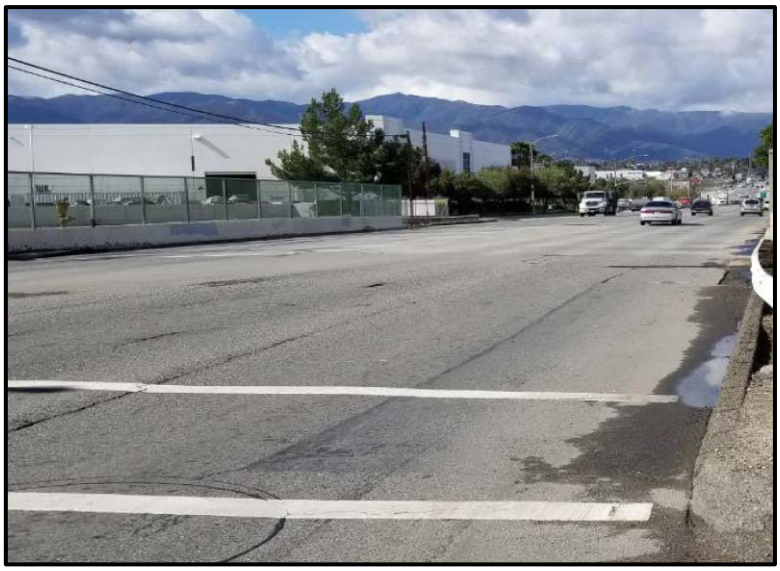
Water Quality Assessment Report

Magnolia Avenue Bridge Widening
(El Camino Avenue to 1,000 Feet East of All American Way, Approximately Trademark Circle)



County of Riverside
City of Corona
Caltrans District 8
Federal Project Number: STPL-5104 (046)
City of Corona Project Number: 2015-15

July 2021

Caltrans

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February 2021

STATE OF CALIFORNIA
Department of Transportation

Prepared By: _____ Date: 8/12/21

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District 8, Caltrans

Executive Summary

This Water Quality Assessment Report (WQAR) identifies potential water quality impacts associated with the Magnolia Avenue Bridge Widening (El Camino Avenue to 1,000 Feet East of All American Way, Approximately Trademark Circle) Project located in the City of Corona, County of Riverside, California. This WQAR is intended to assist with compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and to the extent possible, with federal, state, and local permitting requirements related to hydrology and water quality.

The City of Corona is proposing to widen Magnolia Avenue from El Camino Avenue to Trademark Circle to increase the number of travel lanes, to be consistent with the City General Plan, and to construct sidewalk, curb and gutter, and other ancillary improvements. Widening of the Magnolia Avenue Bridge over Temescal Wash Channel is also being proposed.

The construction, use, operation, and maintenance of the proposed project has the potential to contribute pollutants to stormwater runoff from the Project. Because stormwater runoff from the Project may enter Temescal Creek Channel by direct discharge or by indirect discharge through the municipal separate storm drain system (MS4), measures to control, reduce, or eliminate the discharge of pollutants to the Project's stormwater runoff are required. These pollutant control measures are known as Best Management Practices (BMPs) and are implemented in two distinct phases of the Project; (1) Construction Phase, and (2) Post-Construction Phase.

The Federal Clean Water Act and the California Porter-Cologne Water Quality Act implement the National Pollutant Discharge Elimination System (NPDES) program in California. The NPDES program controls water pollution by regulating sources that discharge pollutants to waters of the United States. The state program is administered by the California State Water Resources Control Board (SWRCB) and the California Regional Water Quality Control Boards (RWQCB). The SWRCB and RWQCB programs require the control of pollutants during construction and throughout the life of the Project.

Locally, the City of Corona holds an NPDES permit for discharges from its MS4 system. On January 29, 2010 the Santa Ana Regional Water Quality Control Board issued a fourth-term area wide National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Permit (MS4 Permit) to the Riverside County Flood Control and Water Conservation District (the Principal Permittee), the County of Riverside and the City of Corona. The Santa Ana Region MS4 Permit is for the portion of the Santa Ana River watershed located within Riverside County (Order No. R8-2010-0033, NPDES Permit No. CAS618033). The Permittees' storm water programs are designed to ensure compliance with this permit.

The receiving water for the project is Temescal Creek, Reach 1, which discharges into the Santa Ana River, Reach 3, approximately 2.28 miles northwest of the project location. The Creek in the project area is a concrete lined channel, which is also known as Temescal Creek Channel. According to the Santa Ana River Basin Plan, the proposed project area falls within the Santa Ana River hydrologic unit, the Middle Santa Ana River hydrologic area, and the Temescal hydrologic sub-area.

Temescal Creek, Reach 1, is listed as Category 5 and is being considered to be listed as a 303(d) impaired receiving water for pH, with an expected completion date in 2021. It does not have an established Total Maximum Daily Load (TMDL).

The City of Corona is a signatory to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) which requires that a project comply with the MSHCP policies identified in Section 6 of the MSHCP. The Project alignment is located in the Temescal Canyon Area Plan of the MSHCP. The site is not located in within any MSHCP designated criteria cell, cell group, or area identified for conservation, nor in an area that requires surveys for amphibian, criteria area species, mammals, burrowing owl, or narrow endemic plants. The Biological Assessment performed by Jericho System, Inc. for the Project alignment consisted of a biological resource assessment and MSHCP Riparian/Riverine resources (MSHCP section 6.1.2) consistency analysis. The section of the Temescal Creek Channel impacted by the Project is void of vegetation and therefore does not contain Riverine/Riparian areas as defined by the MSHCP. No vernal pools exist within or near the channel.

Based on the surveys and analysis presented in the Biological Assessment performed by Jericho System, Inc. in July 2020, there are no sensitive species or critical habitats within or adjacent to the Project alignment.

Even though the section of the Temescal Creek Channel to be impacted is concrete, it is considered a jurisdictional stream subject to the Clean Water Act (CWA) and California Fish and Game Code (FGC) under the jurisdictions of Corps, RWQCB, and California Department of Fish and Wildlife (CDFW), respectively. Any proposed permanent or temporary impacts to this drainage will require a Streambed Alteration Agreement from the CDFW, as well as CWA Sections 401/404 permits from the RWQCB and Corps, respectively. Once the final bridge design is completed, a jurisdictional delineation will be performed to quantify impacts to the jurisdictional concrete-lined channel. The impacts are anticipated to include bridge abutments along the bank and one support pier.

Project sites that accommodate vehicular traffic typically have the potential to increase pollutants in storm water runoff such as sediment/turbidity, nutrients, trash and debris, and oil and grease. The City of Corona requires the Project to develop and implement two plans to control water pollution. The Storm Water Pollution Prevention Plan (SWPPP) will identify the potential pollutants associated with construction of the Project and the BMPs that will be implemented during construction to control, reduce, or eliminate these pollutants in discharges of stormwater runoff from the Project. The second plan is the Water Quality Management Plan (WQMP) that will identify the potential pollutants associated with the use, operation, and maintenance of the completed Project and the BMPs that will be incorporate into the Project to control, reduce, or eliminate these pollutants in discharges of stormwater runoff throughout the operational life of the Project.

To comply with the City of Corona requirements efficiently and effectively for water quality control, two documents are being prepared for this Project:

- **Storm Water Pollution Prevention Plan (SWPPP) –** The SWPPP will include treatment BMPs to control the discharge of pollutants in stormwater runoff associated with the construction of the Project. The SWPPP will include a description of the post-

construction BMPs identified in the WQMP for the Project. Some examples of the construction phase BMPs for the Project may include:

- Scheduling
- Streambank Stabilization
- Wind Erosion Controls
- Storm Drain Inlet Protection
- Gravel Bag Berm
- Gravel Bag Check Dams
- Sediment Sweeping and Vacuuming
- Material and Waste Handling and Storage

- **Water Quality Management Plan (WQMP) –** The WQMP is a post-construction plan for managing the quality and quantity of stormwater runoff that flows from the Project after construction is completed and the Project is operational. The WQMP will describe the site design, source control and treatment control Best Management Practices (BMPs) that will be implemented and maintained throughout the life of Project to prevent and minimize water pollution that can be caused by stormwater runoff. The WQMP includes the following three major categories of BMPs:

  - Site Design BMPs (also known as Low Impact Development strategies) – are Project features that are designed or incorporated into a project to minimize the increase in stormwater runoff from the developed project site. Examples of Site Design BMPs include the use of porous pavement or pavers, minimizing the use of impervious pavement areas, disconnecting impervious areas, and conserving natural areas, etc., to allow water to percolate into the ground.
  - Source Control BMPs – Activities or structures aimed at eliminating or minimizing contact between pollutant sources and stormwater/urban runoff. Examples of Source Control BMPs include education, contractor training, storm drain markings, sweeping, litter collection, canopies over fueling islands, and awnings or tarps to cover materials stored outdoors. These BMPs help keep water from carrying pollutants to storm drain systems and then to the Santa Ana River watershed.
  - Treatment Control BMPs – Engineered devices or systems incorporated into the project's drainage system to remove pollutants from stormwater runoff before the runoff leaves the project site. Examples of Treatment Control BMPs include vegetated swales, infiltration trenches, detention/retention basins, catch basin filters, and vortex separators. These devices help remove potential pollutants from stormwater runoff prior to leaving site and entering storm drain systems and then to the Santa Ana River watershed.

  Examples of the Post-Construction BMPs for the Project may include:
  - Education for Property Owners
  - Drainage Facility Inspection and Maintenance
  - Street Sweeping
  - MS4 Stenciling and Signage
  - Water Quality Treatment Drainage Facilities

Collectively, the BMPs described in the SWPPP and/or the WQMP are expected to mitigate the discharge of pollutants associated with the construction, use, operation, and maintenance of the Project to levels that are less than significant.

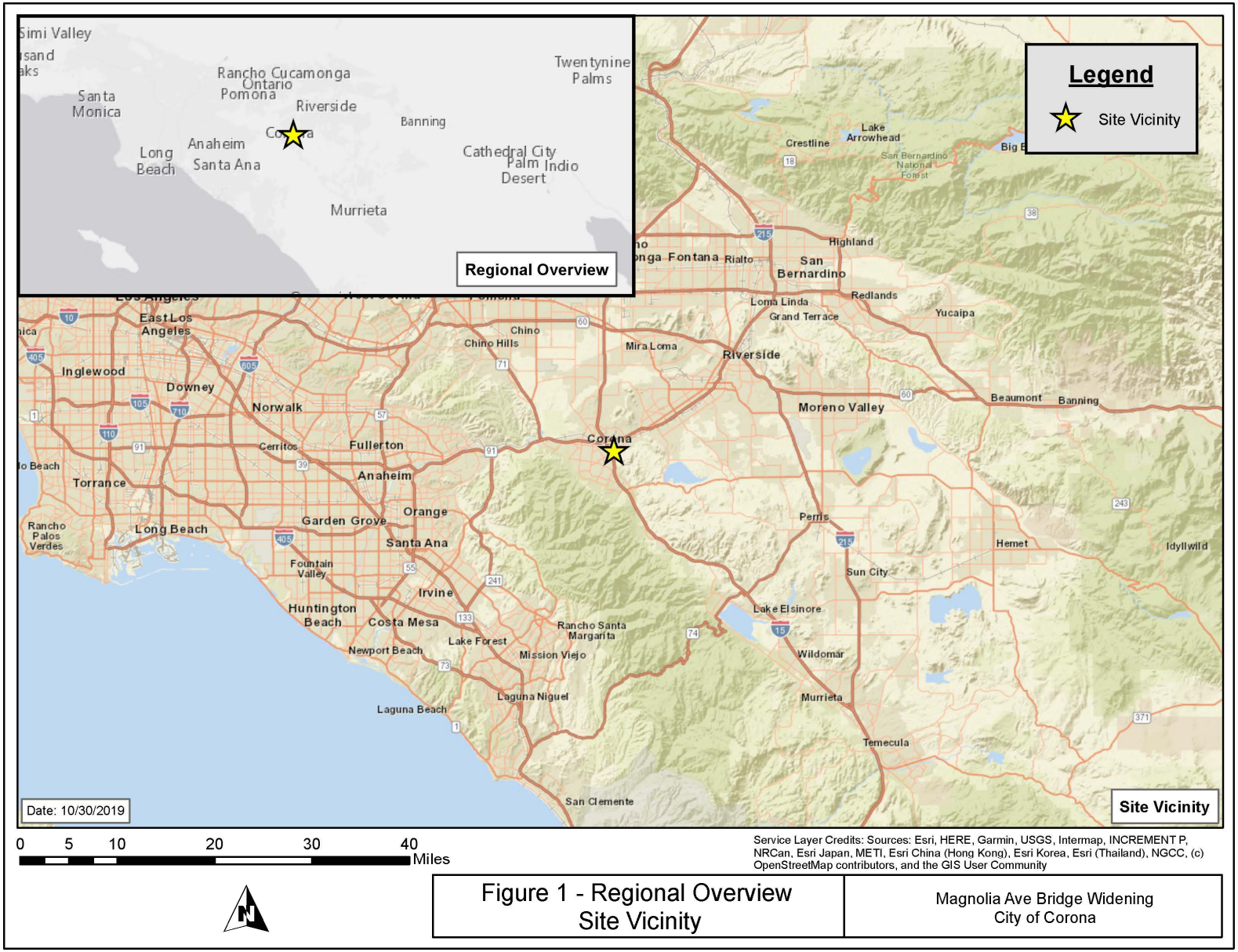
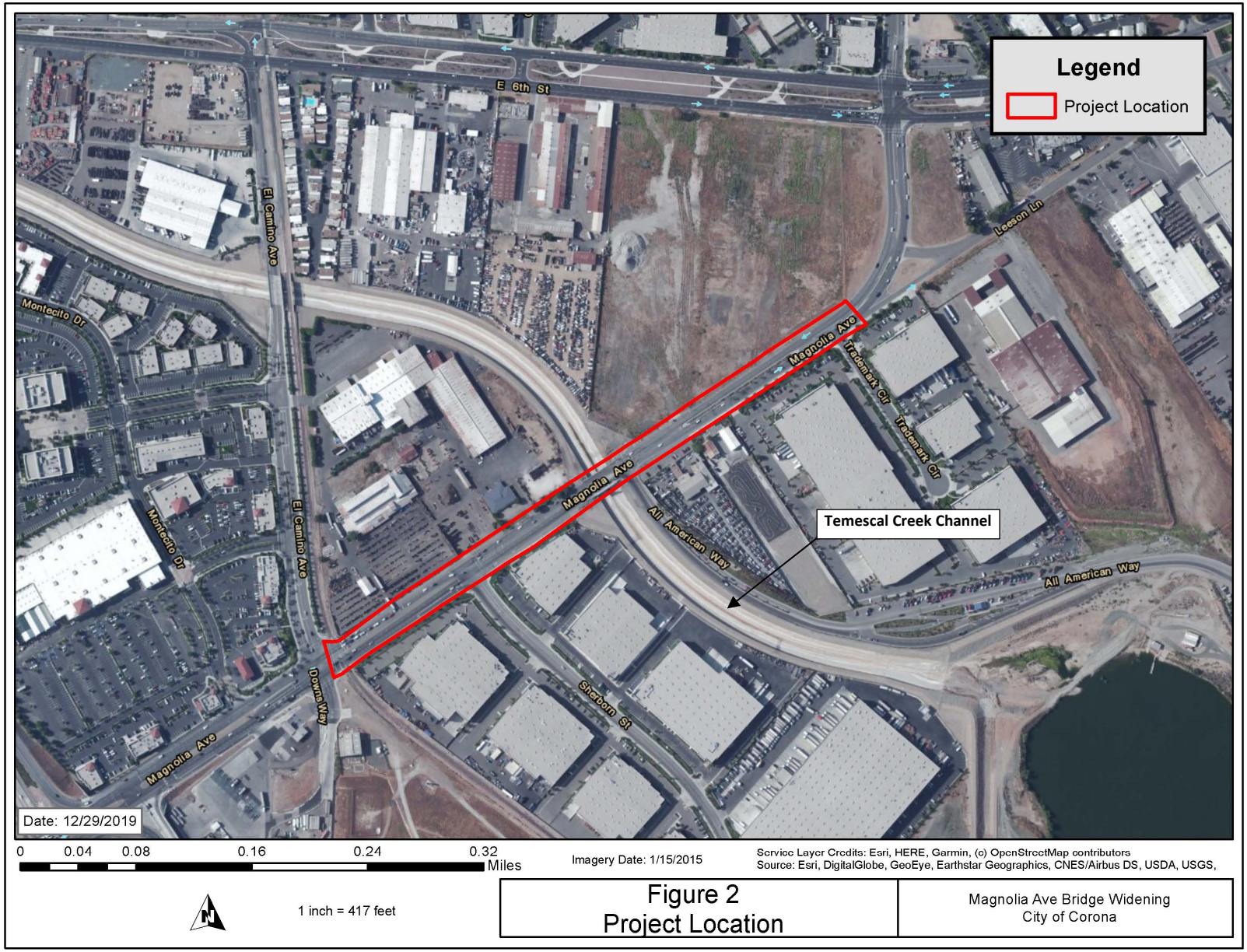


Figure 1 - Regional Overview
Site Vicinity

Magnolia Ave Bridge Widening
City of Corona


Legend
Project Location
E 6th St
El Camino Ave
Montecito Dr
Magnolia Ave
Trademark Cir
Leeson Ln
Temescal Creek Channel
All American Way
Sherborn St
Downs Way
Date: 12/29/2019
0 0.04 0.08 0.16 0.24 0.32 Miles
Imagery Date: 1/15/2015
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,
1 inch = 417 feet
Figure 2
Project Location
Magnolia Ave Bridge Widening
City of Corona

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1. INTRODUCTION

1.1 Approach to Water Quality Assessment

The purpose of the Water Quality Assessment Report (WQAR) is to fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and to provide information for National Pollutant Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed project, the general environmental setting of the project area, and the regulatory framework with respect to water quality; it also provides data on surface water and groundwater resources within the project area and the water quality of these waters, describes water quality impairments and beneficial uses, and identifies potential water quality impacts/benefits associated with the proposed project, and recommends avoidance and/or minimization measures for potentially adverse impacts.

1.2 Project Description

The City of Corona is proposing to widen Magnolia Avenue from El Camino Avenue to Trademark Circle (approximately 1,000 feet east of All-American Way) to increase the number of travel lanes. Widening of the Magnolia Avenue Bridge over Temescal Wash Channel is also being proposed.

The total Disturbed Soil Area (DSA) for the project is 0.45 acres and the total New Impervious Surface (NIS) is 0.49 acres. The R-Factor value is approximately 20. Since the proposed project will be directly discharging or indirectly discharging into the Temescal Creek Channel and the R-Factor value is more than 5, the proposed project be subject to the CGP and a SWPPP will be required for the project. See Section 2.2, Construction General Permit, for more details regarding the CGP assessment for the project.

1.2.1 No-Build Alternative

Under the no-build alternative, no improvements would be made to the Magnolia Avenue roadway from El Camino Avenue to Trademark Circle and Magnolia Avenue Bridge over Temescal Creek.

1.2.2 Build Alternative

As shown on Exhibit "B", the Project Roadway GAD, the roadway improvements will include restriping for three, 12-foot wide lanes in each direction, 5-foot wide shoulders, and 6-foot wide sidewalks/curb and gutter in locations that currently lack sidewalk and curb and gutter. Median with varying widths will be constructed near the centerline of the roadway. Existing catch basins and drainage inlets will be reconstructed, and storm drain connector pipes will be extended to accommodate the proposed roadway widening. A new catch basin will be proposed at the northerly roadway sag located approximately 260 feet east of El Camino Avenue. The total roadway widths will be increased to 102 feet from El Camino Avenue to 25+20.33, and 97 feet from street station 27+19.33 to Trademark Circle, curb to curb. Right-of-way widths of 123 feet and 118 feet will be provided for the segment of the roadway improvements from El Camino Avenue to westerly of the Magnolia Avenue bridge, and 117

feet and 121 feet will be provided from that point to the easterly project limit at Trademark Circle. Acquisition of additional rights of way and temporary construction easements is proposed all throughout the project limits. The proposed roadway widening improvements for Magnolia Avenue at the bridge crossing will be designed to maintain the existing grade and cross fall. A hardscaped median will be provided near the centerline of the roadway.

As a part of the bridge construction, one abutment will be extended on each end of the bridge, along with one pier within the Temescal Creek Channel. Bridge widening will require an additional 11.25 feet of right-of-way on the north side of the bridge and 24.25 feet on the south side of the bridge (for a total of approximately 35.5 feet) to be acquired from RCFC&WCD.

The extent of the proposed channel improvements will be limited to removing and replacing the existing pier extension wall. It will be constructed at an upstream location to accommodate the widening of the existing bridge. The existing channel invert and walls, upstream and downstream of the proposed bridge, will be left intact.

2. Regulatory Setting

2.1 Federal Laws and Requirements

Clean Water Act

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a NPDES permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit program. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.

- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the State that the discharge will comply with other provisions of the act. (Most frequently required in tandem with a Section 404 permit request. See below).

- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. The Federal Environmental Protection Agency delegated to the California State Water Resources Control Board (SWRCB) the implementation and administration of the NPDES program in California. The SWRCB established nine Regional Water Quality Control Boards (RWQCBs). The SWRCB enacts and enforces the Federal NPDES program and all water quality programs and regulations that cross Regional boundaries. The nine RWQCBs enact, administer and enforce all programs, including NPDES permitting, within their jurisdictional boundaries. Section 402(p) requires permits for discharges of stormwater from industrial, construction, and Municipal Separate Storm Sewer Systems (MS4s).

- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S, including wetlands. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are also two types of Individual permits: Standard Individual permit and Letter of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Individual permits. For Standard Individual permit, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (EPA) Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and whether permit approval is in the public interest. The 404(b)(1) Guidelines were developed by the U.S.

EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA), to the proposed discharge that would have less effects on waters of the U.S., and not have any other significant adverse environmental consequences. Per Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures have been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4.

2.2 State Laws and Requirements

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant". Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards as required by the CWA, and regulating discharges to protect beneficial uses of water bodies. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set standards necessary to protect these uses. Consequently, the water quality standards developed for particular water body segments are based on the designated use and vary depending on such use. Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with CWA Section 303(d). If a Regional Board determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or Waste Discharge Requirements), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards
The SWRCB adjudicates water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollutant Discharge Elimination System (NPDES) Program**

Municipal Separate Storm Sewer Systems (MS4)
Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including MS4s. The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying stormwater." The SWRCB has identified the City of Corona as an owner/operator of an MS4 pursuant to federal regulations. The City of Corona's MS4 permit covers all Cities rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Construction General Permit
Construction General Permit (NPDES No. CAS000002, SWRCB Order No. 2009-0009-DWQ, adopted on November 16, 2010) became effective on February 14, 2011 and was amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ. The permit regulates stormwater discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development.

For all projects subject to the CGP, the applicant is required to hire a Qualified Storm Water Pollution Prevention Plan (SWPPP) Developer (QSD) to develop and implement an effective SWPPP. All Project Registration Documents, including the SWPPP, are required to be uploaded into the SWRCB's on-line Stormwater Multiple Application and Report Tracking System (SMARTS), at least 30 days prior to construction.

Waivers from CGP coverage.

Projects that disturb over 1.0 acre but less than 5 acres of soil, may qualify for waiver of CGP coverage. This occurs whenever the R factor of the **Watershed Erosion Estimate (=RxKxLS) in tons/acre** is less than 5. Within this CGP formula, there is a factor related to when and where the construction will take place. This factor, the 'R' factor, may be low, medium or high. When the R factor is below the numeric value of 5, projects can be waived from coverage under the CGP, and are instead covered by the County MS4.

In accordance with SWMP, a Water Pollution Control Plan (WPCP) is necessary for construction of a project not covered by the CGP.

Construction activity that results in soil disturbances of less than one acre is subject to this CGP if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop a SWPPP, to implement soil erosion and pollution prevention control measures, and to obtain coverage under the CGP.

The CGP contains a risk-based permitting approach by establishing three levels of risk possible for a construction site. Risk levels are determined during the planning, design, and construction phases, and are based on project risk of generating sediments and receiving water risk of becoming impaired. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require

compulsory stormwater runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows.

The total Disturbed Soil Area (DSA) for the project is 0.45 acres and the total New Impervious Surface (NIS) is 0.49 acres. Using the Caltrans Water Quality Planning Tool, the R-Factor value is approximately 20.

Since the proposed project will be directly discharging or indirectly discharging into the Temescal Creek Channel and the R-Factor value is more than 5, the proposed project be subject to the CGP and a SWPPP will be required for the project.

Section 401 Permitting
Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with State water quality standards. The most common federal permit triggering 401 Certification is a CWA Section 404 permit, issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may prescribe a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act). WDRs may specify the inclusion of additional project features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

California Fish and Wildlife Code Sections 1601, 1602, and 1603
The California Department of Fish and Wildlife (CDFW), through provisions of the California Fish and Wildlife Code (Sections 1601, 1602, and 1603), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams and rivers are defined by the presence of a channel bed and banks and at least an intermittent flow of water. CDFW typically extends the limits of its jurisdiction laterally beyond the channel banks for streams that support riparian vegetation. In these situations, the outer edge of the riparian vegetation is generally used as the lateral extent of the stream and CDFW jurisdiction. The California Fish and Wildlife Code Section 1602 requires any person, state or local governmental agency, or public utility to notify the CDFW before beginning any activity that will result in one or more of the following: (1) substantial obstruction or diversion of the natural flow of a river, stream, or lake, (2) substantial change in or use of any material from the bed, channel, or bank of a river, stream, or lake, or (3) deposit or disposal of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. The Fish and Wildlife Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state.

2.3 Regional and Local Requirements

Regional Water Quality Control Board (RWQCB)

The proposed project is located within the jurisdiction of the Santa Ana RWQCB (Region 8). The Santa Ana RWQCB has prepared the 1995 Water Quality Control Plan for the Santa Ana Basin (with amendments effective on or before February 2016) to help preserve and enhance water quality and to protect the beneficial uses of state waters. The Basin Plan for the Santa Ana Region is more than just a collection of water quality goals and policies, descriptions of conditions, and discussions of solutions. It is also the basis for the Regional Board's regulatory programs. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. The term "water quality standards," as used in the federal Clean Water Act, includes both the beneficial uses of specific water bodies and the levels of quality which must be met and maintained to protect those uses. The Basin Plan includes an implementation plan describing the actions by the Regional Board and others that are necessary to achieve and maintain the water quality standards. Water quality problems in the region are listed in the Basin Plan, along with the causes, where they are known. For water bodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included.

Local Regulations

The area surrounding the project falls under the area wide National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4 Permit) issued by the Santa Ana RWQCBs for Riverside County, which was issued a fourth-term in January 2010 (Order No. R8-2010-0033, NPDES Permit No. CAS618033). The Riverside County Stormwater Program is a cooperative of the County of Riverside, Riverside County Flood Control and Water Conservation District (RCFC & WCD), and all 14 Riverside County cities, including the City of Corona. The project will comply with the City's NPDES permit for storm water discharges as well as meeting the requirements under the County of Riverside MS4 permit implementing Low Impact Development (LID) strategies consistent with the Counties' and City's guidance documents. LID is a stormwater management strategy aimed at maintaining or restoring the natural hydrologic functions of a site to achieve natural resource protection objectives. LID employs a variety of natural and engineered features that reduce the rate of runoff, filter pollutants out of runoff, and facilitate the infiltration of water into the ground.

3. AFFECTED ENVIRONMENT

3.1 General Environmental Setting

3.1.1 Land Use

The current land use in the project site vicinity is predominantly commercial and industrial. The historical land use is listed below:

- 1931 to 1948: The Generally vicinity of the project was predominantly agricultural, and the Magnolia Avenue roadway was unimproved.
- 1962: The area was still predominantly agricultural with some industrial development beginning. Magnolia Avenue east of Temescal Wash may have been improved with pavement over Temescal Creek while west of Temescal Wash remained as unimproved.
- 1966: More industrial area was developed. The Magnolia Ave roadway seemed to be improved within the project area but without sidewalks.
- 1973: More industrial areas were developed, along with commercial areas. Temescal Creek Channel appears to have some improvements (concrete beam walls).
- 1980: More industrial and commercial areas were developed. Sherborn Street was constructed.
- 1985: Temescal Creek now concrete lined. Industrial and Commercial land use remain.
- 2002: No significant change in land use. Trademark Circle was constructed.

3.1.2 Topography

The project site is shown on the U.S. Geological Survey, Corona South Quadrangle, California, 7 1/2-minute series topographical map in Section 32, Township 3 South, Range 6 West San Bernardino Meridian. The project area is located approximately 650 feet above mean sea level with surface topography slopes towards the south east.

3.1.3 Hydrology

3.1.3.1 Regional Hydrology

The project discharges into Temescal Creek Reach 1, which is located in the Santa Ana River Watershed. The Santa Ana River watershed is located in southern California, south and east of the City of Los Angeles. The watershed includes much of Orange County, the northwestern corner of Riverside County, the southwestern corner of San Bernardino County, and a small portion of Los Angeles County. The watershed is generally bounded on the south by the Santa Margarita watershed, on the east by the Salton Sea and Southern Mojave watersheds, and on the north/west by the Mojave and San Gabriel watersheds. The watershed is approximately 2,650 square miles in area.

The headwaters of the Santa Ana River are in the San Bernardino Mountains with two of its major tributaries Bear Creek and Mill Creek. Other tributaries include Lytle Creek originating in the San Gabriel Mountains and the San Jacinto River originating in the San Jacinto Mountains. These major tributaries confluence to form the Santa Ana River in the San Bernardino Valley located at the southern base of the Transverse Ranges of the San

Bernardino Mountains. The Santa Ana River traverses through the San Bernardino Valley before cutting through the Santa Ana Mountains and flowing to the Orange Coastal Plain. Eventually the river discharges to the ocean in the City of Huntington Beach.

The receiving water for the project is Temescal Creek, Reach 1, which discharges into the Santa Ana River, Reach 3, approximately 2.28 miles northwest of the project location. The Creek is a concrete lined channel, which is also known Temescal Creek Channel. According to the Santa Ana River Basin Plan, the proposed project area falls within the Santa Ana River hydrologic unit, the Middle Santa Ana River hydrologic area, and the Temescal hydrologic sub-area.

Temescal Creek, Reach 1, is listed as Category 5 and is being considered to be listed as a 303(d) impaired receiving water for pH, with an expected completion date in 2021. It does not have an established Total Maximum Daily Load (TMDL).

3.1.3.2 Local Hydrology

3.1.3.2.1 Precipitation and Climate

The City of Corona gets approximately 12 inches of rain per year. The US average is 38 inches. The number of days with any measurable precipitation is 32.

On average, there are 275 sunny days per year in the City of Corona. The summer temperature high in July is 94 degrees. The winter temperature average low in January is 42 degrees. Comfort index, which is based on humidity during the hot months, is 8.7 out of 10, where higher is more comfortable. The US average on the comfort index is 7.0.

3.1.3.2.2 Surface Waters

A beneficial use is one of the various ways that water can be used for the benefit of people and/or wildlife. Examples include drinking, swimming, industrial and agricultural water supply, and the support of fresh and saline aquatic habitats.

Section 303(d) of the federal Clean Water Act (33 U.S.C. § 1313) defines water quality standards as consisting of the uses of the surface (navigable) waters involved, the water quality criteria which are applied to protect those uses and an anti-degradation policy. Under the Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Chapter 2 § 13050) the uses of waters and water quality criteria are separately considered as beneficial uses and water quality objectives. Beneficial uses and water quality objectives are to be established for all waters of the state, both surface and subsurface (groundwater).

The Project discharges to Temescal Creek Reach 1, which discharges into the Santa Ana River Reach 3. According to the Santa Ana Region Basin Plan, Temescal Creek Reach 1 and Santa Ana River Reach 3 have the following beneficial uses:

Temescal Creek Reach 1

- MUN (Municipal and Domestic Supply) [Excepted]
- REC2 (Noncontact Water Recreation)

- WARM (Warm Freshwater Habitat)
- COLD (Cold Freshwater Habitat)

Santa Ana River Reach 3 – Prado Dam to Mission Blvd in Riverside

- MUN (Municipal and Domestic Supply) [Excepted]
- AGR (Agricultural Supply)
- GWR (Groundwater Recharge)
- REC1 (Water Contact Recreation)
- REC2 (Noncontact Water Recreation)
- WARM (Warm Freshwater Habitat)
- WILD (Wildlife Habitat)
- RARE (Rare, Threatened, or Endangered Species)
- SPWN (Spawning, Reproduction, and Development)

3.1.3.2.3 Floodplains

Review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Number 06065C1356G, dated August 28, 2008 and revised on June 14, 2018, indicates that the project site is mapped within a Zone X (unshaded) flood designation and indicates that the 100-year flood discharge within the Temescal Creek Channel at the bridge crossing is contained within the channel. According to FEMA, Zone X (unshaded) is an "area of minimal flood hazard, usually above 500-year flood. Therefore, a Letter of Map Revision (LOMR) processing through FEMA will not be required.

3.1.3.2.4 Municipal Supply

The City of Corona Department of Water and Power (DWP) is the main water purveyor for the City of Corona. DWP's water supply is a blend of local production wells and water that is imported from the Metropolitan Water District of Southern California (MWD). In 2011, approximately 44% of the City's water was imported from MWD through Western Municipal Water District (WMWD) and 56% came from local groundwater sources.

3.1.3.3 Groundwater Hydrology

According to the City of Corona 2015 Urban Water Management Plan, the City draws groundwater from three basins: (1) the Temescal Basin, (2) the Coldwater Basin, and (3) the Bedford Basin.

1. Temescal Basin – Temescal Basin is the main basin that the City draws groundwater from. It is a part of the Upper Santa Ana Valley Basin. It underlies the southwest part of upper Santa Ana Valley. On the north, the subbasin is bounded by the Chino Subbasin, marked by the Santa Ana River and a set of low hills of crystalline rock near Norco. The eastern part of the subbasin is bounded by nonwater-bearing crystalline rocks of the El Sobrante de San Jacinto and La Sierra Hills. The subbasin is bounded on the west by the Santa Ana Mountains and the south by the Elsinore Groundwater Basin at a constriction in the alluvium of

Temescal Wash. Average annual precipitation ranges from 14 to 16 inches per year. Recharge to the groundwater reservoir is through percolation of precipitation on the valley floor and infiltration of stream flow within tributaries existing the surrounding mountains and hills. In 2015, the groundwater storage capacity was 16,131 acre-feet per year.

2. Coldwater Basin and Bedford Basin – The Bedford Basin is located south of the Temescal Basin in Temescal Canyon between the Santa Ana Mountains and the El Sobrante Hills. The basin covers an area of approximately 10 square miles with an alluvial depth ranging from 30 to 200 feet. The Coldwater Basin is located southwest of the Bedford Basin and the Temescal Wash. The basin covers an area of approximately 2.6 square miles and lies within the structural graben between the Santa Ana Mountains to the west and the El Sobrante Hills to the east with a depth ranging from 30 to 700 feet. The Coldwater Basin and the Bedford Basin are separated by the North Glen Ivy Fault. In 2015, Coldwater Basin and Bedford Basin were being considered for resignation as a single basin by the Department of Water Resources (DWR). In 2015, the groundwater storage capacity for Coldwater Basin was 2,154 acre-feet per year.

3.1.4 Geology/Soils

3.1.4.1 Regional Geology

The project site is located in the northwestern portion of the Peninsular Ranges Geomorphic Province of Southern California. The Peninsular Ranges province is characterized by northwest tending valleys and mountain ranges which have formed in response to regional tectonic forces along the boundary between the Pacific and North American tectonic plates. The geologic structure is dominated by northwest trending right-lateral faults, most notable, the San Andreas Fault, San Jacinto Fault, Elsinore Fault, Whittier Fault, and the Newport-Inglewood Fault. The province extends southward from the Transverse Ranges province at the north end of the Los Angeles Basin to the southern tip of the Baja California Peninsula. Basement rocks in the region are predominantly granitic and metamorphic rocks associated with the Mesozoic-age Southern California Batholith. Erosional remnants of granitic rocks are exposed in isolated hilly outcrops within the northern portions of the Chino Basin. Cenozoic-age sedimentary rocks overly the basement rocks in many areas and are well exposed in the Santa Ana Mountains and the Chino Hills southwest and west of the site.

3.1.4.2 Local Geology

The project site is underlain by Holocene and late Pleistocene artificial fill and alluvial deposits. These deposits primarily consist of fine to medium-grained sand with gravel and possible cobbles. (Morton et al, 2002). Descriptions of each unit are provided below.

- Qya: Young alluvial channel deposits (Holocene and late Pleistocene) – Gray, unconsolidated alluvium. Found chiefly in Temescal Wash and its tributaries, where it consists of medium- to fine-grained sand in lower reaches and coarsens to gravel and cobbles up stream. Also found in Wardlaw Canyon and its tributaries, and in Ladd Canyon in southwestern part of quadrangle.

- Qyf: Young alluvial fan deposits (Holocene and late Pleistocene) – Grayhued gravel and boulder deposits derived largely from volcanic and sedimentary units of Santa Ana Mountains. Fans consisting mainly of gravel emanate and coalesce from Tin Mine, Hagador, Main Street, and Eagle Canyons. Fan emanating from Bedford Canyon is coarser grained, containing a large component of boulders. All fans coarsen toward mountains. Locally, young alluvial fan deposits are divided into subunits based on sequential terrace development and other factors; one such unit is found in quadrangle:

- Qaf: Artificial fill (late Holocene) – Deposits of fill resulting from human construction or mining activities; includes numerous noncontiguous areas related to sand and gravel operations and flood control in and adjacent to Temescal Wash and to road grade and ramps along Corona Freeway segment of Interstate 15.

3.1.4.3 Soil Erosion Potential

Available site information did not indicate significant geologic hazards (such as land sliding, ground settlement, embankment failures, very soft soils, severe erosion, etc.) within the project area.

3.1.5 Biological Communities

3.1.5.1 Aquatic Habitat

3.1.5.1.1 Special Status Species

There are no special status species within the project area.

3.1.5.1.2 Stream/Riparian Habitats

There are no stream/riparian habitats within the project area.

3.1.5.1.3 Wetlands

There are no wetlands within the project area.

3.1.5.1.4 Fish Passage

There are no existing or proposed fish passages.

4. ENVIRONMENTAL CONSEQUENCES

4.1 Potential Impacts to Water Quality

4.1.1 Anticipated changes to the Physical/Chemical Characteristics of the Aquatic Environment

4.1.1.1 Substrate

Not applicable.

4.1.1.2 Currents, Circulation or Drainage Patterns

The proposed project will not affect current drainage patterns.

4.1.1.3 Suspended Particulates (Turbidity)

Sediment and suspended particulates pollutants are generally considered to be common on project sites that accommodate vehicular traffic. With implementation of BMPs during construction and post-construction of the project, there will be no anticipated long-term to the aquatic environment.

4.1.1.4 Oil, Grease and Chemical Pollutants

Oil, grease, and chemical pollutants are generally considered to be common on project sites that accommodate pedestrian and non-vehicular traffic. With implementation of BMPs during construction and post-construction of the project, there will be no anticipated long-term to the aquatic environment.

4.1.1.5 Temperature, Oxygen, Depletion and Other Parameters

Not applicable.

4.1.1.6 Flood Control Functions

Not applicable.

4.1.1.7 Storm, Wave and Erosion Buffers

Not applicable.

4.1.1.8 Erosion and Accretion Patterns

Not applicable.

4.1.1.9 Aquifer Recharge/Groundwater

The Project will not affect the existing conditions of the groundwater table nor have any

adverse effect on aquifer recharge.

4.1.1.10 Baseflow

Baseflow will not be altered due to construction of the Project.

4.2.2 Anticipated Changes to the Biological Characteristics of the Aquatic Environment

Not applicable; there are no aquatic habitats within the project limits.

4.2.2.1 Special aquatic sites

4.2.2.2 Habitat for Fish and Other Aquatic Organisms

4.2.2.2.1 Fish Passage (Beneficial Uses)

4.2.2.3 Wildlife Habitat

4.2.2.3.1 Wildlife Passage (Beneficial Uses)

4.2.2.4 Endangered or Threatened Species

4.2.2.5 Invasive Species

4.2.3 Anticipated Changes to the Human Use Characteristics of the Aquatic Environment

4.2.3.1 Existing and Potential Water Supplies; Water Conservation

There are no impacts to the existing and potential water supplies.

4.2.3.2 Recreational or Commercial Fisheries

Not applicable.

4.2.3.3 Other Water Related Recreation

The project area is not within an area of recreational use.

4.2.3.4 Aesthetics of the Aquatic Ecosystem

Not applicable.

4.2.3.5 Parks, National and Historic Monuments, National Seashores, Wild and Scenic Rivers, Wilderness Areas, etc.

Not applicable.

4.2.3.6 Traffic/Transportation Patterns

The Magnolia Avenue Bridge over the Temescal Creek Channel and roadway is being widened, increasing the vehicle capacity of the roadway.

4.2.3.7 Energy Consumption of Generation

Not applicable.

4.2.3.8 Navigation

Not applicable.

4.2.3.9 Safety

Raised medians are proposed to be constructed along with the widening of the roadway. Fences and rails are proposed along the pedestrian sidewalks of the bridge crossing.

4.2.4 Temporary Impacts to Water Quality During Construction

4.2.4.1 No-Build Alternative

Under the no-build alternative, no improvements would be made to the Magnolia Avenue Roadway and Temescal Creek Bridge Crossing from El Camino Avenue to Trademark Circle. Therefore, there would be no temporary impacts that would affect the existing water quality in the project area.

4.2.4.2 Build Alternative(s)

Runoff generated by the project will be treated by implementing temporary Construction Best Management Practices (BMPs) to ensure local and regional stormwater quality is not impacted, per the project SWPPP.

4.2.5 Long-term Impacts During Operation and Maintenance

4.2.5.1 No-Build Alternative

Under the no-build alternative, no improvements would be made to the Magnolia Avenue Roadway and Temescal Creek Bridge Crossing from El Camino Avenue to Trademark Circle. Therefore, there would be no long-term impacts that would affect the existing water quality in the project area.

4.2.5.2 Build Alternative(s)

Runoff generated by the project will be treated by implementing Post Construction Best Management Practices (BMPs) to ensure local and regional stormwater quality is not impacted, per the project WQMP.

4.3 Cumulative Impacts

Although there will be a minor increase in impervious surfaces due to the street section of the roadway being widened over the length of the project, the addition of this impervious area in comparison to the overall Santa Ana Watershed is minimal. The proposed parkways will also have landscaping which would add pervious area over the length of the roadway. In addition to this, Post-Construction Best Management Practices per the project WQMP will be installed and maintained to ensure local and regional stormwater quality is not impacted.

4.4 Project Features/Standardized Measures

The following project features/ standardized measures implemented by the project will minimize any temporary or permanent water quality impacts created by the project:

PF-WQ-1
The project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the City of Corona, Order No. R8-2010-0033, NPDES Permit No. CAS618033 and the and any subsequent permits in effect at the time of construction.

PF-WQ-2
The project will comply with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, NPDES No. CAS000002 and the and any subsequent permits in effect at the time of construction.

PF-WQ-3
The project will comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include BMPs to control the pollutants. All work must conform to the Construction Site BMP requirements specified in the latest edition of the *Storm Water Quality Handbooks: Construction Site Best Management Practices Manual* to control and minimize the impacts of construction and construction related activities, material and pollutants on the watershed.

PF-WQ-4
The project will comply with the Construction General Permit by preparing and implementing a Water Quality Management Plan (WQMP) for urban runoff to address the post construction impact to water quality. The WQMP will identify the sources of pollutants that may affect the quality of storm water and include LID BMPs to control the pollutants. All work must conform to the requirements specified in the *RCFC & WCD Design Handbook for Low Impact Development (LID) Best Management Practices (BMPs)* to control and minimize the impacts of the proposed project to water quality on the watershed.

5. AVOIDANCE AND MINIMIZATION MEASURES

The project will incorporate project features and standardized measures as outlined in Section 4.4. With the implementation of these project features, as well as installation of the temporary and permanent BMPs as outlined in the project SWPPP and project WQMP, respectively, no adverse impacts to water quality would occur, no avoidance, minimization, and/or mitigation measures are required.

6. REFERENCES

Caltrans Water Quality Planning Tool: http://www.water-programs.com/wqpt.htm

FEMA Flood Map Service Center: https://msc.fema.gov/portal/home

Regional Water Quality Control Board website and Basin Plans:
http://www.swrcb.ca.gov/plans_policies/

State Water Resources Control Board Storm Water Program, 2009-0009-DWQ Construction General Permit:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

State Water Resources Control Board Watershed Management:
http://www.swrcb.ca.gov/water_issues/programs/watershed/

United States (U.S.) Environmental Protection Agency Section 404(b)(1) guidelines:
http://www.epa.gov/owow/wetlands/pdf/40cfrPart230.pdf

U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey:
http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

Riverside County Flood Control & Water Conservation District, Riverside County Watershed Protection, Santa Ana Watershed Protection Program
http://content.rcflood.org/npdes/SantaAnaWS.aspx

6.1 Works Cited

Converse Consultants (November 2019); "Phase I Environmental Site Assessment Report – Magnolia Avenue Bridge Widening Project"

Converse Consultants (April 2020); "Preliminary Foundation Report (PFR) – Magnolia Avenue Bridge Widening"

Jericho Systems Inc. (July 2020); "Biological Resources Assessment -Jurisdictional Waters Delineation Western Riverside MSHCP Consistency Analysis - Magnolia Avenue Bridge Widening"

KWC Engineers (July 2016); "City of Corona Urban Water Management Plan"

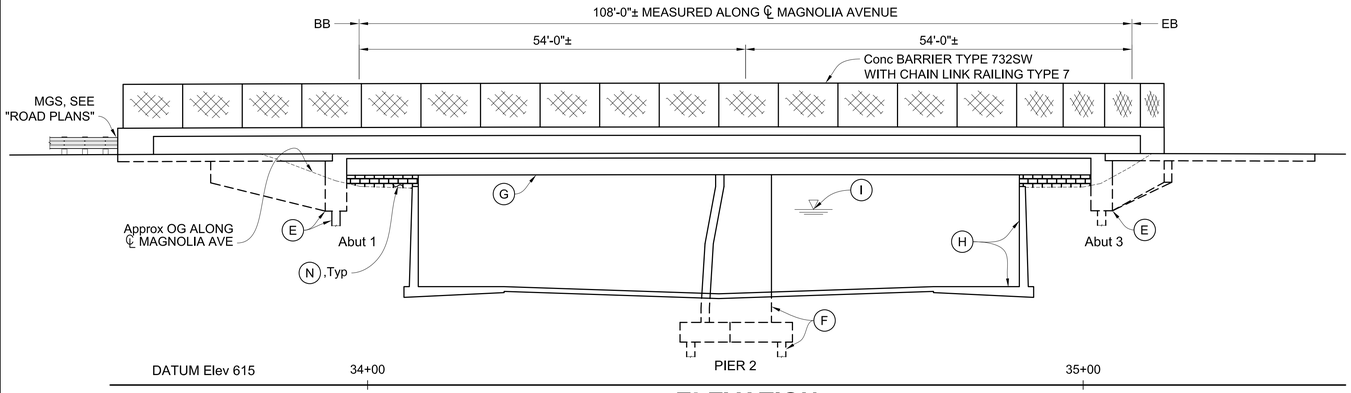
6.2 Preparer(s) Qualifications

Prepared By:

Ceazar Aguilar, P.E.
President
Aguilar Consulting, Inc.
2155 Chicago Avenue, Suite 301
Riverside, CA 92507
Office: (951) 300-1431
Fax: (951) 300-1435

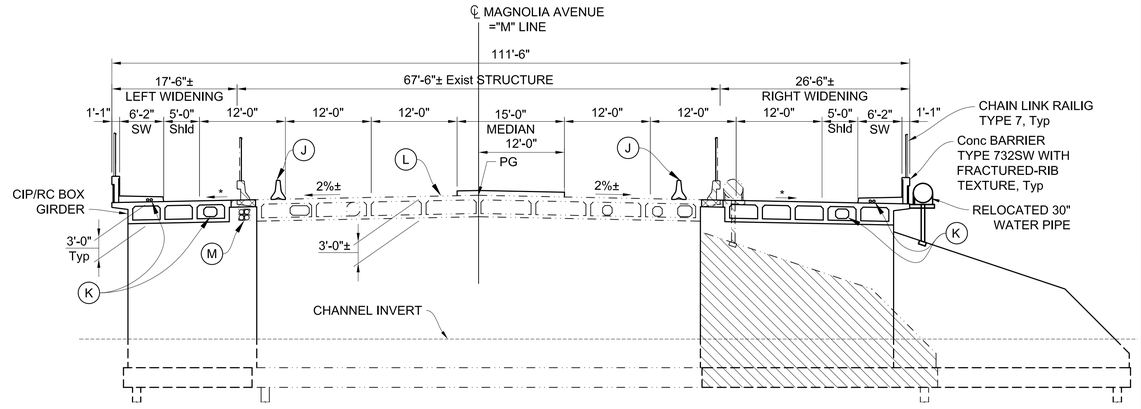
Mr. Aguilar has more than 30 years of civil engineering experience, most notably in the design of flood control structures, floodplain analysis, and stormwater quality assessment and mitigation techniques.

Exhibit A: Bridge General Plan



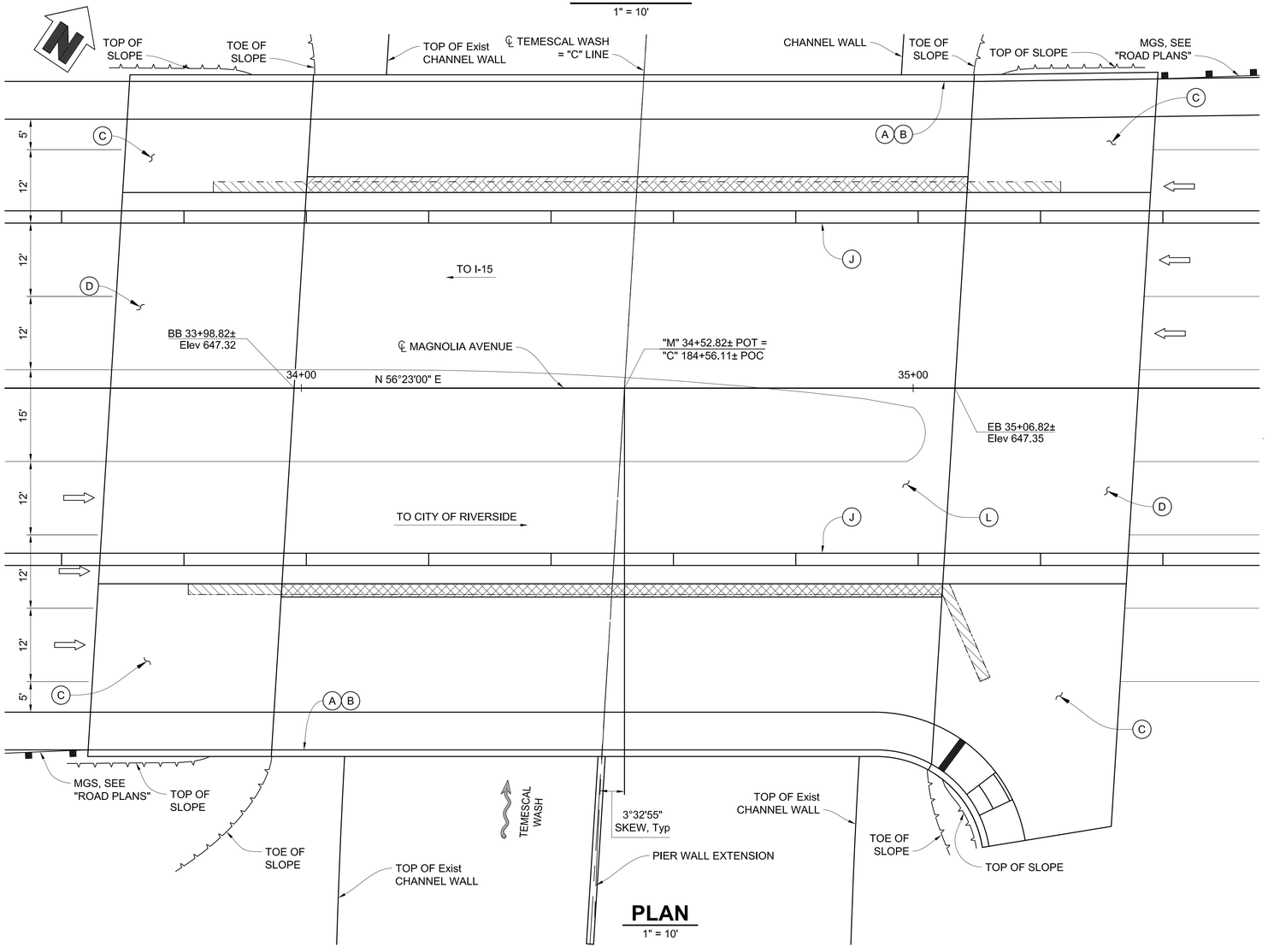
ELEVATION

1" = 10'



TYPICAL SECTION

1" = 10'



PLAN

1" = 10'

LEGEND:

- Existing Structure
- New Construction
- Bridge Removal (Portion)
- Closure Pour
- Direction of Water Flow
- Direction of Traffic
- * Match Existing Cross Slope

NOTES:

(A) Paint "Br. No. 56C0199"

(B) Paint "MAGNOLIA AVENUE OVER TEMESCAL WASH"

(C) Structure Approach Type N (30D)

(D) Structure Approach Type R (30D)

(E) Diaphragm-Type Abutment on Driven Steel Piles

(F) 1'-2" Pier Wall on Driven Steel Piles

(G) Cast-In-Place Reinforced Concrete Box Girder

(H) Existing Concrete Channel

(I) Water Surface Elevation, see "HYDROLOGIC SUMMARY" on "FOUNDATION PLAN" Sheet

(J) Temporary Concrete Barrier Type K, see "Road Plans"

(K) Future Utility Opening

(L) Clean and Treat Existing Bridge Deck with High Molecular Weight Methacrylate

(M) Existing SCE Lines

(N) Existing Block Wall and Steel Plate to be Removed and Rebuilt

VEHICULAR TRAFFIC

1. _____ New alignment. No traffic at the site.
2. _____ Traffic will be detoured away from the site.
3. _X_ Traffic will be carried on the structure. Stage construction will be required.
4. _____ Traffic will pass under the structure on _____ (Name of St. of Hwy.)

A. _____ No falsework allowed over traffic.

B. _____ Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
_____ Bnd.		
_____ Bnd.		
___ Off-Ramp		

C. _____ Temporary traffic lane reduction needed for footing excavation.

PEDESTRIAN TRAFFIC

Falsework opening(s) required over _____ (Name of St.)

Location _____ Height _____ Width _____

RAILROAD TRAFFIC

Falsework opening(s) required over _____ (Name of RR)

Vertical Clearance _____ Horizontal Clear Width _____

Plan Prepared By:

JUSTIN NGUYEN _____ Date

CNS Engineers, Inc.
11870 Pierce Street,
Suit 265 Riverside, CA
92505.
Phone; (951) 687-1005
Fax: (951) 667 - 3387

CITY OF CORONA
400 SOUTH VICENTIA AVENUE
CORONA, CALIFORNIA 91720

Designed by	Drawn by	Checked by
JN	JN	JL

PLANS PREPARED UNDER SUPERVISION OF

Date _____ R.C.E. No. _____

Reference Plans for these Improvements

Date	By	REVISIONS	App'd

BENCH MARK

Scale

Engineering _____

Utilities _____

Fire _____

Approved _____

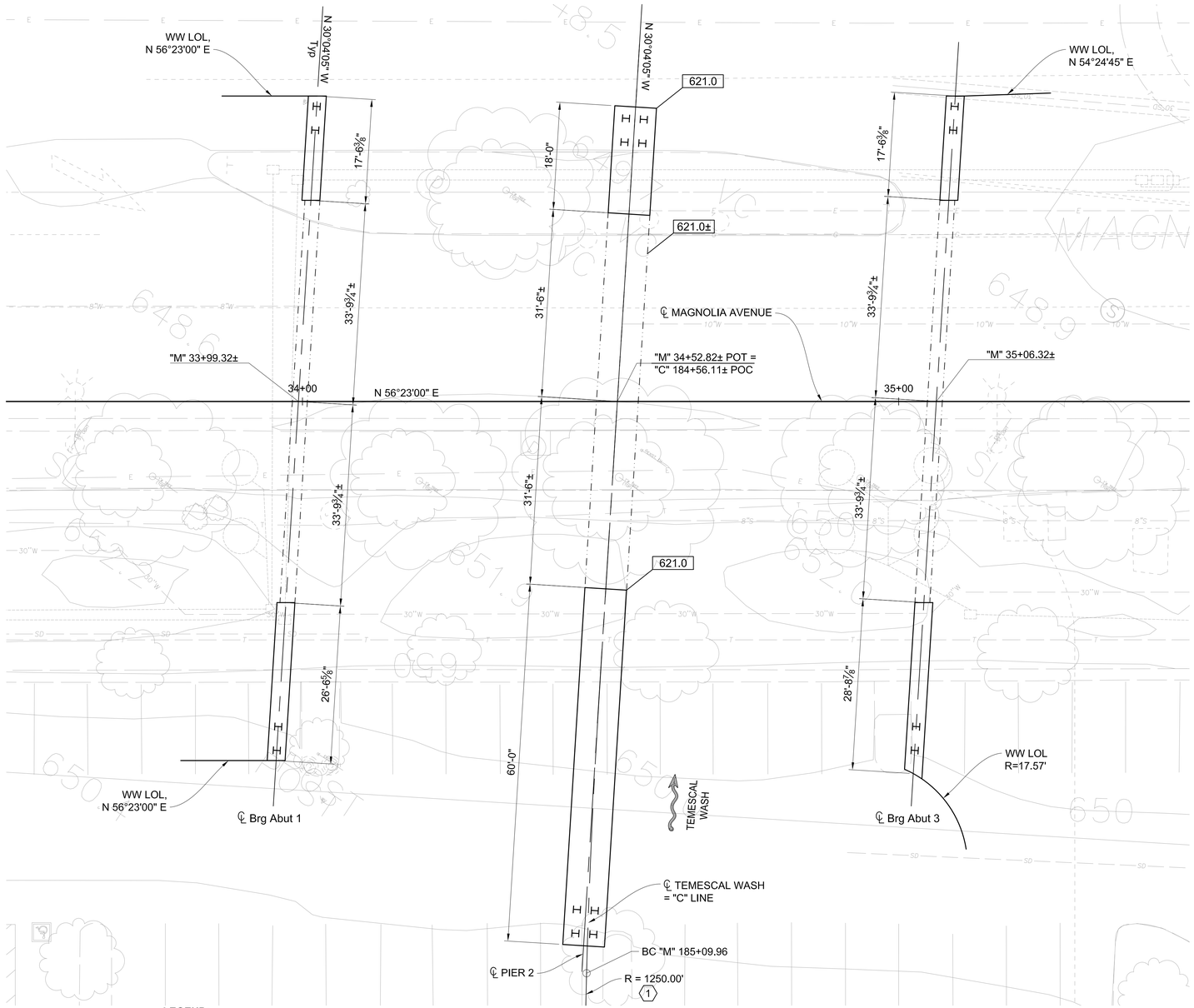
By _____

X
City Engineer
R.C.E. No. XXXXX Exp. 00-00-00

CITY OF CORONA
MAGNOLIA AVENUE BRIDGE WIDENING
FROM EL CAMINO AVE TO 1000 FT EAST
OF ALL AMERICAN WAY

GENERAL PLAN ALTERNATIVE 1

Drawing No. 1 Of 2



LEGEND:

- Existing Structure
- New Construction
- XXX.X — Indicates Bottom of Footing Elevation
- Direction of Water Flow
- H — Driven Steel HP Pile

PLAN
1" = 10'

NOTES:
1. All ℄ piers are parallel.
2. Existing contours shown, see "ROAD PLANS" for new grading.
3. All piles not shown.

HYDROLOGIC SUMMARY

	DESIGN FLOOD
FREQUENCY (YEARS)	100
DISCHARGE (CUBIC FEET PER SECOND)	24,000
WATER SURFACE (ELEVATION AT BRIDGE)	638.36

FLOOD PLAIN DATA ARE BASED UPON INFORMATION AVAILABLE WHEN THE PLANS WERE PREPARED AND ARE SHOWN TO MEET FEDERAL REQUIREMENTS. THE ACCURACY OF SAID INFORMATION IS NOT WARRANTED BY THE STATE AND INTERESTED OR AFFECTED PARTIES SHOULD MAKE THEIR OWN INVESTIGATION.

PILE DATA TABLE

LOCATION	PILE TYPE	NOMINAL RESISTANCE (kips)		DESIGN TIP ELEVATION (ft)	SPECIFIED TIP ELEVATION (ft)	REQUIRED NOMINAL DRIVING RESISTANCE (kips)
		COMPRESSION	TENSION			
Abut 1	HP 10x42	TBD	TBD	TBD (a) TBD (b) TBD (c) TBD (d)	TBD	TBD
PIER 2	HP 10x42	TBD	TBD	TBD (a) TBD (b) TBD (c) TBD (d)	TBD	TBD
Abut 3	HP 10x42	TBD	TBD	TBD (a) TBD (b) TBD (c) TBD (d)	TBD	TBD

NOTES:
1. Design tip elevations are controlled by: (a) Compression, (b) Tension, (c) Settlement, (d) Lateral Load.
2. The Specified Tip Elevation shall not be raised above the design tip elevation for lateral and tolerable settlement.
3. Required Nominal Driving Resistance is reported based on battered piles that have higher axial capacity.

SCOUR DATA TABLE

SUPPORT NO.	LONG TERM (DEGRADATION AND CONTRACTION) SCOUR ELEVATION (FEET)	SHORT TERM (LOCAL) SCOUR DEPTH (FEET)
Abut 1	N/A	N/A
PIER 2	N/A	N/A
Abut 3	N/A	N/A

CURVE DATA TABLE

CURVE No.	R	Δ	T	L
1	1250.0'	48°46'26.00"	566.68'	1064.08'

Plan Prepared By:

JUSTIN NGUYEN — Date

CNS Engineers, Inc.
11870 Pierce Street,
Suit 265 Riverside, CA
92505.
Phone; (951) 687-1005
Fax: (951) 667 - 3387

CITY OF CORONA
400 SOUTH VICENTIA AVENUE
CORONA, CALIFORNIA 91720

Designed by JN | Drawn by JN | Checked by JL

PLANS PREPARED UNDER SUPERVISION OF

Date _____ R.C.E. No. _____

Reference Plans for these Improvements

Date	By	REVISIONS	App'd

BENCH MARK

Scale

Engineering _____
Utilities _____
Fire _____

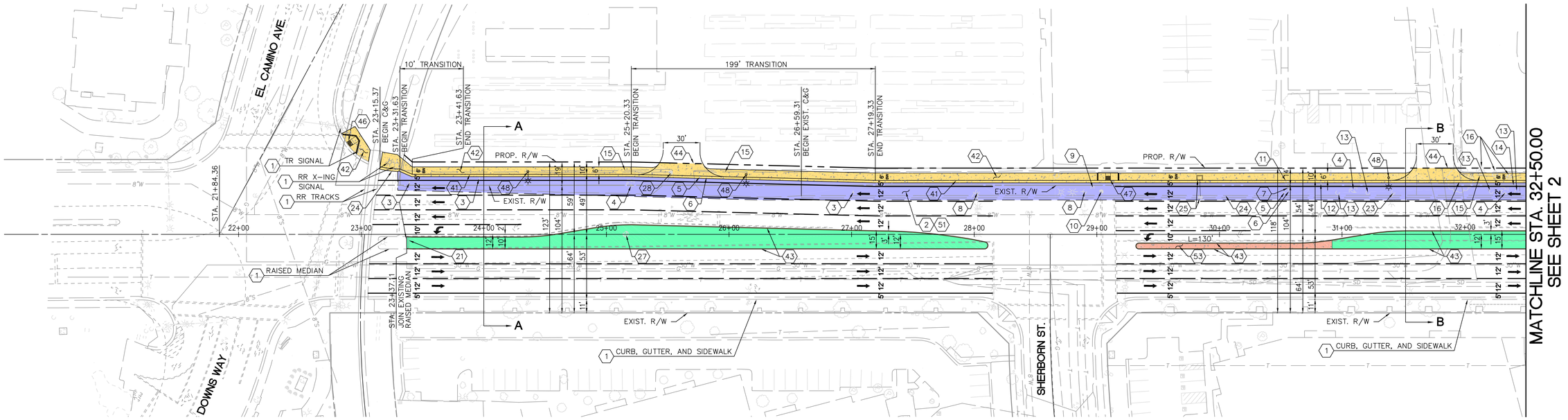
Approved _____
By _____
X
City Engineer
R.C.E. No. XXXXX Exp. 00-00-00

CITY OF CORONA
MAGNOLIA AVENUE BRIDGE WIDENING
FROM EL CAMINO AVE TO 1000 FT EAST
OF ALL AMERICAN WAY

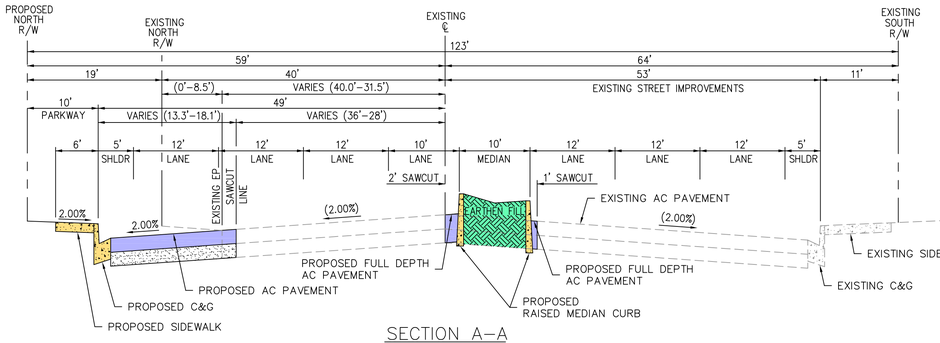
FOUNDATION PLAN ALTERNATIVE 1

Drawing No. 2 Of 2

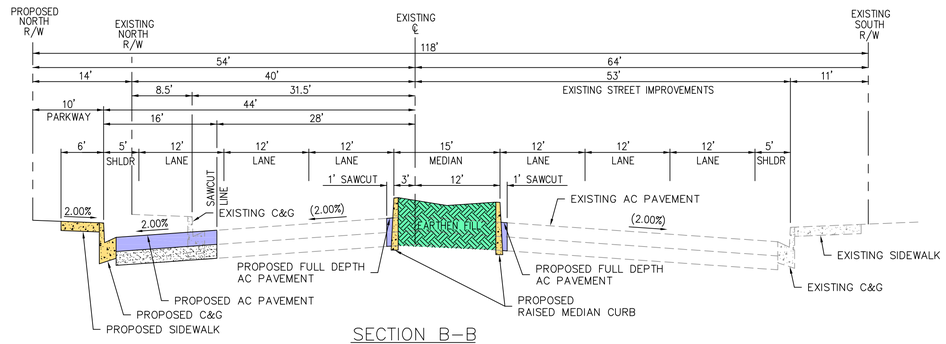
Exhibit B: 30% G.A.D. Plan Submittal



MAGNOLIA AVENUE



SECTION A-A
MAGNOLIA AVENUE TYPICAL SECTION
NOT TO SCALE



SECTION B-B
MAGNOLIA AVENUE TYPICAL SECTION
NOT TO SCALE

REMOVAL AND RELOCATION NOTE

1. PROTECT IN PLACE PER PLAN.
2. REMOVE EXISTING PAVEMENT.
3. EXISTING TRAFFIC SIGN TO BE RELOCATED PER SIGNING AND STRIPING PLAN.
4. EXISTING SCE MANHOLE/VAULT TO BE RELOCATED OR ADJUSTED TO GRADE BY OTHERS.
5. EXISTING FIRE HYDRANT TO BE RELOCATED.
6. EXISTING WATER METER TO BE RELOCATED.
7. EXISTING BACK FLOW ASSEMBLY TO BE RELOCATED.
8. EXISTING TRAFFIC SIGNAL WITH STREET LIGHT TO BE RELOCATED PER TRAFFIC SIGNAL PLAN.
9. EXISTING TRAFFIC SIGNAL PULL BOX TO BE RELOCATED PER TRAFFIC SIGNAL PLAN.
10. EXISTING PEDESTRIAN PUSH BUTTON TO BE RELOCATED PER TRAFFIC SIGNAL PLAN.
11. EXISTING FDC TO BE RELOCATED.
12. EXISTING AT&T PULL BOX TO BE RELOCATED BY OTHERS.
13. EXISTING SCE AIR VENT TO BE RELOCATED BY OTHERS.
14. EXISTING SCE BLOCK WALL TO BE REMOVED.
15. EXISTING CHAIN LINK FENCE TO BE REPLACED IN KIND.
16. EXISTING TREE TO BE REMOVED.
17. EXISTING K-RAIL WITH FENCING ON TOP TO BE REMOVED OR RELOCATED.
18. EXISTING MGBR TO BE REMOVED OR RELOCATED.
19. EXISTING AT&T POLE TO BE RELOCATED BY OTHERS.
20. EXISTING AT&T GUY WIRE TO BE RELOCATED BY OTHERS.
21. REMOVE AND DISPOSE EXISTING MEDIAN CURB.
22. ADJUST TO GRADE EXISTING STORM DRAIN MANHOLE PER STORM DRAIN IMPROVEMENT PLAN.
23. EXISTING STREET LIGHT TO BE REMOVED PER STREET LIGHT IMPROVEMENT PLAN.
24. EXISTING CURB AND GUTTER TO BE REMOVED.
25. EXISTING GRATED/DROP INLET TO BE RELOCATED PER STORM DRAIN IMPROVEMENT PLAN.
26. EXISTING DRAINAGE INLET TO BE RECONSTRUCTED PER STORM DRAIN IMPROVEMENT PLAN.
27. ADJUST TO GRADE EXISTING SEWER MANHOLE.
28. REMOVE AND DISPOSE EXISTING POST.
29. REMOVE AND DISPOSE EXISTING AC BERM.
30. EXISTING VAULT TO BE RELOCATED BY OTHERS.
31. EXISTING CPTEST TO BE RELOCATED OR ADJUSTED TO GRADE BY OTHERS.
32. EXISTING 30" WATER TO BE RELOCATED PER WATER IMPROVEMENT PLAN.
33. EXISTING ELECTRIC CONDUIT TO BE RELOCATED BY OTHERS.
34. EXISTING PIPE RISER TO BE RELOCATED BY OTHERS.
35. EXISTING PRIVATE SIGN TO BE RELOCATED IN KIND.
36. EXISTING NDS VALVE BOX TO BE RELOCATED BY OTHERS.
37. EXISTING AIR VACUUM TO BE RELOCATED BY OTHERS.
38. ADJUST TO GRADE EXISTING TELEPHONE MANHOLE.
39. ADJUST TO GRADE EXISTING WATER VALVE CAN AND LID.

LEGEND

- INDICATES LIMITS OF NEW A.C. PAVEMENT
- INDICATES LIMITS OF NEW PCC SIDEWALK, CURB AND GUTTER, RAISED MEDIAN CURB, DRIVEWAY OR CURB RAMP
- INDICATES LIMITS OF NEW LANDSCAPED MEDIAN
- INDICATES LIMITS OF NEW HARDSCAPED MEDIAN

CONSTRUCTION NOTE

41. CONSTRUCT TYPE 8 CURB AND GUTTER PER CITY STD. PLAN NO. 136.
42. CONSTRUCT 6' WIDE SIDEWALK PER CITY STD. PLAN NO. 142
43. CONSTRUCT TYPE 6A CURB PER CITY STD. PLAN NO. 137
44. CONSTRUCT COMMERCIAL DRIVEWAY APPROACH TYPE II PER CITY STD. PLAN NO. 131.
45. CONSTRUCT RESIDENTIAL DRIVEWAY APPROACH PER CITY STD. PLAN NO. 128.
46. CONSTRUCT PEDESTRIAN RAMP TYPE I PER CITY STD. PLAN NO. 146.
47. CONSTRUCT PEDESTRIAN RAMP TYPE II PER CITY STD. PLAN NO. 147.
48. INSTALL STREET LIGHT PER STREET LIGHT IMPROVEMENT PLAN.
49. INSTALL MGBR.
50. BRIDGE IMPROVEMENTS PER BRIDGE IMPROVEMENT PLAN.
51. CONSTRUCT 6" AC OVER 10" AB MINIMUM PAVEMENT.
52. CONSTRUCT FALSE CURB ON TOP OF STORM DRAIN MANHOLE.
53. CONSTRUCT CONCRETE INFILL FLUSH TO TOP OF CURB BETWEEN NEW MEDIAN CURB.

NORTH
0' 40' 80' 120' 160'
SCALE 1"=40'

30% G.A.D. PLAN SUBMITTAL

Plan Prepared By:
STEVE J HOSFORD
Date
CNS Engineers, Inc.
11870 Pierce Street,
Suit 265 Riverside, CA
92505.
Phone: (951) 687-1005
Fax: (951) 667 - 3387

CITY OF CORONA
400 SOUTH VICENTIA AVENUE
CORONA, CALIFORNIA 91720

Designed by	Drawn by	Checked by
PLANS PREPARED UNDER SUPERVISION OF		
Date _____ R.C.E. No. _____		

Reference Plans for these Improvements

Date	By	REVISIONS	App'd

BENCH MARK

Scale

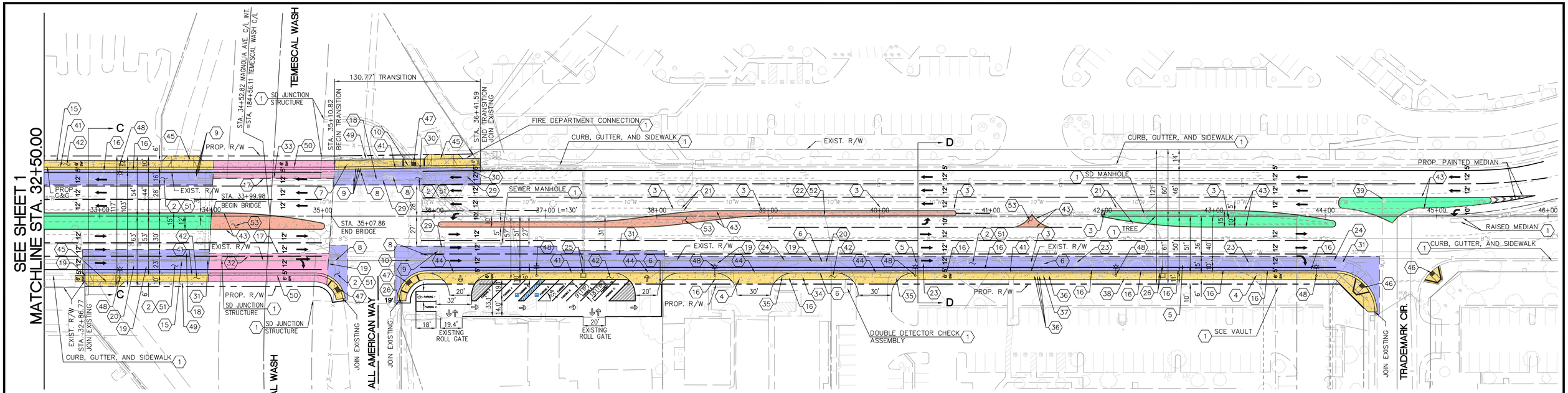
Engineering _____
Utilities _____
Fire _____

Approved _____
By _____
Tom Koper
Acting P.W. Director
R.C.E. No. _____ Exp. _____

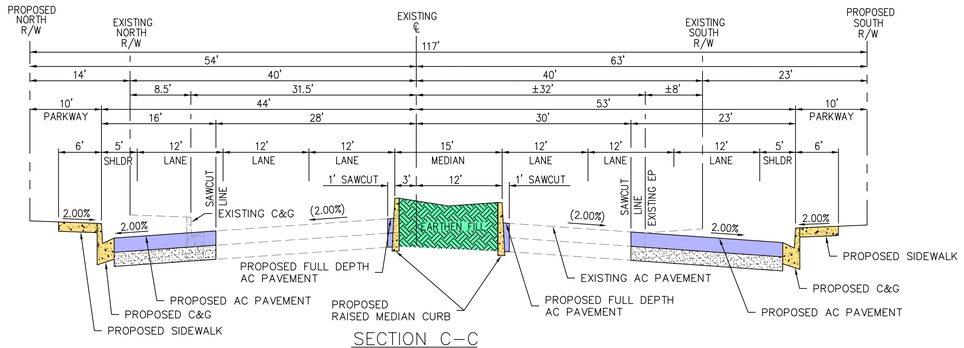
CITY OF CORONA

MAGNOLIA AVENUE BRIDGE WIDENING
FROM EL CAMINO AVE TO 1000 FT EAST OF ALL AMERICAN WAY

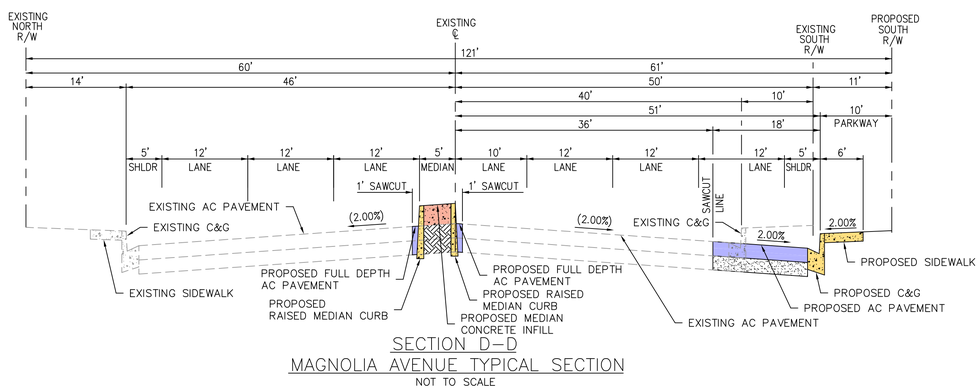
Drawing No. 1 Of 2



MAGNOLIA AVENUE



SECTION C–C
MAGNOLIA AVENUE TYPICAL SECTION
NOT TO SCALE



SECTION D–D
MAGNOLIA AVENUE TYPICAL SECTION
NOT TO SCALE

REMOVAL AND RELOCATION NOTE

1. PROTECT IN PLACE PER PLAN.
2. REMOVE EXISTING PAVEMENT.
3. EXISTING TRAFFIC SIGN TO BE RELOCATED PER SIGNING AND STRIPING PLAN.
4. EXISTING SCE MANHOLE/VAULT TO BE RELOCATED OR ADJUSTED TO GRADE BY OTHERS.
5. EXISTING FIRE HYDRANT TO BE RELOCATED.
6. EXISTING WATER METER TO BE RELOCATED.
7. EXISTING BACK FLOW ASSEMBLY TO BE RELOCATED.
8. EXISTING TRAFFIC SIGNAL WITH STREET LIGHT TO BE RELOCATED PER TRAFFIC SIGNAL PLAN.
9. EXISTING TRAFFIC SIGNAL PULL BOX TO BE RELOCATED PER TRAFFIC SIGNAL PLAN.
10. EXISTING PEDESTRIAN PUSH BUTTON TO BE RELOCATED PER TRAFFIC SIGNAL PLAN.
11. EXISTING FDC TO BE RELOCATED.
12. EXISTING AT&T PULL BOX TO BE RELOCATED BY OTHERS.
13. EXISTING SCE AIR VENT TO BE RELOCATED BY OTHERS.
14. EXISTING SCE BLOCK WALL TO BE REMOVED.
15. EXISTING CHAIN LINK FENCE TO BE REPLACED IN KIND.
16. EXISTING TREE TO BE REMOVED.
17. EXISTING K–RAIL WITH FENCING ON TOP TO BE REMOVED OR RELOCATED.
18. EXISTING MGBR TO BE REMOVED OR RELOCATED.
19. EXISTING AT&T POLE TO BE RELOCATED BY OTHERS.
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- – INDICATES LIMITS OF NEW HARDSCAPED MEDIAN
- – INDICATES LIMITS OF BRIDGE WIDENING

CONSTRUCTION NOTE

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SCALE 1"=40'

30% G.A.D. PLAN SUBMITTAL

Plan Prepared By:
STEVE J HOSFORD Date
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Designed by | Drawn by | Checked by
PLANS PREPARED UNDER SUPERVISION OF
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BENCH MARK
Scale

Engineering _____
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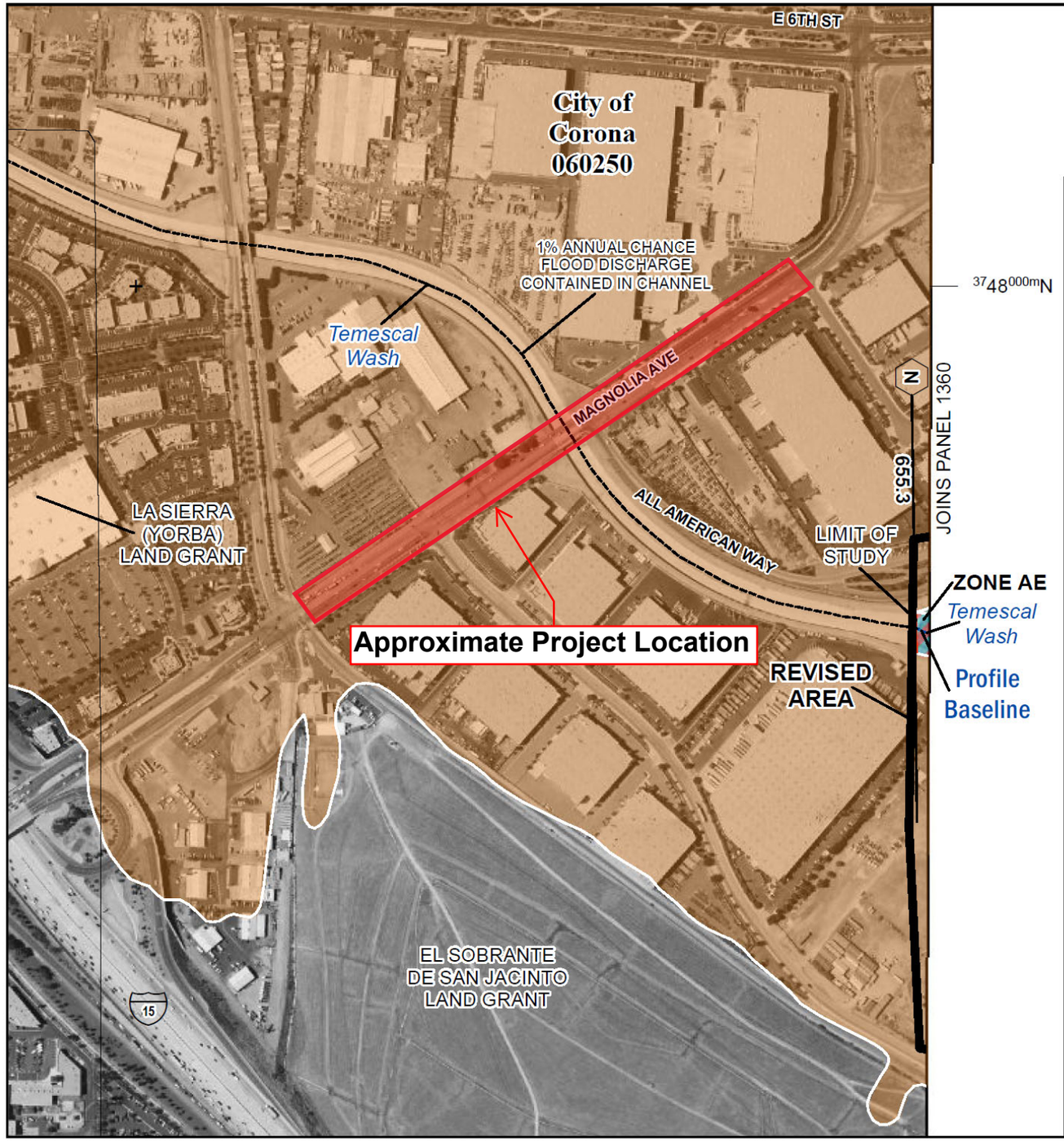
Fire _____

Approved _____
By _____
Tom Koper
Acting P.W. Director
R.C.E. No. _____ Exp. _____

CITY OF CORONA
MAGNOLIA AVENUE BRIDGE WIDENING
FROM EL CAMINO AVE TO 1000 FT EAST OF ALL AMERICAN WAY

Drawing No. 2 Of 2

Exhibit C: FEMA Firm Panel Number 06065C1356G



SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A,V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes. *Zone X*

OTHER AREAS

- Area of Undetermined Flood Hazard *Zone D*

SCALE

Map Projection:
NAD 1983 UTM Zone 11N;
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 75 150 300 Meters

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

RIVERSIDE COUNTY, CALIFORNIA
and Incorporated Areas

PANEL 1356 OF 3805

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
CORONA, CITY OF	060250	1356	G
RIVERSIDE COUNTY	060245	1356	G

REVISED TO
REFLECT LOMR
EFFECTIVE: June 14, 2018

VERSION NUMBER
1.1.1.0

MAP NUMBER
06065C1356G

EFFECTIVE DATE
AUGUST 28, 2008