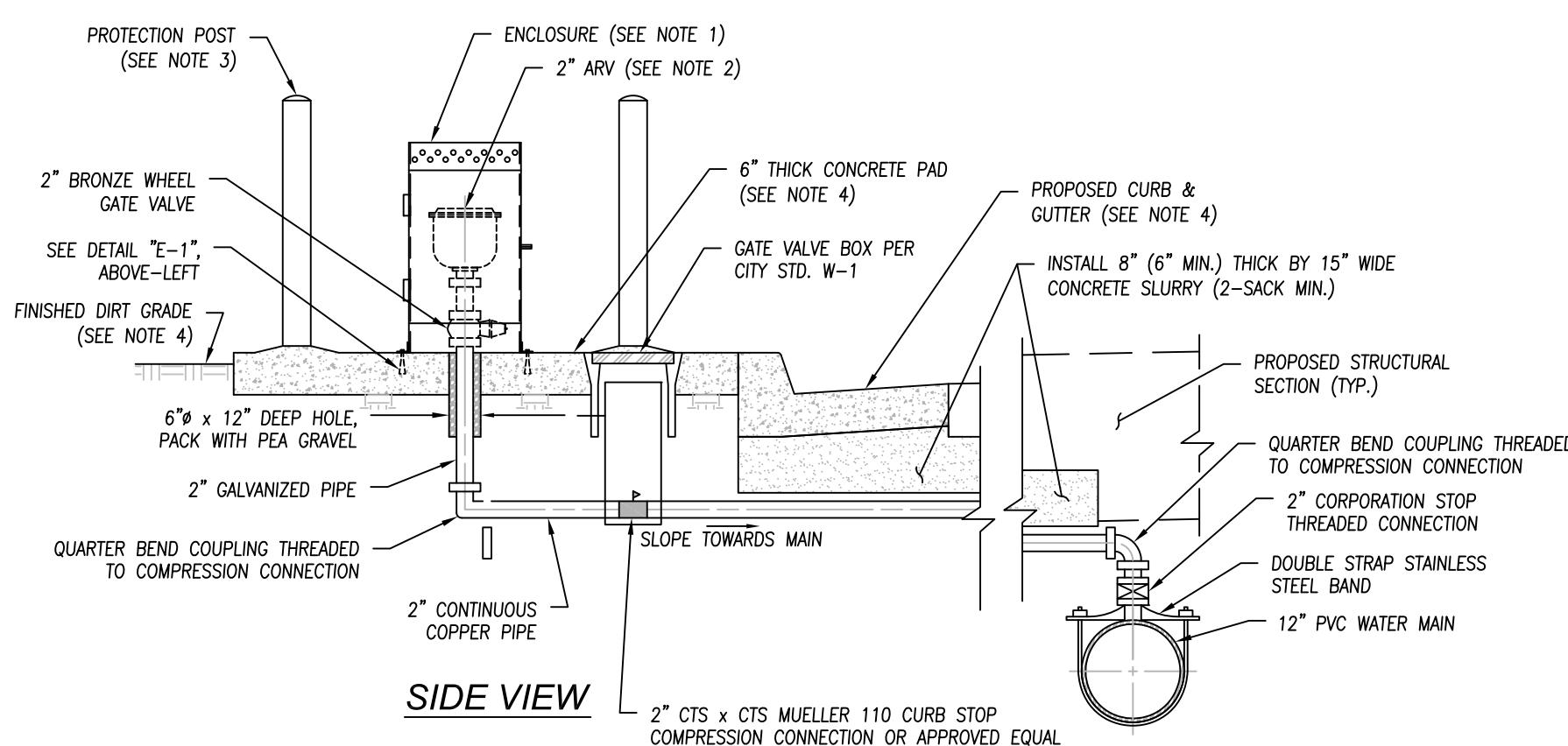
DETAIL E-1

PLAN VIEW



CONDITION 1

NOT TO SCALE



CONDITION 2

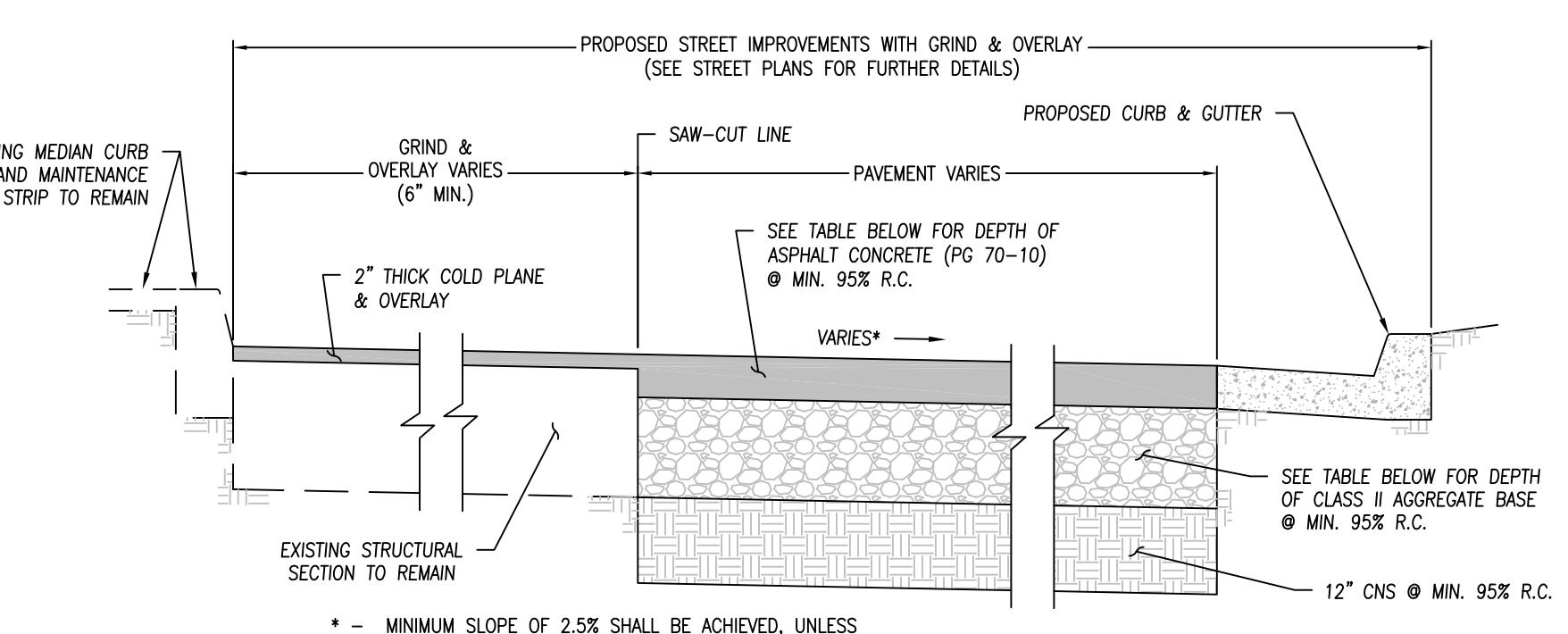
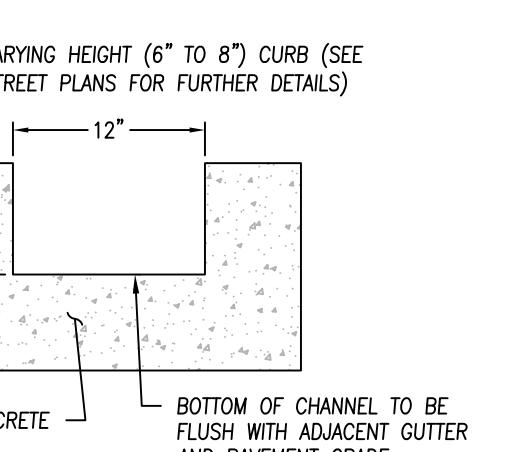
NOT TO SCALE

NOTES:

- VENTED HOUSING ENCLOSURE SHALL BE PIPELINE PRODUCTS MODEL V-VC-316E, POWDER COATED "SKY BLUE" (RAL-5015), OR APPROVED EQUAL. ACCESS DOOR SHALL BE ORIENTED TO FACE ROAD AND BETWEEN BOLLARDS AS SHOWN.
- 2" AIR RELEASE / VACUUM BREAKER VALVE SHALL BE A.R.I. MODEL D-040, OR APPROVED EQUAL.
- STEEL PROTECTION POSTS SHALL BE INSTALLED PER CITY STD. W-3. CONCRETE IN PROTECTION POST SHALL BE ROUNDED AT TOP OF PIPE. FOOTING SHALL EXTEND 3" BELOW BASE OF PROTECTION POST, AND TOP OF FOOTING SHALL HAVE A SLOPING FINISH OF 4:1.
- CONCRETE PAD SHALL BE CLASS "2" PORTLAND CEMENT CONCRETE, AND CONFORMED TO THE DIMENSIONS SHOWN ON DETAIL WITH PAD FLUSH WITH TOP OF CURB AND 1-1/2" ABOVE ADJACENT FINISHED DIRT GRADE. PAD SHALL HAVE A POSITIVE SLOPE OF 1:55 (MIN.) TOWARDS CURB. COMPACT TOP 6" OF NATIVE SOIL BEHIND CONCRETE PAD TO 90% MINIMUM RELATIVE COMPACTION.
- CONTRACTOR SHALL REFER TO SECTION 66, "POTABLE WATER DISTRIBUTION FACILITIES", OF THE CITY STANDARD SPECIFICATIONS, FOR INSTALLATION REQUIREMENTS FOR POTABLE WATER IMPROVEMENTS, INCLUDING, BUT NOT LIMITED TO, PROPER PIPE IDENTIFICATION, TRACER WIRE AND THRUST BLOCKS.
- ALL 2" GALVANIZED PIPE SHALL BE COATED, ANSI 200 OR AWWA CLASS F, THREADED AND DOUBLE WRAPPED WITH 10 MIL TAPE.
- INSTALL VALVE AND CAN AS SHOWN OR AS DIRECTED.

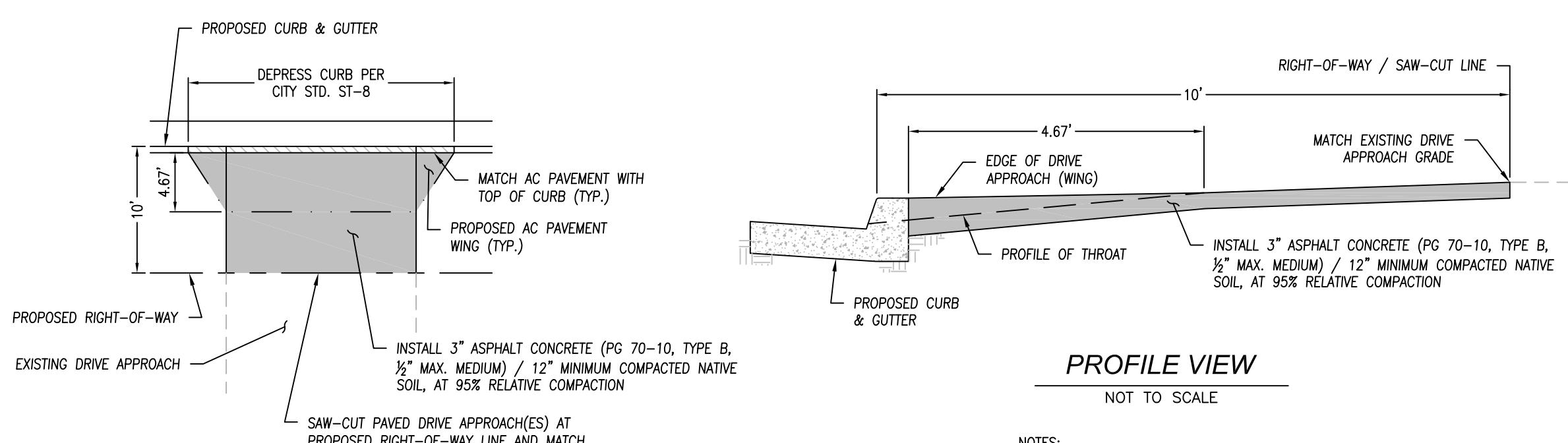
2" AIR RELEASE / VACUUM BREAKER ASSEMBLY

NOT TO SCALE



CONDITION 3

NOT TO SCALE



PLAN VIEW

NOT TO SCALE

TEMPORARY DRIVE APPROACH



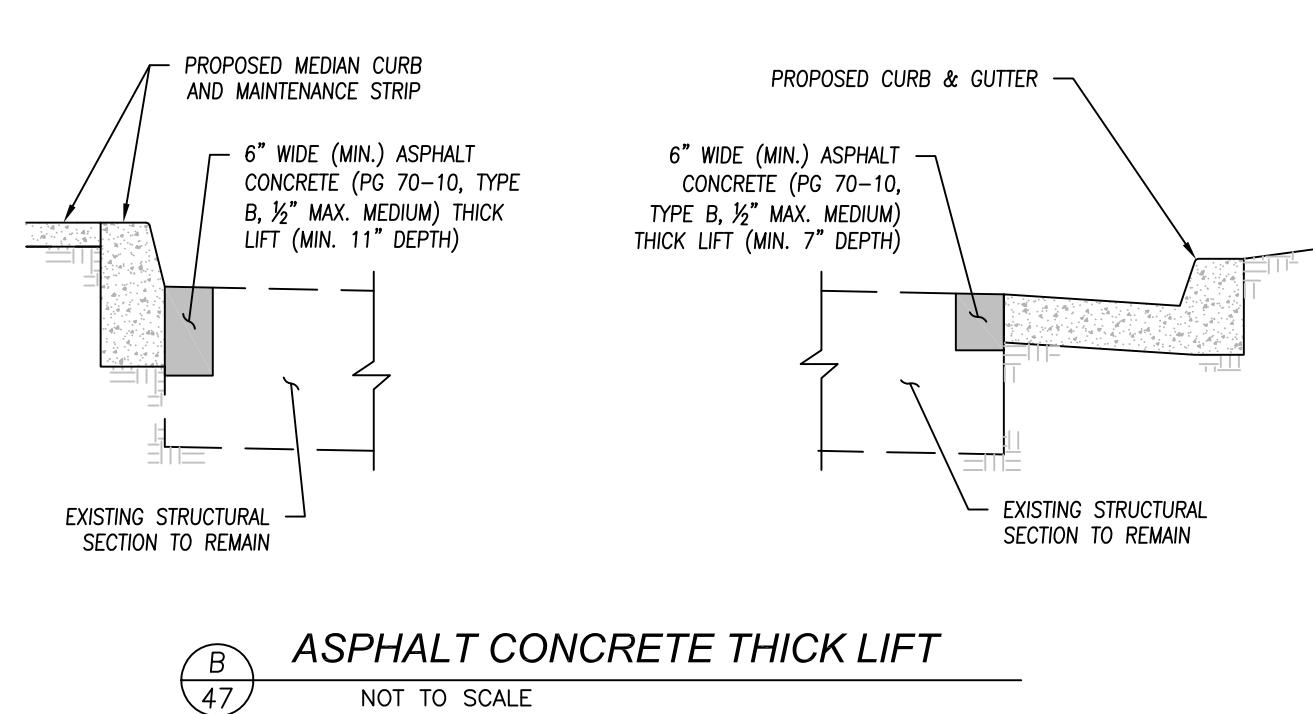
PROFILE VIEW

NOT TO SCALE

- NOTES:
- REFER TO THE DEMOLITION PLANS FOR TYPE OF SURFACING MATERIAL (EG. DIRT, GRAVEL, PAVEMENT) THAT EXISTS AT DRIVE APPROACH.
 - SAW-CUT SHALL LEAVE A CLEAN, STABLE EDGE. REMOVE AND LAWFULLY DISPOSE OF EXISTING DRIVE APPROACH SURFACING BETWEEN EDGE OF EXISTING STREET AND SAW-CUT LINE.

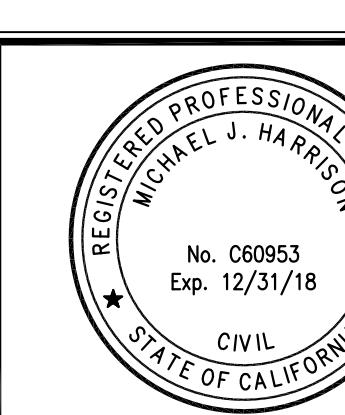
ASPHALT CONCRETE THICK LIFT

NOT TO SCALE



ASPHALT CONCRETE THICK LIFT

NOT TO SCALE



REVISIONS

APPROVALS

APPROVED (INITIAL)

PROJECT ENGINEER

CAPITAL PROJECTS

CONSTRUCTION MANAGEMENT

STREETS

UTILITIES

PLANNING

TRAFFIC

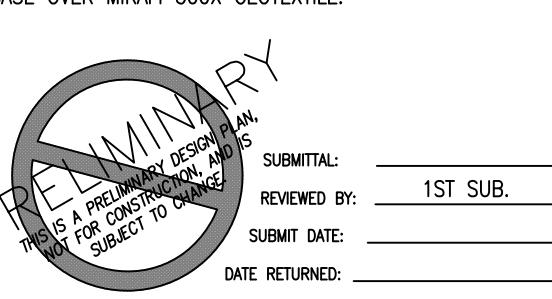
PARKS

FIRE/POLICE

NO. DATE INITIAL

NA

PERMANENT PAVEMENT STRUCTURAL SECTIONS



LOCATION	AC THICKNESS	AB THICKNESS
SHEPHERD AVENUE	3"- 1/2" AC / 3"- 3/4" AC	11.5"
STA. 100+45.00 TO STA. 136+01.50 (N. WILLOW AVENUE)	3"- 1/2" AC / 3"- 3/4" AC	14'
STA. 136+01.50 TO STA. 154+05.14 (N. WILLOW AVENUE)	3"- 1/2" AC / 3"- 3/4" AC	20" **
STA. 154+05.14 TO STA. 199+86.3 (N. WILLOW AVENUE)	3"- 1/2" AC / 3"- 3/4" AC	16.5"

** - INSTALL CLASS II AGGREGATE BASE OVER MIRAFI 500X GEOTEXTILE.

CITY of CLOVIS		PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
PROJECT TITLE	N. WILLOW AVENUE STREET WIDENING W. SHEPHERD AVENUE TO W. COPPER AVENUE	
PROJECT NO.	15-16	
SHEET NO.	47 of XX	
SHEET DESCRIPTION		
DETAILS AND NOTES		

Know what's below.
Call before you dig.