DRAFT
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Fiscal Year 2024/2025 Gravity Sewer Improvements Project (#958)
Various Communities in Marin County, CA

Prepared for
Ross Valley Sanitary District
1111 Anderson Drive
San Rafael, CA 94901

Prepared by

2455 Bennett Valley Road
Suite C101
Santa Rosa, CA 95404

January 2025

MITIGATED NEGATIVE DECLARATION

PROJECT TITLE

Fiscal Year 2024/2025 Gravity Sewer Improvements Project (#958)

LEAD AGENCY/NAME AND ADDRESS

Ross Valley Sanitary District
1111 Anderson Drive
San Rafael, CA 94901

PROJECT LOCATION

The Fiscal Year 2024/2025 Gravity Sewer Improvements Project (Project) site is located in the Ross Valley Sanitary District (RVSD) service area within the unincorporated town of Fairfax, the town of Kentfield, and the town of San Anselmo, located within the County of Marin. The Project segments are located in several areas of Marin County, as detailed below:

Fairfax

The Town of Fairfax has a land area of approximately 2 mi^2 in a series of small valleys created by streams with surrounding hillsides. Fairfax is bordered to the east by San Anselmo and to the north by unincorporated Sleepy Hollow.

The Project site in Fairfax includes multiple sewer line segments. The sewer line segments are within the existing alignments along Bolinas Road and Sherman Street.

Land uses surrounding the Project site in San Anselmo mainly consist of single-family residential uses to the north, east, south, and west. Sir Francis Drake Boulevard (between Miranda Drive and Claus Drive) is located near the Project site and is a major traffic artery linking U.S. Highway 101 (U.S. 101) with communities in the Fairfax area.

Kentfield

The unincorporated town of Kentfield has a land area of approximately 3 mi^2. Kentfield is bordered to the east by the unincorporated community of Greenbrae, to the north by the Town of Ross, and to the south by the City of Larkspur.

The Project site in Kentfield includes multiple sewer line segments. The sewer line segments are located within the existing alignments along Stadium Way, Sherwood Court, Lancaster Avenue, Berens Drive, Wolfe Canyon Road, Tamal Vista Lane, Kentdale Lane, and Wolfe Grade.

Land uses surrounding the Project site in Kentfield mainly consist of single-family residential uses to the north, east, south, and west. The Corte Madera Creek is south of the Project site, and a couple of schools lie to the east and west. Sir Francis Drake Boulevard (between Ash Avenue and Manor Road) is located near the Project site and is a major traffic artery linking U.S. 101 with communities in the Kentfield area.

San Anselmo

The Town of San Anselmo has a land area of approximately 3 mi^2 in a series of small valleys created by streams. The streams are bordered by moderate-to-steep hillside slopes and ridge tops. The town is bordered by San Rafael to the east, Fairfax to the west, and Ross to the south.

The Project site in San Anselmo includes multiple sewer line segments. The sewer line segments are within the existing alignments along 1) Sir Francis Drake Boulevard between Suffield Avenue and Butterfield Road; 2) Valley Road between West Court and Traxler Road; and 3) West Court, Skyline Road, Camino de Herera, Rutherford Avenue, Suffield Avenue, Hawthorne Avenue, and Bennit Avenue.

Land uses surrounding the Project site in San Anselmo mainly consist of single-family residential uses to the north, east, south, and west. Sir Francis Drake Boulevard (at its intersection with Ross Avenue) is located near the Project site and is a major traffic artery linking U.S. 101 with communities in the San Anselmo area. Residences, businesses, and schools are along Ross Avenue.

PROJECT DESCRIPTION

The Project entails the construction and rehabilitation—within the existing alignment—of sanitary sewer mains, manholes, and related appurtenances within the existing alignment, of sanitary sewer mains and related appurtenances unincorporated town of Fairfax, the town of Kentfield, and the town of San Anselmo, located within the County of Marin. The Project site encompasses approximately 0.61 acres and the total area disturbed would be approximately 26,700 square ft. The primary objective of this Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration associated with aging RVSD infrastructure.

The Project would rehabilitate and replace approximately 14,042 linear feet (LF) of existing vitrified clay pipe sanitary sewers with high-density polyethylene (HDPE) pipe ranging in size from 6 to 8 inches. Sewers would be replaced by open-cut removal and replacement (3,994 LF), pipe bursting (8,912 LF), and pipe reaming (1,136 LF) methods. The Project would also install 862 LF of new sanitary sewer using HDPE pipe. Lower laterals and property-line cleanouts

would also be replaced at all locations. Depths of the excavation would vary between 3 and 10 ft.

Work would also include the construction of 33 sanitary sewer manholes to replace existing manholes or construct new manholes. Manhole locations would require excavation and backfill of an area of approximately 8 × 8 ft, with varying depths projected to range from approximately 5 to 10 ft.

Rehabilitation of all sanitary sewer mains would occur within the existing alignment. Most pipelines either fall within public rights-of-way or designated easements running through private property. For work in backyard easements, portable equipment would be used to accommodate space restrictions and minimize impact.

MITIGATION MEASURES

Five mitigation measures for the Project are listed below.

Mitigation Measure BIO-1

Vegetation removal and ground disturbance (collectively referred to as construction activities) shall be scheduled to avoid the bird nesting season to the greatest extent possible. The nesting season for most birds and raptors in the San Francisco Bay Area is February 1–September 15.

If construction activities cannot be scheduled to occur between September 16 and January 31, preconstruction surveys for nesting birds and raptors will be completed by a qualified ornithologist or biologist to ensure that no nests would be disturbed during project implementation. This survey will be completed no more than 14 days prior to the initiation of construction activities. During this survey, the qualified ornithologist/biologist will inspect all suitable nesting habitat on the Project site and within the zone of influence (the area immediately surrounding the Project site that supports suitable nesting habitat that could be impacted by the proposed Project due to visual or auditory disturbance associated with construction activities scheduled to occur during the nesting season).

If an active nest is found sufficiently close to the work areas to be disturbed by construction activities, the qualified ornithologist/biologist, in consultation with the CDFW, will determine the extent of a construction-free buffer zone to be established around the nest to ensure that protected bird and raptor nests are not disturbed during project construction. This buffer would remain in place until such a time as the young have been determined (by a qualified ornithologist/biologist) to have fledged.

A report of findings will be prepared by the qualified biologist and submitted to RVSD for review prior to initiation of construction during the nesting season. The report would either confirm absence of any active nests or confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is required if

construction is initiated during the nonbreeding season (September 16–January 31) and continues uninterrupted according to the above criteria.

Mitigation Measure CUL-1

Prior to project implementation, a cultural and tribal resources testing and monitoring plan will be prepared by a qualified archaeological consultant. The plan will discuss the testing and monitoring procedures, field methods, communication protocols, and inadvertent discovery actions to be taken in the event cultural resources are identified during testing, monitoring and/or any project activities. The plan will be developed in coordination with FIGR. Based on the results of the testing and in coordination with the RSVD and FIGR, monitoring by an archaeologist and tribal monitor may also be required to observe excavated soils that are removed during construction activities. If resources are identified during the testing or monitoring the Plan will detail the appropriate avoidance and/or treatment measures to be carried out in coordination with FIGR, as necessary.

Mitigation Measure CUL-2

Upon approval of the cultural and tribal resources testing and monitoring plan, archaeological testing will occur in areas determined to be highly sensitive for subsurface cultural resources. Testing will take place prior to Project implementation and will be coordinated in advance with FIGR. A tribal monitor will be present during all testing. Testing will occur at project segments:

- Bolinas Road and Sherman Street in Fairfax
- Suffield Avenue and Sir Francis Drake Boulevard in San Anselmo
- Berens Drive, McAllister Avenue, Lancaster Avenue, Wolfe Grade, Kentdale Lane, and the western extent of Stadium Way in Kentfield.

Where testing is not feasible, monitoring will occur in accordance with Mitigation Measure CUL-1.

Mitigation Measure CUL-3

Prior to project related work, the construction crews shall be trained in "basic archaeological and tribal resources identification" and have access to an alert sheet. The alert sheet will photographically depict indicators of archaeological sites and artifacts and clearly outline the procedures in the event of new discovery. These procedures include temporary work stoppage (i.e., a stop work order) of all ground disturbance, short-term physical protection of features and artifacts and their context, and immediate advisement of the archaeological team, FIGR, and RVSD representatives. Any stop work order would contain a description of the work to be stopped, special instructions or requests for the contractor, suggestions for efficient mitigation, and a time estimate for the work stoppage. The archaeologist will notify FIGR (if a tribal monitor is not present), examine the findings and assess their significance, and offer

recommendations for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those archaeological and tribal resources that have been encountered.

Mitigation Measure CUL-4

Upon discovery of suspected human remains, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of human remains. The coroner has two working days to examine the remains after being notified.

If the remains are Native American, the coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC will then identify and contact a most likely descendant (MLD). The MLD may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the ancestral remains and associated funerary objects. Once proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be developed and implemented.

If the remains are not Native American, the coroner will consult with the archaeological research team and RVSD to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between RVSD and FIGR.

FINDINGS

An initial study has been prepared to assess the proposed Project's potential effects on the environment and the significance of those effects. Based on the initial study, it has been determined that the proposed Project, with the mitigation measures described above incorporated, would not have any significant effects on the environment.

A copy of the initial study is attached. The materials related to the proposed Project are on file at the Ross Valley Sanitary District Office at 1111 Anderson Drive, San Rafael, CA 94901. They are also available online at www.rvsd.org.

Phil Benedetti Digitally signed by Phil Benedetti
DN: C=US, E=pbenedetti@rvsd.org, O=RVSD, OU=Engineering, CN=Phil Benedetti
Date: 2025.01.10 14:39:14-08'00'

January 10, 2025

Philip Benedetti
Senior Engineer

Date

CALIFORNIA ENVIRONMENTAL QUALITY ACT INITIAL STUDY

Integral Consulting Inc. (Integral) completed the following document on behalf of Ross Valley Sanitary District for this project in accordance with the California Environmental Quality Act (CEQA) (*Pub. Resources Code*, div. 13, § 21000 et seq.) and accompanying guidelines (*Cal. Code Regs.*, tit. 14, § 15000 et seq.).

<table>
<tr><td colspan="3">PROJECT TITLE:
Fiscal Year 2024/2025 Gravity Sewer Improvements Project (#958)</td></tr>
<tr><td>PROJECT ADDRESS:
Sherman Avenue and Bolinas Road</td><td>CITY:
Town of Fairfax</td><td rowspan="3">COUNTY:
Marin</td></tr>
<tr><td>Stadium Way, Sherwood Court, Lancaster Avenue, Berens Drive, Wolfe Canyon Road, Tamal Vista Lane, Kentdale Lane, and Wolfe Grade</td><td>Unincorporated town of Kentfield</td></tr>
<tr><td>Sir Francis Drake Boulevard between Suffield Avenue and Butterfield Road, Valley Road between West Court and Traxler Road, West Court, Skyline Road, Camino de Herera, Rutherford Avenue, Suffield Avenue, Hawthorne Avenue, and Bennit Avenue</td><td>Town of San Anselmo</td></tr>
<tr><td>PROJECT SPONSOR:
Ross Valley Sanitary District</td><td>CONTACT:
Philip Benedetti</td><td>PHONE:
(415) 259-2949 x212</td></tr>
</table>

LEAD AGENCY ADDRESS:	CONTACT:	PHONE:
1111 Anderson Drive San Rafael, CA 94901	Philip Benedetti	(415) 259-2949 x212

APPROVAL ACTION UNDER CONSIDERATION:
Implementation of sewer rehabilitation project.

List of Attachments

Attachment A. Abbreviations and Acronyms

Attachment B. Figures

Attachment C. Construction Plans

Attachment D. Overview of Control Measures

Attachment E. CalEEMod Input Tables and Output Report

Attachment F. Protected Natural Resource Tables

Project Overview and Purpose

The Ross Valley Sanitary District (RVSD)[1] Fiscal Year 2024/2025 Gravity Sewer Improvements Project (#958) (Project) entails the construction and rehabilitation, within the existing alignment, of sanitary sewer mains, manholes, and related appurtenances within the town of Fairfax, unincorporated town of Kentfield, and town of San Anselmo, all of which are within the County of Marin (Attachment B, Figures). The primary goal of this project is to replace aging RVSD infrastructure and reduce inflow and infiltration into the system.

The Project would rehabilitate approximately 14,042 linear feet (LF) of sanitary sewers and install 862 LF of new sanitary sewer with high-density polyethylene (HDPE) pipe ranging in size from 6 to 8 inches. Sewers would be replaced by open-cut removal and replacement (3,994 LF), pipe bursting (8,912 LF), and pipe reaming (1,136 LF) methods. Lower laterals and property-line cleanouts would also be replaced at all locations. Depths of the excavation would vary between 3 and 10 ft.

Work would also include the construction of 33 sanitary sewer manholes to replace existing manholes or construct new manholes. Manhole locations would require excavation and backfill of an area of approximately 8 × 8 ft, with varying depths projected to range from approximately 5 to 10 ft.

The rehabilitation of all sanitary sewer mains would occur within the existing alignment. Most pipelines either fall within public rights-of-way or designated easements running through private property. For work in backyard easements, portable equipment would be used to accommodate space restrictions and minimize impacts.

Project Location and Site Setting

The Project site is located in the RVSD's service area in Marin County. Regional access to the Project site from the north and south is provided by U.S. Highway 101 (U.S. 101) and from the east by Interstate 580 and the Richmond-San Rafael Bridge. The Project segments are located in several areas of Marin County, as detailed below:

Fairfax

The town of Fairfax has a land area of approximately 2 mi^2 in a series of small valleys created by streams with surrounding hillsides. Fairfax is bordered to the east by San Anselmo and to the north by unincorporated Sleepy Hollow.

The Project site in Fairfax includes multiple sewer line segments (Figure 1-2a). The sewer line segments are located within the existing alignments along Bolinas Road and Sherman Street.

Land uses surrounding the Project site in San Anselmo mainly consist of single-family residential uses to the north, east, south, and west. Sir Francis Drake Boulevard (between Claus Drive and Taylor Drive) is located near the Project site and is a major traffic artery linking U.S. 101 with communities in the Fairfax area.

[1] See Attachment A for a list of abbreviations and acronyms.

Kentfield

The unincorporated town of Kentfield has a land area of approximately 3 mi^2. Kentfield is bordered to the east by the unincorporated community of Greenbrae, to the north by the Town of Ross, and to the south by the City of Larkspur.

The Project site in Kentfield includes multiple sewer line segments (Figure 1-2a). The sewer line segments are located within the existing alignments along Stadium Way, Sherwood Court, Lancaster Avenue, Berens Drive, Wolfe Canyon Road, Tamal Vista Lane, Kentdale Lane, and Wolfe Grade.

Land uses surrounding the Project site in Kentfield mainly consist of single-family residential uses to the north, east, south, and west. The Corte Madera Creek is south of the Project site, and a couple of schools lie to the east and west. Sir Francis Drake Boulevard near the Project site (between Ash Avenue and Manor Road) is located near the Project site and is a major traffic artery linking U.S. 101 with communities in the Kentfield area.

San Anselmo

The Town of San Anselmo has a land area of approximately 3 mi^2 in a series of small valleys created by streams, which are bordered by moderate-to-steep hillside slopes and ridge tops. The town is bordered by San Rafael to the east, Fairfax to the west, and Ross to the south.

The Project site in San Anselmo includes multiple sewer line segments (Figure 1-2b). The sewer line segments are located within the existing alignments along 1) Sir Francis Drake Boulevard between Suffield Avenue and Butterfield Road; 2) Valley Road between West Court and Traxler Road; and 3) West Court, Skyline Road, Camino de Herera, Rutherford Avenue, Suffield Avenue, Hawthorne Avenue, and Bennit Avenue.

Land uses surrounding the Project site in San Anselmo mainly consist of single-family residential uses to the north, east, south, and west. Sir Francis Drake Boulevard, at its intersection with Ross Avenue, is located near the Project site and is a major traffic artery linking U.S. 101 with communities in the San Anselmo area. Residences, businesses, and schools are located along Ross Avenue.

Site Background

The RVSD provides wastewater utility service to approximately 47,000 people in central Marin County. The service area includes the incorporated City of Larkspur; the Towns of San Anselmo, Ross, and Fairfax; and the unincorporated areas of Kentfield, Kent Woodlands, Greenbrae, Oak Manor, and Sleepy Hollow.

On May 13, 2013, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) issued Order No. R2-2013-0020, a cease and desist order (CDO) for RVSD in response to annually reoccurring excessive sewer system overflows (SSOs). The CDO contained a list of prescriptive actions and work practices for RVSD to take to mitigate the SSOs and improve operations and maintenance of the sewer system. These actions were largely based on RVSD's 2007 sewer system replacement master plan, which utilized limited condition assessment information available at the time. Provisions of the CDO include prescribed sewer main reinspection and repair requirements based on the severity of the defects found requirements for televised inspections for the entire system. One of these requirements included development of the 2013 infrastructure asset management plan (IAMP).

As RVSD implemented the IAMP and collected more data about the collection system, new priorities and decision-making strategies were developed. As RVSD began to better understand the system, it became clear that some of the original CDO requirements and priorities needed to change. Through implementation of the IAMP, RVSD achieved significant capital and repair targets set forth in the CDO.

The original CDO requirements have resulted in significant improvements in the system and in operations. However, they have also inhibited RVSD's ability to respond to other priorities, adjust plans based on new information and data, and develop a more programmatic approach to effective utility management. Throughout implementation of the CDO, RVSD has had to justify each deviation from the original CDO requirements on an annual basis. Currently, RVSD is revising its IAMP to shift to a more forward-looking and adaptive program.

In 2018, the Regional Water Board issued a National Pollutant Discharge Elimination System (NPDES) permit (current Order No. R2-2023-0003, NPDES No. CA0038628) to Central Marin Sanitation Agency and other dischargers, including RVSD, specifying wastewater treatment and discharge requirements. One of the key mandates that impacts RVSD is the requirement to "take all feasible actions to rehabilitate portions of their collection systems to reduce inflow and infiltration." This IAMP update incorporates activities to address this requirement, including an evaluation of the impact of RVSD's efforts to mitigate inflow and infiltration (I&I) into the collection system, provide additional insight about the dynamics of I&I in the system, and provide recommendations and strategies to reduce I&I and measure the effectiveness of mitigative actions.

Construction Methods

The Project includes the replacement of existing sewer pipes and the installation of new pipes by the following methods:

- Open-Cut Excavation: For this method, the existing sewer line would be exposed and removed by means of construction excavation equipment. The excavation extent is typically 3 ft wide, and the length and depth varies. A new pipe would then be installed, and the trench would be backfilled.

- Pipe Bursting: Pipe bursting is a trenchless method where a new pipe is inserted into an existing pipe by means of a hydraulic winch. First, an insertion pit (typically 4 × 10 × 5 ft) and a receiving pit (typically 4 × 4 × 5 ft) are excavated at each end of a pipe segment. The locations of these pits are determined by the contractor in the field based on site access. Prior to insertion of the new pipe, existing lateral connections are excavated and disconnected. A new pipe is then attached to a bursting head and pulled into the existing pipe. The bursting head breaks apart the existing pipe and creates a cavity for the new pipe. Once the new pipe is installed, the existing laterals are reconnected, and trenches are backfilled.
- Pipe Reaming: Pipe reaming is very similar to pipe bursting, in that both are trenchless pipe replacement technologies with a similar order of work. The footprint of the operation and the required excavations are nearly the same as pipe bursting. Pipe reaming differs from pipe bursting in that, rather than using a winch to pull a conical bursting head through the existing pipe, a directional drill rig is used to grind the existing pipe into pieces. As the new pipe is pulled back into the boring, the fragments of existing pipe are usually vacuumed out of the new pipe. Pipe reaming would have some disposal required from the pipe fragments vacuumed out. Pipe reaming is planned to be used in locations that are in close proximity to gas and/or water mains because pipe reaming does not exert the outward pressures used pipe bursting.

Approximately 862 LF of new sanitary sewer would be constructed. The Project would also rehabilitate 14,042 LF of sanitary sewer via open-cut removal and replacement (3,994 LF), pipe bursting (8,912 LF), and pipe reaming (1,136 LF). Of the 33 manholes that would be constructed for this project, 12 are new manholes; the remaining would be constructed to remove and replace existing ones. Manhole locations would require excavation and backfill of an area of approximately 8 × 8 ft, with varying depths projected to range from approximately 5 to 10 ft. The Project locations and construction method for each pipe section is identified on the preliminary construction plans provided in Attachment C.

Most of the Project pipe sections are within the public rights-of-way or designated easements running through private property. For work in backyard easements, portable equipment would be used to accommodate space restrictions and minimize impact.

Work Hours and Schedule

Construction is expected to begin in March 2025 and is anticipated to be completed by January 2026. Work hours would generally be 8:00 a.m. to 5:00 p.m.; however, hours would be dependent on location-specific constraints. It is anticipated that the Project would require less than 360 consecutive calendar days (265 working days) for construction. Work within McAllister Avenue in Kentfield would take place outside the nesting season (i.e., between September 1 and January 31).

Construction Staging

Project site preparation would include survey and excavation layout as well as the preparation of staging, ingress, and egress areas. Prior to construction, the selected contractor would develop a staging operations plan that identifies construction equipment staging and support areas, Project site access, exclusion areas, excavation areas and stockpile areas, truck lanes, parking areas, and Project site office trailers. Construction staging would occur daily, given the nature of the Project site.

Bypass Pumping

Bypass pumping during construction would be location specific and based on Project site-specific requirements and constraints as outlined in a contractor-supplied and RVSD-approved bypass plan. In general, bypass systems would be surface laid and follow the most direct route, excluding trespass onto private property.

Site Restoration

The contractor would be required, at all times, to keep property on which work is in progress and the adjacent property free from the accumulation of waste material or rubbish caused by employees or by the work. Upon completion of the construction, the contractor would be required to remove all surplus materials, temporary structures, rubbish, and waste materials resulting from operation.

Permits and Project Approvals

Permits that would likely be required include, but are not necessarily limited to, the following:

- County of Marin Encroachment Permit

Several sewer main segments are located on private properties, including segments located near West Court, Suffield Avenue, Bennit Avenue, and Hawthorne Avenue in San Anselmo and segments located near Wolfe Canyon Road, Kentdale Lane, and Wolfe Glen Way in Kentfield. RVSD would coordinate with private property owners to access and rehabilitate these sewer main segments.

Overview of Control Measures

Numerous control measures would be incorporated into the Project's contract documents by RVSD to address environmental and public health and safety issues. Control measures are procedures known to reduce the potential for impacts based on regulatory agency requirements, standards in the industry, and construction or operating experiences of RVSD and the design engineer.

Regulatory agency requirements would be contained in permits obtained for the Project, and the contractor would be required to obtain encroachment permits from Marin County. These permits would contain specific requirements for traffic control and parking, emergency access, pavement restoration, noise control, and allowable work hours, and would provide for the safety of residents, pedestrians, and motorists. The contractor would be required to comply with all conditions set forth in the encroachment permits and corresponding RVSD standards.

Coordination would be established and maintained with local residents and businesses along the alignment, and a mechanism for monitoring construction activities and addressing any complaints would be implemented. Any damaged landscaped and/or hardscaped areas would be restored, and a series of best management practices (BMPs) would be enforced to maintain Project site appearance; control dust, erosion, and stormwater discharge; and provide noise attenuation, if needed.

Full control measures that would be implemented for the Project are included in Attachment D and include measures for:

- Project site management, including tree protection
- Dust control
- Odor control
- Stormwater and erosion control
- Geotechnical
- Hazardous materials
- Safety
- Notifications
- Dewatering
- Noise
- Traffic management
- Ground movement monitoring
- Air quality

Technical reports to support the evaluation of potential impacts to air quality (Attachment E), biological resources (Attachment F), and cultural resources (Far Western 2024[2]) have been completed and identify measures that would be included in the contract documents to address potential impacts. A

[2] Because the report contains confidential information about the locations and characteristics of archaeological sites and tribal cultural resources, the technical report is not included as an attachment to this document; the report can be made available to agencies and other professionals for review as necessary.

variety of geotechnical and regulatory agency-related control measures are included to provide for the constructability of the Project and its environmental compatibility, and to ensure the protection of workers' and the public's health and safety.

References:

Far Western. 2024. Archaeological Resources Inventory for the Ross Valley Sanitary District 2024-2025 Gravity Sewer Improvements Project, Marin County, California. Far Western Anthropological Research Group, Inc., Davis, CA. November.

Regional Water Board. 2013. Order No. R2-2013-0020. San Francisco Bay Regional Water Quality Control Board, Oakland, CA. May 13.

Regional Water Board. 2018. Order No. R2-2018-0003. San Francisco Bay Regional Water Quality Control Board, Oakland, CA. January 10.

Ross Valley Sanitary District. 2021. IAMP Summary Report, Infrastructure Asset Management Plan Update. https://www.rvsd.org/DocumentCenter/View/2257/2021-IAMP-Summary?bidId=. Ross Valley Sanitary District, San Rafael, CA. September.

ENVIRONMENTAL IMPACT ANALYSIS

1. Aesthetics

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

Project Activities Likely to Create an Impact:

- Staging of construction materials
- Generation of rubbish and debris and material storage
- Damage to hardscape and landscaped areas
- Transportation and handling of imported and exported materials
- Work crews accessing the Project site.

Description of Baseline Environmental Conditions:

Each Project segment, located in various areas of Fairfax, Kentfield, and San Anselmo, was evaluated to identify its visual character. This information is summarized as follows:

Fairfax

The Project segments contain a mix of single-family residential homes and landscaping along with central commercial development. The Project site is visually characterized by the following features:

- Bolinas Road and Sherman Street are characterized by two-way residential streets that are flanked on either side by single-family residential homes with landscaped vegetation as well as occasionally interspersed spaces of non-landscaped vegetation.

Kentfield

The Project segments contain a mix of single-family residential homes and landscaping along with schools. The Project site is visually characterized by the following features:

- Stadium Way, Sherwood Court, Lancaster Avenue, and Berens Drive are all characterized by paved two-way residential streets with sidewalks that are flanked on either side by single-family residential homes with landscaped vegetation.
- Wolfe Canyon Road and Tamal Vista Lane are narrow local streets without sidewalks and primarily serve single-family residential homes. They are flanked by areas of landscaped areas as well as non-landscaped vegetation.
- Kentdale Lane is a narrow two-way residential street that primarily serves residential traffic. There are no sidewalks. Kentdale Lane is flanked on either side by single-family residential homes with landscaped vegetation.
- Wolfe Grade is a two-way, heavily trafficked through street connecting directly to Sir Franics Drake Boulevard. Wolfe Grade has narrow shoulders on either side and no sidewalks. Wolfe Grade is flanked on either side by undeveloped, heavily vegetated slopes and dispersed private driveways.

San Anselmo

The Project segments are dominated by views of surrounding single-family residential homes with landscaping (San Anselmo 2023). The Project site is visually characterized by paved, two-lane roads that are flanked by private residences and vegetation. The Project site is visually characterized by the following features:

- Sir Francis Drake Boulevard is characterized by paved, two-lane roads that are flanked by commercial use buildings and educational facilities, including the Ross Valley Charter School. Sir Francis Drake Boulevard includes sidewalks on either side as well as crosswalks and traffic lights.
- Valley Road, Skyline Road, Camino de Herera, Rutherford Avenue, Suffield Avenue, Hawthorne Avenue, and Bennit Avenue are narrow local roads that primarily serve residential homes and do not have sidewalks. Bennit Avenue connects Hawthorne Avenue with Suffield Avenue, Rutherford Avenue, and Camino de Herrera.
- West Court is a cul-de-sac that features single-family residences with landscaping without sidewalks on either side of the road entering the cul-de-sac.

Scenic Routes and Vistas

According to the California Department of Transportation (Caltrans) Scenic Highway Inventory, portions of State Route 101 are considered eligible for listing as a scenic highway (Caltrans 2023). However, this roadway is not located near the Project site, and there are no other scenic highway designations or scenic vistas in the Project vicinity. While the Marin Countywide Plan does not identify any official scenic vistas within the Project site, Countywide Policy Des-4.1, “Preserve Visual Quality,” emphasizes the protection of scenic quality and view of the natural environment (Marin County 2007). Views of

unique and natural resources—such as ridgelines, upland greenbelts, and hillsides—are not easily visible from the Project site.

Light and Glare

Light pollution is defined as any adverse effect of artificial light, including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste. Existing sources of light and glare are generally from streetlights, residences, and traffic in the Project segments described above.

Analysis as to whether or not project activities would:

a. Have a substantial adverse effect on a scenic vista.

No impact. There are no designated scenic vistas within the Project vicinity, and the Project activities would not be visible from any designated scenic vista.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a State scenic highway.

No impact. The Project site is not located on or near a state-designated scenic highway and would not result in damage to scenic resources within a state scenic highway. Therefore, the Project would not result in an impact to scenic resources.

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

Less than significant impact. The Project site consists of local roadways primarily used by residents and other locals. Construction activities would be temporary. Although the Project work would increase Project site activity, it would only temporarily degrade the existing visual quality of the Project site or the surroundings. With the implementation of control measures listed in Attachment D, under “Site Management Practices,” the impact of temporary construction activities would be less than significant.

d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Less than significant impact. Construction activities would be temporary and limited to daylight hours for all Project work.

References:

1. Caltrans. 2023. Caltrans List of Designated Scenic Highways. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. California Department of Transportation, Sacramento, CA.
2. Marin County. 2007. Marin Countywide Plan. Last amended on January 24, 2023. https://www.marincounty.org/depts/cd/divisions/planning/countywide-plan. County of Marin, CA.
3. San Anselmo. 2023. San Anselmo General Plan. Last amended on July 25, 2023. https://www.townofsananselmo.org/DocumentCenter/View/31611/Town-of-San-Anselmo-General-Plan-updated-to-December-2023. Town of San Anselmo, CA.

2. Agricultural and Forestry Resources

Would the Project:	Potentially Significant Impact	Less Than Significant 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?	☐	☐	☐	☒
b. Conflict with existing zoning or agriculture use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Codes section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forestland or conversion of forestland to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

No impact.

Description of Baseline Environmental Conditions:

The Project site is located at various areas within Marin County (Attachment B). The Project segments are largely built out with residential and some commercial uses.

According to the Protected Agricultural Lands Map (Map 2-20) (Marin County 2007), no agricultural or forest lands exist within the Project site. In addition, the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) classifies all Project segments as urban and built-up land (California Department of Conservation 2016). The Project site does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as defined by the FMMP.

Analysis as to whether or not project activities would:

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.

No impact. The Project site does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as defined by the FMMP. The Project would not call for the conversion of land from agricultural to nonagricultural use. In addition, the Project site is surrounded by lands that are already developed, approved for development, or designated as parkland area and, therefore, the Project would not increase development pressure on agricultural lands by extending infrastructure into agricultural areas. Thus, the Project would have no impact on agricultural resources.

b. Conflict with existing zoning or agriculture use, or Williamson Act contract.

No impact. The Project would not call for the conversion of any land from agricultural to nonagricultural use.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Codes section 51104(g))?

No impact. The Project would not conflict with existing zoning or cause rezoning of forestland or timber.

d. Result in the loss of forest land or conversion of forest land or conversion of forest land to non-forest use?

No impact. The Project site does not contain forestland.

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 forest land to non-forest use?

No impact. The Project site does not contain forestland nor is it zoned for agriculture.

References:

1. California Department of Conservation. 2022. California Important Farmland Finder. https://maps.conservation.ca.gov/DLRP/CIFF/. California Department of Conservation, Farmland Mapping and Monitoring Program, Sacramento, CA.
2. Marin County. 2007. Marin Countywide Plan. https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf. Last amended on January 24, 2023. County of Marin, CA.

3. Air Quality

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b. Result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?	☐	☐	☒	☐

Project Activities Likely to Create an Impact:

- Equipment used for construction activities
- Transportation of materials and supplies to and from work areas (via heavy-duty trucks)
- Media loading, including for soil and construction debris, onto dump trucks
- Transportation and handling of imported backfill materials.

Description of Baseline Environmental Conditions:

The Project is located within Marin County, part of the nine-county San Francisco Bay Area Air Basin (SFBAAB). Federal, state, and regional agencies regulate air quality in the SFBAAB. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for overseeing implementation of the federal Clean Air Act (CAA). The California Air Resources Board (CARB) is the state agency that regulates mobile sources throughout the state and oversees implementation of the state air quality laws and regulations, including the California CAA. The local air quality regulatory agency responsible for the SFBAAB is the Bay Area Air Quality Management District (BAAQMD).

Local Climate and Air Quality

The air quality in a given area depends on the sources of air pollution in the area, transport of pollutants to and from surrounding areas, and local and regional meteorological conditions, as well as the surrounding topography of the SFBAAB. Air quality is described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The significance of a pollutant concentration is determined by

comparing the concentration to an appropriate ambient air quality standard. The standards represent the allowable pollutant concentrations designed to ensure that the public health and welfare are protected while including a reasonable margin of safety to protect the more sensitive individuals in the population.

Marin County is bounded on the west by the Pacific Ocean, on the east by San Pablo Bay, on the south by the Golden Gate, and on the north by the Petaluma Gap. Most of Marin's population lives in the eastern part of the county in small, sheltered valleys. Because of the wedge shape of the county, northeast Marin County is farther from the ocean than the southeastern section. This extra distance from the ocean allows the marine air to be moderated by bayside conditions as it travels to northeastern Marin County. In southern Marin, the distance from the ocean is short, and elevations are lower, resulting in higher incidence of maritime air in that area.

In the summer months, areas along the coast are usually subject to onshore movement of cool marine air. In the winter, proximity to the ocean keeps the coastal regions relatively warm, with temperatures varying little throughout the year. Coastal temperatures are usually in the high 50s in the winter and the low 60s in the summer. The warmest months are September and October. The eastern side of Marin County has warmer weather than the western side because of its distance from the ocean and because of the hills that separate eastern Marin from western Marin, which occasionally block the flow of the marine air. The temperatures of cities next to the Bay are moderated by the cooling effect of the Bay in the summer and the warming effect of the Bay in the winter. For example, San Rafael experiences average maximum summer temperatures in the low 80s and average minimum winter temperatures in the low 40s. Inland towns, such as Greenbrae, experience average maximum temperatures that are 2 degrees cooler in the winter and 2 degrees warmer in the summer.

Air pollution potential is highest in eastern Marin County, where most of population is located in semi-sheltered valleys. In the southeast, the influence of marine air keeps pollution levels low. As development moves farther north, there is greater potential for air pollution to build up because the valleys are more sheltered from the sea breeze. While Marin County does not have many polluting industries, the air quality on its eastern side—especially along the U.S. 101 corridor—may be affected by emissions from increasing motor vehicle use within and through the county (BAAQMD 2017).

Criteria Air Pollutants

The federal and California CAAs have established ambient air quality standards for common pollutants. The ambient air quality standards are intended to protect human health and welfare. At the federal level, national ambient air quality standards have been established for criteria pollutants. These criteria pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter with a diameter less than 10 microns (PM10), fine particulate matter with a diameter less than 2.5 microns (PM2.5), sulfur dioxide (SO_2), and lead.

California has adopted ambient air quality standards that are, in general, more stringent than the national ambient air quality standards, and include other pollutants not regulated at the federal level (e.g., sulfates, hydrogen sulfide, and vinyl chloride). State and national ambient air quality standards are shown in Table 1. Both the national and California ambient air quality standards have been adopted by BAAQMD.

Table 1. State and National Air Quality Standards and Summary of Measured Air Quality Exceedances in the Region (2017–2019)

Pollutant/ Averaging Period	Primary Standard		Year	Maximum Concentration [a]	Days Exceeding State/National Standard [b]
	State	National			
Ozone			2017	0.088	6/0
1-hour	0.09 ppm	none	2018	0.072	2/0
			2019	0.096	6/0
Ozone			2017	0.063	6/6
8-hour	0.70 ppm	0.70 ppm	2018	0.053	3/3
			2019	0.08	9/9
Carbon Monoxide			2017	2.6	0/0
1-hour	20 ppm	35 ppm	2018	2	0/0
			2019	1.4	0/0
Carbon Monoxide			2017	1.6	0/0
8-hour	9 ppm	9 ppm	2018	1.6	0/0
			2019	0.9	0/0
Nitrogen Dioxide			2017	0.053	0/1
1-hour	0.18 ppm	0.100 ppm	2018	0.055	0/0
			2019	0.05	0/0
Nitrogen Dioxide			2017	0.001	0/0
Annual	0.030 ppm	0.053 ppm	2018	0.009	0/0
			2019	0.008	0/0
Sulfur Dioxide			2017	ND	0
1-hour	none	0.075 ppm	2018	ND	0
			2019	ND	0
Sulfur Dioxide			2017	ND	0
24-hour	0.04 ppm	none	2018	ND	0/0
			2019	ND	0/0
Respirable Particulate			2017	94	6/0
Matter (PM10)	50 µg/m^3	150 µg/m^3	2018	166	6/1
24-hour			2019	33	5/0
Respirable Particulate			2017	17.7	0/0
Matter (PM10)	20 µg/m^3	none	2018	19	0/0
Annual			2019	14.3	0/0
Fine Particulate Matter			2017	74.7	0/18
(PM2.5)	None	35 µg/m^3	2018	167.6	0/18
24-hour			2019	19.5	0/1

Table 1. State and National Air Quality Standards and Summary of Measured Air Quality Exceedances in the Region (2017–2019)

Pollutant/ Averaging Period	Primary Standard		Year	Maximum Concentration [a]	Days Exceeding State/National Standard [b]
	State	National			
Fine Particulate Matter			2017	9.7	0/0
(PM2.5)	12 µg/m^3	12.0 µg/m^3	2018	11.1	0/0
Annual			2019	6.4	0/0

Source: BAAQMD (2019)

Notes:

µg/m^3 = micrograms per cubic meter
ND = no data available
ppm = parts per million
[a] All pollutant concentrations were measured at the San Rafael monitoring station.
[b] Values from Ten-Year Bay Area Air Quality Summary table

Ambient concentrations of criteria pollutants are monitored in the SFBAAB by BAAQMD. The San Rafael station is the closest to the Project site and the only station that measures criteria pollutants in Marin County (BAAQMD 2023a). Table 1 includes a summary of the monitored maximum concentrations and the number of occurrences of exceedances of the state/national ambient air quality standards for the 3-year period from 2017 through 2019.

Table 1 shows that, over the last 3 years reported, the state 1-hour and 8-hour O_3 standards were exceeded 14 and 18 times, respectively. Over the 3-year period, the state 24-hour PM10 standards were exceeded 17 times, and the 24-hour national PM2.5 standards were exceeded 37 times.

Toxic Air Contaminants

In addition to criteria air pollutants, there is another group of substances found in ambient air referred to as toxic air contaminants (TACs). These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects, including cancer. Sources of TACs include industrial processes, such as petroleum refining and manufacturing, commercial operations, such as gasoline stations and dry cleaners, and motor vehicle exhaust. One of the TACs of greatest concern in California is diesel particulate matter (DPM), which is classified as a carcinogen (i.e., causes cancer). TACs are regulated at the local, state, and federal level.

Federal Air Quality Regulations

The federal CAA requires CARB, based on air quality monitoring data, to designate portions of the state where the national ambient air quality standards are not met as “nonattainment areas.” Because of the differences between the national and state ambient air quality standards, the designation of nonattainment areas is different under the federal and state legislation. Areas that meet the air quality standards are considered to be in attainment of the standards. Areas where there are no monitoring data available or insufficient data to classify an area are considered unclassified, which for regulatory purposes is treated as an attainment area.

The Bay Area as a whole does not meet national ambient air quality standards for O_3 and PM2.5. EPA has classified the region as marginal nonattainment for 8-hour O_3. In October 2009, EPA designated the Bay Area as nonattainment for the 24-hour PM2.5 standard. The Bay Area is considered as attainment or unclassifiable with respect to the national air quality standards for all other pollutants. EPA requires states that have areas that are not in compliance with the national standards to prepare

and submit air quality plans showing how the standards would be met. If the states cannot show how the standards would be met, then they must show progress toward meeting the standards. These plans are referred to as the state implementation plan (SIP). On January 9, 2013, EPA issued a final rule to determine that the San Francisco Bay Area has attained the national 24-hour PM2.5 air quality standard. This action suspends federal SIP planning requirements for the Bay Area. BAAQMD has permit authority over stationary sources, acts as the primary reviewing agency for environmental documents, and develops regulations that must be consistent with or more stringent than federal and state air quality laws and regulations.

California Air Quality Regulations

The California CAA outlines a program for areas in the state to attain the California ambient air quality standards by the earliest practical date. The California CAA set more stringent air quality standards for most of the pollutants covered under national standards, and additionally regulates other pollutants. If an area does not meet the California ambient air quality standards, CARB designates the area as a nonattainment area. With respect to the state air quality standards, the Bay Area is a nonattainment area for O_3 and particulate matter (PM10 and PM2.5), and it is either an attainment or unclassified area for other pollutants. The California CAA requires local air pollution control districts to prepare air quality attainment plans for pollutants, except for particulate matter, that are not in attainment with the state standards. These plans must provide for district-wide emission reductions of 5 percent per year averaged over consecutive 3-year periods or, if not, provide for adoption of “all feasible measures on an expeditious schedule.”

Regional Air Quality Regulations and Planning

Air quality in the region is regulated by BAAQMD. BAAQMD regulates stationary sources (with respect to federal, state, and local regulations), monitors regional air pollutant levels (including the measurement of TACs), develops air quality control strategies, and conducts public awareness programs.

The most recent air quality plan is the 2017 Clean Air Plan that was adopted by BAAQMD in April 2017 (BAAQMD 2017). The plan provides a regional strategy to protect public health and the climate. To protect public health, the plan describes how BAAQMD will continue making progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful (such as particulate matter, O_3, and TACs) and to decrease emissions of carbon dioxide (CO_2) by reducing fossil fuel combustion. The plan represents the Bay Area’s most recent assessment of the region’s strategy to attain the state and national O_3 and PM2.5 standards.

BAAQMD has also developed CEQA air quality guidelines that establish significance thresholds for evaluating new projects and plans and provide guidance for evaluating air quality impacts of projects and plans (BAAQMD 2023b). The Air Quality Guidelines provide procedures and significance thresholds for evaluating potential construction-related impacts during the environmental review process consistent with CEQA requirements. The guidelines also address operation-related impacts, but the Project is a construction activity with no substantial additional operational component as compared to existing operations.

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were included in BAAQMD’s most recent CEQA air quality guidelines (BAAQMD 2023b).

In June 2022, BAAQMD released the CEQA Thresholds for Evaluating the Significance of Climate Impacts Report (BAAQMD 2022). This report recommends thresholds of significance for use in determining whether a proposed project would have a significant impact on climate change. Recommendations are focused on thresholds for either land use projects or general plans and planning documents (BAAQMD 2022).

Analysis as to whether or not project activities would:

a. Conflict with or obstruct implementation of the applicable air quality plan.

No impact. The Project site is in an area currently designated as nonattainment for the state 1-hour and 8-hour O_3 standards, nonattainment for the state 24-hour and annual PM10 standards, and nonattainment for the state annual PM2.5 standard. It is also designated as nonattainment for the national 8-hour O_3 standard. To meet planning requirements related to these standards, BAAQMD has developed a regional air quality plan, the Bay Area 2017 Clean Air Plan. A significant impact would occur if a project conflicted with the plan by not being consistent with the plan's assumptions regarding population growth and vehicle miles traveled. As discussed, the Project involves the rehabilitation and replacement of existing sanitary sewer lines; thus, the Project would not be considered growth inducing. Construction activities associated with the Project would be short term and temporary, and there would be no long-term operational component to the Project that would generate new vehicle trips in the SFBAAB that would conflict with the plan. As a result, the Project would not conflict with or obstruct with implementation of the plan, and there would be no impact.

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

Less than significant. The Project would involve construction activities associated with the rehabilitation and replacement of sewer system components that would result in temporary increases in air pollutant emissions. These emissions would be generated primarily from construction equipment exhaust, earth disturbance, and construction worker and other construction-related vehicle trips to and from the Project areas. The overall Project activities would occur for approximately 10 months.

BAAQMD's approach to the CEQA analysis of construction impacts is twofold. BAAQMD has identified thresholds of significance for exhaust emissions from construction-related activities. The guidelines specify the following significance thresholds for daily and annual criteria air pollutant emissions from project construction (BAAQMD 2023b):

- PM10 = 82 lb/day; 15 ton/year
- PM2.5 = 54 lb/day; 10 ton/year
- Reactive organic gases (ROG) = 54 lb/day; 10 ton/year
- Oxides of nitrogen (NOx) = 54 lb/day; 10 ton/year.

Construction emissions of O_3 precursors ROG and NOx, and PM_{10} and $PM_{2.5}$, were estimated for the Project-related activities based on updated information obtained from RVSD and using the California Emissions Estimate Model (CalEEMod), an air quality modeling program that estimates air pollutant emissions in tons per year (CAPCOA 2022). Project emissions for the sewer rehabilitation were developed based on information provided by the project engineer and construction manager, including project activities and scheduling, off-road equipment use, and projected haul truck and vendor truck trips. Details of the emission calculations are included in Attachment E.

Table 2 provides a summary of the average annual and daily criteria pollutant emissions from Project construction activities along with a comparison to the BAAQMD significance thresholds and conformity with *de minimis* emission thresholds.

Table 2. Annual and Average Daily Emissions from Project Activities

Pollutant	Annual Emissions (ton/year)	Thresholds (ton/year)	Average Daily Emissions (lb/day)[a]	Thresholds (lb/day)	Above Threshold?
ROG	0.43	10	2.34	54	No
CO	0.68	NA	3.57	NA	No
SO_2[a]	<0.005	NA	<0.005	NA	No
NOx	0.23	10	1.13	54	No
PM10[b]	0.04	15	0.22	82	No
PM2.5[b]	0.02	10	0.09	54	No

Source of input parameters: Phil Benedetti, Associate Engineer (RVSD), October 2024
Notes:
NA = not applicable
[a] SO_2 emissions are expected to be negligible due to use of ultra-low sulfur diesel fuel.
[b] PM10 and PM2.5 represent total emission values including exhaust and fugitive dust.

As noted above, Project activities that have the potential to impact air quality can be characterized as construction activities because of the short duration of the Project and use of construction equipment. Also as demonstrated above, estimated emissions for the Project are below significance thresholds listed in the BAAQMD guidelines.

Emissions from gasoline- and diesel-fueled vehicles and equipment are below significance thresholds, and fugitive dust emissions would be controlled with control measures listed in Attachment D under “Air Quality” and “Dust Control,” which are consistent with BAAQMD-recommended control methods for particulate emissions; therefore, the Project would not result in cumulatively considerable net increase of any criteria pollutant.

c. Expose sensitive receptors to substantial pollutant concentrations?

Less than significant**.** Sensitive receptors are locations where an identifiable subset of the general population (e.g., children, people with asthma, the elderly, and the chronically ill) that is at greater risk than the general population to the effects of air pollutants are likely to be exposed. These locations include residences, schools, playgrounds, childcare centers, retirement homes, hospitals, and medical clinics. The Project is mostly within residential areas, and there are several sensitive receptors—including residences, schools, hospitals, and medical clinics—within 1,000 ft of the Project site. These sensitive receptors would be exposed to short-term emissions of TACs while construction takes place.

The primary concern for nearby sensitive receptors would be exposure to diesel emissions from diesel-powered construction equipment associated with Project construction activities and diesel trucks while at the Project site. DPM is designated as a TAC by CARB for the cancer risk associated with long-term (i.e., 30-year) exposure to DPM. Given that construction would occur for a limited amount of time (approximately 10 months) and that the Project would use only a limited number of diesel-fueled equipment and trucks, DPM emissions would be very low, and localized exposure to DPM would be minimal. In addition, the amount of onsite diesel-generated PM2.5 exhaust for this Project is estimated to be below 0.01 ton/year. The estimated PM2.5 exhaust emissions are several orders of magnitude below the BAAQMD threshold of 10 tons/year.

The Project is not expected to expose sensitive receptors to substantial pollutant concentrations for the following reasons:

- Minor amounts of soil excavation would occur on a daily basis.

- A limited number of construction vehicles or equipment would operate at any time.
- The Project activities are short-term and would last 10 months or less.
- Combustion emissions from vehicles and equipment are below the significance thresholds from the BAAQMD guidelines.
- Control measures—such as minimizing idle times as well as others listed under "Dust Control" and "Air Quality" in Attachment D—would be implemented to control emissions and limit exposures.

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

Less than significant**.** During construction, there would be minimal sources of odor from the Project activities. Sanitary sewer lines would be replaced and rehabilitated in place via pipe bursting and pipe reaming methods. Control measures listed in Attachment D, under "Odors," would serve to minimize dispersal of odor, provide for control, and address odor complaints if received.

References:

1. BAAQMD. 2017. Spare the Air Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Bay Area Air Quality Management District, San Francisco, CA. April.
2. BAAQMD. 2019. Annual Bay Area Air Quality Summaries. http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Bay Area Air Quality Management District, San Francisco, CA.
3. BAAQMD. 2022. CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans. https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en. Bay Area Air Quality Management District, San Francisco, CA.
4. BAAQMD. 2023a. 2023 Annual Air Monitoring Network Plan. https://www.baaqmd.gov/~/media/files/technical-services/2023_network_plan-pdf.pdf?rev=8de9f6f74a2143a994734a3a870bd999&sc_lang=en. Bay Area Air Quality Management District, San Francisco, CA. June.
5. BAAQMD. 2023b. California Environmental Quality Act Air Quality Guidelines. https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Bay Area Air Quality Management District, San Francisco, CA. April.
6. CAPCOA. 2022. California Emissions Estimator Model. https://www.caleemod.com/. California Air Pollution Control Officers Association, Sacramento, CA.

4. Biological Resources

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

Project Activities Likely to Create an Impact:

- Equipment used for construction activities
- Excavation of open-cut trenches and bore/receiving pits

- Project site restoration, including backfill of all excavated areas with native soil.

Description of Baseline Environmental Conditions:

The Project site consists largely of in-road rights-of-way (ROWs) within moderately-to-highly trafficked urban and residential roadways in Fairfax, Kentfield, and San Anselmo. Biological resources associated with the Project site were identified through a review of available background information and a field reconnaissance survey. Available documentation was reviewed to provide information on natural resources in the Fairfax, Kentfield, and San Anselmo areas, including the presence of special-status species, sensitive natural communities, and other protected biological resources and also included plans, policies, or ordinances that protected natural resources therein. Information about protected natural resources that could occur on or near the Project site was obtained from the following sources:

- California Natural Diversity Database (CNDDB) RareFind 5 (CDFW 2023)
- California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2024)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) resource list report (USFWS 2024)
- Existing literature as cited in the text.

The protected natural resources identified in these searches were compiled into tables (Attachment F) and evaluated for likelihood of occurrence within the limits of construction disturbance associated with the Project. Integral personnel—Sadie McGarvey (a wildlife biologist and regulatory specialist) and Cristal Reagh—conducted a general survey of the Project site on November 5, 2024, to record biological resources and to assess the likelihood of resource agency regulated areas and special status species and habitats in the vicinity of the Project site. All publicly accessible portions of the Project site were assessed during the field survey.

Fairfax

The sewer pipeline alignments within Fairfax occur primarily within the roadways in commercial and residential neighborhoods. Landscaping adjacent to the roadways consists of a mix of ornamental and native trees and shrubs, including sycamore (*Platanus racemosa*), oak (*Quercus agrifolia* and *Q. kelloggii*), redwood (*Sequoia sempervirens*), firethorn (*Pyracantha* sp.), and privet (*Ligustrum* sp.). Approximately 95 LF of the sewer pipeline alignment occurs within off-road ROWs between two commercial buildings.

Bolinas Park occurs adjacent to the Project site at the intersection of Bolinas Road and Sherman Avenue. Fairfax Creek flows through Bolinas Park and is undergrounded at Bolinas Road, where it enters twin box culverts and flows underneath Bolinas Road and parallel to the Project site along Sherman Avenue.

San Anselmo

The sewer pipeline alignments within San Anselmo occur primarily within the roadways in residential neighborhoods. Landscaping adjacent to the roadways consists of a mix of ornamental and native trees and shrubs, including sycamore (*Platanus racemosa*), oak (*Quercus agrifolia* and *Q. kelloggii*), loquat (*Eriobotrya japonica*), manzanita (*Arctostaphylos* sp.), Japanese maple (*Acer palmatum*), redwood, oleander (*Nerium oleander*), privet, crimson bottlebrush (*Callistemon citrinus*), firethorn, and pineapple sage (*Salvia elegans*).

Approximately 1,285 LF of the sewer pipeline alignment occurs within off-road ROWs below largely undeveloped portions of private property. Vegetation adjacent to and within these portions of the alignment are dominated by primarily bottle brush along with other nonnative trees and shrubs, such as weeping birch (*Betula pendula*), English ivy (*Hedera helix*), privet (*Ligustrum* sp.), pepper tree (*Schinus molle),* and cyprus (*Cupressus* sp.), with an understory dominated by non-native herbs, such as pineapple sage and French lavender (*Lavandula stoechas*).

Kentfield

The sewer pipeline alignment within Kentfield occurs primarily within the roadways of residential neighborhoods. Landscaping adjacent to the roadways consists of a mix of ornamental and native trees and shrubs, including Acacias (*Acacia* spp.), privet (*Ligustrum* sp.), redwood, coast live oak (*Quercus agrifolia*), cherry plum tree *(Prunus cerasifera),* bamboo (Phyllostachys sp.), callery pear (*Pyrus calleryana*), magnolia (Magnolia grandiflora), Liquid amber (*Liquidambar styraciflua*), Pyracantha, English ivy (*Hedera helix*), rosemary (Rosmarinus officinalis), Mexican bush sage, French broom (*Genista monspessulana*), and lantana (*Lantana* sp.).

Approximately 1,970 LF of the sewer pipeline alignment occurs within off-road ROWs below largely undeveloped portions of private property. Undeveloped portions of the alignment were dominated by native trees, shrubs, and herbaceous species, such as California bay laurel, redwood, California buckeye (*Aesculus californica*), Himalayan blackberry, as well as English ivy.

Two sections of the pipeline alignment within Kentfield occur adjacent to waters of the United States (WOTUS) or waters of the State of California. An unnamed perennial creek with associated adjacent wetlands flows along both sides of Wolfe Canyon Road adjacent to the Project site. Similarly, the in-road pipeline alignment along McAllister Avenue occurs adjacent to Corte Madera Creek.

Analysis as to whether or not project activities would:

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?

Less than significant with mitigation incorporated. Special-status species are plants and animal species considered to be rare by federal and/or state resource agencies (e.g., USFWS, National Marine Fisheries Service [NMFS], California Department of Fish and Wildlife [CDFW]) and/or the scientific community (CNPS) and are accordingly legally protected pursuant to federal, state, and/or local laws in addition to CEQA. These species are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. The attached species lists from CNDDB, CNPS, and USFWS (Attachment F) detail the broad range of special-status species known to occur or to have previously occurred in the vicinity of the Project site. None of these species have been documented as occurring on the Project site. Project activities would not have significant adverse effects of any special-status species.

Plants

According to the CNDDB, the CNPS Inventory of Rare, Threatened, and Endangered Plants of California, and the USFWS IPac tool, 58 special-status plant species are known to occur or to have previously occurred within the same U.S. Geological Survey quadrangle (quad) as the Project site (San Rafael quad). All of these species require specialized habitats that *do not* occur within the Project site, including, but not limited to, chapparal, bogs and fens, marshes and swamps, meadows and seeps, riparian and coastal habitats, woodlands, and forests. The Project site is generally highly disturbed by

past grading, installation of pavement, ornamental landscaping, existing sewer line facilities, and other current site-uses, which precludes the possibility of presence of any special-status plant species in these areas. Therefore, there is no suitable habitat for special status plant species within the Project site.

Wildlife

According to the CNDDB, the CNPS Inventory of Rare, Threatened, and Endangered Plants of California, and the USFWS IPac tool, 30 special-status wildlife species are known to occur or to have previously occurred within the San Rafael quad. All of these species require specialized habitats that *do not* occur on or adjacent to the Project site, including, but not limited to, open bay and ocean, marshes and swamps, permanent waters (and/or proximity thereto), open grassland slopes, freshwater wetlands, and coniferous forests.

While no work is scheduled to occur within aquatic resources, the unnamed creek adjacent to Wolfe Canyon Road provides suitable aquatic habitat for western pond turtle (*Actinemys marmorata*) (NWPT), California red-legged frog (*Rana draytonii*) (CRLF), and foothill yellow-legged frog (*Rana boylii*) (FYLF). However, there are no extant records for CRLF or FYLF within dispersal distance of the Project site, and Wolfe Canyon Road is separated by over 2 miles of developed landscape from the closest occurrence at Pheonix Lake in undeveloped Marin County. These species are not expected occur in the vicinity of the Project site.

Similarly, Ridgway's rail (*Rallus obsoletus obsoletus*), salt-marsh harvest mouse (*Reithrodontomys raviventris*), and tidewater goby (*Eucyclogobius newberryi*) are known to occur within Corte Madera Creek and the adjacent marshlands proximal to the Project site in Kentfield. However, as work would remain within the moderately trafficked roadways, primarily isolated from the marshland by residential development, these species are not expected to occur on or adjacent to the Project site. Further, project activities within McAllister Avenue would be isolated from the Corte Madera Creek spur, be comparable in disturbance to current site uses, and would occur outside the nesting season such that species associated with the adjacent marshlands would not be impacted by the proposed Project.

The onsite and site-adjacent trees, shrubs, and herbaceous vegetation provide suitable nesting habitat for a variety of common bird species, including passerines and raptors, protected pursuant to the federal Migratory Bird Treaty Act and State Fish and Game code. However, the intensity of regular disturbance on and adjacent to the Project site limits the likelihood that any special-status bird species would nest on or near the Project site. No nests were observed during the November 2024 site assessment; however, owing to the mobile nature of birds and the seasonality of their nesting cycle, and in light of the presence of abundant marginal nesting habitat on site, it is possible that birds could nest on or adjacent to the Project site during future nesting seasons.

Nesting Birds

Project activities—including trenching, excavating, and test borings—associated with cultural resource investigations can be expected to result in temporary disturbance to suitable habitat for nesting birds. While no evidence of nesting bird activity has been observed on or adjacent to the Project site, there remains a possibility that new bird nests could be established in the trees and other vegetation on and near the Project site. If construction is initiated during the bird nesting season (February 1–September 15), construction-related disturbance could result in abandonment of the nests if any are present in the immediate vicinity. If construction-related noise and disturbance results in destruction or abandonment of a nest in active use and loss of any eggs or young in the nest, this would be a significant adverse impact and violation of the federal Migratory Bird Treaty Act and State Fish and Game Code sections. Mitigation Measure BIO-1 would serve to avoid this potential for violation of federal and state regulations by ensuring a preconstruction survey is conducted and appropriate construction restrictions

are implemented if any active nests are encountered and until any young birds have successfully fledged. With implementation of Mitigation Measure BIO-1, impacts to special-status wildlife would be less than significant.

Mitigation Measure BIO-1

Vegetation removal and ground disturbance (collectively referred to as construction activities) shall be scheduled to avoid the bird nesting season to the greatest extent possible. The nesting season for most birds and raptors in the San Francisco Bay Area is February 1–September 15.

If construction activities cannot be scheduled to occur between September 16 and January 31, preconstruction surveys for nesting birds and raptors will be completed by a qualified ornithologist or biologist to ensure that no nests would be disturbed during project implementation. This survey will be completed no more than 14 days prior to the initiation of construction activities. During this survey, the qualified ornithologist/biologist will inspect all suitable nesting habitat on the Project site and within the zone of influence (the area immediately surrounding the Project site that supports suitable nesting habitat that could be impacted by the proposed Project due to visual or auditory disturbance associated with construction activities scheduled to occur during the nesting season).

If an active nest is found sufficiently close to the work areas to be disturbed by construction activities, the qualified ornithologist/biologist, in consultation with the CDFW, will determine the extent of a construction-free buffer zone to be established around the nest to ensure that protected bird and raptor nests are not disturbed during project construction. This buffer would remain in place until such a time as the young have been determined (by a qualified ornithologist/biologist) to have fledged.

A report of findings will be prepared by the qualified biologist and submitted to RVSD for review prior to initiation of construction during the nesting season. The report would either confirm absence of any active nests or confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is required if construction is initiated during the nonbreeding season (September 16–January 31) and continues uninterrupted according to the above criteria.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No impact. According to CNDDB, four sensitive natural communities are known to occur or to have previously occurred within the San Rafael quad: coastal brackish marsh, coastal terrace prairie, northern coastal salt marsh, and serpentine bunchgrass. Coastal brackish marsh occurs adjacent to the sewer pipeline alignment along McAllister Avenue in Kentfield. In addition, Quercus agrifolia Woodland and Forest has been identified along the Wolfe Canyon Road sewer alignment in Kentfield by both Marin County Vegetation and the Land Cover mapping and field confirmation (Code 71.060.00). Project activities at along McAllister Avenue would remain on the opposite side of the road from coastal brackish marsh; as such, would avoid impacts to this sensitive natural community. Similarly, work along Wolfe Canyon would remain within and immediately adjacent to the roadway and therefore avoid impacts to Quercus agrifolia Woodland and Forest. Due to the highly and regularly disturbed nature of the remainder of the Project site, no other sensitive natural communities have been documented or are likely to occur on site.

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

No impact. Jurisdictional waters are regulated by state and federal resource agencies (U.S. Army Corps of Engineers [USACE], California State Water Resources Control Board [SWRCB], and CDFW) and are accordingly legally protected via the federal and/or state laws in addition to CEQA.

USACE implements the Clean Water Act, which establishes a program that regulates the discharge of dredge or fill material into WOTUS, which generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands. Wetlands are defined as those "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR § 328.3(b), 51 FR 41251, November 13, 1986). The limit of USACE jurisdiction for nontidal watercourses is defined in 33 CFR § 328.4(c)(1) as the "ordinary high water mark" (OHWM). The OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR § 328.3(e), 51 FR 41251, November 13, 1986). The bank-to-bank extent of the channel that contains the waterflow during a normal rainfall year generally serves as a good first approximation of the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the OHWM is no longer perceptible.

The Porter-Cologne Water Quality Control Act (Water Code § 13000 et seq.) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of waters of the state, and applies to surface waters, wetlands, and groundwater and to both point and nonpoint sources of pollution. The Porter-Cologne Act also implements many provisions of the Clean Water Act, such as the NPDES permitting program. The 401 Water Quality Certification and Wetlands Program regulates discharges of fill and dredged material into "waters of the State" pursuant to the CWA Section 401 and the State of California Porter-Cologne Water Quality Control Act. All WOTUS in California are also "waters of the State" (defined by the Porter-Cologne Water Quality Control Act as "any surface water or ground water, including saline waters, within the boundaries of the state" [Water Code Section 13050(e)]).

A review of the National Wetland Inventory identifies riverine features proximal to the sections of sewer pipeline alignment at McAllister Avenue in Kentfield (Corte Madera Creek) and Bolinas Road in Fairfax (Fairfax Creek). Field observations confirmed the existence of WOTUS at these locations proximal to the sewer alignment. Additionally, an unnamed perennial creek and wetland vegetation were observed adjacent to Wolfe Canyon Road during the November 2024 site visit.

All work would remain outside the creeks and adjacent wetland vegetation that occur in proximity to the Project site. The unnamed creek crosses Wolfe Canyon Road (and the sewer pipeline alignment) at two locations. Pipe-bursting activities would avoid impacts to the culverted portions of the unnamed creek by providing an air-gap excavation that removes the potential for pipe bursting to exert any force onto the culvert. In addition, to ensure no impacts to the undergrounded portion of Fairfax Creek that runs parallel to the Project site, the project footprint would be potholed near the proposed alignment prior to trenching to determine the final alignment of the main and to avoid potential for impacts to the box culvert or other utilities.

State or federally protected wetlands do not occur on the Project site and would not be impacted by Project activities; therefore, Project activities would have no impact to state or federally protected wetlands.

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

No impact. A wildlife corridor is a portion of land that adjoins two or more larger areas of similar natural environment, often connecting wildlife populations separated by natural or created activities, disturbances, or structures. Wildlife corridors are used for dispersal and migration of wildlife, allowing for genetic exchange, population growth, and access to larger stretches of suitable habitats while reducing habitat fragmentation. The undeveloped portions of the Project site and adjacent areas provide suitable resting and roosting habitat; however, much of this area is subject to regular disturbance and occurs within a matrix of single-family homes surrounded by fences and other barriers to dispersal for terrestrial species. Similarly, while riparian habitat is often considered a wildlife corridor, the riparian associated with the Corte Madera Creek spur and the unnamed perennial creek would not be impacted by Project activities. Accordingly, the Project site and area immediately surrounding it would not function as a wildlife corridor.

A nursery site is an area where juveniles occur at higher densities, avoid predation more successfully, or grow faster there than in a different habitat (Beck et al. 2001). There are no undeveloped portions of the Project site; subsequently, no areas which act as nursery sites occur within the Project area.

The Project site does not act as a wildlife corridor or a nursery site due to its location within a matrix of fenced, single-family residential and otherwise urban development; therefore, Project activities would not impact wildlife movement or breeding and rearing opportunities.

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

No impact. The Project site occurs within unincorporated Marin County and is subject to the Marin Countywide Plan (2007; last amended in 2023), which was developed to help guide the conservation and development of Marin County. The Marin Countywide Plan addresses the protection of sensitive biological and wetland resources, including creeks, trees, threatened and endangered species habitat, riparian vegetation, and other resources.

Similarly, as the Project site occurs within unincorporated Marin County, it is subject to the County of Marin Native Tree Preservation and Protection Ordinance (Tree Ordinance), which establishes regulations for the preservation and protection of native trees in the unincorporated areas of Marin County by limiting tree removal. No tree removal is proposed as part of the Project. The contractor shall exercise due diligence and implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping within and adjacent to the Project site. Any required pruning of existing trees would be completed by a certified arborist.

The Project would not conflict with policies in the Marin Countywide Plan. In addition, the Project does not include tree removal and would therefore not conflict with the Tree Ordinance. No major conflicts with local plans and policies are anticipated.

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

No impact. There are no adopted habitat conservation plans or other local, regional, or state habitat conservation plans in the area.

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4. Marin County. 2007. Marin Countywide Plan. https://www.marincounty.gov/departments/cda/planning/plans-policies-and-regulations/marin-countywide-plan. Last amended on January 24, 2023. County of Marin, CA.
5. USFWS. 2024. Information for Planning and Consultation (IPaC) Resource List. https://ipac.ecosphere.fws.gov/. U.S. Fish and Wildlife Service, Bailey's Crossroads VA.

5. Cultural Resources

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archeological resource pursuant to § 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Project Activities Likely to Create an Impact:

- Ground-disturbing activities (excavation of soil).

The Project entails the construction and rehabilitation of sewer lines within the existing alignment of sanitary sewer mains and related appurtenances. It would employ pipe-bursting and pipe-reaming methods to repair the existing lines and would also involve open-cut trench excavation in areas deemed necessary for the construction of new sewer lines, rehabilitation of existing manholes, construction of new manholes, repair of sags, and potholes for lateral tie-ins.

While the Project has the potential to impact unrecorded archaeological resources, the construction methods, previous disturbances, and logistical constraints have been taken into consideration. The Project pipe-bursting and pipe-reaming construction methods (both trenchless) have a minimal potential impact (see below) whereas the construction of a new sewer manhole, repair of sags, and potholing for lateral tie-ins would require open-cut excavations.

Disturbance from pipe bursting is limited to the soils within and immediately surrounding the existing sewer footprint. While the pipe-bursting method is employed, the immediate soils around the existing sewer footprint are only expected to be displaced in situ a few centimeters outward to accommodate the new pipe and would reach an expected depth of 5 ft below the ground surface. The removal of soils is expected to occur for the entry and exit pits, construction of new sewer manholes, repair of sags, and potholes for lateral tie-ins and would involve excavating soils immediately surrounding the pipe as well as all soils above it to an expected depth of 3–10 ft below the ground surface. While the excavated soil would be solely or primarily backfill from the initial installation of the existing sewer—and thus should not contain an intact archaeological deposit—the new manhole sewer and associated pipes may encounter native soils if the new trench does not exactly correspond with the depth or width of any previously excavated trench.

In addition, as backfill soils could still contain previously displaced cultural materials, any methods disturbing adjacent soils have the potential to encounter human remains and associated funerary objects or disturbed cultural materials.

Description of Baseline Environmental Conditions:

A cultural resources inventory report for the Project was prepared was prepared by Far Western Anthropological Research Group, Inc. (Far Western) in November 2024. Because the report contains confidential information about the locations and characteristics of archaeological sites and tribal cultural resources, the technical report is not included in this initial study for public review, but it can be made available to agencies and other qualified professionals for review as necessary.

The cultural study included a records search, consultation with the Native American Heritage Commission and the Federated Indians of Graton Rancheria (FIGR), buried-site sensitivity assessment, and a pedestrian survey of the Project site. The records search identified 23 previously recorded cultural resources within the quarter-mile records search buffer, the majority of which are historic-era built environment resources that do not intersect the ADI. One previously recorded cultural resource intersects the ADI. This resource is a landscape feature, Mount Tamalpais, a mountain that has significance to FIGR. The landscape boundary for the resource is not fully defined and requires more study in consultation with Graton; however, a preliminary boundary was defined in the site record in 2022 to encompass the landform that rises prominently above its surroundings, steep slopes and summit areas. Mount Tamalpais is of extreme importance and value to the Coast Miwok. This resource overlaps with northwestern portion of the ADI in Fairfax along Bolinas Road and Sherman Street, as well as the southern extent of the ADI in Kentfield along Berens Drive. See “Tribal Cultural Resources” section below for additional information from FIGR regarding this tribal cultural resource. No archaeological resources were observed during the pedestrian survey conducted for this study.

As part of this study, and as presented above, an archaeological resources sensitivity analysis was conducted to assess the potential for encountering unrecorded deposits at the proposed sewer line repair locations. The ADI was noted for possible early roadbed iterations or roadside features associated with many of the original travel or roadway alignments within and intersecting the ADI, which may be encountered subsurface during project activities; however, based on the extent of historic and modern roadway disturbances, there is low potential to encounter historic-era archaeological deposits within the ADI.

Based on the results of geoarchaeological assessment, there are locations within the ADI that are sensitive for subsurface precontact deposits; as such, it is recommended that an archaeological testing program is carried out in areas determined to have high sensitivity within the ADI. These locations include:

- Bolinas Road and Sherman Street in Fairfax (open-cut trenching to install new pipe, pipe bursting to replace existing pipe, construction of one new manhole, and removal and replacement of one existing manhole)
- Suffield Avenue and Sir Francis Drake Boulevard in San Anselmo (open-cut trenching to install new pipe, pipe bursting and pipe reaming to replace existing pipe, construction of three new manholes, and removal and replacement of five existing manholes)
- Berens Drive, McAllister Avenue, Lancaster Avenue, Wolfe Grade, Kentdale Lane, and the western extent of Stadium Way in Kentfield (open-cut trenching to install new pipe, pipe bursting to replace existing pipe, construction of one new manhole, and removal and replacement of two existing manholes).

RVSD initiated Native American outreach on this Project in accordance with Assembly Bill 52. The Native American Heritage Commission did not identify any sacred sites within the ADI. See Section 18, “Tribal Cultural Resources,” for a detailed discussion of AB 52 and ongoing consultation efforts with FIGR.

Regulatory Background

Cultural resources include precontact (prehistoric/Native American) and historic-era archaeological sites and objects as well as extant historic structures, buildings, and locations of important historic events or sites of traditional and/or tribal cultural importance to various groups. This study addresses archaeological resources and tribal resources in the ADI. The Project requires approval by local and state agencies, thereby mandating that it adheres to CEQA and its implementing guidelines and regulations in 14 CCR § 15000 et seq.

California Register of Historical Resources

The CEQA statutes and guidelines (14 CCR § 15064.5) include procedures for identifying, analyzing, and disclosing potential adverse impacts to historical resources, which include all resources listed in or formally determined eligible for the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), or local registers. CEQA further defines a "historical resource" as a resource that meets any of the following criteria:

- A resource listed in, or determined to be eligible for listing in, the National or California Registers
- A resource included in a local register of historical resources, as defined in § 5020.1(k) of the Public Resources Code (PRC), unless the preponderance of evidence demonstrates that it is not historically or culturally significant
- A resource identified as significant (rated 1–5) in a historical resource survey meeting the requirements of PRC § 5024.1(g) Department of Parks and Recreation Form 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant
- Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. See Section 18, "Tribal Cultural Resources," for the definition of Tribal Cultural Resources (TCR). Generally, a resource is considered "historically significant" if it meets the criteria for listing on the California Register.

Analysis as to whether or not project activities would:

a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Less than significant with mitigation. An archaeological resource's significance is determined by its potential eligibility to be listed on the California Register of Historical Resources (California Register). The California Register is a listing of properties that are important to the history of California and the nation. To be eligible for listing on the California Register, a property must typically be 50 years of age or older; it must possess historical significance; and it must possess integrity of location, design, setting, materials, workmanship, feeling, and association. Historical significance is the importance of a property to the history, architecture, archaeology, engineering, or cultural aspects of a community.

The records search identified 23 previously recorded cultural resources within the 0.25-mile records search buffer and one landscape feature, Mount Tamalpais, that intersects portions of the ADI in Fairfax and Kentfield. Due to the size of the resource and the culturally defined landscape features including the peak, slopes, and viewshed, it is unlikely that the proposed sewer rehabilitation efforts in established public roadways and private property parcels will impact the resource. However, discussions with FIGR regarding Mount Tamalpais and the proposed project address this tribal cultural resource and avoidance/no impact measures. See "Tribal Cultural Resources" section below.

Due to the results of the buried site sensitivity assessment and consultation with FIGR, a program of focused archaeological testing will be conducted in areas determined to be highly sensitive for encountering cultural deposits. Testing will occur in advance of proposed ground disturbance, including manholes, sags, potholes, and the entry and exit pits for pipe bursting, where feasible. Based on the results of the testing—and in coordination with the RVSD and FIGR—monitoring by an archaeologist and tribal monitor may also be required to observe excavated soils that are removed during construction activities. Even if much of the excavation has been previously disturbed, as deposits may be visible in trench walls, and redeposited midden may contain human remains. With implementation of Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4, impacts to cultural resources would be less than significant.

Mitigation Measure CUL-1

Prior to project implementation, a cultural and tribal resources testing and monitoring plan will be prepared by a qualified archaeological consultant. The plan will discuss the testing and monitoring procedures, field methods, communication protocols, and inadvertent discovery actions to be taken in the event cultural resources are identified during testing, monitoring and/or any project activities. The plan will be developed in coordination with FIGR. Based on the results of the testing and in coordination with the RSVD and FIGR, monitoring by an archaeologist and tribal monitor may also be required to observe excavated soils that are removed during construction activities. If resources are identified during the testing or monitoring the Plan will detail the appropriate avoidance and/or treatment measures to be carried out in coordination with FIGR, as necessary.

Mitigation Measure CUL-2

Upon approval of the cultural and tribal resources testing and monitoring plan, archaeological testing will occur in areas determined to be highly sensitive for subsurface cultural resources. Testing will take place prior to Project implementation and will be coordinated in advance with FIGR. A tribal monitor will be present during all testing. Testing will occur at project segments:

- Bolinas Road and Sherman Street in Fairfax
- Suffield Avenue and Sir Francis Drake Boulevard in San Anselmo
- Berens Drive, McAllister Avenue, Lancaster Avenue, Wolfe Grade, Kentdale Lane, and the western extent of Stadium Way in Kentfield.

Where testing is not feasible, monitoring will occur in accordance with Mitigation Measure CUL-1.

Mitigation Measure CUL-3

Prior to project related work, the construction crews shall be trained in “basic archaeological and tribal resources identification” and have access to an alert sheet. The alert sheet will photographically depict indicators of archaeological sites and artifacts and clearly outline the procedures in the event of new discovery. These procedures include temporary work stoppage (i.e., a stop work order) of all ground disturbance, short-term physical protection of features and artifacts and their context, and immediate advisement of the archaeological team, FIGR, and RVSD representatives. Any stop work order would contain a description of the work to be stopped, special instructions or requests for the contractor, suggestions for efficient mitigation, and a time estimate for the work stoppage. The archaeologist will notify FIGR (if a tribal monitor is not present), examine the findings and assess their significance, and offer recommendations for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those archaeological and tribal resources that have been encountered.

Mitigation Measure CUL-4

Upon discovery of suspected human remains, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of human remains. The coroner has two working days to examine the remains after being notified.

If the remains are Native American, the coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC will then identify and contact a most likely descendant (MLD). The MLD may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the ancestral remains and associated funerary objects. Once proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be developed and implemented.

If the remains are not Native American, the coroner will consult with the archaeological research team and RVSD to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between RVSD and FIGR.

b. Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?

Less than significant with mitigation. With the implementation of mitigation measure CUL-1 through CUL-4, impacts to archaeological resources would be less than significant.

c. Disturb any human remains, including those interred outside of formal cemeteries?

Less than significant with mitigation. In California, the discovery of human remains during construction activities is regulated by the California Health and Safety Code. Per California Health and Safety Code §7050.5 and California PRC §5097.98, the appropriate procedures would be followed in the event that human remains and associated cemetery or funerary items are encountered. Associated cemetery or funerary items are any items (e.g., clothing, funerary gifts) that are buried with the individual as well as any cemetery furniture, architecture, fencing, or other features associated with the cemetery itself. This definition applies to both precontact and historic period cemeteries. There is a potential to discover human remains during any phases of the Project that involve excavation in the project soils. With implementation of Mitigation Measure CUL-4, impacts to cultural resources would be less than significant.

References:

1. Far Western. 2024. Archaeological Resources Inventory for the Ross Valley Sanitary District 2024–2025 Gravity Sewer Improvement Project, Marin County, California. Far Western Anthropological Research Group, Inc, Davis, CA. November.

6. Energy

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

Project Activities Likely to Create an Impact:

- Construction activities with associated equipment
- Transportation of materials and supplies to and from work areas via heavy-duty trucks
- Offsite transport and disposal of debris to appropriate facility.

Description of Baseline Environmental Conditions:

Current energy use within the Project site is predominantly for residential and nonresidential purposes. There would be no electrical use needed to operate equipment at the Project site for construction purposes.

Assembly Bill (AB) 32, the Global Warming Solutions Act, addresses greenhouse gas (GHG) emissions and associated energy use across the state and throughout different sectors of California's economy, with the goal of reducing emissions to 1990 levels by 2020 and 40 percent below 1990 levels by 2030. CARB is tasked with the implementation of AB 32 through the development of a scoping plan, which is to be updated every 5 years. CARB produced its third update to the scoping plan in 2022 (CARB 2022). Locally, the Marin County Climate Action Plan provides emissions reduction goals and measures for unincorporated Marin County, with the overall target of reducing emissions to 30 percent below 2005 levels by 2030 and drawdown GHG emissions below zero by 2045 (Marin County 2020). Efficient energy use is a key component to achieving these emission reduction goals.

Analysis as to whether or not project activities would:

a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

Less than significant**.** This impact analysis focuses on the fuel for equipment and transport vehicles necessary to implement the Project. Fuel consumption associated with vehicle trips generated by the Project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar projects in the region. The Project would not directly use electricity for construction-related operations. The construction activities would not create long-term energy demands, as there are no operational related components to the Project.

Construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency—combined with state regulations limiting engine idling times—would further reduce the amount of transportation fuel demand during Project implementation. All off-road equipment would be required to comply with CCR 13 §2485, which requires off-road construction equipment operators to reduce idling of engines to less than 5 minutes and to replace or retrofit older off-road equipment fleets to meet specific particulate matter and nitrogen oxide emission standards based on fleet averages. With implementation of control measures listed in Attachment D, under "Dust Control," the impact of temporary construction activities would be less than significant.

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No impact. The Project would use small amounts of energy during construction, including the use of equipment and trucks associated with employees driving to and from the Project site and from material deliveries. These activities would be short term. The Project aims to rehabilitate and replace existing sewer mains and reduce SSOs and mitigate I&I with aging RVSD infrastructure. Implementation of this Project would reduce operation and maintenance needed below current conditions. The Project would not conflict with renewable energy or energy efficient plans, including goals set forth in AB 32, the objectives of the 2017 CARB Scoping Plan, and the goals and policies contained in Marin County's Countywide Plan and the Climate Action Plan. Therefore, the Project would not conflict with or obstruct state or local plans for renewable energy or energy efficiency.

References:

1. CARB. 2022. California's 2022 Climate Change Scoping Plan. https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf. California Air Resources Board, Sacramento, CA. October.
2. Marin County. 2020. Marin County Unincorporated Area – Climate Action Plan 2030. Public Review Draft. https://www.marincounty.org/-/media/files/departments/cd/planning/sustainability/climate-and-adaptation/draft-climate-action-plan-2030.pdf?la=en. County of Marin, CA. October.

7. Geology and Soils

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

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

- Excavation of soil and fill/debris
- Loading of soil and fill/debris onto dump trucks
- Transportation and handling of imported backfill materials.

Description of Baseline Environmental Conditions:

Geotechnical studies were not conducted for the Project. However, geologic information from the Marin Countywide Plan was used to supplement this section. Geotechnical control measures included in Attachment D, under "Geotechnical," would be implemented on an as-needed basis. Unstable soils are not expected at the Project location; thus, it is not likely that construction activities would create Project-related impacts.

Regional Geology and Topography

The Project site is located within the Coast Range Geomorphic Province of California. The regional bedrock geology consists of complexly folded, faulted, sheared, and altered sedimentary, igneous, and metamorphic rock of the Franciscan Complex. Bedrock is characterized by a diverse assemblage of greenstone, sandstone, shale, chert, and melange, with lesser amounts of conglomerate, calc-silicate rock, schist, and other metamorphic rocks.

The regional topography is characterized by northwest-to-southeast-trending mountain ridges and intervening valleys that were formed by movement between the North American and the Pacific Plates. Continued deformation and erosion during the late Tertiary and Quaternary ages (the last several million years) formed the prominent coastal ridges and the inland depression that is now the San Francisco Bay. The more recent seismic activity within the Coast Range Geomorphic Province is concentrated along the San Andreas Fault zone, a complex group of generally north-to-northwest-trending faults.

The Project site is located in the seismically active San Francisco Bay Area region. The Project site is not included on "Table 4 Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of January 2010" in *Special Publication 42, Fault-Rupture Hazard Zones in California*, indicating that the Project site property is not located within an earthquake fault zone (CGS 2010). No active faults were identified on site or in the Project vicinity by the Principal Faults Zones Under Alquist-Priolo Earthquake Fault Zoning Act 1974–2007 issued by the California Division of Mines and Geology in 2007 (Bryant and Hart 2007). Therefore, there would be no Project impacts related to rupture of a known earthquake fault as delineated by the state geologist or other substantial evidence of a known fault.

Geologic Hazards

Although there are no active faults or rift zones in the Project site (Marin County 2007), the Project is located near several active faults and is in an area subject to strong ground shaking from earthquakes along the San Andreas Fault.

Geological hazards identified in the Marin Countywide Plan include seismic shaking amplification and liquefaction. As indicated on the seismic shaking amplification hazards map in the Marin Countywide Plan (Marin County 2007, Map 2-9), soil types at the Project site include some untethered intrusive igneous rock, volcanic rock, mostly Mesozoic bedrock and some Franciscan Bedrock ("Soil Types A&B"), some Quaternary sands, sandstones, and mudstones; some Upper Tertiary sandstones, mudstones, and limestones; some Lower Tertiary mudstones and sandstones; Franciscan melange and serpentinite ("Soil Type C"); and quaternary muds, sands, gravels, silts, and muds ("Soil Type D") near the Project site. Soil types A and B do not contribute greatly to shaking amplification, Soil Type C would be subject to less significant seismic shaking amplification, and Soil Type D would be subject to significant seismic shaking amplification (Marin County 2007). The Liquefaction Susceptibility Hazards Map indicates that segments of the Project site may be within a mapped zone of high susceptibility to liquefaction (Marin County 2007, Map 2-11).

Within the Project site, surface conditions generally consist of asphalt-paved roadways. The Project site is located within relatively densely populated suburban areas with neighboring properties generally consisting of residential land use. There are overhead power lines along the shoulder of some of the streets, and numerous underground utilities exist and are often located within several feet of the proposed alignments.

Groundwater

The Project includes maximum anticipated excavation depths of 10 ft for construction of various improvements, including the replacement of manholes. While the Project is not located adjacent to or crossing any creeks, groundwater could be encountered during construction activities.

Analysis as to whether or not project activities would:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

Less than significant**.** There are no active faults or potentially active faults underlying the Project sites according to published geologic maps. The Project site is not within an identified Alquist-Priolo Earthquake Hazard Zone. Because the Project is not within an Alquist-Priolo Earthquake Fault Zone, and no major faults have been mapped within or adjacent to the Proposed Project sites, the likelihood of ground rupture from faulting across the Project sites is low.

ii) Strong seismic ground shaking?

Less than significant. Although there are no active faults underlying the Project site, the Project site is located near several active faults and is in an area subject to strong ground shaking from earthquakes along the active San Andreas and Hayward faults. Therefore, there is a possibility that the Project site may experience ground shaking from periodic minor earthquakes and possibly a major earthquake.

iii) Seismic-related ground failure, including liquefaction?

Less than significant. Some segments of Project site are in an area identified as having a high potential for a liquefaction hazard. As a result, the Project could be subject to liquefaction during an earthquake. However, the Project would incorporate standard engineering and construction techniques related to seismicity and liquefaction. Implementation of these practices and requirements would minimize potential impacts of liquefaction on site.

Strong seismic ground shaking can result in damage to the sewer mains and related improvements. Liquefaction can result in flood failure, lateral spreading, ground movement, settlement, and other related effects. Buried pipelines and manholes embedded within liquefied soils may also experience uplift due to buoyancy. Control measures listed under “Geotechnical” in Attachment D have been included in the Project to address these issues, should they arise.

iv) Landslides?

Less than significant. The Project site is in an area where few landslides occur (ABAG 2023). Construction activities would not increase the potential for seismically induced landslides or attract additional population to a potentially hazardous area.

b. Result in substantial soil erosion or the loss of topsoil?

Less than significant**.** Project construction would involve soil excavation, primarily for areas needing insertion and receiving pits and for replacement of manholes. Although the construction activities are limited in extent and duration, these activities could still cause sediment and other pollutants to leave the Project site and enter local drainage systems and possibly nearby streams. Proper implementation of the control measures, listed in Attachment D, would prevent significant soil erosion from occurring, and the loss of topsoil would be considered a less-than-significant impact.

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

Less than significant. As discussed in 7a(iii), the potential for impacts due to liquefaction would be less than significant. Project improvements should include flexible connections and new structures should be designed to resist seismic loads to account for uplift and buoyancy effects associated with liquefaction. The Project would incorporate standard engineering and construction techniques related to seismicity and liquefaction. Control measures listed under “Geotechnical” in Attachment D have been included in the Project to address these issues, should they arise.

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

Less than significant. Although some of the native soils underlying the Project site may have expansion or shrink-swell potential, backfill material used would consist of non-expansive materials. The Project would adhere to standard engineering and construction techniques, which would further minimize potential effects of expansive soils on site.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of water?

No impact. While replacement sewer mains and manholes would be constructed and channel improvements would occur, no septic tanks or alternative wastewater disposal systems are included as a component of the Project.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

Less than significant. The Project involves limited excavation within the public right-of-way or in designated easements, which in general have been previously disturbed. As discussed in Section 5, “Cultural Resources,” the Project site might contain paleontological resources or unique geologic features of paleontological value. However, mitigation measures listed in Section 5 would be implemented to reduce potential impacts to paleontological resources or unique geologic features of paleontological value.

References:

1. Bryant, W.A., and E.W. Hart. 2007. Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps. Special Publication 42. Interim Revision 2007. California Department of Conservations, Sacramento, CA.
2. CGS. 2010. Table 4. Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of January 2010. California Geological Survey, Sacramento, CA.
3. Marin County. 2007. Marin Countywide Plan. https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf. Last amended on January 24, 2023. County of Marin, CA.
4. ABAG. 2023. Hazard Viewer Map. https://abag.ca.gov/our-work/resilience/data-research/hazard-viewer. Association of Bay Area Governments, San Francisco, CA.

8. Greenhouse Gas Emissions

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

Project Activities Likely to Create an Impact:

- Excavation/removal of soil and debris using appropriate construction equipment in select areas
- Offsite transport and disposal of excavated soil and debris to appropriate facility
- Project site restoration, including backfill of all excavated areas with imported clean soil.

Description of Baseline Environmental Conditions:

Gases that trap heat in the atmosphere are called greenhouse gases, or GHGs. The process of heat being trapped in the atmosphere is similar to the effect greenhouses have in raising the internal temperature, hence the name “greenhouse gas.” Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the Earth’s temperature; however, emissions from human activities—such as fossil fuel-based electricity production and the use of motor vehicles—have elevated the concentration of GHGs in the atmosphere. GHGs are not monitored in the same manner as air quality pollutants, so there are no background data to characterize the baseline conditions of a given area in terms of GHG levels.

GHGs from fossil fuel combustion include CO_2, methane, and nitrous oxide. Carbon dioxide is the most common reference gas for climate change. To account for warming potential, GHGs are often quantified and reported as CO_2 equivalents (CO_2e) based on their warming potential relative to CO_2.

AB 32, the Global Warming Solutions Act, addresses GHG emissions and associated energy use across the state and throughout different sectors of California’s economy, with the goal of reducing emissions to 1990 levels by 2020 and 40 percent below 1990 levels by 2030. CARB is tasked with the implementation of AB 32 through the development of a scoping plan, which is to be updated every 5 years. CARB produced its third update to the scoping plan in 2022 (CARB 2022). Locally, the Marin County Climate Action Plan provides emissions reduction goals and measures for unincorporated Marin County, with the overall target of reducing emissions to 30 percent below 2005 levels by 2030 and drawdown GHG emissions below zero by 2045 (Marin County 2020).

Short-term construction projects are not recognized in Table 3-1 of the Air Quality Guidelines, which provide land use type screening-level sizes for criteria air pollutants, precursors, and GHG (BAAQMD 2017a). BMPs identified in the Air Quality Guidelines for reducing GHG emissions during construction can include the following (BAAQMD 2023):

- Use alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet. (The Project is a small-scale construction project with limited vehicle and equipment needs. While the chosen contractor may have alternative-fueled vehicles and equipment, requiring 15 percent of the fleet to be alternative-fueled would have an unnecessary cost burden with no measurable benefit.)
- Use local building materials of at least 10 percent. (Construction materials used, such as aggregate base and asphalt, would be limited for the Project, but all would be obtained locally.)
- Recycle or reuse at least 50 percent of construction waste or demolition materials. (The generation of construction waste would also be limited.)

Analysis as to whether or not project activities would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than significant. Project activities would result in direct GHG emissions from fuel combustion in construction equipment and vehicles. The number of Project-related vehicles would be relatively small, and the Project duration would be relatively short. GHG emissions were calculated using the CalEEMod emissions estimator model, as described above in Section 3, "Air Quality." The estimated GHG emissions are shown in the table below.

Table 3. Maximum Annual Emission from Project Activities

Pollutant	Maximum Annual Emissions ($MTCO_2e$ /year)	Threshold [a] ($MTCO_2e$ /year)	Above Threshold?
CO_2e	93.0	1,100	No

[a] Based on the threshold of significance for operations-related GHG emissions (BAAQMD 2023b)

The Air Quality Guidelines (BAAQMD 2023) present an emissions threshold for GHGs from a land use operations project of 1,100 CO_2e maximum annual emissions (MT/year), but they do not report an adopted threshold of significance for construction-related GHG emissions. However, based on the small-scale of this construction Project, it is estimated that the maximum annual emissions (93.0 $MTCO_{2e}$/year) that could be generated during construction are well below the BAAQMD's threshold of significance for operations-related GHG emissions of 1,100 CO_2e MT/year. As a comparison, SMAQMD's threshold of significance for construction-related GHG emissions is 1,100 MT/year (SMAQMD 2015). The Marin Climate and Energy Partnership website (http://www.marinclimate.org/) was reviewed, but it also contains no thresholds of significance. The estimated GHG emissions for unincorporated Marin County in 2019 were 389,023 MT of CO_2e (Marin Climate 2021a).[3] Within unincorporated Marin County, the transportation and agricultural sectors account for more than half the GHG emissions reported, followed by the residential sector. As the construction-related Project emissions would constitute less than 1 percent of the emissions for all of the unincorporated towns in Marin County, the level of Project-related increase is less than significant.

[3] GHG emissions for unincorporated Marin County were used because most of the Project segments are locations within unincorporated areas. For reference, the GHG emissions for San Anselmo in 2019 were 55,078 MT of CO_2e, respectively (Marin Climate 2021b,c). The Project would constitute less than 1 percent of emissions generated.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Less than significant. The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Measures contained in the 2017 Clean Air Plan (BAAQMD 2017) to reduce overall emissions from construction equipment, already accounted for in the regional planning emissions budget, would also control GHG emissions. Thus, the Project would not conflict with GHG plans, policies, or regulations, and impacts would be less than significant.

References:

1. BAAQMD. 2017. Spare the Air Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Bay Area Air Quality Management District, San Francisco, CA. April.
2. BAAQMD. 2023. California Environmental Quality Act Air Quality Guidelines. https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Bay Area Air Quality Management District, San Francisco, CA. April.
3. CARB. 2022. California's 2022 Climate Change Scoping Plan. https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf. California Air Resources Board, Sacramento, CA. October.
4. Marin County. 2020. Marin County Unincorporated Area – Climate Action Plan 2030 (Public Review Draft). https://www.marincounty.org/-/media/files/departments/cd/planning/sustainability/climate-and-adaptation/draft-climate-action-plan-2030.pdf?la=en. County of Marin, CA. October.
5. SMAQMD. 2015. Thresholds of Significance Table. https://files.ceqanet.opr.ca.gov/123569-2/attachment/UL9obk_yjl5aUBxUrjyQ9P3HVyfSLoCEnhvRpgSHGIQmRUgvfjw0ZXCcdqPM73lOOUtFc8Rl7yI_48800. Sacramento Metropolitan Air Quality Management District, Sacramento, CA.
6. Marin Climate. 2021a. Unincorporated County of Marin – Greenhouse Gas Inventory for the year 2019. https://marinclimate.org/wp-content/uploads/2021/08/Larkspur-2019-GHG-Inventory-Report.pdf. City of Larkspur, CA. August.
7. Marin Climate. 2021b. Town of San Anselmo – Greenhouse Gas Inventory for the year 2019. https://marinclimate.org/wp-content/uploads/2021/08/Larkspur-2019-GHG-Inventory-Report.pdf. City of Larkspur, CA. May.

9. Hazards and Hazardous Materials

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

Project Activities Likely to Create an Impact:

- Excavation and stockpiling of debris using appropriate construction equipment in select areas
- Storage and staging of construction equipment.

This resource category addresses health and safety issues related to construction activities at the Project site. Health and safety issues apply to construction workers and members of the public who would be exposed to hazardous materials and physical conditions associated with the presence of construction equipment and excavations in the area of sensitive land uses. Construction activities are generally located within local roadways, and the surrounding areas are predominantly residential.

Description of Baseline Environmental Conditions:

Hazardous materials are not expected to be encountered during construction activities. There are a variety of state and federal regulations that apply to construction projects for protection of health and safety. RVSD also has standard specifications to address these issues based on other successfully completed projects. Control measures in Attachment D have been established to manage the unexpected discovery of hazardous materials during Project implementation. The use of hazardous materials would be limited during construction activities and include such traditional materials as gasoline, diesel, oil, paint, resin, and concrete.

Several regulatory agency databases were consulted regarding the presence of hazardous materials release sites within the Project site, including the SWRCB GeoTracker website and the Department of Toxic Substances Control (DTSC) Cortese List. There are no active sites on the SWRCB GeoTracker website (SWRCB 2024) or the Cortese List (DTSC 2024) that are in the Project site.

While there are no hazardous materials release sites within the Project site, a review of the DTSC Cortese List revealed that there is an active cleanup site within 0.25 mile of the project. The site, the Fain-Anselm Center, is located in Fairfax and has been an active cleanup site since 2009 and is located approximately 240 m from the proposed project site on Sir Francis Drake Boulevard and Suffield Avenue.

Analysis as to whether or not project activities would:

a. Create a significant hazard to the public or the environment throughout the routine transport, use or disposal of hazardous materials?

No impact. Construction activities would not create a significant hazard to the public or environment. Control measures in Attachment D, under “Hazardous Materials,” have been established to manage the unexpected discovery of hazardous materials during Project implementation.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than significant. Construction activities would not create a significant hazard to the public or environment. The primary objective of the Project is to relieve hydraulic and structural deficiencies at the Project site. These improvements help address the problem of SSOs and I&I in the RVSD service area. SSOs and I&I can expose the public to raw sewage, and overflows can reach local streams with adverse water quality impacts.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?

Less than significant. While there are no hazardous materials release sites within the Project site, the DTSC Cortese List revealed that there is an active cleanup site within 0.25 mile of the Project. The site, the Fain-Anselm Center, is in Fairfax and has been an active cleanup site since 2009. The site is located approximately 240 m from the proposed Project site on Sir Francis Drake Boulevard and Suffield Avenue.

However, the use of hazardous materials would be limited during construction activities and include such traditional materials as gasoline, diesel, oil, paint, resin, and epoxy concrete. The control measures in Attachment D, under “Hazardous Materials,” would be implemented to address hazards and hazardous materials.

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 public or the environment?

No impact. The Project site is not included on a list of hazardous materials sites that was compiled pursuant to Government Code Section 65962.5.

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

No impact. The Project is not within an airport land-use plan or within 2 miles of a public airport or public use airport. Additionally, the Project is not within the vicinity of a private airstrip. Thus, the Project would not result in a safety hazard for people residing or working in the vicinity of the Project site.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

No impact. The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Project activities and movement related to such activities would be conducted in a manner that would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; therefore, there would be no impacts with an adopted emergency response plan or emergency evacuation plan.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No impact. No development is planned for this Project; therefore, no impacts are expected.

References:

1. DTSC. 2024. Hazardous Waste and Substances Site List (Cortese). https://www.envirostor.dtsc.ca.gov/public/. Department of Toxic Substances Control, Sacramento, CA.
2. SWRCB. 2024. GeoTracker. https://geotracker.waterboards.ca.gov/map/. State Water Resources Control Board, Sacramento, CA.

10. Hydrology and Water Quality

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

Project Activities Likely to Create an Impact:

- Excavation of soil and fill/debris
- Generation of rubbish and debris material
- Project site restoration, including backfill of all excavated areas with imported clean soil.

The Project does not propose any discharges to receiving waters other than discharges associated with stormwater runoff.

Pipe bursting would be used throughout 8,912 LF of the Project site. Pipe bursting is a trenchless method and does not require open exposure from the surface along the entire segment. The other 3,994 LF of the proposed Project would involve cut-and-cover construction, which would involve trenching and open-cut construction methods. Additionally, 1,136 LF of the project would involve pipe reaming.

Construction and grading within the Project site would require temporary disturbance of surface soils. During the construction period, grading and excavation activities would result in exposure of soil to runoff, potentially causing erosion and entrainment of sediment in the runoff. Excavated areas on the Project site would then be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation in downstream culverts and the bay. The accumulation of sediment could result in blockage of flows, potentially resulting in increased localized ponding or flooding.

The potential for chemical releases is present at most construction sites. Once released, substances such as fuels and lubricants could be transported to nearby surface waters in stormwater runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters. Control measures listed in Attachment D would serve to minimize the exposure of soil to runoff and chemical releases.

Description of Baseline Environmental Conditions:

Regional Hydrology

The Project is within the Corte Madera Creek Watershed, a 28-mi^2 area of eastern Marin County. The Corte Madera Creek is a major waterway in Marin County, reaching from the San Francisco Bay to the Town of Fairfax and beyond. The Corte Madera Creek watershed ranges in elevation from sea level to 2,571 ft at the East Peak of Mount Tamalpais. The watershed encompasses Larkspur, Corte Madera, Kentfield, Ross, San Anselmo, and Fairfax. The watershed also includes Corte Madera Creek mainstem and major tributaries of Fairfax Creek, San Anselmo Creek, Sleepy Hollow Creek, Tamalpais Creek, and Larkspur Creek. Larkspur and Tamalpais creeks drain directly into the estuary/tidal portion. Ross Creek drains the northern slope of Mount Tamalpais with Phoenix Lake on the lower reach of the creek; San Anselmo Creek and its tributaries drain the northwestern portion of the watershed. Ross Creek and San Anselmo Creek join to form Corte Madera Creek, which continues through more than a mile of concrete-lined channel past the confluences of Larkspur and Tamalpais creeks and into the tidal salt marsh at the mouth, near Kentfield, and then into San Francisco Bay near Corte Madera.

Flood Hazard

The Federal Emergency Management Agency (FEMA) flood insurance rate map for Marin County provides coverage for the Project site. The FEMA flood map indicates that a majority of the Project site is within FEMA Flood Hazard Zone Area of Minimal Flood Hazard (Zone X). Flood Hazard Zone X is described by FEMA as an area that has minimal flooding. Areas in which the Project are not in FEMA Flood Hazard Zone X are as follows:

- The area along Sherman Avenue in Fairfax is in an area designated as a regulatory floodway (Zone AE).
- The area along Stadium Way, McAllister Avenue, Lancaster Avenue, and Berens Drive in Kentfield is in an area designated to be without base flood elevation (Zone AE).
- Portions of the area along Wolfe Canyon Road, Wolfe Glen, Wolfe Grade, and Lancaster Avenue in Kentfield, as well as portions of Sir Franics Drake Boulevard in Fairfax, are designated as Zone X but located in a food hazard area of 1% annual chance flood (with an average depth of less than 1 ft or with drainage areas of less than 1 mi^2).

Groundwater

The Project is located within the Central Basin of San Francisco Bay. The basin is not used for municipal drinking water or for major agricultural use. As discussed in Section 7, "Geology and Soils," studies performed in the vicinity of the Project site found that groundwater occurs from 10 ft to 12 ft below ground surface. Groundwater may be encountered during excavation activities along the Project alignments. With the implementation of control measures listed in Attachment D, under "Dewatering," any potentially significant impacts to groundwater would be less than significant.

Analysis as to whether or not project activities would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less than significant impact. The Project is one of a series of RVSD projects that address I&I within the RVSD service area. The projects that have been set forth by the IAMP include projects to rehabilitate and replace RVSD's deficient wastewater facilities. The RVSD is currently revising its IAMP to shift to a more forward-looking and adaptive program. The IAMP is in response to Regional Water Board CDO No. R2-2013-0020 (Regional Water Board 2013). The primary objective of this Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure. Construction of the Project helps ensure compliance with the Regional Water Board Order No. R2-2023-0003 and NPDES No. CA0038628 and is a beneficial impact.

During Project construction, excavation and other construction activities could adversely affect water quality due to erosion from exposed soils and the generation of water pollutants, including trash, construction material debris, and equipment fluids. A plan containing construction BMPs (as listed in control measures under "Stormwater and Erosion Control" and "Site Management Practices" in Attachment D) would be prepared and implemented for the Project to reduce construction-related stormwater discharges and minimize potential downstream water quality impacts.

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

The Project does not propose the use of groundwater and therefore no long-term extraction of groundwater at the Project site is expected. There may be short-term dewatering of shallow groundwater associated with soil removal and filling activities. Short-term dewatering activities would not be expected to have any significant long-term effect on groundwater resources because any pumping activities would be of limited duration. With the implementation of control measures listed in Attachment D under "Dewatering," any potentially significant impacts to groundwater supplies and recharge would be less than significant.

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

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

Less than significant impact. The Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces.

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

Less than significant impact. The Project would require short-term construction-related disturbances, including 3,994 LF of open-cut construction that would require trenching and would result in exposure of soil to runoff. However, these activities would be temporary and site conditions would return to preexisting conditions upon project completion. However, implementation of the construction BMPs outlined in Attachment D would ensure that any temporary impacts during construction are less than significant.

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

Less than significant impact. The Project would not significantly alter existing drainage patterns of the site or area, including through the alteration of the course of any stream, river, or creeks, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding. No substantial increases in the rate or amount of surface runoff is anticipated to result from project construction.

iv. impede or redirect flood flows?

Less than significant impact. See 10c.ii. No substantial increases in the rate or amount of surface runoff is anticipated to result from project construction. Control measures listed under “Biological Resources,” “Stormwater and Erosion Control,” and “Site Management Practices” in Attachment D would be implemented. These practices and procedures protect hydrology and water quality resources by avoiding or minimizing potential adverse impacts during and following construction activities.

d. In a flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No impact. The Project site is not located within a 100-year flood zone (FEMA 2009). In addition, Project limits are not within the tsunami inundation zone (CalEMA et al. 2009).

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than significant. See 10a and 10b.

References:

1. CalEMA, CGS, and USC. 2009. Tsunami Inundation Map for Emergency Planning, San Rafael Quadrangle, San Quentin Quadrangle. California Emergency Management Agency, California Geological Society, and the University of Southern California. July 1.
2. FEMA. 2009. FEMA Flood Map Service Center. https://msc.fema.gov/portal/search?AddressQuery=fawn%20drive%2C%20san%20anselmo#searchresultsanchor. Federal Emergency Management Agency.

3. Regional Water Board. 2013. Order No. R2-2013-0020. San Francisco Bay Regional Water Quality Control Board. May 13.

4. V.W. Housen & Associates. 2013. Sanitary District No. 1 of Marin County, Infrastructure Asset Management Plan. V.W. Housen & Associates. October 1.

11. Land Use and Planning

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

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The Project is located in areas currently zoned as single-family residential and within the RVSD's service area. The Project is a high-priority wastewater collection system improvement consistent with RVSD's responsibility to provide high-quality wastewater collection and disposal service for the local community, which is protective of public health and the environment.

Analysis as to whether or not project activities would:

a. Physically divide an established community?

No Impact. No land use changes are proposed; thus, implementation of the Project would not physically divide an established community.

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

No impact. The Project would occur predominantly within existing right-of-way with areas located within private property. The Project would remain consistent with the existing land use and surrounding land use designations, requiring no further change or amendment to the zoning assigned by Marin County. Therefore, the Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project.

References:

1. Marin County. 2007. Marin Countywide Plan. https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf. Last amended on January 24, 2023. County of Marin, CA.
2. San Anselmo. 2019. San Anselmo General Plan. https://www.townofsananselmo.org/DocumentCenter/View/5210/General-Plan-includes-Feb-2019-amendment. Last amended on February 12, 2019. Town of San Anselmo, CA.

3. Fairfax. 2012. Fairfax 2010-2030 General Plan. https://storage.googleapis.com/proudcity/fairfaxca/uploads/2022/04/2010-2030-GenPlan_2015HE_2021TextAmend.pdf. Last amended in December 2021. Town of Fairfax, CA.

12. Mineral Resources

Would the Project:	Potentially Significant Impact	Less Than Significant 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The Project site is not located in one of the eight sites in Marin County that have been designated by the California Division of Mines and Geology (CDMG) as having significant mineral resources for the North Bay region (Marin County 2007). The CDMG has classified urbanizing lands within the North San Francisco Bay Production-Consumption Region according to presence or absence of sand, gravel, or stone deposits that are suitable as sources of aggregate. The Project site is located in an area that has been classified as Mineral Resource Zone 1 (MRZ-1; Marin County 2005). Areas that are classified MRZ-1 are “areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence” (CDMG 1987). Furthermore, the Project site does not contain any Mineral Resource Preservation Sites (Marin County 2007, Map 3-5).

Analysis as to whether or not project activities would:

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?

No Impact. No mineral extraction activities exist on the Project site and mineral extraction is not included as a part of the Project.

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.

No Impact. See 12a.

References:

1. CDMG. 1987. Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area: North San Francisco Bay Production Consumption Region. California Department of Conservation, Division of Mines and Geology.

2. Marin County. 2005. Marin Countywide Plan - Geology, Mineral Resources and Hazardous Materials Technical Background Report. County of Marin, CA.
3. Marin County. 2007. Marin Countywide Plan. https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf. Last amended on January 24, 2023. County of Marin, CA.

13. Noise

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

The Project activities could potentially cause temporary noise impacts associated with the upgrade and replacement of existing sewer lines primarily related to Project-generated traffic noise and operational noise from onsite construction equipment.

Description of Baseline Environmental Conditions:

The existing noise environment is dominated by traffic noise. Sensitive receptors at the Project site include the adjacent residences and schools within 1,000 ft of the Project site.

Local Noise Regulations

As a condition of permit approval for projects generating significant construction noise during the construction phase, construction management for any project shall develop a construction noise reduction plan and designate a disturbance coordinator at the construction site to implement the provisions of the plan.

Marin County

The Project site is within Marin County and is subject to noise regulations of Marin County. Work in Project segments located in the Town of Fairfax, the Town of San Anselmo, and the Town of Kentfield would be subject to the Marin County noise regulations. The County of Marin Municipal Code, Title 6, Chapter 6.70, Section 6.70.030 (Enumerated Noises) establishes allowable hours of operation for construction-related activities:

a. Hours for construction activities and other work undertaken in connection with building, plumbing, electrical, and other permits issued by the community development agency shall be limited to the following:
    i. Monday through Friday: 7 a.m. to 6 p.m.
    ii. Saturday: 9 a.m. to 5 p.m.
    iii. Prohibited on Sundays and Holidays (New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.)
b. Loud noise-generating construction-related equipment (e.g., backhoes, generators, jackhammers) can be maintained, operated, or serviced at a construction site for permits administered by the community development agency from 8 a.m. to 5 p.m. Monday through Friday only.
c. Special exceptions to these limitations may occur for:
    i. Emergency work as defined in Section 22.130.030 of this code provided written notice is given to the community development director within 48 hours of commencing work
    ii. Construction projects of city, county, state, other public agency, or other public utility
    iii. When written permission of the community development director has been obtained, for showing of sufficient cause
    iv. Minor jobs (e.g., painting, hand sanding, sweeping) with minimal/no noise impacts on surrounding properties
    v. Modifications required by the review authority as a discretionary permit condition of approval.

The noise levels provided in Section 3.10 (Noise) of the Marin Countywide Plan contain benchmarks for allowable noise exposure from stationary sources.

Level	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65
Maximum Level, dB (Impulsive Noise)	65	60

Notes:
L_{eq} = equivalent sound pressure level. It is the constant sound energy that would produce the same noise level as actual sources that are fluctuating during the specified time period (1 hour).
dB = decibels; the standard measure of pressure exerted by sound

Fairfax and San Anselmo also have specific measures, as described below. Kentfield is unincorporated and would be governed by Marin County regulations.

Fairfax

Project segments located within Fairfax would be subject to the Town of Fairfax Ordinance No. 770 which regulates construction related noise. The Town of Fairfax Ordinance No. 770 states:

- Operating or permitting the operation of any mechanically powered tools between the hours of 6:00 p.m. and 8:00 a.m. Monday through Friday and between 4:00 p.m. and 9:00 a.m. on weekends and holidays is prohibited.

The Fairfax General Plan contains benchmarks for allowable noise exposure based on land use. In single-family residential areas, exterior noise exposure is acceptable below 60 dB, conditionally acceptable between 60 dB and 75 dB, and unacceptable above 75 dB.

San Anselmo

Project segments located within San Anselmo would be subject to the Town of San Anselmo noise regulations. The Town of San Anselmo, Chapter 7, Article 2, Section 4-7.203 Construction and Demolition states that:

- It shall be unlawful to operate any powered equipment if the operation of such equipment emits a noise level of 80 dBA when measured at the loudest point 50 ft away from the equipment.
- Impact tools and equipment shall have intake and exhaust mufflers recommended by the manufacturers thereof; and provided, further, pavement breakers and jackhammers shall also be equipped with acoustically attenuating shields or shrouds recommended by the manufacturers thereof. In lieu of or in the absence of manufacturers' recommendations, the Director of Public Works shall have the authority to prescribe such means of accomplishing maximum noise attenuation as he deems to be in the public interest, considering the available technology and economic feasibility.
- Construction or demolition work may be performed during the following times:
  - Mondays through Fridays from 7:00 a.m. to 7:00 p.m.
  - Saturdays from 9:00 a.m. to 5:00 p.m.
  - Sundays from 12:00 p.m. to 5:00 p.m.
  - Such hours shall be extended until 8:00 p.m. for work performed by homeowners or residents upon their own property.
- Construction or demolition work shall be allowed at any time provided the noise level does not exceed 5 dBA above the ambient at the nearest property plane with allowance for correction factors.

Analysis as to whether or not project activities would result in:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than significant impact. An encroachment permit will be required before the start of Project activities and the contractor will be required to comply with all conditions set forth in the permit and RVSD standards. Construction activities necessary to complete the Project could generate a considerable amount of noise in the immediate Project vicinity. Noise from vehicles, earth-moving operations, and heavy equipment would result in elevated ambient and intermittent noise levels. Noise impacts from construction depend on the noise generated by various pieces of equipment, timing and duration of noise-generating activities, the distance between construction noise sources and noise-sensitive receptors, and the noise environment in which the Project would be constructed. Noise generated during the construction period would vary on a day-to-day basis, depending on the specific activities being undertaken at any given time.

Construction noise may result in a temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project. However, this impact would be considered less than significant with the implementation of the control measures listed in Attachment D under “Noise.”

b. Generation of excessive groundbourne vibration or groundbourne noise levels?

Less than significant impact. Construction activities likely to create groundbourne vibration or groundbourne noise levels include pipe bursting, excavation, and backfill operations. With the implementation of control measures listed in Attachment D under “Ground Movement Monitoring,” this impact would be considered less than significant.

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

No impact. The Project site is not within any airport land use plan or within 2 miles of any airport or airstrip.

References:

1. County of Marin. Municipal Code, Title 06 – Public Peace, Safety and Morals, Chapter 6.70 Loud and Unnecessary Noises. Marin County, CA.
2. Marin County. 2007. Marin Countywide Plan. https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf. Last amended on January 24, 2023. County of Marin, CA.
3. Fairfax. 2012. Fairfax 2010-2030 General Plan. https://storage.googleapis.com/proudcity/fairfaxca/uploads/2022/04/2010-2030-GenPlan_2015HE_2021TextAmend.pdf. Last amended in December 2021. Town of Fairfax, CA.

14. Population and Housing

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The primary objective of the Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure by rehabilitating and replacing existing sewer pipes. Improvements would be made at the Project site primarily along local access roads and in public rights-of-way. The RVSD will coordinate with private property owners for improvements being made on private properties. Although the sewer line is being upsized, the primary purpose is to prevent SSOs and I&I. The Project would not generate additional capacity to accommodate new population growth under the proposed design.

Analysis as to whether or not project activities would:

a. Induce substantial unplanned population growth in area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

No impact. The Project-related construction activities would not induce population growth. Activities are aimed toward relieving hydraulic and structural deficiencies in existing pipes.

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No impact. Replacing the sewer line with similar infrastructure within largely the same Project footprint would not involve the construction, displacement, or demolition of any existing housing structures.

15. Public Services

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental 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 following public services:				
b. Fire Protection?	☐	☐	☐	☒
c. Police Protection?	☐	☐	☐	☒
d. Schools?	☐	☐	☐	☒
e. Parks?	☐	☐	☐	☒
f. Other Public Facilities?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The Project segments are located in areas that are currently served by fire, police, and paramedic services; schools; and other public facilities. It is not anticipated that the rehabilitation and replacement of the sanitary sewer main segments would increase the number of police and fire protection-related calls received from the area or the level of regulatory oversight that must be provided as a result of the work. Overall, the Project would not create additional demand for public services. Therefore, the Project would have no impact on public services.

Analysis as to whether or not project activities would:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental 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 following public services:

- Fire protection
- Police protection
- Schools
- Parks
- Other public facilities?

No impact. Implementing the Project would not create new housing or other structures and, therefore, would not require additional public services (including fire or police protection facilities, schools, or parks). The replaced sanitary sewer mains would ensure necessary system reliability to continue meeting peak utility demands.

16. Recreation

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

Project Activities Likely to Create an Impact:

The primary objective of the Project is to rehabilitate and replace existing sanitary sewer mains. Improvements would be made along local access roads and public right-of-way. The Project would have no impacts related to recreation and would not increase the use of local parks or involve construction of new facilities.

Description of Baseline Environmental Conditions:

There are no public recreational facilities near the Project locations.

Analysis as to whether or not project activities would:

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

No impact. The Project does not include the development of any new residential uses or include other land development that would directly induce additional population growth affecting existing recreational facilities or opportunities. Employment opportunities from the construction phase of the Project would not induce any additional population growth within the communities. Therefore, the Project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities.

b. Include recreational facilities or require construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

No impact. The Project does not include the development of any new recreational facilities or require the expansion of existing recreational facilities.

17. Transportation

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

Project Activities Likely to Create an Impact:

The Project could impact transportation and traffic by the following activities:

- Empty dump trucks accessing the Project site to load soil and debris excavated as part of the Project.
- Loaded dump trucks transporting excavated soil and debris from the Project site to appropriate disposal facilities.
- Loaded dump trucks accessing the Project site to deliver imported materials to backfill excavations.
- Empty dump trucks leaving the Project site after delivering backfill materials.
- Transport of Project-related construction equipment, materials, etc.
- Worker travel to and from the Project site.
- All areas of the Project site would require flow bypassing and traffic control measures listed under “Traffic Management” in Attachment D during construction activities. Excavated soils would be hauled away and replaced with suitable material from offsite sources on a continuous basis.

Description of Baseline Environmental Conditions:

According to the Marin Countywide Plan, travel through and around the Project site is affected by countywide development and travel patterns on Sir Francis Drake Boulevard (Marin County 2007). Bottlenecks on Sir Francis Drake Boulevard can push through traffic onto adjacent roadways.

Project site roadways affected include the following:

- Fairfax: Bolinas Road and Sherman Street.
- Kentfield: Stadium Way, Sherwood Court, Lancaster Avenue, Berens Drive, Wolfe Canyon Road, Tamal Vista Lane, Kentdale Lane, and Wolfe Grade
- San Anselmo: Suffield Avenue, Butterfield Road, Valley Road, West Court, Rutherford Avenue, Skyline Road, Camino de Herrera, and Hawthorne Avenue, and Bennit Avenue.

Analysis as to whether or not project activities would:

a. Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than significant impact. The Project is a standard construction activity requiring equipment, materials, removal and offsite transport of construction debris and workers, and import of clean fill. The added number of vehicle trips would be minimal and by themselves would not overload traffic flow. However, the intrusion of construction equipment and vehicles into the local street system of residential areas at the Project site can result in traffic circulation and safety impacts. The contractor will prepare a traffic control plan and submit it to RVSD and the County of Marin for review and approval at least 3 weeks prior to start of construction. The traffic control plan will include, at minimum, the measures listed in Attachment D under “Traffic Management” to minimize traffic flow overload.

b. Would the project be in conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No impact. The Project does not include the development of any new residential uses or other land development that would directly induce additional population growth or affect the existing “vehicle miles traveled” by residents or visitors within the area. Replacement and rehabilitation of sewer lines would have no impact on vehicle miles traveled and therefore is presumed to result in a less-than-significant transportation impact consistent with CEQA Guidelines Section 15054.3(b)(2).

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

Less than significant impact. No hazards due to design features would occur through implementation of the Project. The contractor will place temporary signs 1 month in advance of work notifying residents of these lane closures and flaggers will be present during the lane closures. With the implementation of the traffic control plan prepared by the contractor and the control measures in Attachment D under “Traffic Management,” no elements of the Project design would introduce hazards to the road system.

d. Result in inadequate emergency access?

No impact. RVSD staff would ensure that access to the Project site would be maintained and controlled throughout Project implementation. In addition, the Project does not prescribe activities involving transportation of massive amounts of material and the high frequency of truck trips usually associated with such activities.

References:

1. Kentfield/Greenbrae and Marin County. 1987. Kentfield/Greenbrae Community Plan. https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/communityandareaplans/kentfield_greenbrae_community_plan_1987.pdf. Kentfield/Greenbrae Community Planning Group and Marin County Planning Department.

2. Marin County. 2007. Marin Countywide Plan. https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf. Last amended on January 24, 2023. County of Marin, CA.
3. San Anselmo. 2019. San Anselmo General Plan. Last amendment February 12, 2019. https://www.townofsananselmo.org/DocumentCenter/View/5210/General-Plan-includes-Feb-2019-amendment. Last amended on February 12, 2019. Town of San Anselmo, CA.

18. Tribal Cultural Resources

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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: i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
ii) 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Project Activities Likely to Create an Impact:

- Ground-disturbing activities (excavation of soil).

The Project entails the construction and rehabilitation of sewer lines located within the existing alignment of sanitary sewer mains and related appurtenances. The project would employ pipe bursting and pipe reaming methods to repair the existing lines and would also involve open cut trench excavation in areas deemed necessary for the construction of new sewer lines, rehabilitation of existing manholes, construction of new manholes, repair of sags, and potholes for lateral tie-ins.

While the Project has the potential to impact unrecorded archaeological resources, the construction methods, previous disturbances, and logistical constraints have been taken into consideration. The Project pipe bursting and pipe reaming construction methods (both trenchless) have a minimal potential impact (see below), whereas construction of a new sewer manholes, repair of sags, and potholing for lateral tie-ins would require open cut excavations.

Disturbance from pipe bursting is limited to the soils within and immediately surrounding the existing sewer footprint. While the pipe-bursting method is employed, the immediate soils around the existing sewer footprint are only expected to be displaced in situ a few centimeters outward to accommodate the new pipe and would reach an expected depth of 5 ft below the ground surface. The removal of soils is expected to occur for the entry and exit pits, construction of new sewer manholes, repair of sags, and potholes for lateral tie-ins and would involve excavating soils immediately surrounding the pipe as well as all soils above it to an expected depth of 3–10 ft below the ground surface. While the excavated soil would be solely or primarily backfill from the initial installation of the existing sewer—and thus should not contain an intact archaeological deposit—the new manhole sewer and associated pipes may encounter native soils if the new trench does not exactly correspond with the depth or width of any previously excavated trench.

In addition, as backfill soils could still contain previously displaced cultural materials, any methods disturbing adjacent soils have the potential to encounter human remains and associated funerary objects or disturbed cultural materials.

Description of Baseline Environmental Conditions:

A cultural resources inventory report for the Project was prepared was prepared by Far Western Anthropological Research Group, Inc. (Far Western) in November 2024. Because the report contains confidential information about the locations and characteristics of archaeological sites and tribal cultural resources, the technical report is not included in this initial study for public review, but it can be made available to agencies and other qualified professionals for review as necessary.

The cultural study included a records search, consultation with the Native American Heritage Commission and the Federated Indians of Graton Rancheria (FIGR), buried-site sensitivity assessment, and a pedestrian survey of the Project site. The records search identified 23 previously recorded cultural resources within the quarter-mile records search buffer, the majority of which are historic-era built environment resources that do not intersect the ADI. One previously recorded cultural resource intersects the ADI. This resource is a landscape feature, Mount Tamalpais, a mountain that has significance to FIGR. The landscape boundary for the resource is not fully defined and requires more study in consultation with Graton; however, a preliminary boundary was defined in the site record in 2022 to encompass the landform that rises prominently above its surroundings, steep slopes and summit areas. Mount Tamalpais is of extreme importance and value to the Coast Miwok. This resource overlaps with northwestern portion of the ADI in Fairfax along Bolinas Road and Sherman Street, as well as the southern extent of the ADI in Kentfield along Berens Drive. No archaeological resources were observed during the pedestrian survey conducted for this study.

As part of this study, and as presented above, an archaeological resources sensitivity analysis was conducted to assess the potential for encountering unrecorded deposits at the proposed sewer line repair locations. The ADI was noted for possible early roadbed iterations or roadside features associated with many of the original travel or roadway alignments within and intersecting the ADI, which may be encountered subsurface during project activities; however, based on the extent of historic and modern roadway disturbances, there is low potential to encounter historic-era archaeological deposits within the ADI.

Ethnographic Context

Encroachment of European settlement culminated in a series of acts and bills removing land and political status from tribal governments. As a result, native Californians were left landless and legally powerless, often making their way as itinerant farm workers or commercial fishermen. Legal land entitlement remained out of reach until 1920, when the Bureau of Indian Affairs purchased a 15.45-acre tract of land in Graton to create a “village home” for dispersed people of Marshall, Bodega, Tomales,

and Sebastopol (FIGR 2024). This home consolidated neighboring, traditionally interactive groups into a single entity—Graton Rancheria—thus establishing them, temporarily, as a Federally Recognized Tribe of American Indians.

In 1958, Congress passed the California Rancheria Act, terminating all 41 Rancherias, extinguishing the recognition of their residents as American Indians, and removing the land from Federal Trust. As with many other California Tribes, federal recognition for the Coast Miwok was not restored until decades later, after tribal members raised money to travel to Washington to campaign for restoration of federal status and rights. For FIGR, campaigning began in 1990, with recognition restored in 2000, and a tribal constitution ratified by the Bureau of Indian Affairs in 2002, allowing the tribe to reestablish a land base, provide funding for cultural preservation, and establish tribally owned businesses capable of achieving self-sufficiency (FIGR 2024).

Today, FIGR encompasses a federation of Coast Miwok and Southern Pomo groups recognized as a tribe by the United States Congress. The Tribe opened the Graton Resort and Casino in 2013, which now funds various programs and services for its tribal membership, including environmental and cultural preservation, elder care, childcare, housing, legal support, emergency financial support, education, and employment. FIGR has developed a Tribal Heritage Preservation Office program with a designated Tribal Heritage Preservation Officer and Sacred Sites Protection Committee responsible for protecting the Tribe's cultural resources.

Regulatory Background

Cultural resources include precontact (prehistoric/Native American) and historic-era archaeological sites and objects, as well as extant historic structures, buildings, and locations of important historic events or sites of traditional and/or tribal cultural importance to various groups. This study addresses archaeological resources and tribal resources in the ADI. The Project requires approval by local and state agencies, thereby mandating that it adheres to CEQA and its implementing guidelines and regulations in 14 CCR § 15000 et seq. In addition, AB 52 establishes the requirements of Tribal Cultural Resources and Native American consultation under CEQA.

Assembly Bill 52

AB 52 amended CEQA to address California Native American tribal concerns regarding how cultural resources of importance to tribes are treated under CEQA. With the addition of AB 52, CEQA now specifies that a project that may cause a substantial adverse change in the significance of a "tribal cultural resource" [as defined in PRC 21074(a)] is a project that may have a significant effect on the environment. According to the AB 52, tribes may have expertise in tribal history and "tribal knowledge about land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources."

Pursuant to CEQA Section 21080.3.1(d), within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location as well as the lead agency contact information, and a notification statement that the federally recognized California Native American tribe has 30 days to request consultation.

On behalf of RVSD, Integral sent a letter to FIGR on October 16, 2024, pursuant to AB 52. FIGR was provided with copies of the buried site sensitivity maps and requested to schedule a consultation meeting to further discuss the project. On November 26, 2024, RVSD, Integral, and Far Western met with FIGR to discuss the Project and proposed locations for archaeological testing. On November 27, 2024, FIGR was provided with a copy of the cultural resources report and an email was sent to FIGR

on December 10, 2024 to inform them of the CEQA schedule and to obtain any follow up information or concerns. Consultation with FIGR is ongoing and the RVSD will continue to conduct outreach throughout the duration of the project.

California Register of Historical Resources

The CEQA Statutes and Guidelines (14 CCR § 15064.5) include procedures for identifying, analyzing, and disclosing potential adverse impacts to historical resources, which include all resources listed in or formally determined eligible for the National Register, the California Register, or local registers. CEQA further defines a "historical resource" as a resource that meets any of the following criteria:

- A resource listed in, or determined to be eligible for listing in, the National or California registers.
- A resource included in a local register of historical resources, as defined in § 5020.1(k) of the PRC, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- A resource identified as significant (rated 1–5) in a historical resource survey meeting the requirements of PRC § 5024.1(g) Department of Parks and Recreation Form 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- Any tribal cultural resource, object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing on the California Register.

Analysis as to whether or not project activities would:

a. Cause substantial adverse change in the significance of a tribal cultural resource, defined in Public Resource 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:

i) 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)?

Less than significant with mitigation. The California Register identifies resources considered to be important for state and local planning purposes and affords certain protection under CEQA. California regulations require that effects to cultural and tribal resources be considered only for resources meeting the criteria for eligibility to the California Register, as outlined in PRC § 5024.1.

As discussed in Section 5, "Cultural Resources," the cultural resources inventory study did not result in the identification of any archaeological resources, however the documented resource boundary for Mount Tamalpais, a significant landscape feature to FIGR, intersects portions of the ADI in Fairfax and Kentfield. Consultation between FIGR and RVSD is currently ongoing and in the event that cultural materials or tribal cultural resources are identified by the tribe before and/or during Project implementation, mitigation measures CUL-1, CUL-2, CUL-3, and CUL-4 would reduce significant impacts to a less than significant level.

ii) 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 significant of the resource to a California Native American Tribe?

Less than significant with mitigation. Due to the overall poor surface visibility of the Project site, the results of the buried and subsurface site sensitivity analysis and consultation with FIGR, a program of focused archaeological testing will be conducted in areas determined to be highly sensitive for encountering cultural deposits. Testing will occur in advance of proposed ground disturbance including manholes, sags, potholes, and the entry and exit pits for pipe bursting, where feasible. With the implementation of Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4, impacts to tribal cultural resources would be less than significant.

References:

1. Far Western. 2024. Archaeological Resources Inventory for the Ross Valley Sanitary District 2024-2025 Gravity Sewer Improvement Project, Marin County, California. Far Western Anthropological Research Group, Inc. November.

2. FIGR. 2024. Federated Indians of Graton Rancheria Coast Miwok and Southern Pomo. https://gratonrancheria.com/culture/history/. Accessed November 2024. Federated Indians of Graton Rancheria, Rohnert Park, CA.

19. Utilities and Service Systems

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

Project Activities Likely to Create an Impact:

- Removal of soil and fill/debris
- Use of water trucks for dust suppression.

Description of Baseline Environmental Conditions:

The Project is in an area where water service is provided by the Marin Municipal Water District, sewer facilities are managed by RVSD, wastewater treatment service is provided at the Central Marin Wastewater Treatment Plant, and local solid waste disposal is provided by Marin Sanitary Service at the Novato Landfill.

The sewer piping is operated and maintained by RVSD. RVSD provides collection service to the Project site. Several sewer line segments are located on private properties. The RVSD would coordinate with private property owners to access and rehabilitate these sewer line segments.

Wastewater would not be generated by the sanitary sewer rehabilitation and replacement activities. The sanitary sewer rehabilitation and replacement activities would not significantly increase the consumption of water on the Project site. A temporary increase of water consumption may occur that is associated with water truck use for dust suppression during soil removal and filling activities.

The Project would not require the construction of new public wastewater or stormwater drainage facilities.

Analysis as to whether or not project activities would:

a. Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No impact. The Project would not result in the construction of new wastewater or wastewater-treatment facilities, or the expansion of existing facilities; therefore, there would be no impact on the existing wastewater network.

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

Less than significant impact. The construction activities would not significantly increase the consumption of water on the Project site. A temporary increase of water consumption may occur that is associated with water truck use for dust suppression during construction activities (see Attachment D under “Dust Control”).

c. Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments?

No impact. Wastewater would not be generated by the construction activities; therefore, there would be no impact on the existing wastewater network.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

Less than significant impact. The construction would not significantly increase solid waste disposal needs at the Project site. A temporary increase of solid waste disposal may occur associated with Project site debris from sanitary sewer rehabilitation and replacement activities. Landfill approval would take place before the planned soil removal thus, there would be no impact associated with permitted capacity.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Less than significant impact. All wastes derived from construction activities would be properly disposed of at a designated facility following the applicable state and federal regulations (see Attachment D under “Hazardous Materials”).

20. Wildfire

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

Project Activities Likely to Create an Impact:

- Equipment used for construction activities
- Project site clearing and restoration activities.

Description of Baseline Environmental Conditions:

The California Department of Forestry and Fire Protection (CalFire) uses fire hazard severity zones to classify the anticipated fire-related hazard for state responsibility areas (SRAs), local responsibility areas (LRAs), and federal responsibility areas (FRAs). The classifications include Non-Wildland Non-Urban, Moderate, High, and Very High. Fire hazard measurements take into account the following elements: vegetation, topography, weather, crown fire production, and ember production and movement (CalFire 2022). CalFire has a legal responsibility to provide fire protection on all SRA lands, which are defined based on land ownership, population density, and land use. CalFire does not have responsibility for densely populated areas, incorporated cities, agricultural lands, or lands administered by the federal government.

Each Project segment located in various areas was evaluated to identify if it was in an SRA, LRA, or FRA along with its fire hazard classification (Marin GeoHub 2020, CalFire 2023). This information is summarized as follows:

- **Fairfax**: The Project segments are located in residential/urban areas served by the Ross Valley Fire Department in both a CalFire SRA and LRA. This area is classified as having a high fire risk.
- **Kentfield**: The Project segments are located in residential areas served by the Kentfield Fire Protection District in an LRA. Portions of Kentfield are classified as having a moderate fire risk.
- **San Anselmo**: The Project segments are located in residential areas served by the Ross Valley Fire Department in both a CalFire SRA and LRA. This area is classified having high/moderate fire risk.

Analysis as to whether or not project activities would:

If located in or near State responsibility area or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than significant impact. The construction work at all Project sites would be temporary, and roads would still be accessible so as not to impair an adopted emergency plan or emergency evacuation plan by ensuring access in the event of an emergency or evacuation.

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

Less than significant impact. Heavy equipment used during Project construction has the potential to start a fire on surrounding open space areas near the Project site. However, implementation of control measures in Attachment D under “Site Management Practices” would reduce the potential for construction-related wildland fires by providing a clearing, reducing fire fuels, and removing fire-sustaining litter. In addition, during construction, fire extinguishers would be required for all heavy equipment.

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

Less than significant impact. The Project involves maintenance of sewer line segments. Maintenance and rehabilitation activities would be temporary and occur within the existing alignments. The Project site and sewer segments would be restored to existing conditions, and thus would not exacerbate fire risk. However, implementation of control measures in Attachment D under “Site Management Practices” would reduce the potential for construction-related wildland fires by providing a clearing, reducing fire fuels, and removing fire-sustaining litter.

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

Less than significant impact. The Project would not expose people or structures to significant risks. All activities associated with the sewer rehabilitation Project would occur without altering the existing drainage pattern of the area.

References:

1. CalFire. 2023. California Fire Hazard Severity Zone Viewer. https://experience.arcgis.com/experience/03beab8511814e79a0e4eabf0d3e7247/. California Department of Forestry and Fire Protection.

2. CalFire. 2022. California Fire Hazard Severity Zones. https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/. California Department of Forestry and Fire Protection.
3. Fire Safe Marin. 2023. Evacuation Maps. https://firesafemarin.org/prepare-yourself/evacuation-guide/evacuation-maps/#gsc.tab=0. County of Marin, CA.
4. Marin GeoHub. 2020. https://gisopendata.marincounty.org/datasets/fire-hazard-severity-zone/explore. County of Marin, CA.

21. Report Preparers

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Samantha Eanes, P.E.(California), Engineer, Project Manager

Mandatory Findings of Significance

Based on evidence provided in this Initial Study, Integral makes the following findings:

a. The project ☐ has ☒ does not have the potential substantially to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

The short-term disturbance of the Project site during the construction activities would not impact the adjacent habitat. There are no identified special-status species on the Project site. Based on the information presented within Section 4, Biological Resources, there would be a less-than-significant 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, or reduce the number or restrict the range of a rare or endangered plant or animal. There remains a possibility that new bird nests could be established in the trees and other vegetation in and near the Project site before construction activities commence. With implementation of the Mitigation Measure BIO-1, impacts to biological resources would be less than significant.

As discussed in Section 5, the cultural resources inventory report did not result in the identification of any historical resources. Due to the results of the buried site sensitivity assessment and consultation with FIGR, a program of focused archaeological testing will be conducted in areas determined to be highly sensitive for encountering cultural deposits. Testing will take place prior to project implementation and will be coordinated in advance with FIGR. Testing will occur at project segments: Bolinas Road and Sherman Street in Fairfax; Suffield Avenue and Sir Francis Drake Boulevard in San Anselmo; and Berens Drive, McAllister Avenue, Lancaster Avenue, Wolfe Grade, Kentdale Lane, and the western extent of Stadium Way in Kentfield. Based on the results of the testing and in coordination with the RVSD and FIGR, monitoring by an archaeologist and tribal monitor may also be required to observe excavated soils that are removed during construction activities. With implementation of Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 impacts to cultural resources would be less than significant. Informal consultation with FIGR is ongoing.

h. The project ☐ has ☒ does not have impacts that are individually limited but cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual 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.

The Project activities are limited in extent and duration, would result in the construction of no new structures/buildings, and would return the ground surface in outdoor areas to pre-Project conditions. Therefore, the cumulative impact from Project activities is less than significant.

i. The project ☐ has ☒ does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

Worker and public health and safety were discussed in various sections of this Initial Study, including air quality, geology and soils, hazards and hazardous materials, noise and vibration, transportation/traffic, and utilities and service systems. In all instances, specific control measures have been included as necessary in the Project to reduce impacts to worker and public health and safety to less-than-significant levels. It should be noted that the Project would replace infrastructure that is past its useful life, improve maintenance operations and safety, and reduce SSOs and I&I. Thus, the impact related to public health and environmental hazards is beneficial.

Determination of Appropriate Environmental Document:

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

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

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

Certification:

Phil Benedetti

Digitally signed by Phil Benedetti
DN: C=US, E=pbenedetti@rvsd.org, O=RVSD, OU=Engineering, CN=Phil Benedetti
Date: 2025.01.10 14:39:50-08'00'

1/10/2025

Philip Benedetti
Senior Engineer

Date

Attachment A

Abbreviations and Acronyms

ATTACHMENT A
ABBREVIATIONS AND ACRONYMS

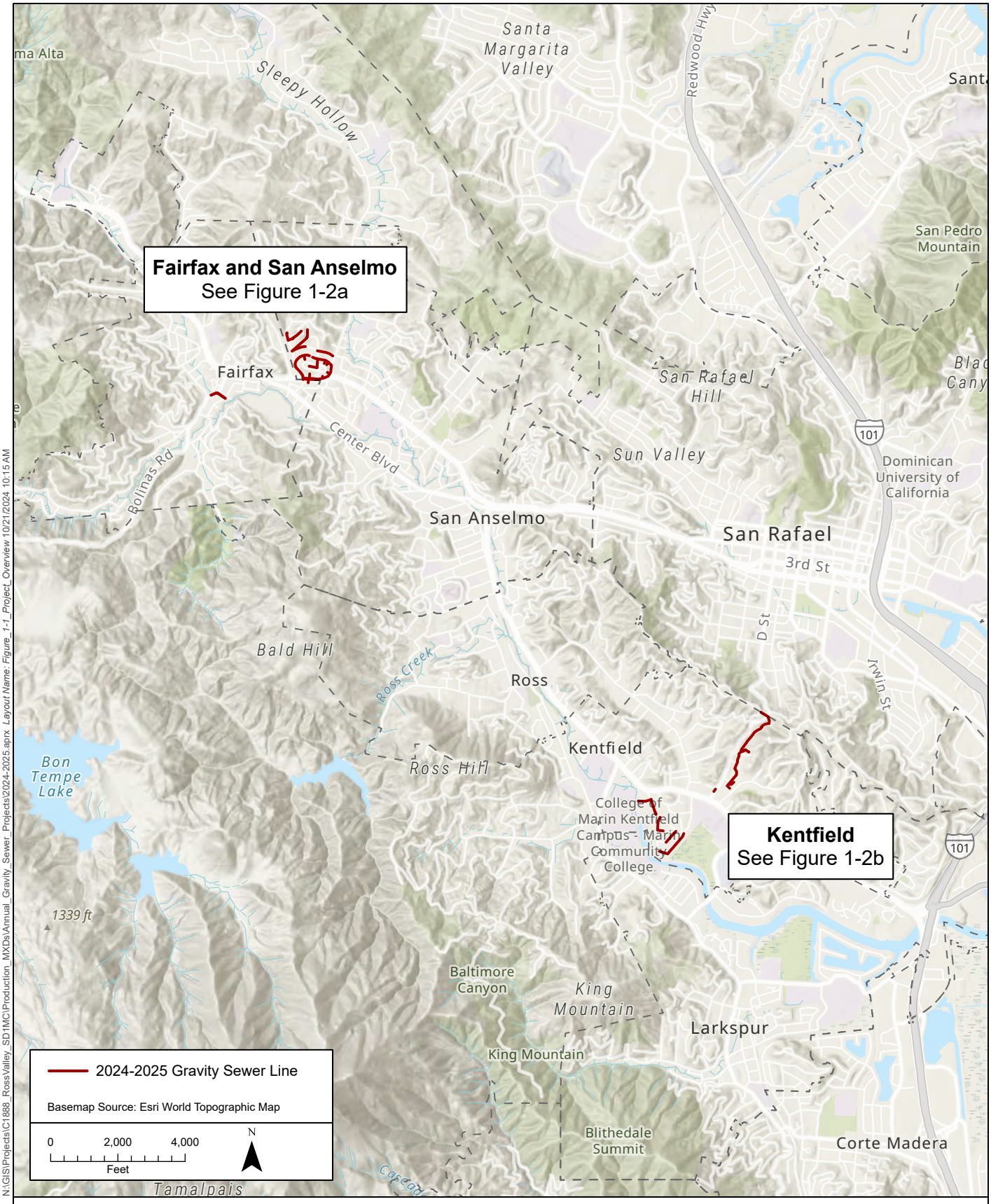
AB	Assembly Bill
ADI	area of direct impact
BAAQMD	Bay Area Air Quality Management District
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
CalEEMod	California Emissions Estimate Model
CalFire	California Department of Forestry and Fire Protection
California Register	California Register of Historical Resources
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CDO	cease and desist order
CEQA	California Environmental Quality Act
CIP	cast iron pipe
CFGC	CDFW Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
dB	decibel(s)
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
Far Western	Far Western Anthropological Research Group, Inc.
FEMA	Federal Emergency Management Agency
FIGR	Federated Indians of Graton Rancheria
FMMP	Farmland Mapping and Monitoring Program

FRA	federal responsibility area
GHG	greenhouse gas
HDPE	high-density polyethylene
I&I	inflow and infiltration
IAMP	Infrastructure Asset Management Plan
Integral	Integral Consulting Inc.
IPaC	Information for Planning and Consultation
L_{eq}	equivalent sound pressure level
LF	linear feet
LRA	local responsibility area
MLD	most likely descendant
MRZ	mineral resource zone
MT/year	metric tonne per year
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOx	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
OHWM	ordinary high water mark
PM2.5	fine particulate matter with a diameter less than 2.5 microns
PM10	respirable particulate matter with a diameter less than 10 microns
ppm	parts per million
PRC	Public Resources Code
Project	Gravity Sewer Improvements Project (#955)
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
ROG	reactive organic gases
RVSD	Ross Valley Sanitary District
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SRA	State Responsibility Area
SSO	sewer system overflow
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant

U.S. 101	U.S. Highway 101
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VCP	vitrified clay pipe
WOTUS	waters of the U.S.
$\mu g/m^3$	micrograms per cubic meter

Attachment B

Figures



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integral consulting inc.

Figure 1-1.
Project Overview Map
2024-2025 Gravity Sewer Improvements Project
Ross Valley Sanitary District

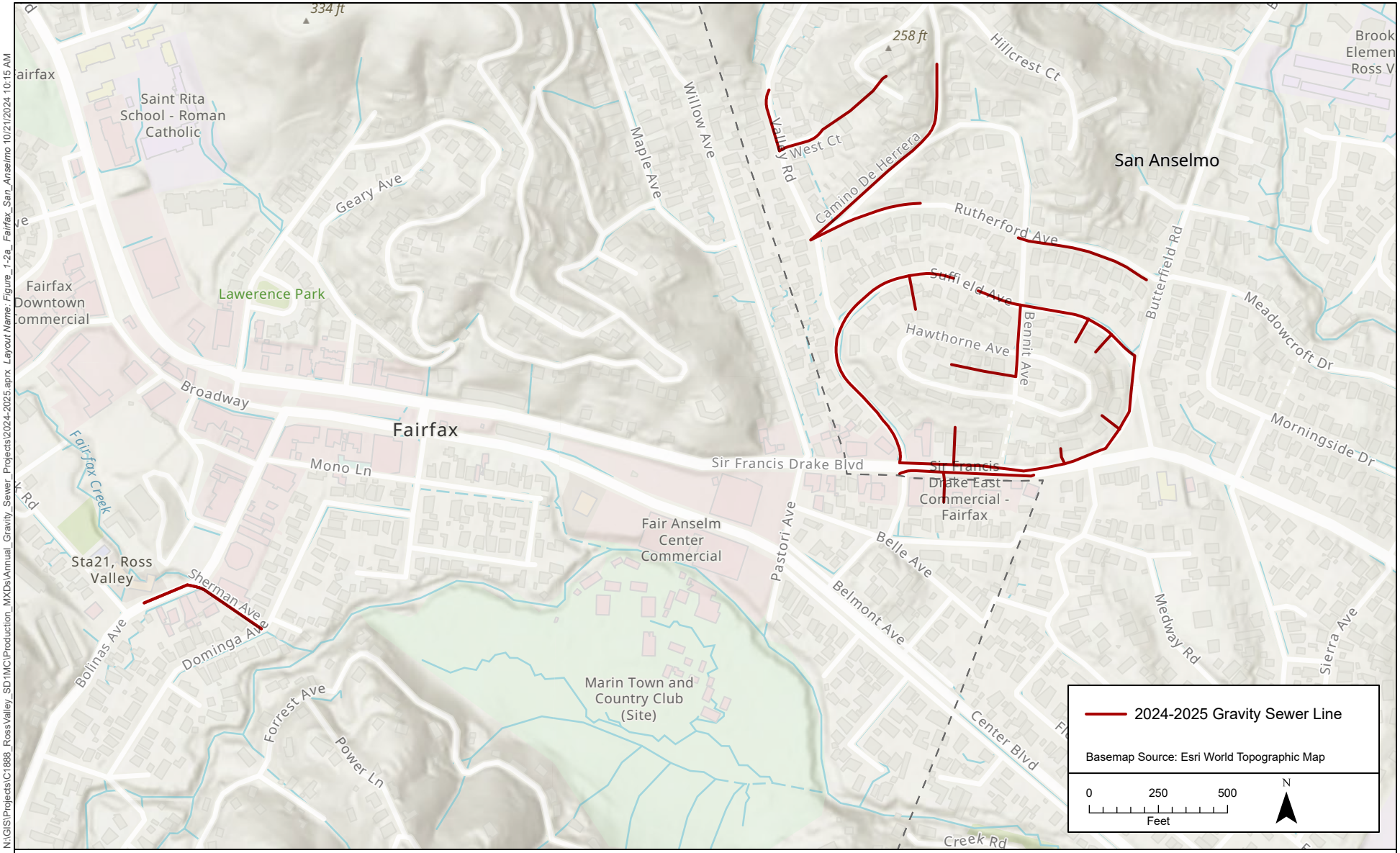

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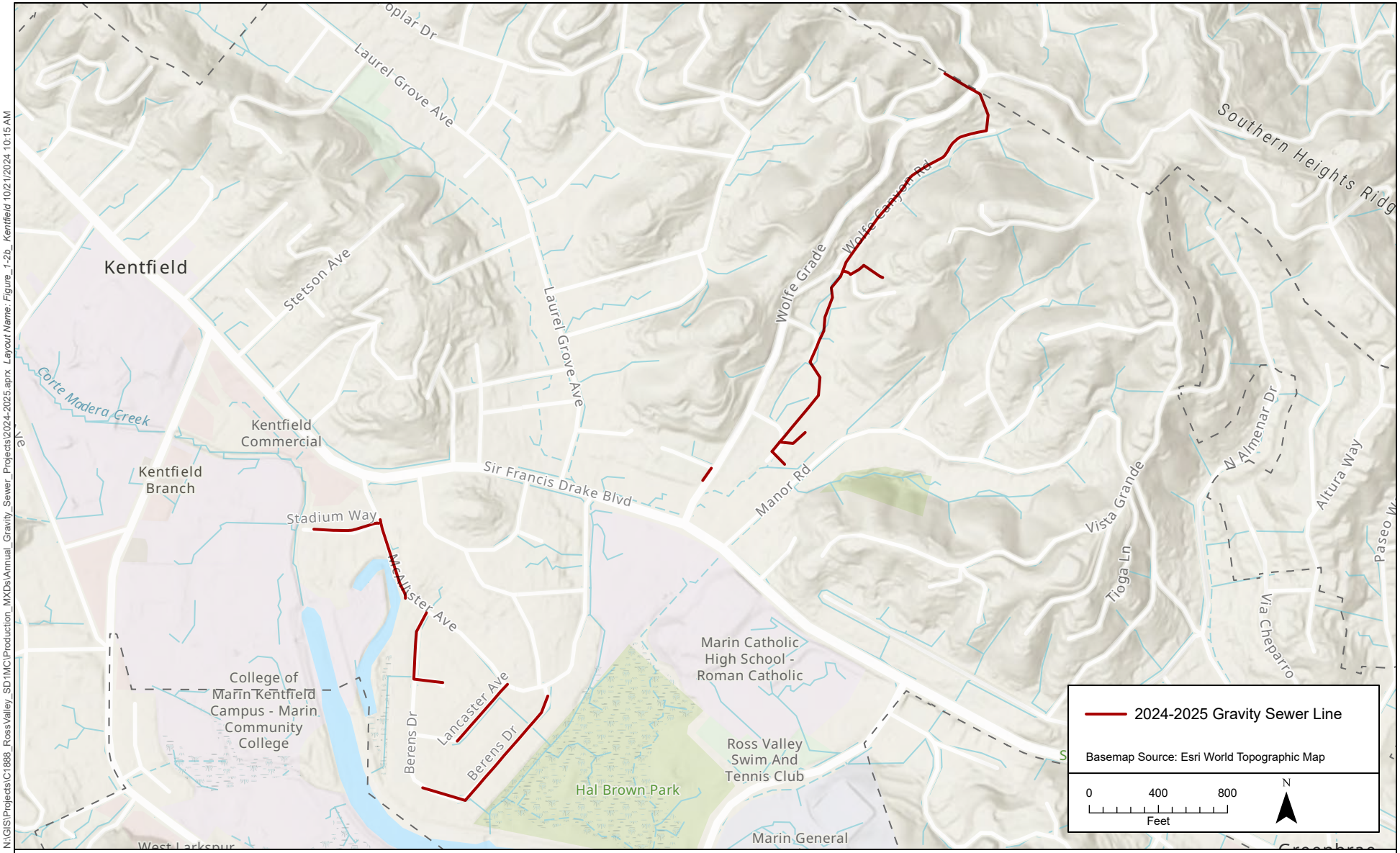
Figure 1-2a.
Project Location Map – Fairfax and San Anselmo
2024-2025 Gravity Sewer Improvements Project
Ross Valley Sanitary District



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integral consulting inc.

Figure 1-2b.
Project Location Map – Kentfield
2024-2025 Gravity Sewer Improvements Project
Ross Valley Sanitary District

Attachment C

Construction Plans

ROSS VALLEY SANITARY DISTRICT

MARIN COUNTY, CALIFORNIA

PLANS

FOR THE CONSTRUCTION OF

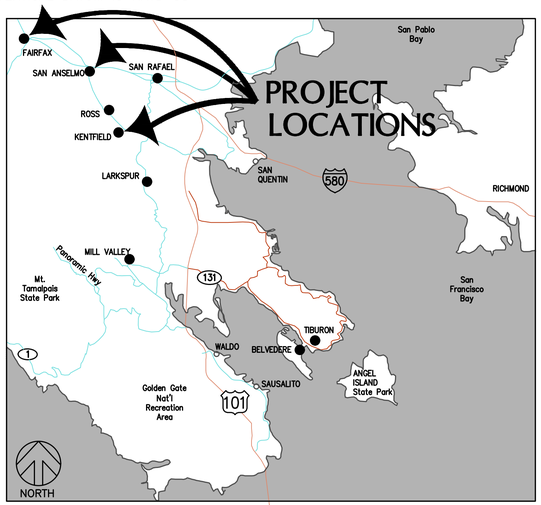
FY 2024/25 GRAVITY SEWER IMPROVEMENTS PROJECT

INDEX OF DRAWINGS

DATUM

HORIZONTAL DATUM IS NAD 83, CALIFORNIA COORDINATE SYSTEM ZONE 3, ITRF 2011

VERTICAL DATUM IS NAVD 88



VICINITY MAP

BOARD OF DIRECTORS

MICHAEL BOORSTEIN – PRESIDENT
THOMAS GAFFNEY – SECRETARY
MARY SYLLA – TREASURER
PAMELA MEIGS – ALTERNATE SECRETARY
DOUG KELLY – ALTERNATE TREASURER

GENERAL MANAGER
STEVE MOORE, P.E.

DESIGN ENGINEER
DANIEL WILKINS, P.E.

DATE

NOT FOR CONSTRUCTION

90% SUBMITTAL

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

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW DATE: 09/04/24

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA 94520
925-447-1001
www.Westvalleyconstruction.com

ROSS VALLEY SANITARY DISTRICT
FY24/25 GRAVITY SEWER IMPROVEMENTS PROJECT
TITLE

DATE: SEPT 5, 2024
PROJECT ID: 371282
SCALE: N.T.S.
DWG. NO T-01
SHT 1 OF 54

\\Prascon Engineering Data\VE_EXTERNAL PROJECTS_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\B. Design\01 - TITLE.dwg Save Date: 9/4/2024 10:14 AM Plot Date: 9/4/2024 10:14 AM JosephC

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR PREPARING & SUBMITTING A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) TO THE ENGINEER FOR APPROVAL FOR ALL CONSTRUCTION ACTIVITIES PRIOR TO THE BEGINNING OF WORK. THE SWPPP SHALL BE REVISED TO REMAIN CURRENT THROUGHOUT THE PROJECT.

2. CONTRACTOR TO PROVIDE 7 DAY NOTICE AND 24 HOUR NOTICE TO PROPERTY OWNERS AND RESIDENTS PRIOR TO COMMENCING CONSTRUCTION WORK. NOTIFICATION TO BE BY LETTER AND SHALL BE APPROVED BY THE ENGINEER.

3. IF SAW CUTTING AND/OR TRENCH EXCAVATION ACTIVITIES RESULT IN A WIDTH OF LESS THAN 4 FEET OF EXISTING PAVEMENT REMAINING BETWEEN THE PROPOSED EDGE OF TRENCH AND EXISTING EDGE OF PAVEMENT OR GUTTER, THE CONTRACTOR SHALL REMOVE THIS REMNANT "SLIVER" OF PAVEMENT ENTIRELY AND RESTORE IT TO ITS ORIGINAL FULL WIDTH DURING SURFACE RESTORATION. THIS PAVING WORK SHALL BE CONSIDERED INCIDENTAL AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

4. CONTRACTOR SHALL PROTECT ALL UTILITY POLES DURING CONSTRUCTION. ANY SPECIAL BRACING AND/OR SHORING REQUIRED BY THE WORK AND/OR BY THE UTILITY OWNER(S) SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

5. CONTRACTOR SHALL PROTECT EXISTING WATER UTILITIES AND EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH DISTRICT AND MMWD REQUIREMENTS.

6. CONTRACTOR SHALL RESTORE ALL FACILITIES OUTSIDE LIMITS OF WORK DAMAGED BY CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST. NO MATERIAL MAY BE STORED IN PUBLIC RIGHT OF WAY.

7. EXISTING UTILITIES IN THE PROJECT AREA MAY BE IN FRAGILE CONDITION. THE CONTRACTOR SHALL EXERCISE NECESSARY CAUTION WHEN WORKING NEAR EXISTING UTILITIES. WORK IN THE VICINITY OF ALL UTILITIES SHALL BE PER CALIFORNIA GOVERNMENT CODE SECTION 4216.

8. THE PLANS DO NOT SHOW ALL OF THE UTILITIES. THE CONTRACTOR SHALL VERIFY ALIGNMENT AND ELEVATION OF EXISTING UTILITIES AFFECTING THE WORK PRIOR TO CONSTRUCTION BY POTHOLING. PRIOR TO ANY DIGGING, CALL U.S.A. AT 811 A MINIMUM OF 48 HOURS IN ADVANCE OF EXCAVATION. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ANY ADDITIONAL UTILITY COMPANIES TO DETERMINE THE LOCATION OF EXISTING UTILITIES. CONTACT AND THE COORDINATION WITH U.S.A. AND U.S.A. MARKINGS SHALL NOT RELIEVE THE CONTRACTOR FROM THEIR RESPONSIBILITY FOR UTILITY VERIFICATION AND PROTECTION.

9. TYPICAL DETAILS REFERENCED ON THESE DRAWINGS ARE FROM THE RVSD STANDARD SPECIFICATIONS AND DRAWINGS, "UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN", OR STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED MAY 2010.

10. UNLESS OTHERWISE NOTED, EXISTING SANITARY SEWER LINES ARE TO BE REHABILITATED IN THE SAME LOCATION. EXISTING PIPES ARE ASSUMED TO HAVE UNIFORM GRADE BETWEEN MANHOLES. CONTRACTOR SHALL LOCATE LINES PRIOR TO BEGINNING WORK.

11. ALL STREET MARKINGS AFFECTED BY CONSTRUCTION SHALL BE REPLACED AT THEIR EXISTING LOCATIONS AT NO ADDITIONAL COST, THIS INCLUDES DAMAGE OF STREET MARKINGS ON ANY STREET WITHIN COUNTY, CITY AND TOWN LIMITS.

12. ALL PAVEMENT SHALL BE SAWCUT FULL DEPTH FOR PIPE TRENCH AND FOR PAVEMENT REMOVAL, PER RVSD STD DWG SD-14.

13. RECONNECT ALL ACTIVE SANITARY SEWER SERVICE LATERALS TO REHABILITATED SANITARY SEWER MAINS. DRAWINGS DO NOT SHOW ALL LATERALS AND WHERE SHOWN ARE APPROXIMATELY LOCATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL SERVICE CONNECTIONS AND DYE TESTING TO DETERMINING IF SERVICES ARE ACTIVE AS PART OF THE WORK.

14. EXISTING UTILITY CROSSINGS AS SHOWN ON THE PROFILES ARE APPROXIMATE. VERIFICATION OF HORIZONTAL AND VERTICAL EXISTING UTILITY ALIGNMENTS SHALL BE THE RESPONSIBILITY OF CONTRACTOR.

15. TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE THE CONTRACTORS RESPONSIBILITY AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE REQUIREMENT OF THE COUNTY AND THE CITY/TOWN WITH JURISDICTION AND ENCROACHMENT PERMITS. THE CONTRACTOR SHALL SUBMIT A WRITTEN TRAFFIC CONTROL & SIGNING PLAN (INCLUDING STREET CLOSURE DETAILS) TO THE ENGINEER WITHIN TEN (10) WORKING DAYS AFTER AWARD OF CONTRACT.

16. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS BARRICADES, FLAGMEN AND OTHER DEVICES TO PROVIDE VEHICULAR AND PEDESTRIAN SAFETY.

17. CONTRACTOR SHALL PROTECT ALL UTILITY STRUCTURES, AND SURVEY MONUMENTS WITHIN THE WORK AREAS. THE CONTRACTOR SHALL REVIEW THE WORK SITES PRIOR TO SUBMISSION OF BIDS.

18. THE FOLLOWING UTILITY COMPANIES AND AGENCIES, BUT NOT LIMITED TO, ARE KNOWN TO HAVE SUBSTRUCTURES OR OTHER FACILITIES WITHIN THE AREA OF PROPOSED WORK:

MARIN MUNICIPAL WATER DISTRICT, BOB PIERI	(415) 945-1481
PG&E (NORTH BAY DIVISION)	(415) 257-3405
COMCAST	(707) 207-1376
AT&T	(707) 575-2077
ALL UTILITIES, CONTACT U.S.A.	811 / (800) 227-2600

19. THE CONTRACTOR SHALL BYPASS PUMP ALL MAIN-LINE SANITARY SEWER FLOW DURING REHABILITATION OR CCTV ACTIVITIES IF NECESSARY TO ASSESS PIPE CONDITION. ADDITIONAL LATERAL PUMPING (OR OTHER METHOD APPROVED BY THE ENGINEER) NECESSARY TO PREVENT SEWER SPILLAGE INTO SURROUNDING PROPERTIES FROM LATERAL SERVICES SHALL BE CONSIDERED INCIDENTAL TO THE WORK REQUIREMENTS.

20. DIMENSIONS SHOWN ON PLANS ARE HORIZONTAL MEASUREMENTS.

21. HORIZONTAL AND VERTICAL DIMENSIONS PROVIDED ON THE DRAWINGS ARE BASED ON DESIGN SURVEY METHODS. FIELD MEASUREMENTS MAY VARY FROM THOSE ON THE DRAWINGS. ADJUSTMENTS TO LINE AND GRADE MAY BE MADE BY THE ENGINEER DURING CONSTRUCTION. PAYMENT WILL BE BASED ON QUANTITIES INSTALLED.

22. RIGHT OF WAY LINES ARE SHOWN AT APPROXIMATE LOCATIONS.

23. FOR OPEN TRENCH INSTALLATIONS, IF A NEW SEWER MAIN CROSSES UNDER AN EXISTING WATER LINE WITH LESS THAN 1 FOOT OF CLEARANCE, THE CONTRACTOR SHALL INSTALL A CONTINUOUS SLEEVE AROUND THE SEWER MAIN FOR A DISTANCE OF 4 FEET CLEAR TO EACH SIDE OF THE EXISTING WATER LINE. IF A NEW SEWER MAIN CROSSES ABOVE AN EXISTING WATER MAIN WITH LESS THAN 1 FOOT OF CLEARANCE, THE CONTRACTOR SHALL INSTALL A CONTINUES HDPE SLEEVE AROUND THE SEWER MAIN FOR A DISTANCE OF 10 FEET CLEAR TO EACH SIDE OF THE EXISTING WATER LINE, PER RVSD STD DWG SD-22.

24. NEW SEWER MAINS CROSSING UNDER OR ABOVE EXISTING WATER LINES WITH LESS THAN 4 INCHES OF CLEARANCE ARE PROHIBITED.

25. THE CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENCES AND BUSINESSES ALONG THE STREETS TO BE REPAIRED THROUGHOUT THE LIFE OF THE CONTRACT.

26. CONTRACTOR TO COORDINATE WITH ALL PROPERTY OWNERS FOR EASEMENT WORK A MINIMUM OF TWO WEEKS PRIOR TO START OF SAID WORK.

27. PEDESTRIAN, PUBLIC, AND WHEELCHAIR ACCESSES SHALL BE MAINTAINED DURING THE CONSTRUCTION TO THE SATISFACTION OF THE DISTRICT AND AGENCY HAVING JURISDICTION IN THE RIGHT-OF-WAY IN ACCORDANCE WITH THE ENCROACHMENT PERMITS.

28. CONTRACTOR SHALL RESTORE SITES TO EQUAL TO OR BETTER THAN EXISTING CONDITIONS.

29. ANY DAMAGE TO THE EXISTING FACILITIES INCLUDING, BUT NOT LIMITED TO, TREES, LANDSCAPING, IRRIGATION, FENCES, WALLS, SIDEWALK, AND OTHER PAVEMENT SURFACES SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE. CONTRACTOR SHALL RESTORE ANY AND ALL PAVEMENT AND OTHER FACILITIES OUTSIDE LIMITS OF WORK AFFECTED BY THE CONSTRUCTION OPERATIONS AT NO ADDITIONAL COST.

30. BIDDERS SHOULD NOTE PRESENCE OF OVERHEAD UTILITIES IN THE WORK AREA. ALL OVERHEAD UTILITIES MAY NOT BE SHOWN AND IF SHOWN, MAY BE IN THEIR APPROXIMATE ALIGNMENT. AS PART OF THEIR PRE-BID INSPECTION, BIDDERS SHALL NOTE THE TYPE AND LOCATION OF OVERHEAD UTILITIES IN THE PROPOSED WORK AREA. BIDDER'S PRICE SHALL INCLUDE PROVISIONS FOR WORKING IN AREAS WHERE OVERHEAD UTILITIES EXIST AT THE TIME OF BIDDING, WHETHER SHOWN ON THE PLANS OR NOT, AND NO ADDITIONAL COMPENSATION IS ALLOWED.

31. REFER TO SPECIFICATIONS FOR WORK HOUR AND WORK SEQUENCE RESTRICTIONS.

32. WHEN AN ABANDONED GAS LINE IS EXPOSED, CONTRACTOR TO COORDINATE WITH PG&E TO VERIFY THAT IT IS DEACTIVATED.

33. UNLESS OTHERWISE NOTED ON THE PLANS OR SPECIFICATIONS, ALL EXPOSED CONCRETE WORK (I.E. SIDEWALKS, CURB AND GUTTER, VALLEY GUTTERS, ETC) SHALL CONFORM TO THE LATEST EDITION OF THE MARIN COUNTY STANDARD DRAWINGS.

34. DURING NON WORKING HOURS, A TEMPORARY CONNECTION SHALL BE MADE FROM THE EXISTING SEWER TO THE NEW SEWER. LATERALS AND SEWERS CROSSING THE TRENCH SHALL BE TEMPORARILY RECONNECTED UNTIL THEY CAN BE PERMANENTLY CONNECTED TO THE NEW SEWER.

35. CDF BACKFILL IS NOT ALLOWED FOR SITES WITHIN COUNTY OF MARIN JURISDICTION.

36. CONTRACTOR TO NOTE THAT SOME SITES ARE WITHIN EASEMENTS WITH LIMITED OR NO ACCESS FOR VEHICLES AND EQUIPMENT. THESE SITES MAY REQUIRE PORTABLE EQUIPMENT AND/OR HAND EXCAVATION.

ABBREVIATIONS

AB, ASB	AGGREGATE BASE, SUBBASE	SSLH	SANITARY SEWER LAMPHOLE
ABD	ABANDONED	SSMH	SANITARY SEWER MANHOLE
AC	ASPHALT CONCRETE	STA	STATION
ADJ	ADJUSTABLE	STD	STANDARD
APPROX	APPROXIMATE	STL	STEEL
AVE	AVENUE	T	TELEPHONE, TOTAL
BC	BEGIN CURVE	TC	TOP OF CURB
BM	BLUE MARKER	TEL	TELEPHONE
BOC	BACK OF CURB	TMH	TELEPHONE MANHOLE
BP	BOTTOM OF PIPE	TOE	TOE OF SLOPE, TOE OF CURB, TOE OF WALL
BSW	BACK OF SIDEWALK	TOP	TOP OF PIPE
C&G	CURB & GUTTER	TYP	TYPICAL
CATV	CABLE TV	TV	TELEVISION
CB	CATCH BASIN	UNK	UNKNOWN
CCTV	CLOSED CIRCUIT TELEVISION	UT	UNKNOWN UTILITY
CIP	CAST IRON PIPE	VCP	VITRIFIED CLAY PIPE
CIPP	CURED-IN-PLACE PIPE	VG	VALLEY GUTTER
CL, ℄	CENTERLINE	W, WAT	WATER
CLR	CLEARANCE	W/	WITH
CLSM	CONTROLLED LOW STRENGTH MATERIAL	WM	WATER METER
CMP	CORRUGATED METAL PIPE	WSP	WELDED STEEL PIPE
CO	CLEANOUT	WV	WATER VALVE
CON'T	CONTINUED	W.W.M.	WELDED WIRE MESH
CP	CONTROL POINT	100D	100 PENNY
D, DIA	DIAMETER	2:1	2 HORIZONTAL TO 1 VERTICAL SLOPE
DI	DRAIN INLET		
DL	DETECTOR LOOP		
DR	DIMENSION RATIO		
DWY	DRIVEWAY		
DWG	DRAWING		
E	EASTING, ELECTRIC		
E (OH)	ELECTRIC OVERHEAD		
EC	EDGE OF CONCRETE		
EC	END OF CURVE		
EG	EXISTING GRADE		
EL OR ELEV	ELEVATION		
ELEC	ELECTRIC		
EP, EOP	EDGE OF PAVEMENT		
EOS	EDGE OF SHOULDER		
ETW	EDGE OF TRAVELED WAY		
EXIST, EX	EXISTING		
FC, FOC	FACE OF CURB		
FD	FOUND		
FG	FINISHED GRADE		
FH	FIRE HYDRANT		
FL, ℄	FLOWLINE		
FOB	FACE OF BERM		
FY	FISCAL YEAR		
G	GAS		
GA	GAUGE		
GB	GRADE BREAK		
GM	GAS METER		
GRND	GROUND		
GTP	GALVANIZED THREADED PIPE		
GTR	GUTTER		
GV	GAS VALVE		
>	GREATER THAN		
H, HORIZ	HORIZONTAL		
HDD	HORIZONTAL DIRECTIONAL DRILLING		
HDPE	HIGH DENSITY POLYETHYLENE		
HH	HANDHOLE		
HMA	HOT MIX ASPHALT		
HV	HIGH VOLTAGE		
ID	INNER DIAMETER		
IN	INCH		
INV	INVERT		
IPB	IRRIGATION PULL BOX		
JP	JOINT UTILITY POLE		
LAT	LATERAL		
LDCC	LOW DENSITY CELLULAR CONCRETE		
LF	LINEAR FOOT		
LH	LAMPHOLE		
LIP	LIP OF GUTTER		
MAGN	"MAG" NAIL		
MAX	MAXIMUM		
MAGNW	"MAG" NAIL & WASHER		
MAGNS	"MAG" NAIL & SHINER		
MBGR	METAL BEAM GUARD RAIL		
MH	MANHOLE		
MIN	MINIMUM		
MMWD	MARIN MUNICIPAL WATER DISTRICT		
MNFR	MANUFACTURER		
MON	MONUMENT		
N	NORTHING		
N.I.C.	NOT IN CONTRACT		
NO	NUMBER		
O.C.	OFF CENTER		
OD	OUTSIDE DIAMETER		
OH	OVERHEAD		
OG	ORIGINAL GRADE		
PCC	PORTLAND CEMENT CONCRETE		
PCC	POINT OF COMPOUND CURVE		
PK	"PK" NAIL		
PL	PLASTIC		
PLS#	PROFESSIONAL LAND SURVEYOR #		
PP	POWER POLE, PLAN AND PROFILE		
PROP	PROPOSED		
PVC	POLYVINYL CHLORIDE		
R	RADIUS		
RD	ROAD		
R+C	REBAR & CAP		
RCE#	REGISTERED CIVIL ENGINEER #		
REQ'D	REQUIRED		
RET	RETAINING		
R/R	REMOVE & REPLACE		
RS	ROADWAY STABILIZATION		
R/W	RIGHT-OF-WAY		
RVSD	ROSS VALLEY SANITARY DISTRICT		
S	SLOPE		
SD	STORM DRAIN, STANDARD DRAWING		
SDCB	STORM DRAIN CATCH BASIN		
SDMH	STORM DRAIN MANHOLE		
SDR	STANDARD DIMENSION RATIO		
SDWK	SIDEWALK		
SF	SQUARE FEET		
SHT	SHEET		
SL	STREET LIGHT		
SS	SANITARY SEWER		
SSCO	SANITARY SEWER CLEANOUT		

LEGEND

EXISTING	PROPOSED	DESCRIPTION
	8" SS	CONSTRUCT SEWER BY OPEN TRENCH, DIRECTION OF FLOW, SIZE
	8" SS	CONSTRUCT SEWER BY PIPE BURSTING, DIRECTION OF FLOW, SIZE
	8" SS	CONSTRUCT SEWER BY PIPE REAMING, DIRECTION OF FLOW, SIZE
SS		ABANDON SANITARY SEWER
		BUILDING
x x x x		FENCE
		PROPERTY LINE
WV W W W W	8"AC	WATER MAIN, VALVE AND METER
SD	8"SD	STORM DRAIN < 12"ø
	12"SD	STORM DRAIN >= 12"ø
SS	6"SS	SANITARY SEWER < 12"ø
	12"SS	SANITARY SEWER >= 12"ø
GV G		GAS MAIN AND VALVE
E		BURIED ELECTRIC
FO		BURIED UNKNOWN COMMUNICATION
ATT		BURIED COMMUNICATION (AT&T)
VERIZON		BURIED COMMUNICATION (VERIZON)
COM		BURIED COMMUNICATION (COMCAST)
UNK		BURIED UNKNOWN UTILITY
OH		OVERHEAD UTILITIES
		CATCH BASIN
MON		CITY MONUMENT
		FIRE HYDRANT
		GUY WIRE
PP		JOINT POLE
S	S	SANITARY SEWER MANHOLE
SSCO	CO	SANITARY SEWER CLEAN OUT
D		STORM DRAIN MANHOLE
		SIGN
		STREETLIGHT
		CURB AND GUTTER
60		CONTOUR

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC

DESIGNED BY: JAC

CHECKED BY: DCW DATE: 09/04/24

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CONCORD, CA. 94520
925-414-3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITARY DISTRICT
FY24/25 GRAVITY SEWER
IMPROVEMENTS PROJECT
NOTES

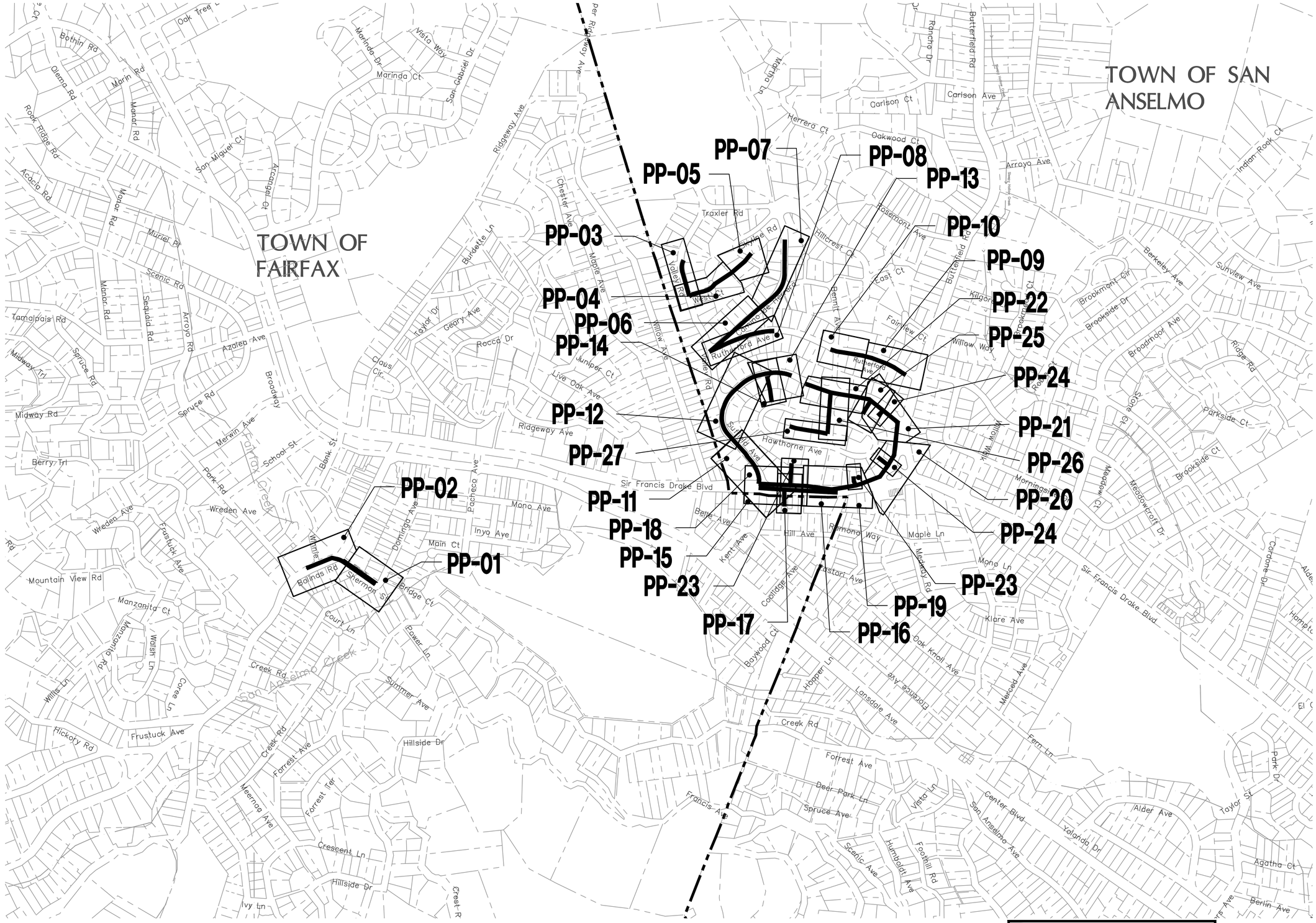
DATE: SEPT 5, 2024

PROJECT ID: 371282

SCALE: N.T.S.

DWG. NO T-02

SHT 2 OF 54



NOT TO SCALE

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NO.	DATE	BY	DESCRIPTION

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DRAWN BY: JAC

DESIGNED BY: JAC

CHECKED BY: DCW DATE: 09/04/24

ROSS VALLEY SANITARY DISTRICT
FY24/25 GRAVITY SEWER
IMPROVEMENTS PROJECT
KEY MAP 1

westvalley CONSTRUCTION SINCE 1958
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CONCORD, CA. 94520
925-414-3001
www.Westvalleyconstruction.com

DATE: SEPT 5, 2024

PROJECT ID: 371282

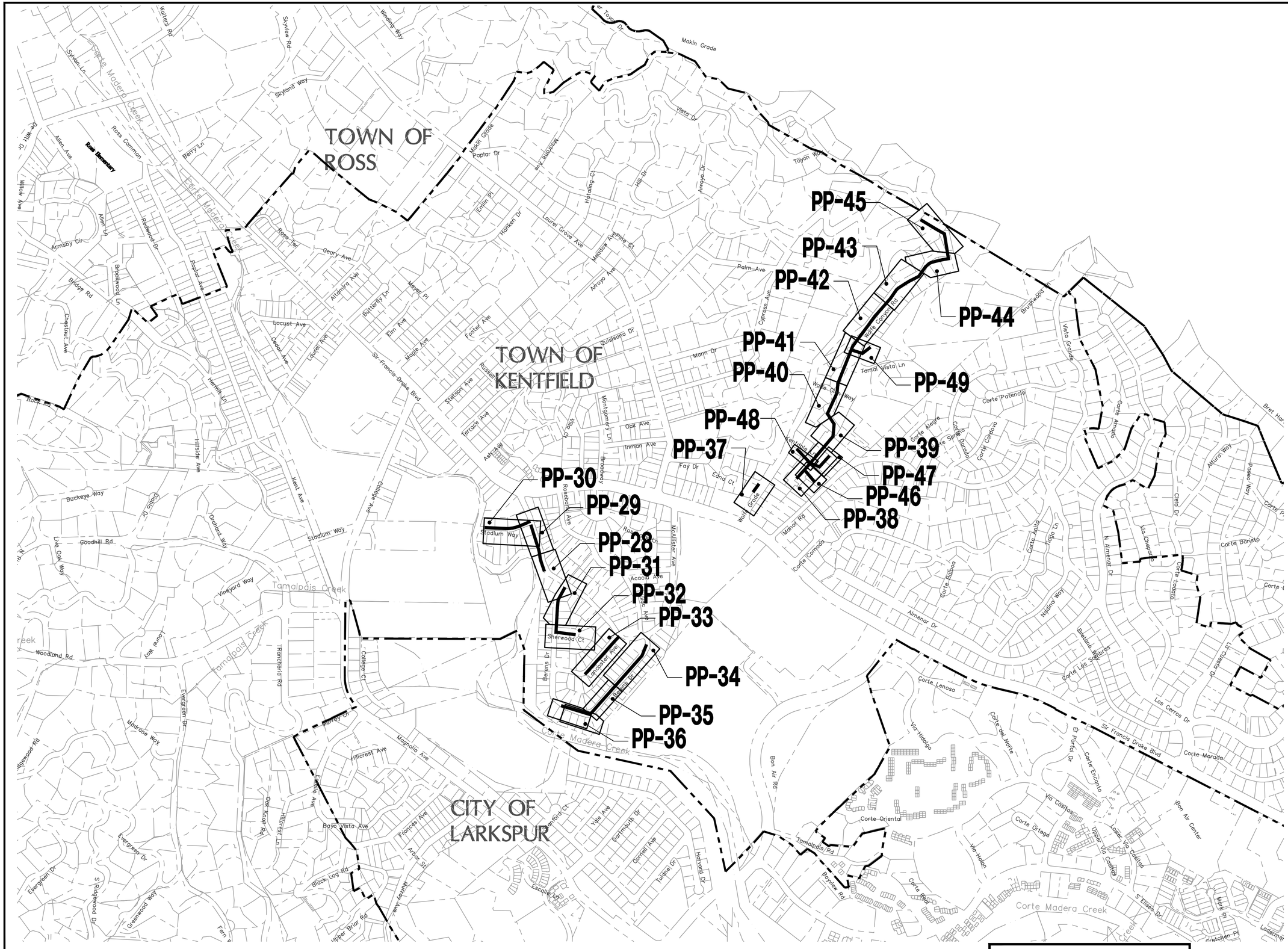
SCALE: N.T.S.

DWG. NO T-03

SHT 3 OF 54

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

\\nascon\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSIP\8.0 DESIGN\B. Design\03-04 K-01 To K-02 KEY MAP.dwg Save Date: 9/4/2024 10:14 AM Plot Date: 9/4/2024 10:14 AM JosephC



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DRAWN BY:
JAC
DESIGNED BY:
JAC
CHECKED BY: DATE:
DCW 09/04/24

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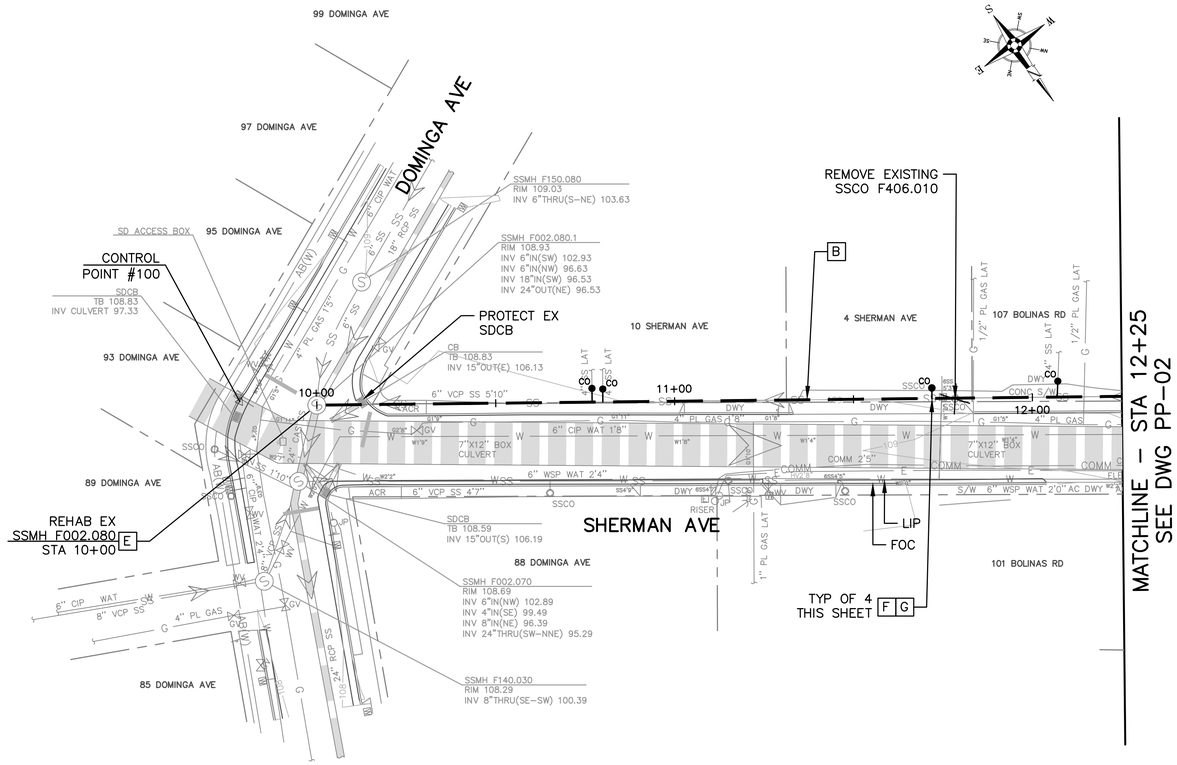
ROSS VALLEY SANITARY DISTRICT
FY24/25 GRAVITY SEWER
IMPROVEMENTS PROJECT
KEY MAP 2

DATE:
SEPT 5, 2024
PROJECT ID:
371282
SCALE:
N.T.S.
DWG. NO
T-04
SHT 4 OF 54



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
100	*2187791.78*	*5959636.38*	*108.84*	*MAG IN TC*

LEGEND OF REHABILITATION METHODS

A — REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B — REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

B1 — REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.

C — REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03 AND SD-04. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

D — REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.

E — REHABILITATE EX SSMH PER RVSD STD DWG SD-13

F — PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON-TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT.

G — CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
2. WHERE PIPING IS REMOVED AND REPLACED BY OPEN TRENCH, NEW PIPE INVERT ELEVATIONS SHALL MATCH EX PIPE INVERT ELEVATIONS (UPSIZED 8" SS INVERTS SHALL MATCH EXISTING 6" SS INVERTS), UNLESS OTHERWISE NOTED.
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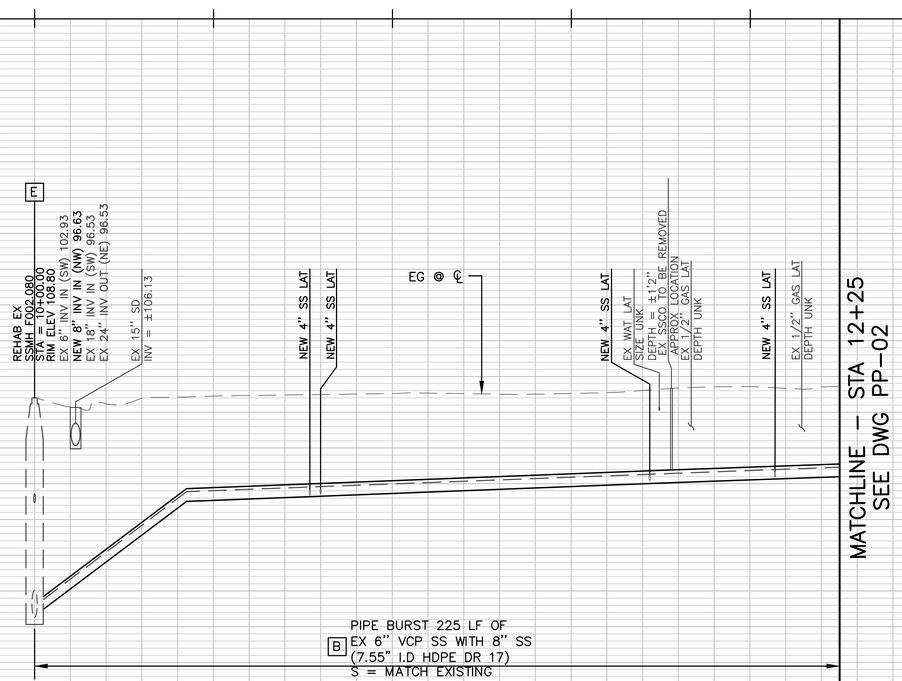
5. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL NOTE 8 ON DWG N-01. USE CLSM BACKFILL WHERE 6" CLEARANCE CANNOT BE OBTAINED BETWEEN NEW AND EXISTING UTILITIES. IF CONFLICTS REQUIRE THE RELOCATION OF EXISTING UTILITIES, THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING UTILITY OWNER(S) FOR RELOCATION(S).



GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

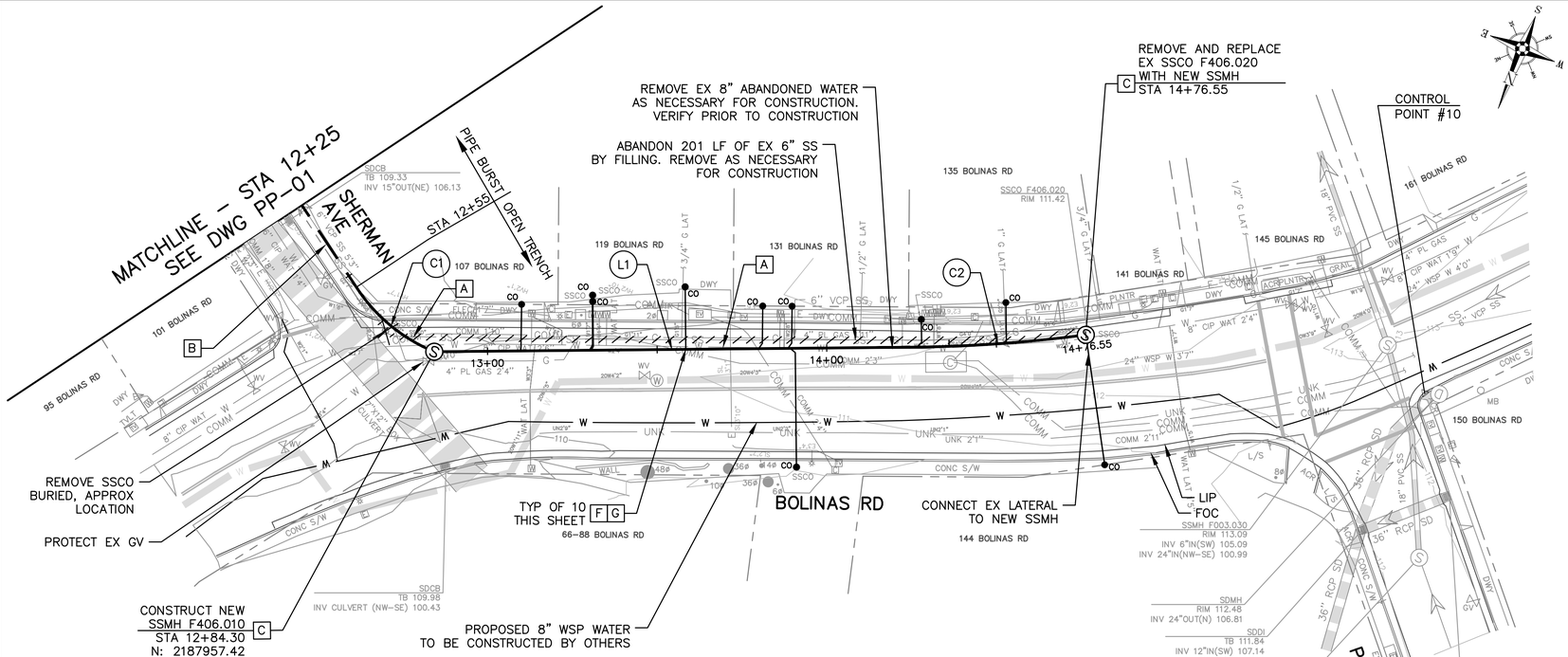
DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA. 94520
925-414-3001
www.Westvalleyconstruction.com

FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SHERMAN AVE
STA 10+00 TO STA 12+25

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-01
SHT 5 OF 54



LEGEND OF REHABILITATION METHODS

- **A** REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.
- **B** REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

  REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT
- **B1** REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.
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- **G** CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
10	2187859.33	5959105.95	112.39	MAG IN TC

BOLINAS RD NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
C1	29.75'		34°05'45"	50.00'	15.33'	12+54.54	N = 2187948.68 E = 5959409.21	12+84.30	N = 2187957.42 E = 5959381.23
L1	140.15'	S67°27'22"W				12+84.30	N = 2187957.42 E = 5959381.23	14+24.45	N = 2187903.68 E = 5959251.79
C2	52.10'		6°56'31"	430.00'	26.08'	14+24.45	N = 2187903.68 E = 5959251.79	14+76.55	N = 2187880.85 E = 5959204.99

GRAPHIC SCALE:
20 0 20 40 60
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V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT · SINCE 1947 · SANITARY

westvalley CONSTRUCTION SINCE 1958
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CONCORD, CA. 94520
925-414-3001
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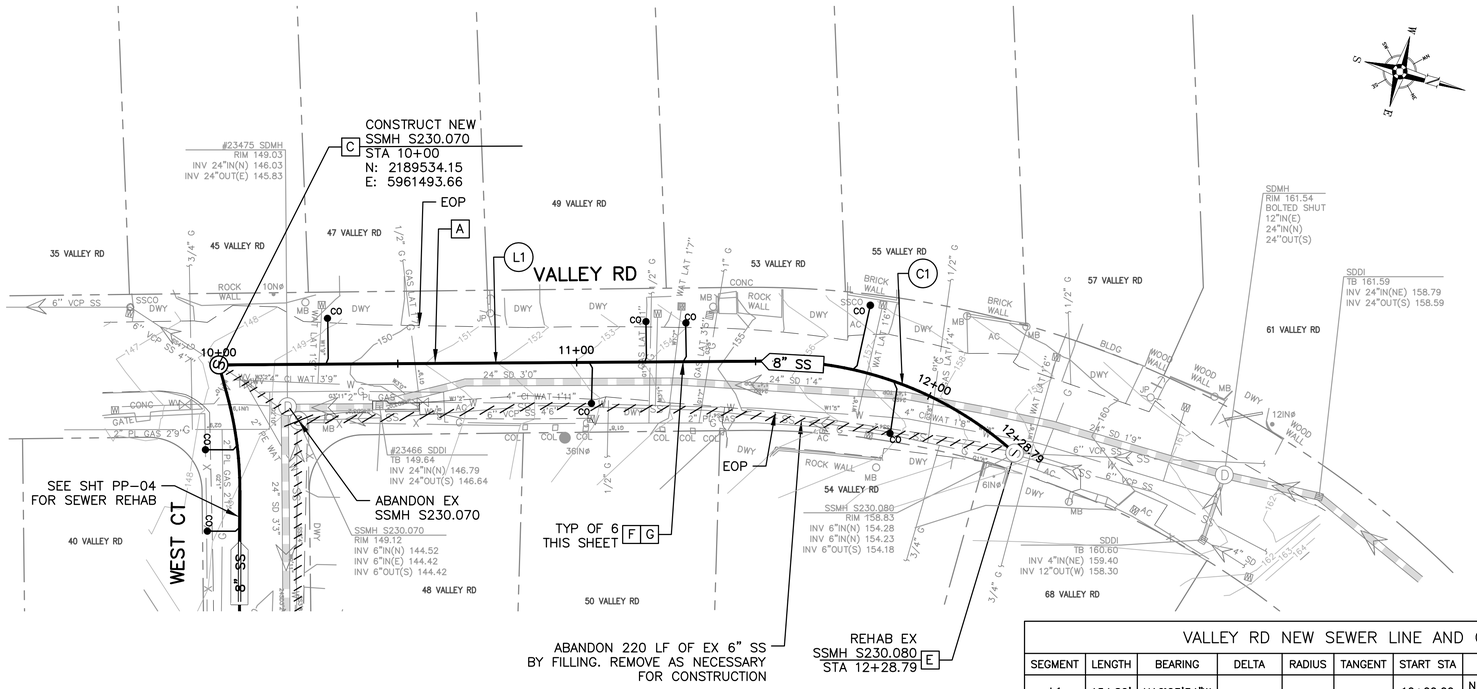
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
BOLINAS RD
STA 12+25 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-02
SHT 6 OF 54



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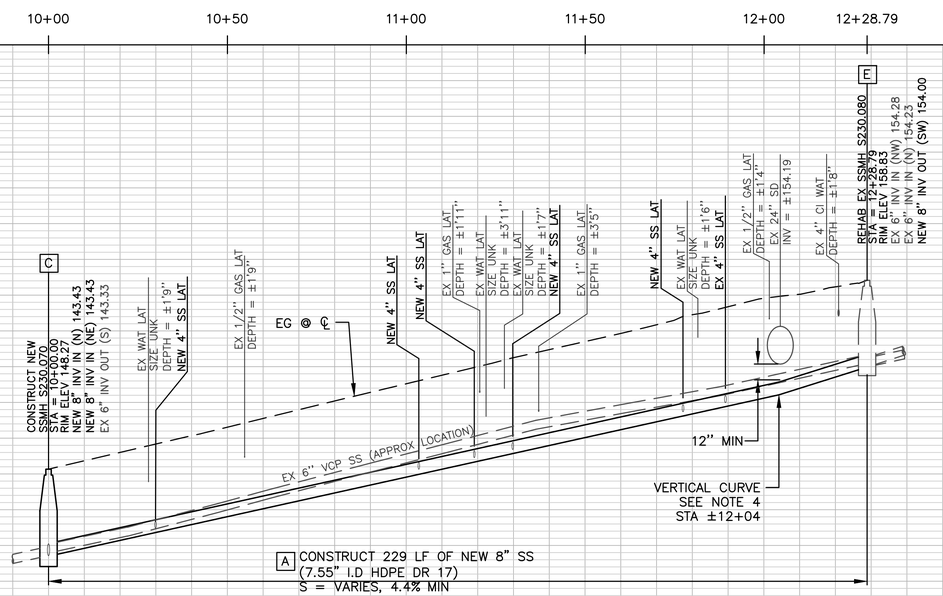
VALLEY RD NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	154.82'	N16°23'34"W				10+00.00	N = 2189534.15 E = 5961493.66	11+54.82	N = 2189682.68 E = 5961449.96
C1	73.97'		42°23'01"	100.00'	38.77'	11+54.82	N = 2189682.68 E = 5961449.96	12+28.79	N = 2189754.72 E = 5961456.01



GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — DANIEL C. WILKINS — No. C83909 — Exp. 09/30/25 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

west valley CONSTRUCTION SINCE 1958
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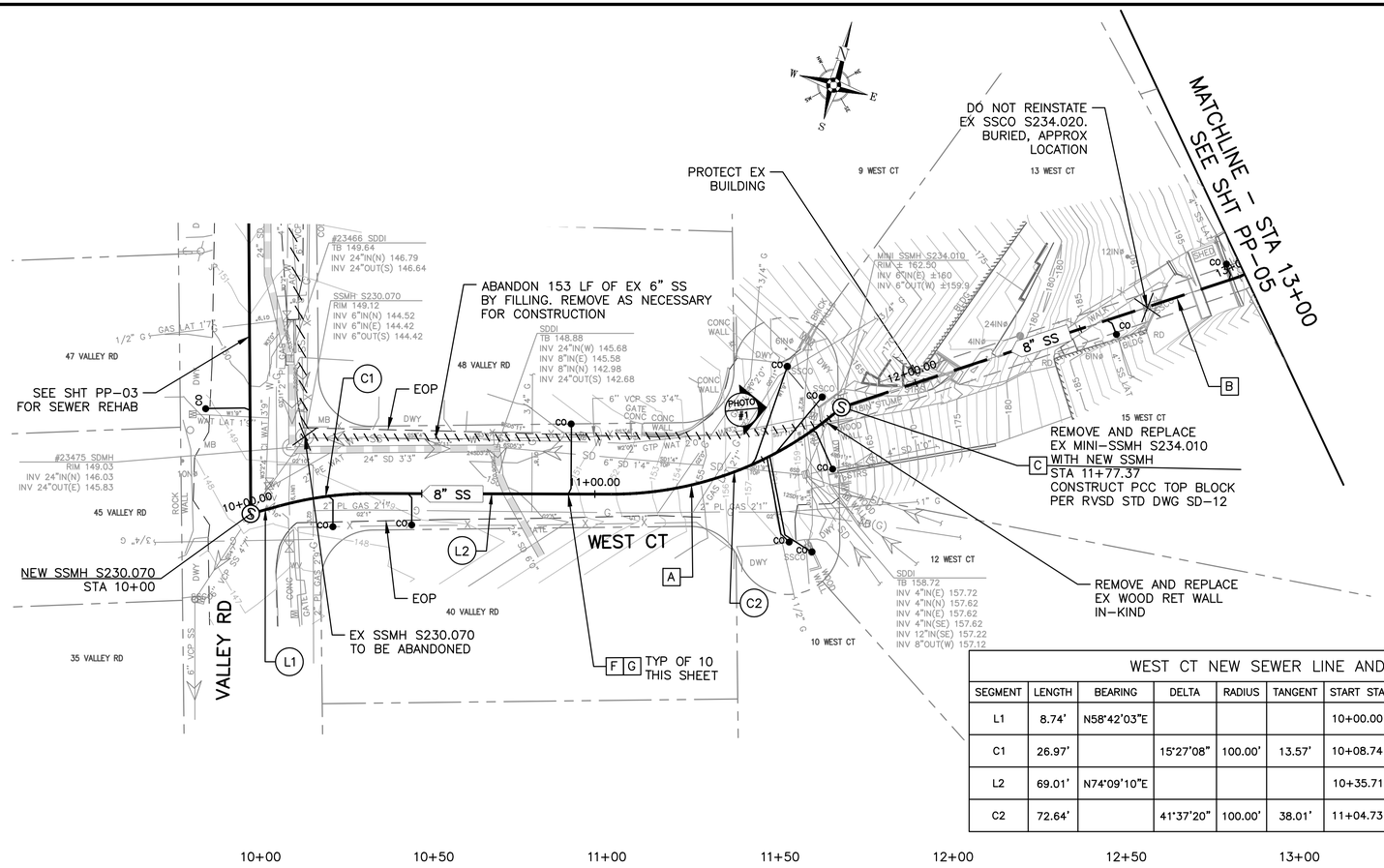
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
VALLEY RD
STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-03
SHT 7 OF 54

\\vsancon\Engineering Data\VL_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\B. Design\07 PP-03 - SA VALLEY RD.dwg Save Date: 9/5/2024 2:00 PM Plot Date: 9/5/2024 2:00 PM JosephC



WEST CT NEW SEWER LINE AND CURVE TABLE									
SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	8.74'	N58°42'03"E				10+00.00	N = 2189534.15 E = 5961493.66	10+08.74	N = 2189538.69 E = 5961501.13
C1	26.97'		15°27'08"	100.00'	13.57'	10+08.74	N = 2189538.69 E = 5961501.13	10+35.71	N = 2189549.45 E = 5961525.77
L2	69.01'	N74°09'10"E				10+35.71	N = 2189549.45 E = 5961525.77	11+04.73	N = 2189568.29 E = 5961592.16
C2	72.64'		41°37'20"	100.00'	38.01'	11+04.73	N = 2189568.29 E = 5961592.16	11+77.37	N = 2189610.72 E = 5961649.17

LEGEND OF REHABILITATION METHODS

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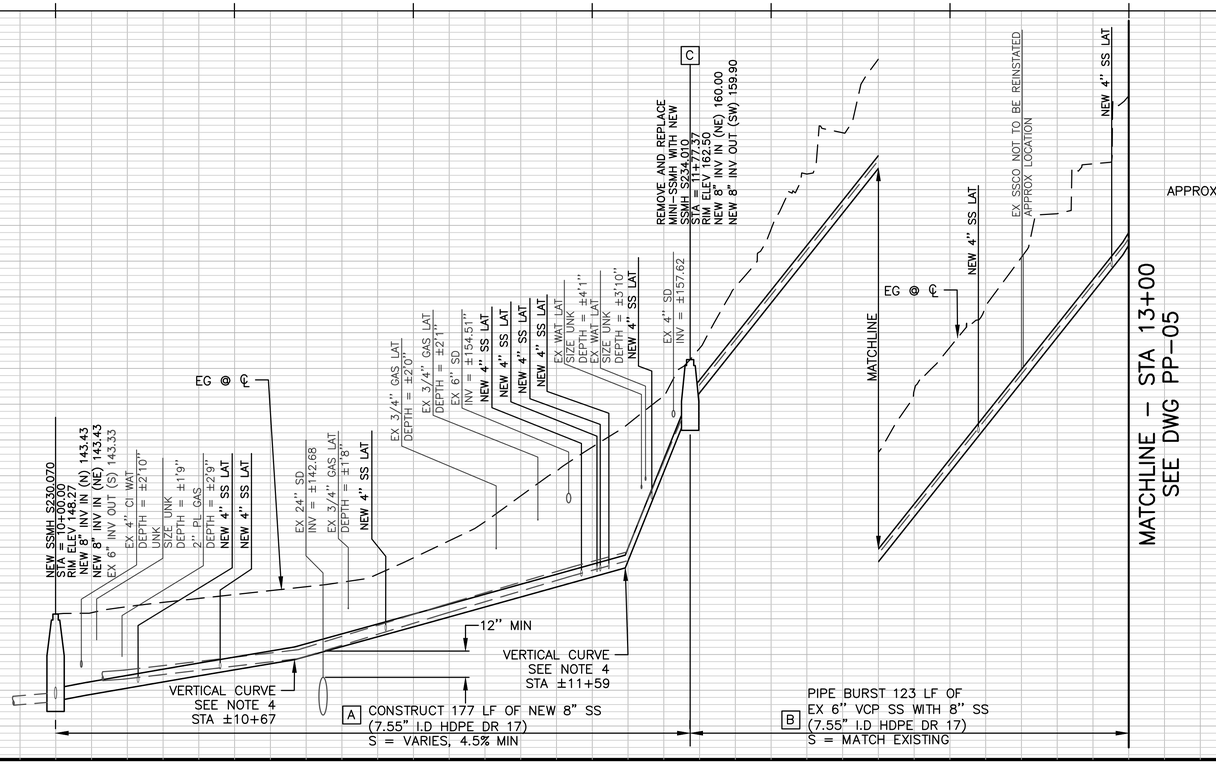

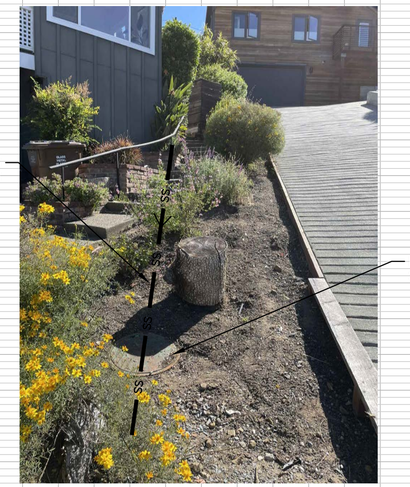

PHOTO 1 — EX SEWER
NOT TO SCALE

GRAPHIC SCALE:
20 0 20 40 60
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NO.	DATE	BY	DESCRIPTION

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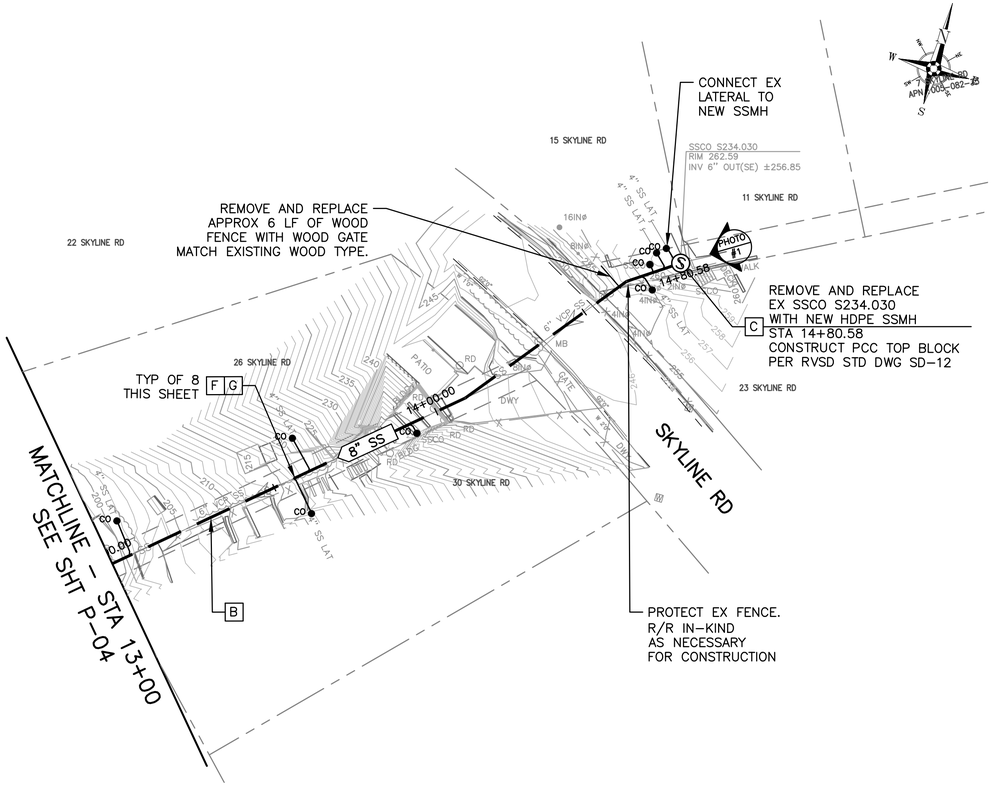
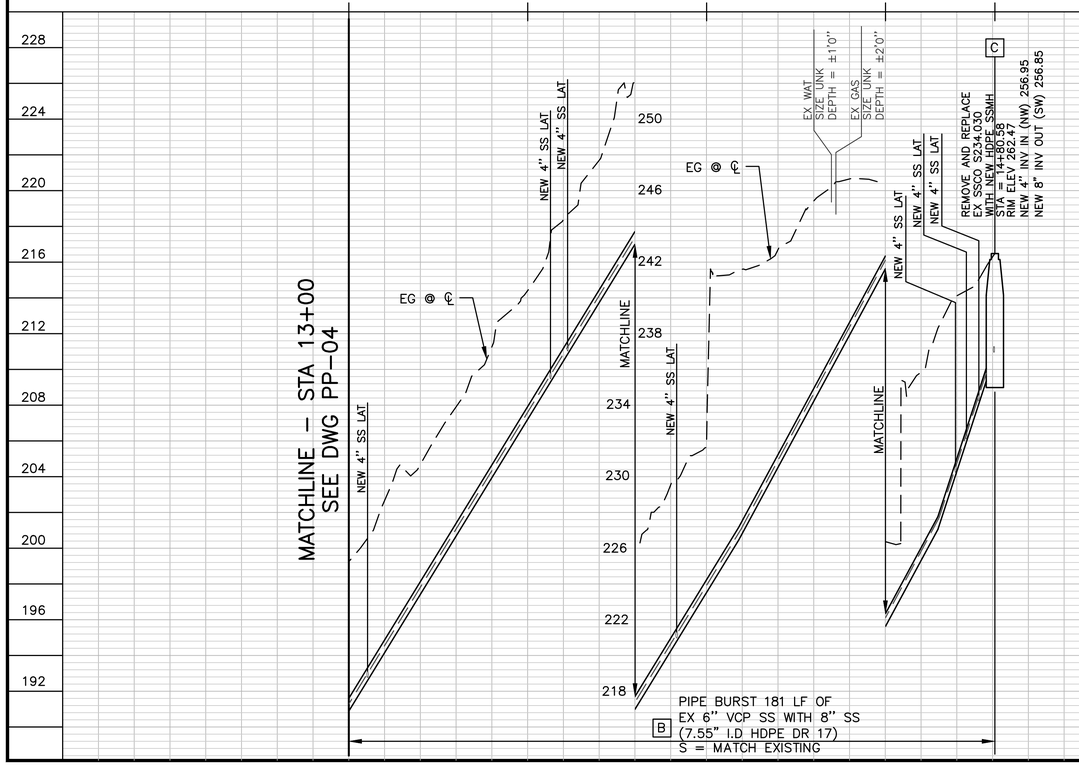
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
WEST CT
STA 10+00 TO STA 13+00

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-04
SHT 8 OF 54

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

\\vsocon\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\B. Design\08-09 PP-04 To PP-05 - SA WEST CT.dwg Save Date: 9/5/2024 2:01 PM Plot Date: 9/5/2024 2:01 PM JosephC





LEGEND OF REHABILITATION METHODS

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3. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS. SEE GENERAL NOTE 23 AND 24 ON N-01 FOR HDPE SLEEVE REQUIREMENTS.
4. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL NOTE 8 ON DWG N-01. USE CLSM BACKFILL WHERE 6" CLEARANCE CANNOT BE OBTAINED BETWEEN NEW AND EXISTING UTILITIES. IF CONFLICTS REQUIRE THE RELOCATION OF EXISTING UTILITIES, THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING UTILITY OWNER(S) FOR RELOCATION(S).

PHOTO 1 **EX SEWER**
NOT TO SCALE

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION
90% SUBMITTAL

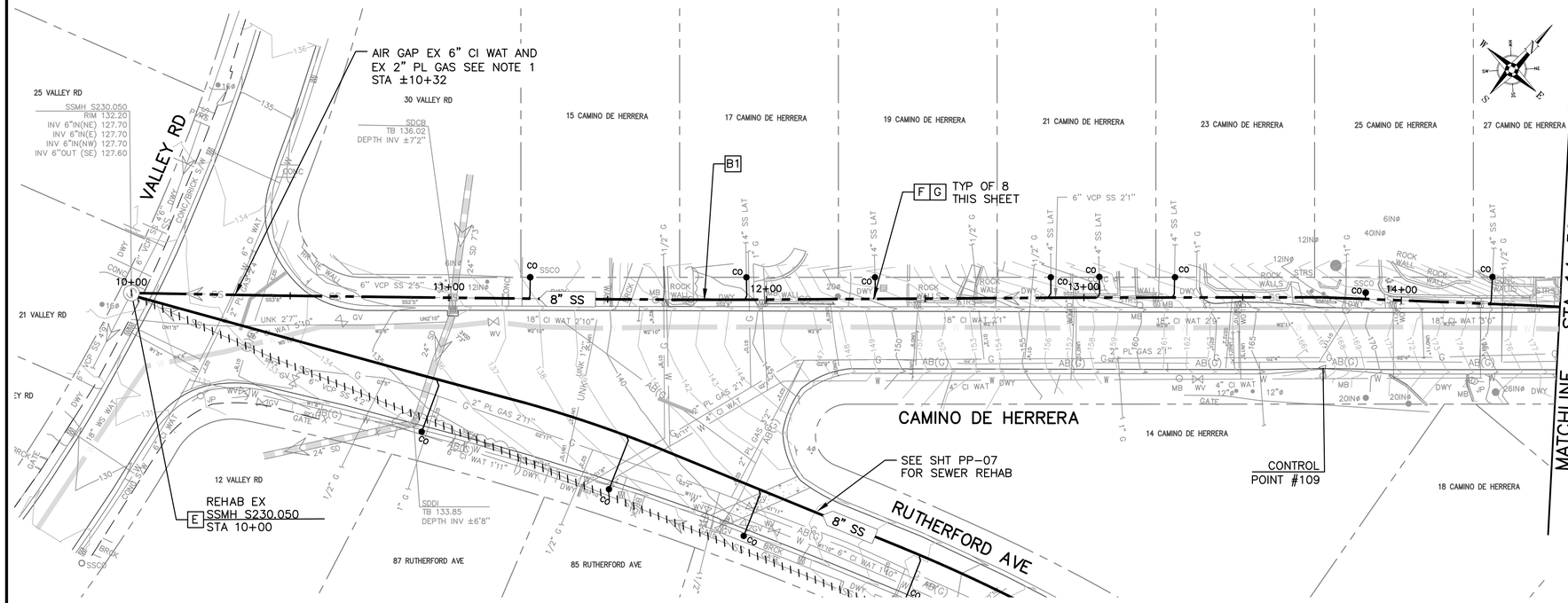
NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA. 94520
925-414-3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
WEST CT
STA 13+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-05
SHT 9 OF 54



LEGEND OF REHABILITATION METHODS

- **A** REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.
- **B** REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

  REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT
- **B1** REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.
- **C** REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03 AND SD-04. FINAL PAVING SHALL BE PER DETAIL 1/D-01.
- **D** REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.
- **E** REHABILITATE EX SSMH PER RVSD STD DWG SD-13
- **F** PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

  CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON-TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT.
- **G** CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
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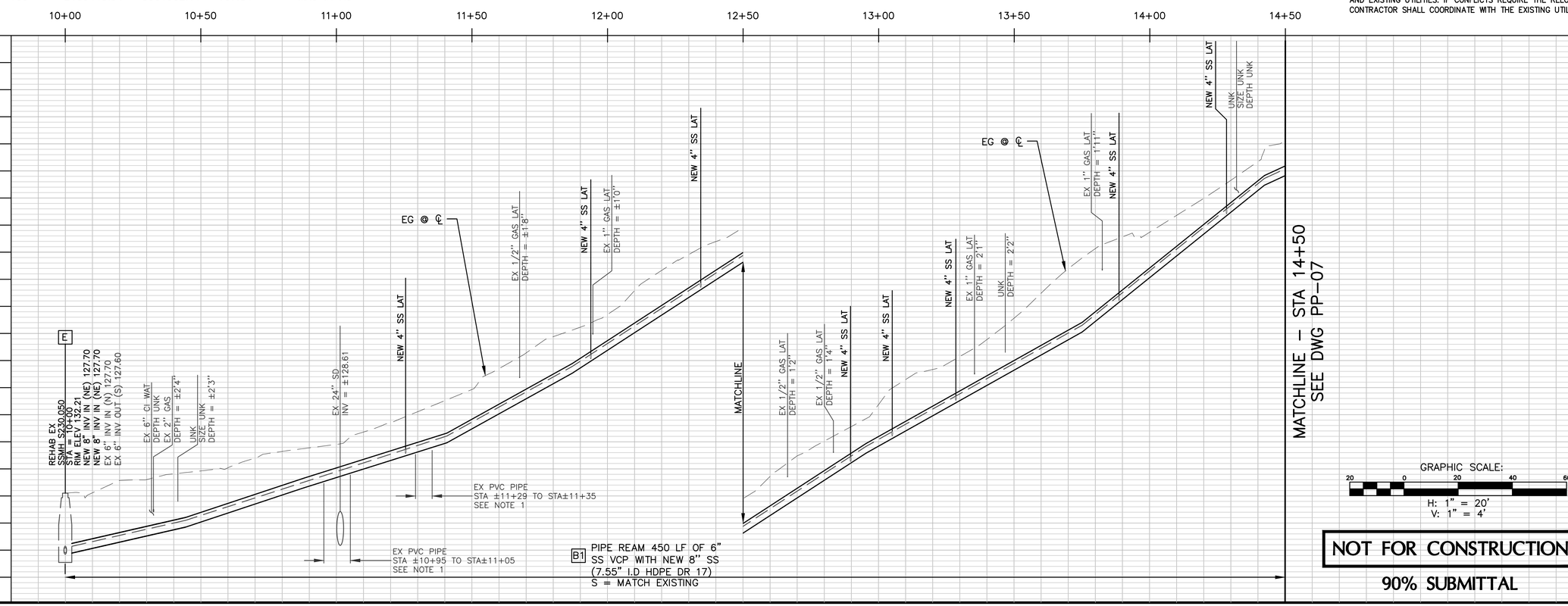
SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
109	2189445.54	5961902.11	167.84	MAG IN AC



GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

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Design - Build Services
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925-414-3001
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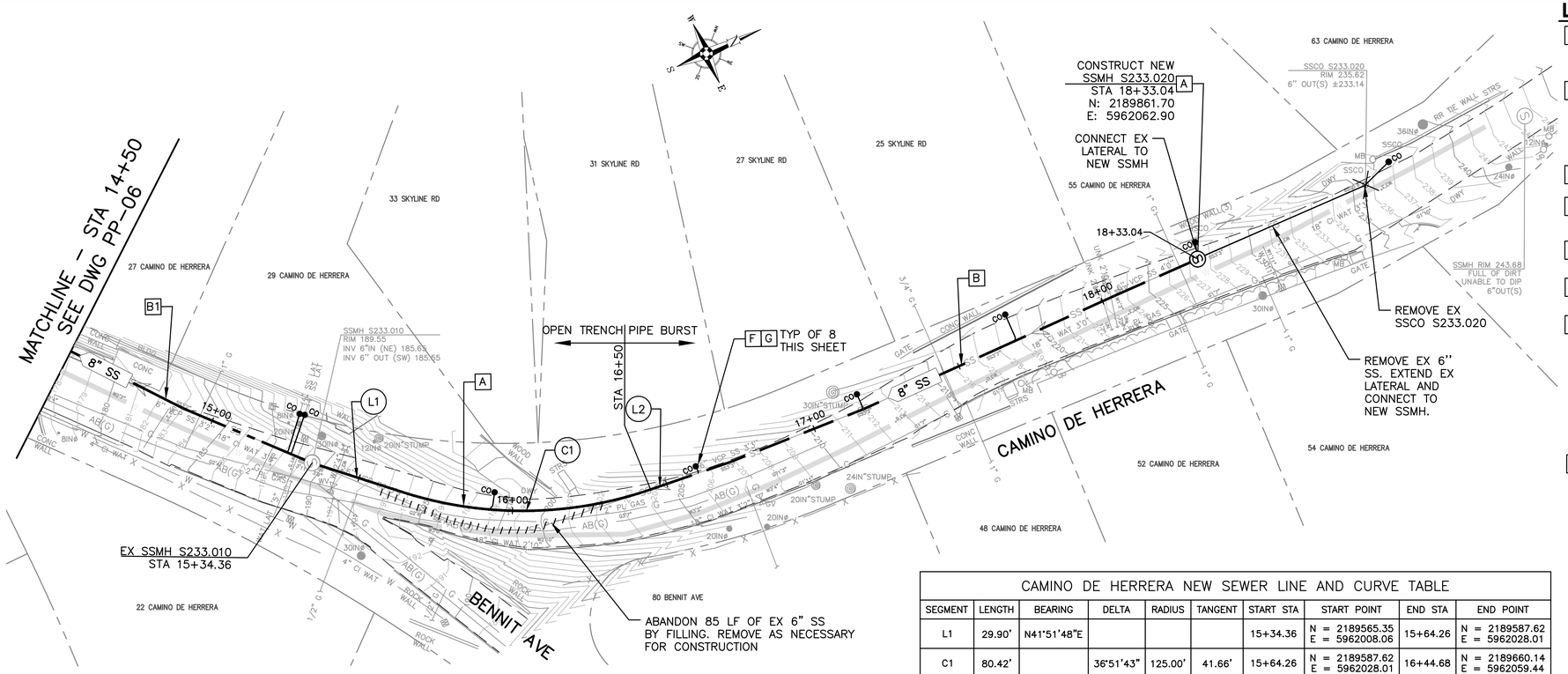
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
CAMINO DE HERRERA
STA 10+00 TO 14+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-06
SHT 10 OF 54

\\vsnscon\Engineering Data\WL_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\B. Design\10-11 PP-06 To PP-07 - SA CAMINO HERRERA.dwg Save Date: 9/5/2024 2:03 PM Plot Date: 9/5/2024 2:03 PM JosephC



LEGEND OF REHABILITATION METHODS

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CAMINO DE HERRERA NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	29.90'	N41°51'48"E				15+34.36	N = 2189565.35 E = 5962008.06	15+64.26	N = 2189587.62 E = 5962028.01
C1	80.42'		36°51'43"	125.00'	41.66'	15+64.26	N = 2189587.62 E = 5962028.01	16+44.68	N = 2189660.14 E = 5962059.44
L2	6.07'	N05°00'05"E				16+44.68	N = 2189660.14 E = 5962059.44	16+50.75	N = 2189666.19 E = 5962059.97

NOTES:

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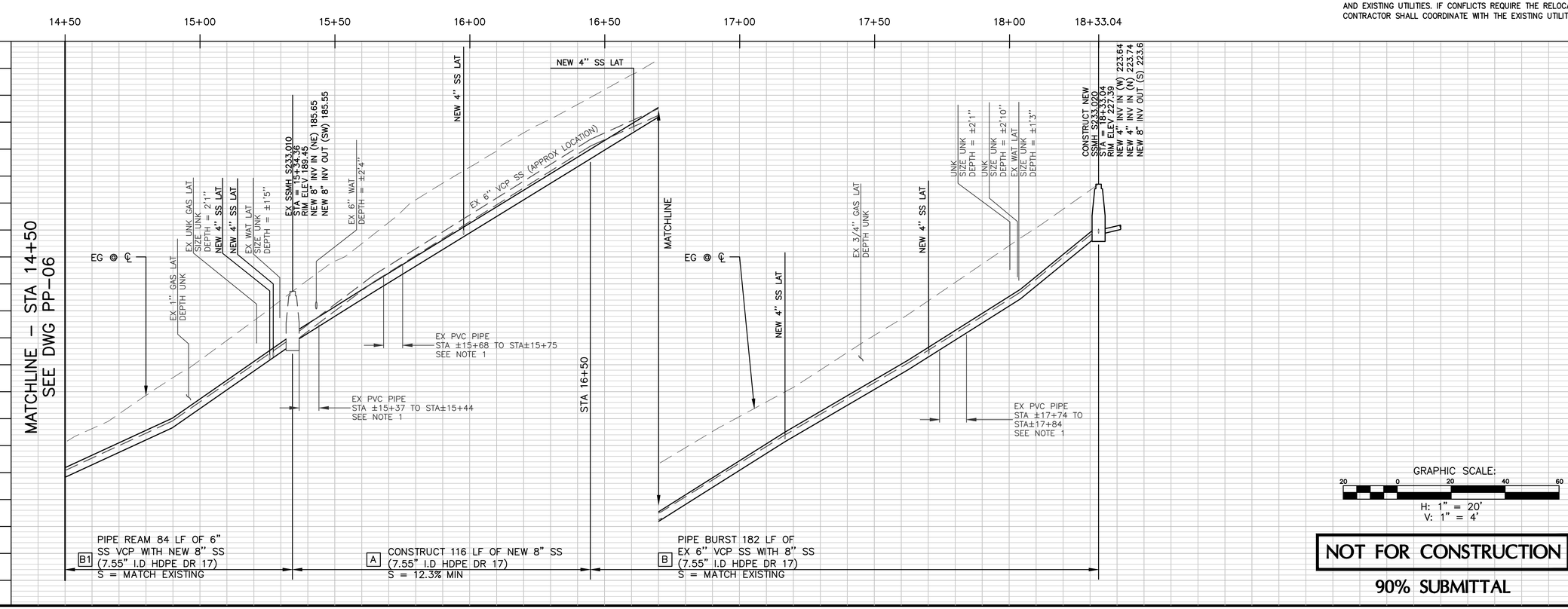

B1 PIPE REAM 84 LF OF 6" SS VCP WITH NEW 8" SS (7.55" I.D HDPE DR 17) S = MATCH EXISTING

A CONSTRUCT 116 LF OF NEW 8" SS (7.55" I.D HDPE DR 17) S = 12.3% MIN

B PIPE BURST 182 LF OF EX 6" VCP SS WITH 8" SS (7.55" I.D HDPE DR 17) S = MATCH EXISTING

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
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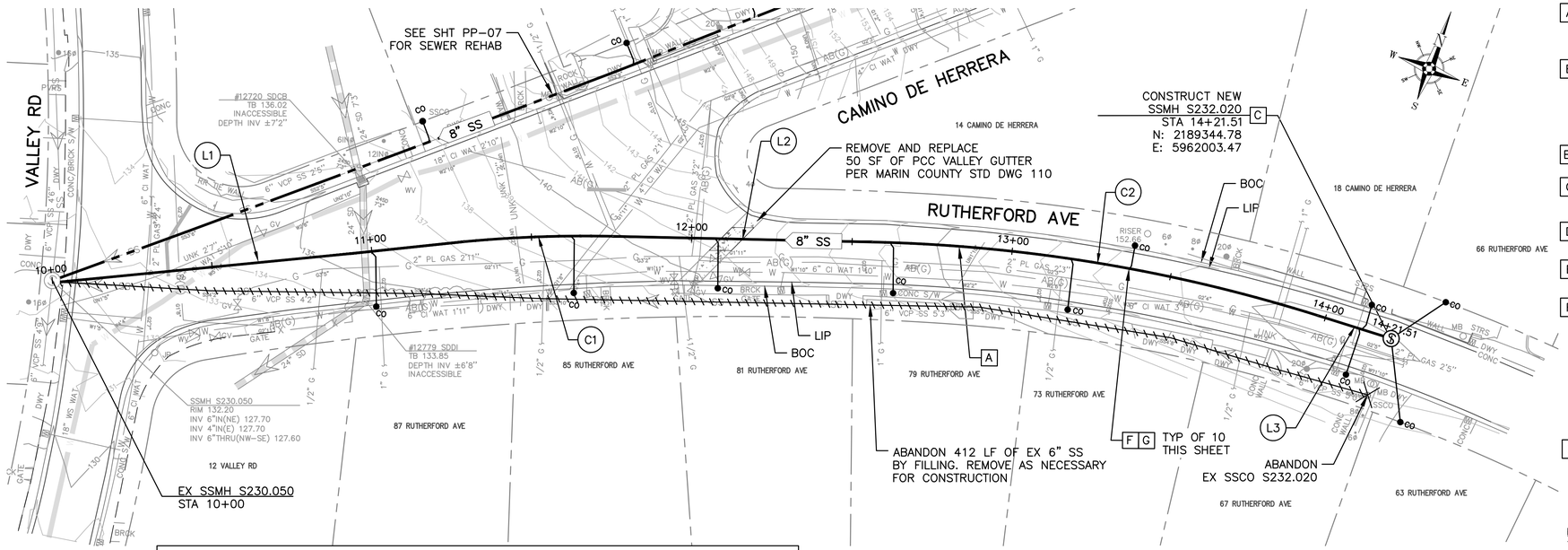
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
CAMINO DE HERRERA
STA 14+50 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-07
SHT 11 OF 54

\\vsancon\Engineering Data\WL_EXTERNAL PROJECTS\WL_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\8. Design\10-11 PP-06 To PP-07 - SA CAMINO HERRERA.dwg Save Date: 9/5/2024 2:03 PM Plot Date: 9/5/2024 2:03 PM JosephC



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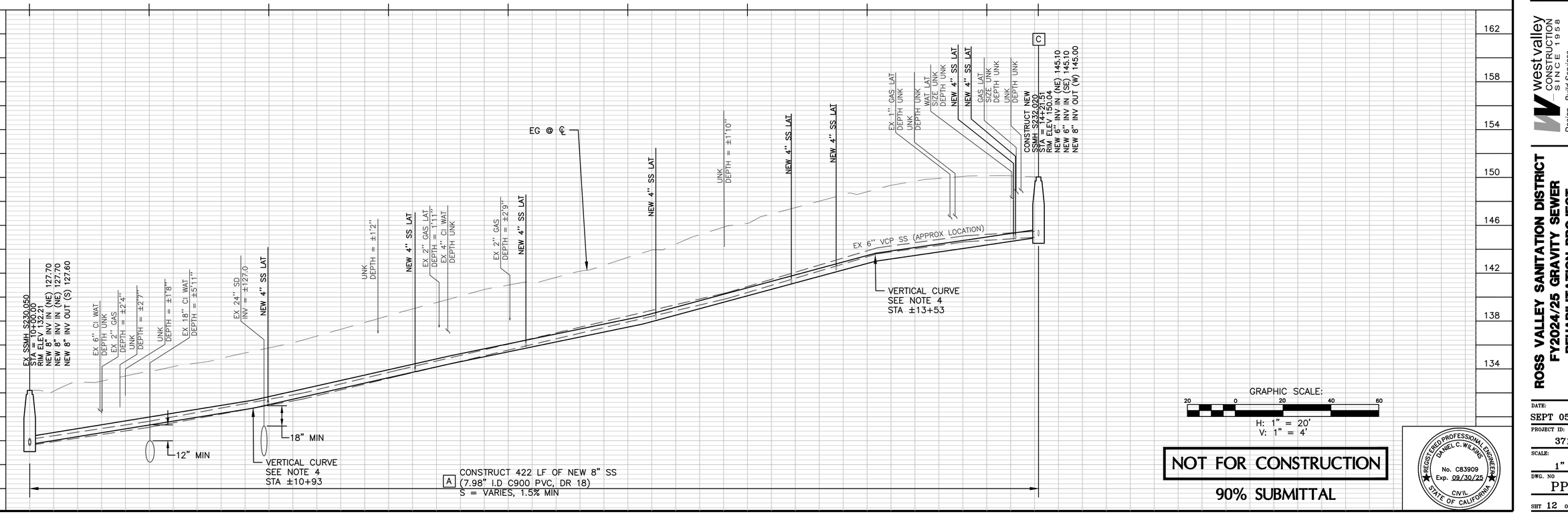
RUTHERFORD AVE NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	128.95'	N63°36'25"E				10+00.00	N = 2189212.06 E = 5961607.29	11+28.95	N = 2189269.38 E = 5961722.80
C1	46.49'		6°39'32"	400.00'	23.27'	11+28.95	N = 2189269.38 E = 5961722.80	11+75.43	N = 2189287.58 E = 5961765.55
L2	80.86'	N70°15'57"E				11+75.43	N = 2189287.58 E = 5961765.55	12+56.29	N = 2189314.89 E = 5961841.66
C2	141.27'		16°11'19"	500.00'	71.11'	12+56.29	N = 2189314.89 E = 5961841.66	13+97.56	N = 2189343.30 E = 5961979.56
L3	23.95'	N86°27'16"E				13+97.56	N = 2189343.30 E = 5961979.56	14+21.51	N = 2189344.78 E = 5962003.47



GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

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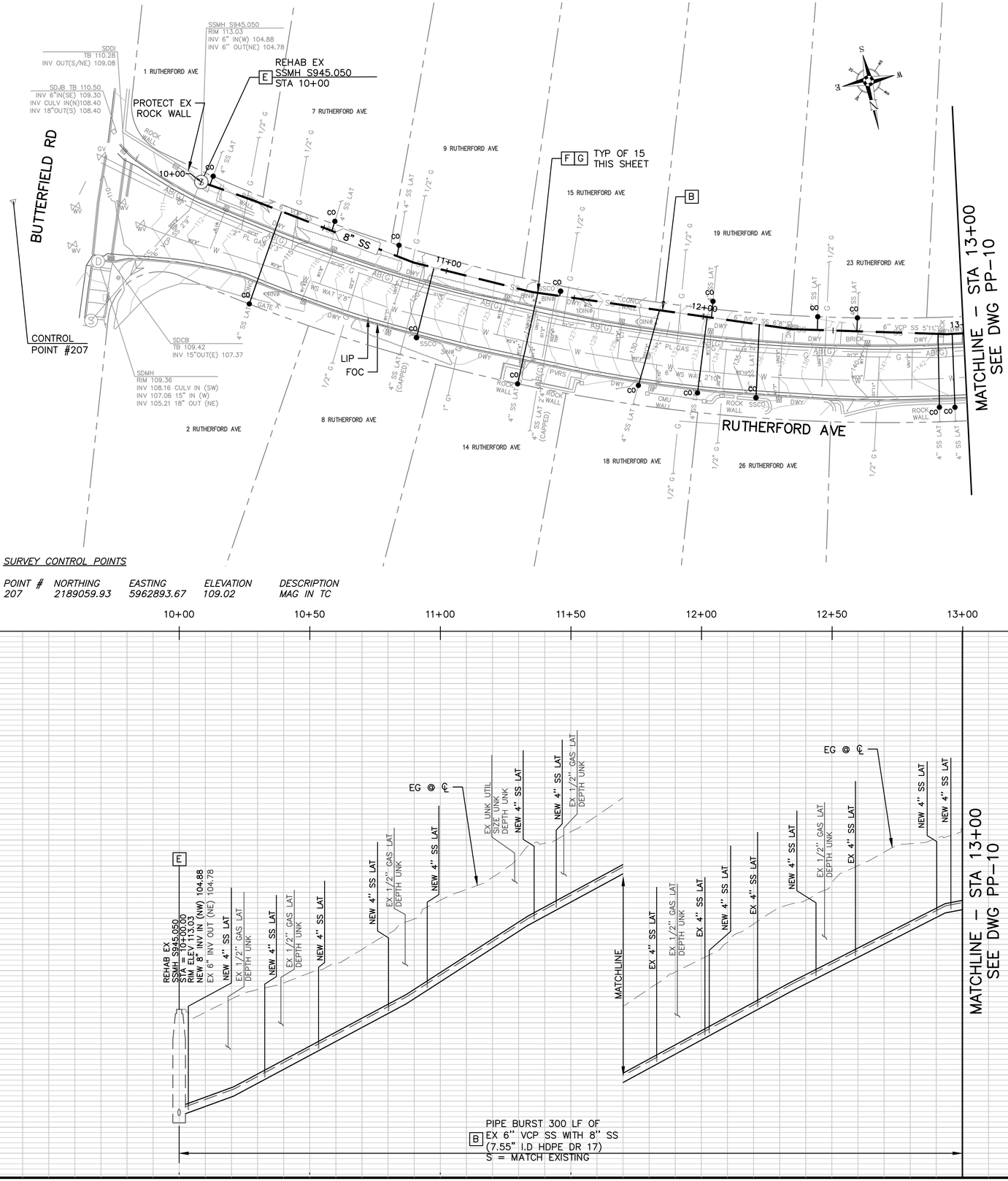
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
RUTHERFORD AVE STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-08
SHT 12 OF 54



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
207	*2189059.93*	*5962893.67*	*109.02*	*MAG IN TC*

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 1/D–01. INSTALL TRENCH DAM PER RVSD STD DWG SD–17.

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GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

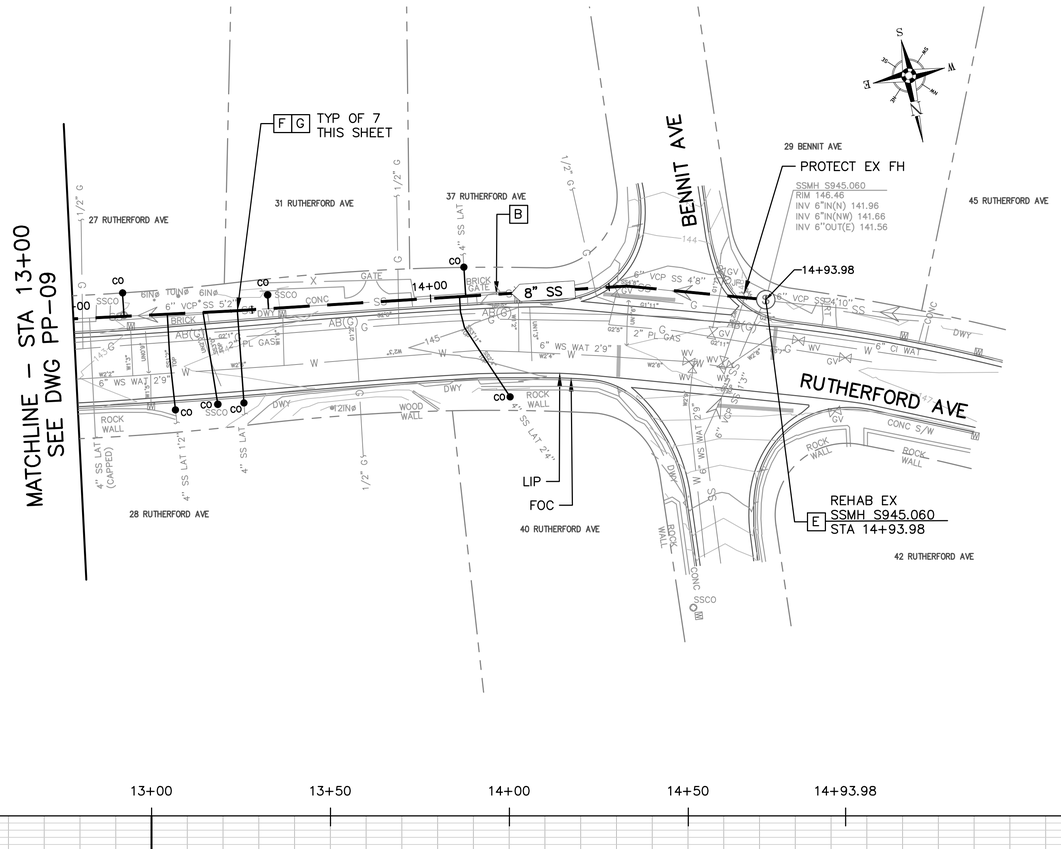
NO.	DATE	BY	DESCRIPTION

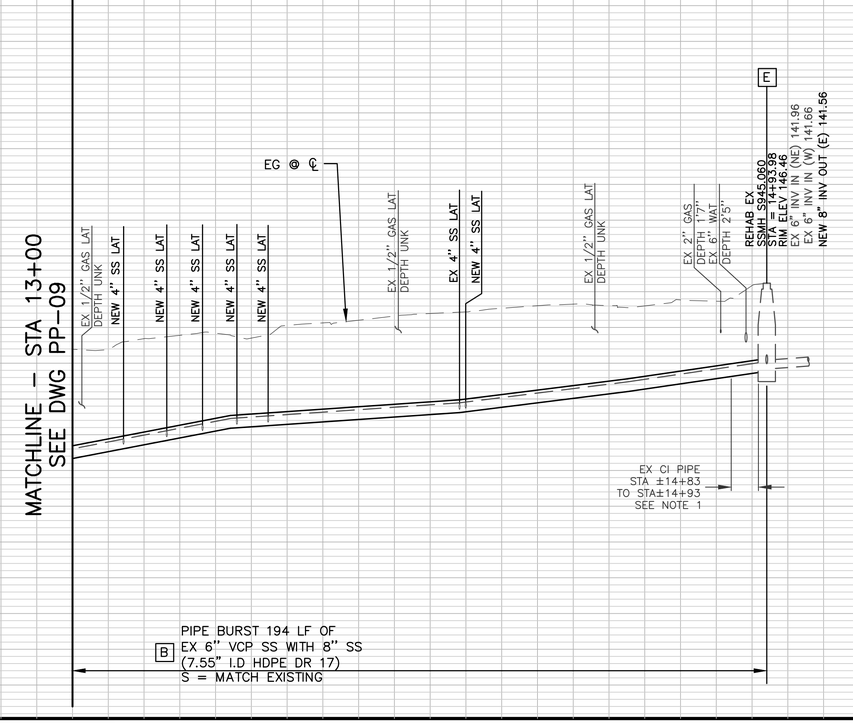
DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA. 94520
925–414–3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
REHABILITATION PROJECT
RUTHERFORD AVE
STA 10+00 TO STA 13+00

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP–09
SHT 13 OF 54





LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

B1 REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03 AND SD-04. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

D REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.

E REHABILITATE EX SSMH PER RVSD STD DWG SD-13

F PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

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G CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
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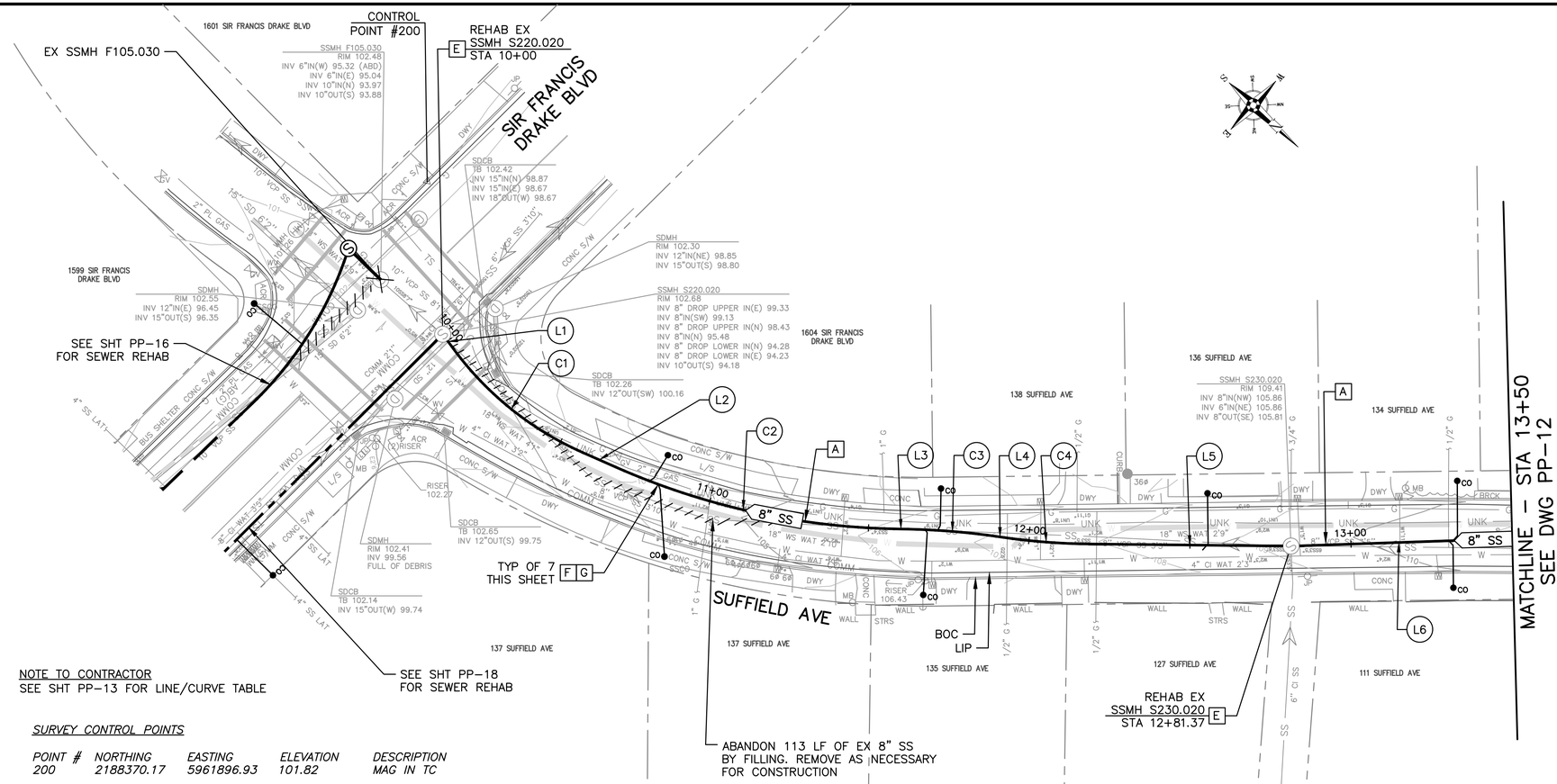
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
RUTHERFORD AVE STA 13+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-10
SHT 14 OF 54



NOTE TO CONTRACTOR
SEE SHT PP-13 FOR LINE/CURVE TABLE

SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
200	*2188370.17*	*5961896.93*	*101.82*	*MAG IN TC*

LEGEND OF REHABILITATION METHODS

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- F — PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

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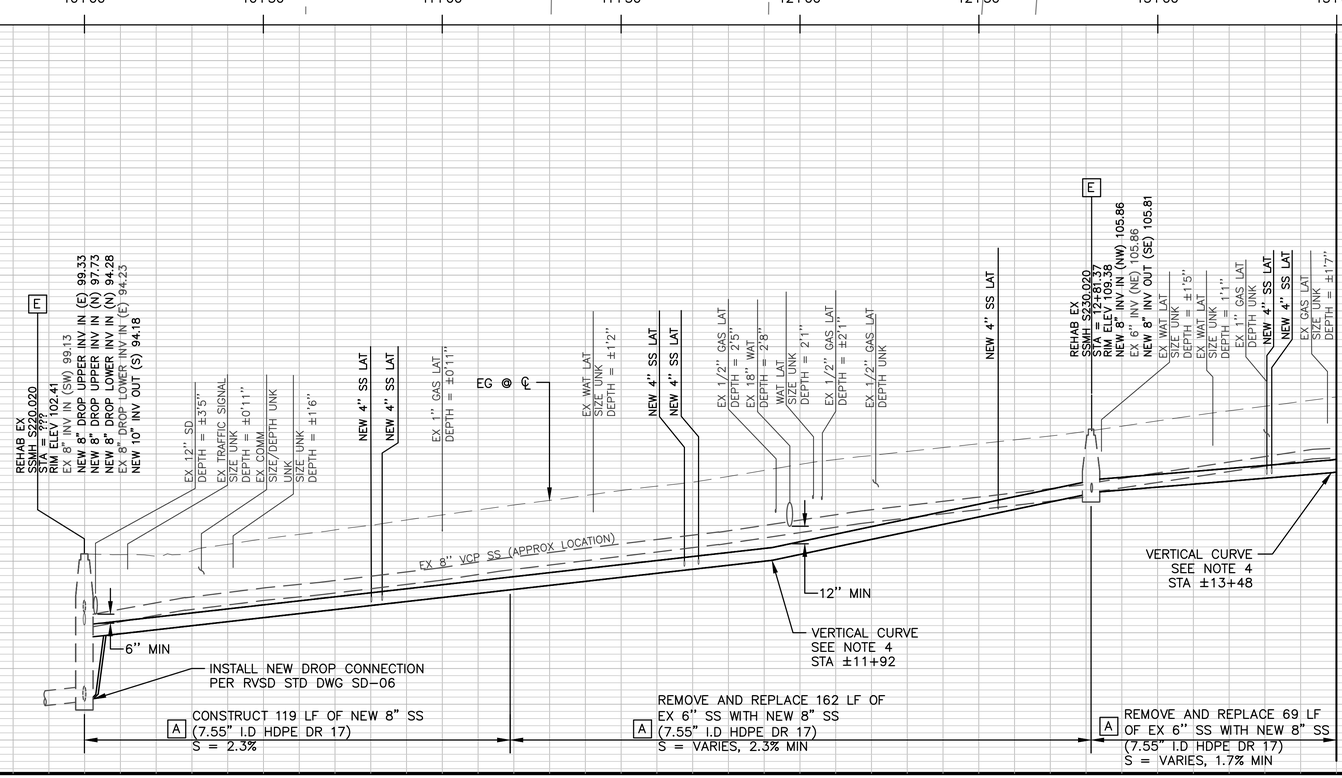

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NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT

west valley CONSTRUCTION SINCE 1958
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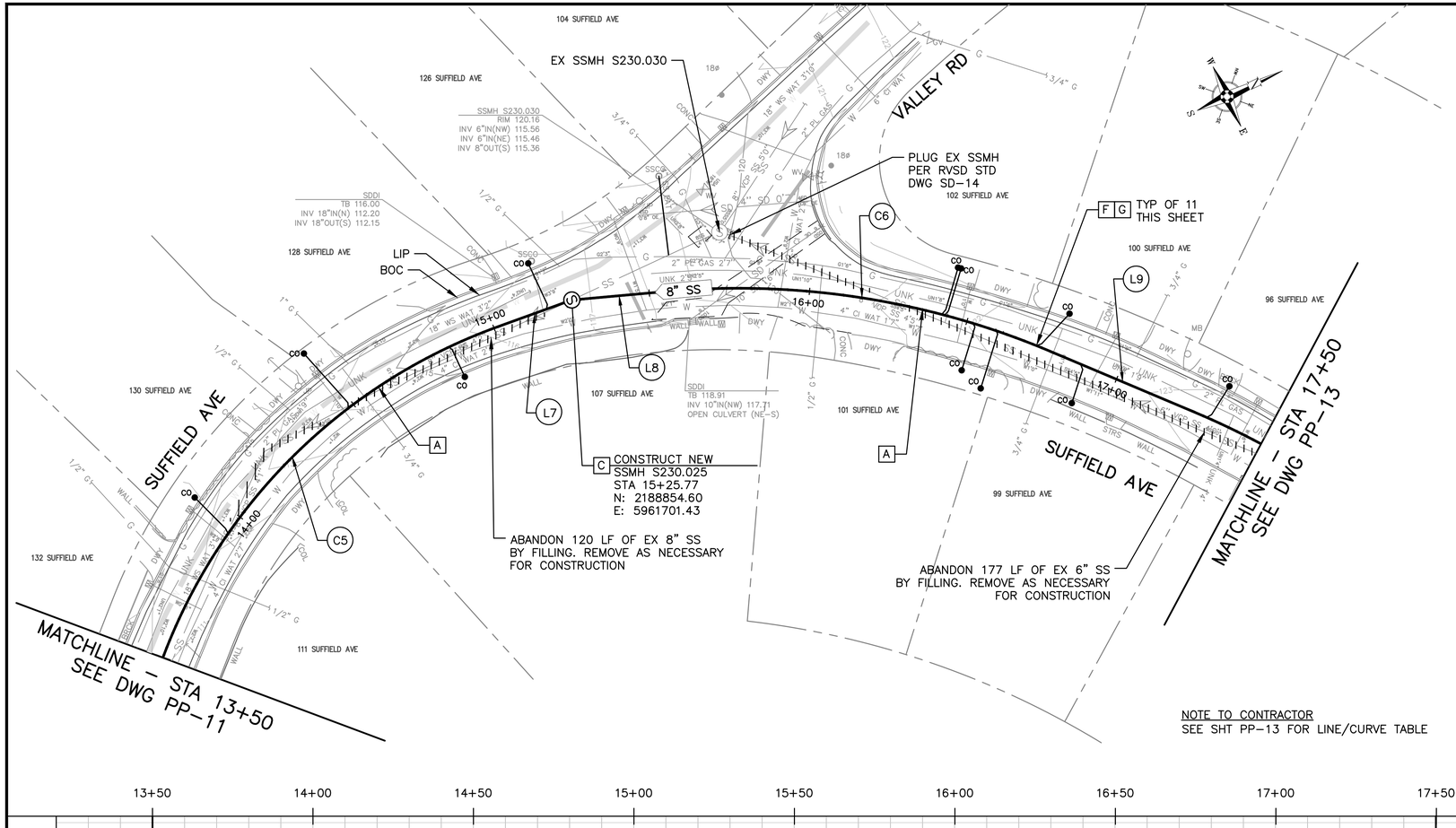
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SUFFIELD AVE
STA 10+00 TO STA 13+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-11
SHT 15 OF 54

\\vsoscon\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\B. Design\15-17 PP-11 To PP-13 - SA SUFFIELD.dwg Save Date: 9/5/2024 2:08 PM Plot Date: 9/5/2024 2:08 PM JosephC



NOTE TO CONTRACTOR
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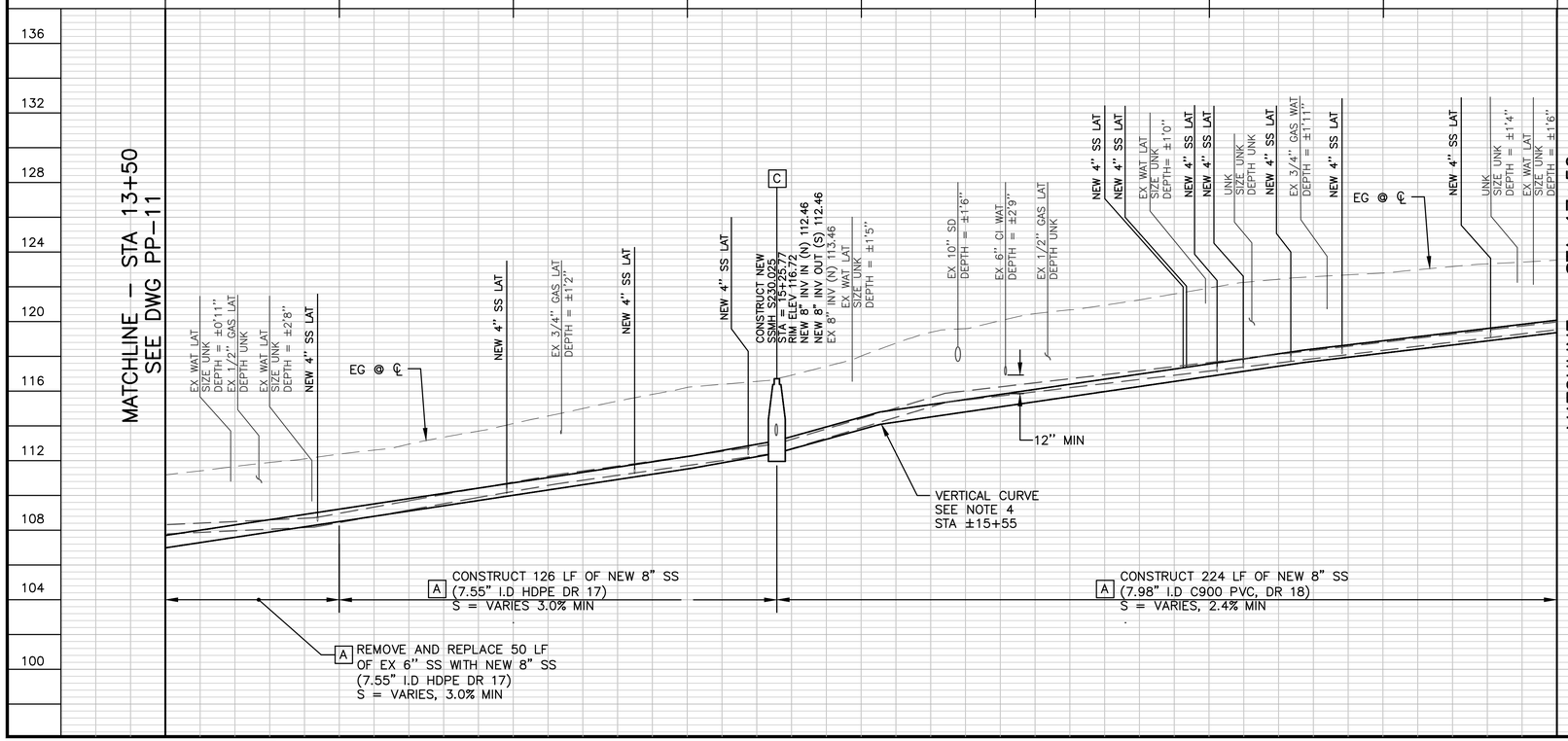

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DRAWN BY: JAC
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ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
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STA 13+50 TO STA 17+50

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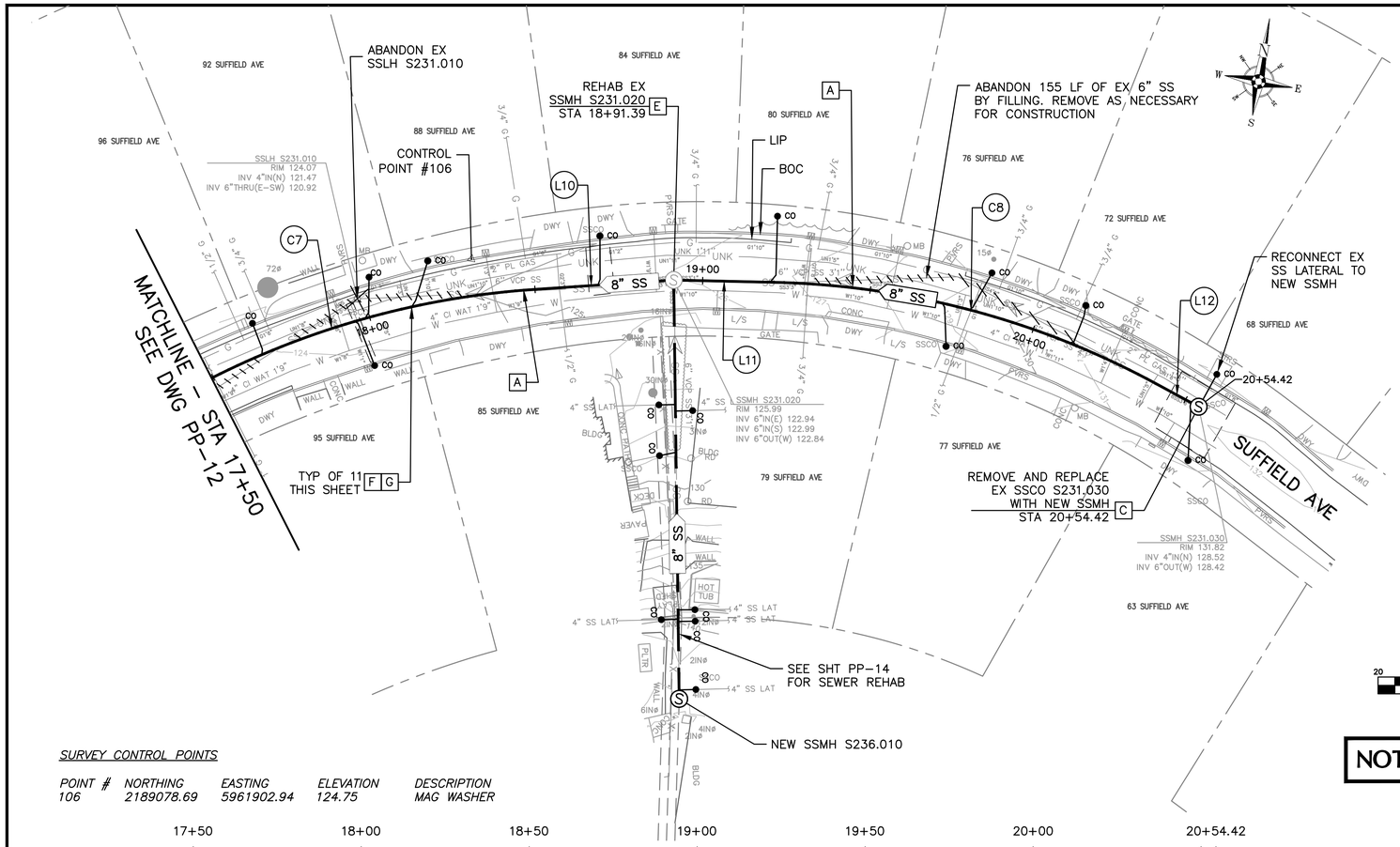
DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-12
SHT 16 OF 54

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA



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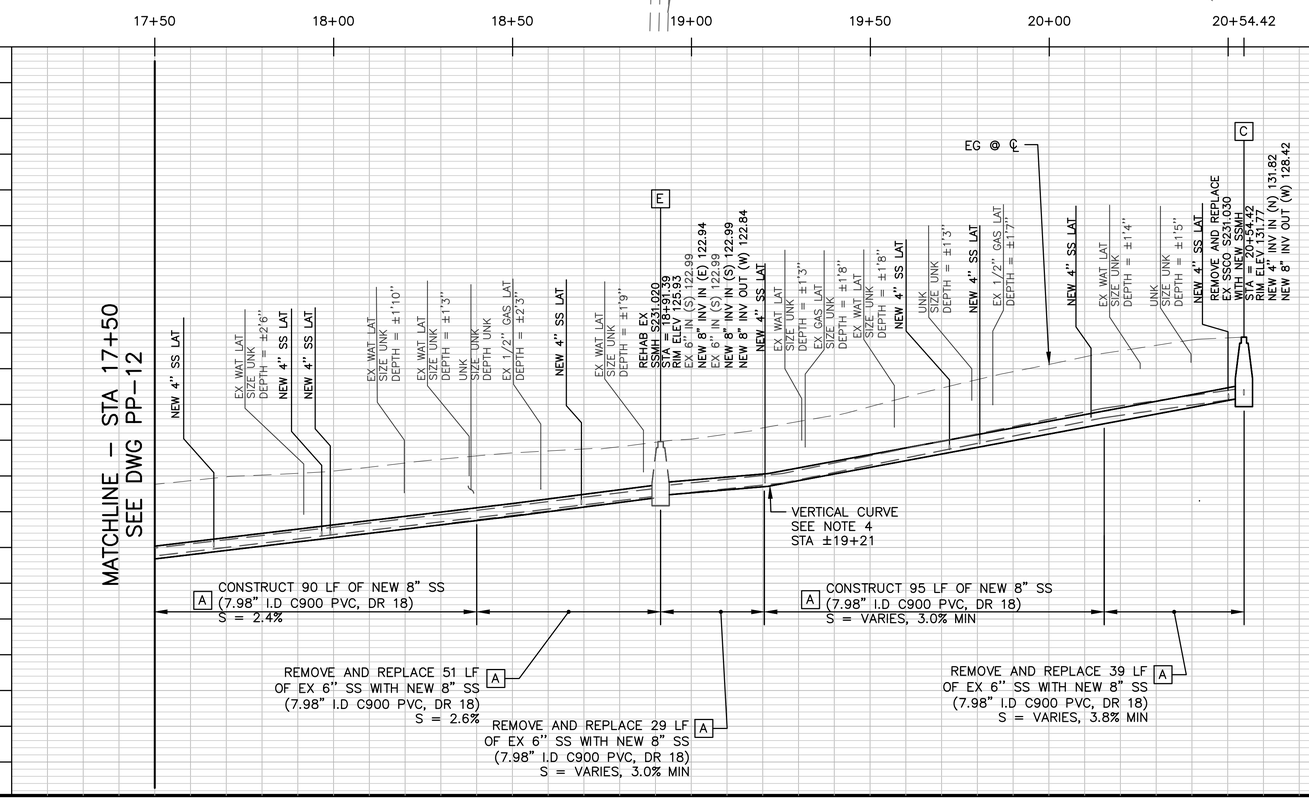
SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
106	2189078.69	5961902.94	124.75	MAG WASHER



SUFFIELD AVE NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	5.73'	N10°36'17"E				10+00.00	N = 2188406.09 E = 5961928.40	10+05.73	N = 2188411.72 E = 5961929.45
C1	51.93'		29°45'22"	100.00'	26.57'	10+05.73	N = 2188411.72 E = 5961929.45	10+57.67	N = 2188462.93 E = 5961925.62
L2	11.25'	N19°09'05"W				10+57.67	N = 2188462.93 E = 5961925.62	10+68.91	N = 2188473.56 E = 5961921.93
C2	88.90'		22°38'21"	225.00'	45.04'	10+68.91	N = 2188473.56 E = 5961921.93	11+57.82	N = 2188549.69 E = 5961877.14
L3	4.58'	N41°47'27"W				11+57.82	N = 2188549.69 E = 5961877.14	11+62.39	N = 2188553.10 E = 5961874.09
C3	27.34'		6°57'40"	225.00'	13.68'	11+62.39	N = 2188553.10 E = 5961874.09	11+89.73	N = 2188574.53 E = 5961857.16
L4	2.45'	N34°49'47"W				11+89.73	N = 2188574.53 E = 5961857.16	11+92.18	N = 2188576.55 E = 5961855.76
C4	26.40'		7°33'46"	200.00'	13.22'	11+92.18	N = 2188576.55 E = 5961855.76	12+18.58	N = 2188597.16 E = 5961839.29
L5	62.78'	N42°23'33"W				12+18.58	N = 2188597.16 E = 5961839.29	12+81.37	N = 2188643.53 E = 5961796.96
L6	66.99'	N44°56'05"W				12+81.37	N = 2188643.53 E = 5961796.96	13+48.36	N = 2188690.96 E = 5961749.65
C5	152.93'		50°04'14"	175.00'	81.74'	13+48.36	N = 2188690.96 E = 5961749.65	15+01.29	N = 2188830.22 E = 5961699.23
L7	24.47'	N05°08'09"E				15+01.29	N = 2188830.22 E = 5961699.23	15+25.77	N = 2188854.60 E = 5961701.43
L8	29.58'	N19°51'08"E				15+25.77	N = 2188854.60 E = 5961701.43	15+55.34	N = 2188882.42 E = 5961711.47
C6	122.27'		28°01'23"	250.00'	62.39'	15+55.34	N = 2188882.42 E = 5961711.47	16+77.62	N = 2188982.94 E = 5961778.93
L9	48.91'	N47°52'31"E				16+77.62	N = 2188982.94 E = 5961778.93	17+26.53	N = 2189015.75 E = 5961815.21
C7	123.40'		28°16'55"	250.00'	62.99'	17+26.53	N = 2189015.75 E = 5961815.21	18+49.93	N = 2189073.07 E = 5961923.08
L10	41.45'	N76°09'26"E				18+49.93	N = 2189073.07 E = 5961923.08	18+91.39	N = 2189082.99 E = 5961963.32
L11	30.05'	N81°17'54"E				18+91.39	N = 2189082.99 E = 5961963.32	19+21.44	N = 2189087.53 E = 5961993.03
C8	118.34'		27°07'21"	250.00'	60.30'	19+21.44	N = 2189087.53 E = 5961993.03	20+39.78	N = 2189077.60 E = 5962109.85
L12	14.64'	S71°34'45"E				20+39.78	N = 2189077.60 E = 5962109.85	20+54.42	N = 2189072.97 E = 5962123.74

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

SCALE: 1" = 20'
DWG. NO PP-13
SHT 17 OF 54

DATE: SEPT 05, 2024
PROJECT ID: 371282

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA, 94520
925-414-3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SUFFIELD AVE
STA 17+50 TO END

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

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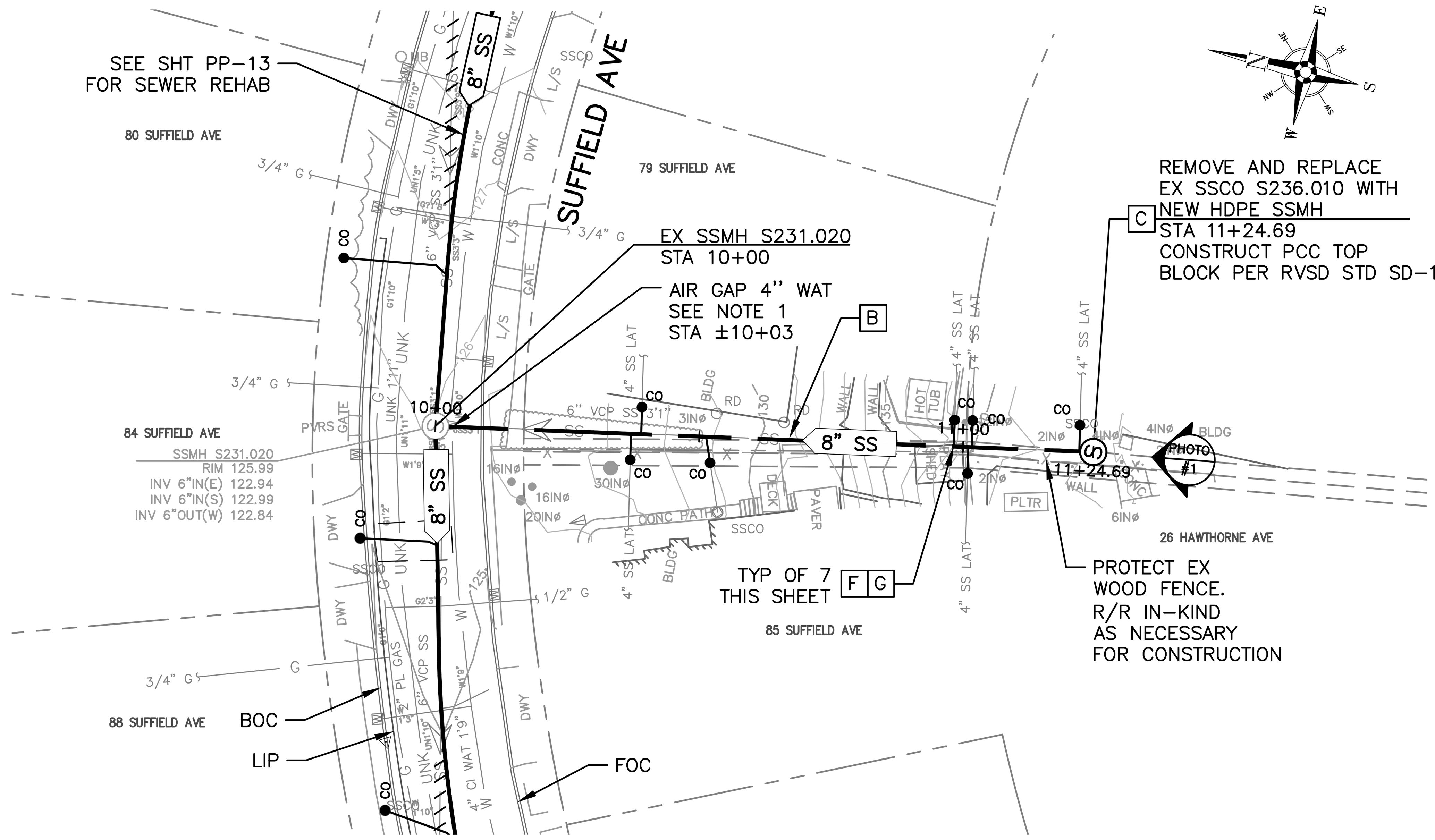

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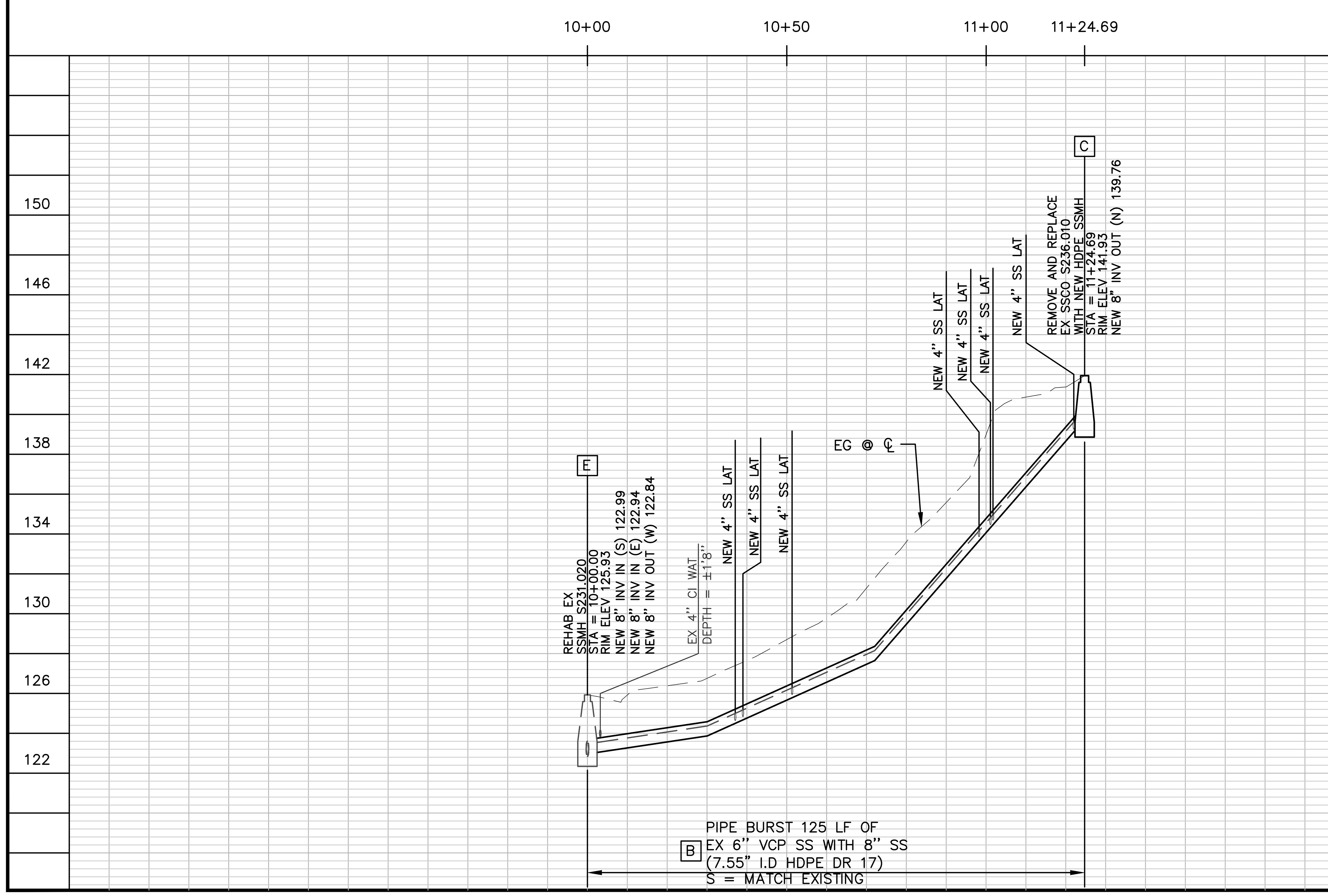

PHOTO 1 **EX SEWER**
NOT TO SCALE

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
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NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

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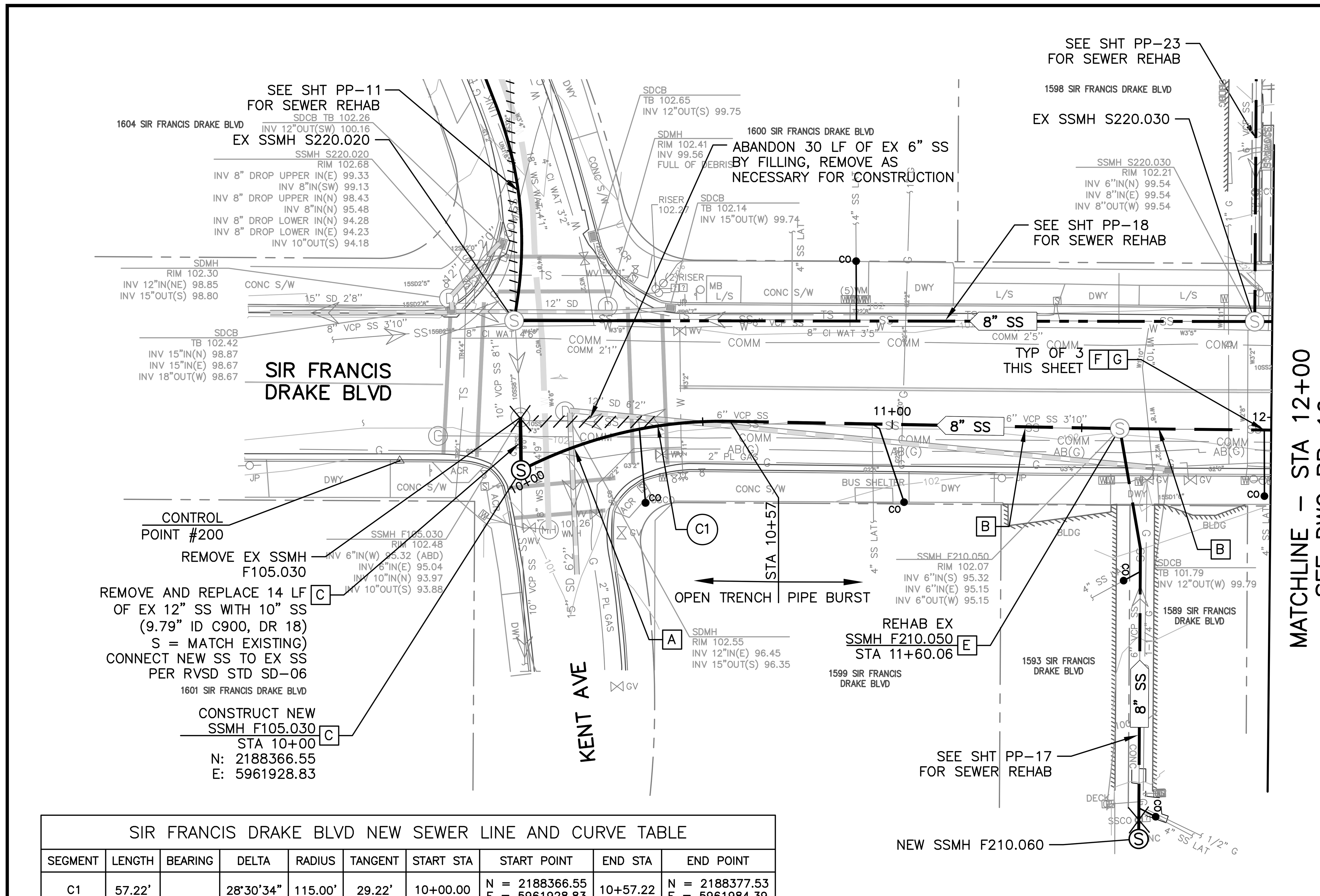
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
79 SUFFIELD AVE EASEMENT STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-14
SHT 18 OF 54

\\vsacon\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\8. Design\18 PP-14 - SA 79 SUFFIELD.dwg Save Date: 9/5/2024 2:09 PM Plot Date: 9/5/2024 2:09 PM JosephC



SIR FRANCIS DRAKE BLVD NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
C1	57.22'		28°30'34"	115.00'	29.22'	10+00.00	N = 2188366.55 E = 5961928.83	10+57.22	N = 2188377.53 E = 5961984.39

LEGEND OF REHABILITATION METHODS

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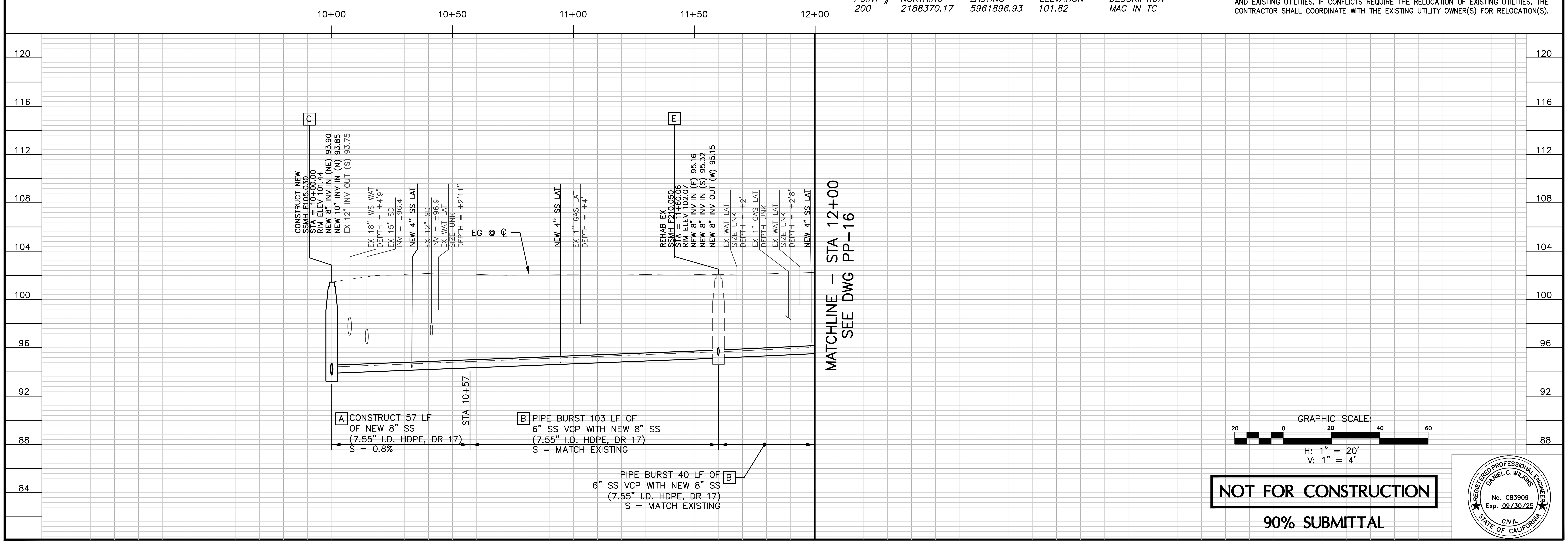
SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	2188370.17	5961896.93	101.82	MAG IN TC



GRAPHIC SCALE:
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

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DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

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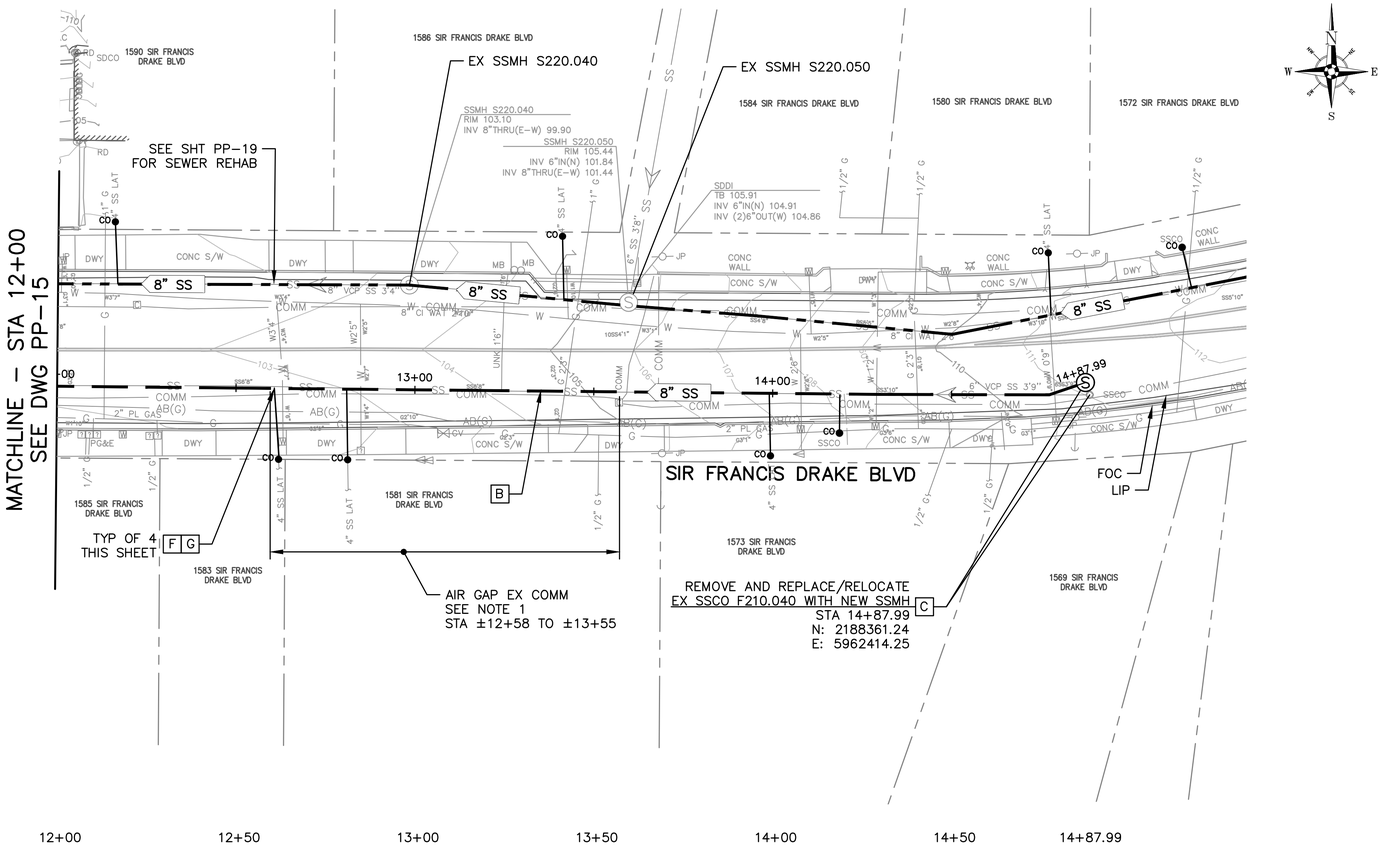
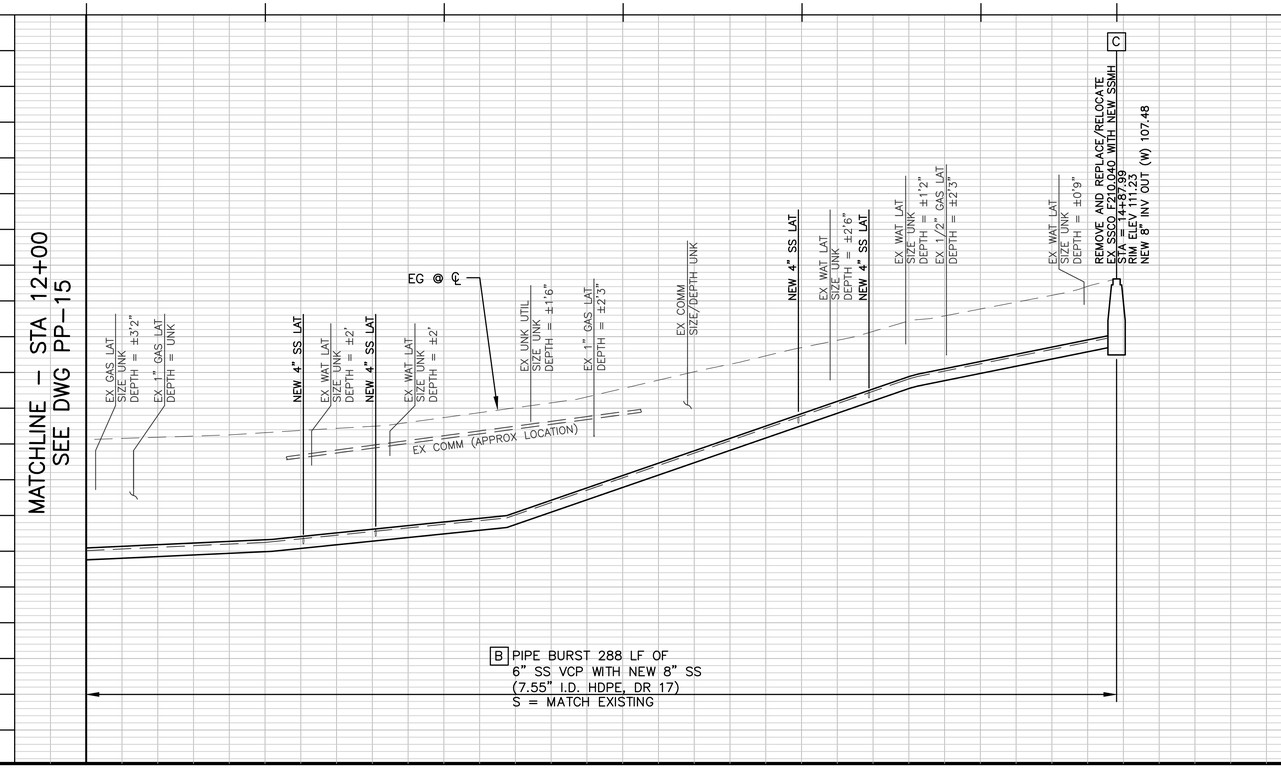
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SIR FRANCIS DRAKE BLVD STA 10+00 TO STA 12+00

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-15
SHT 19 OF 54





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90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
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Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

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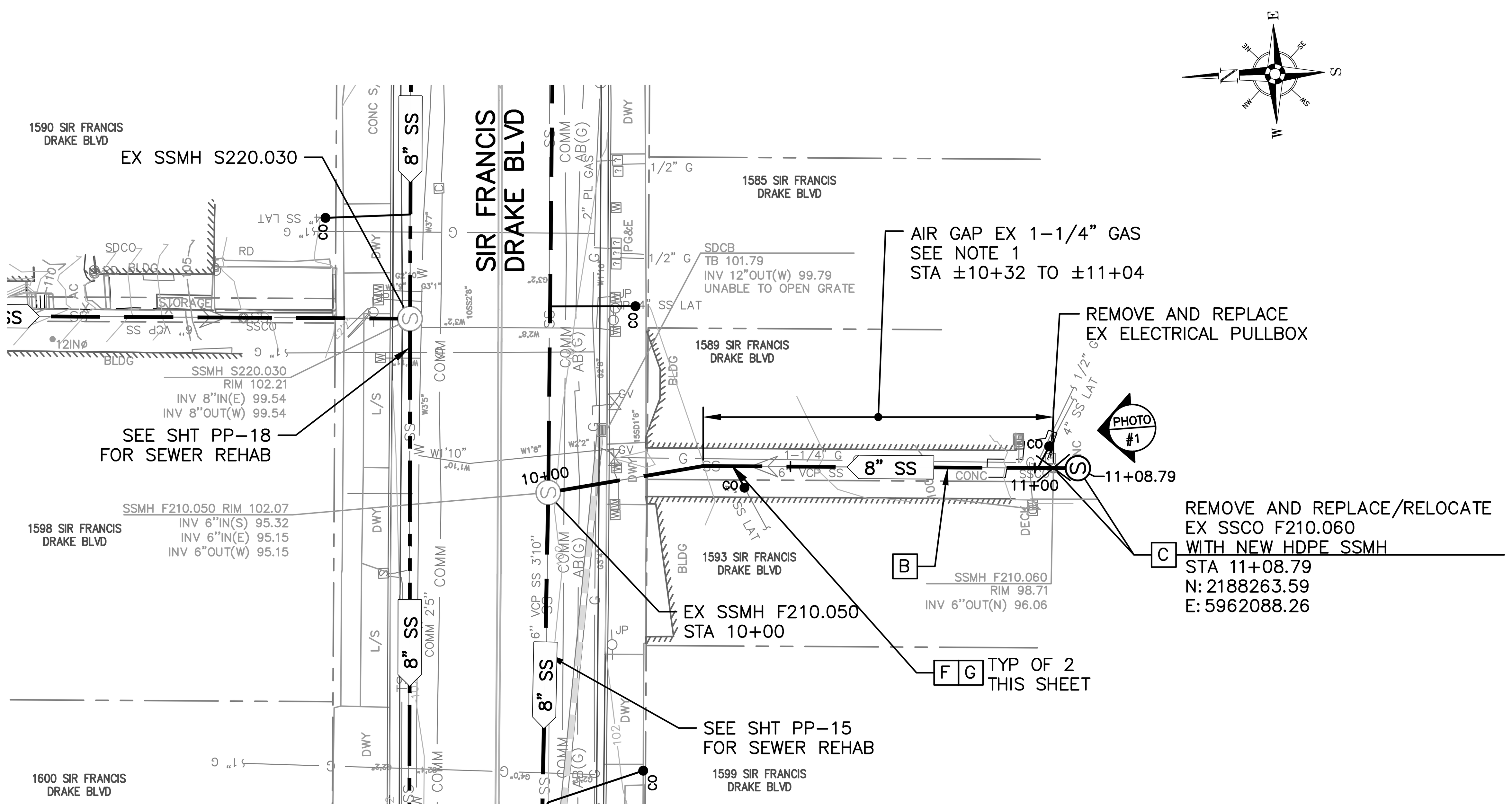
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SIR FRANCIS DRAKE BLVD SOUTH
STA 12+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP–16
SHT 20 OF 54



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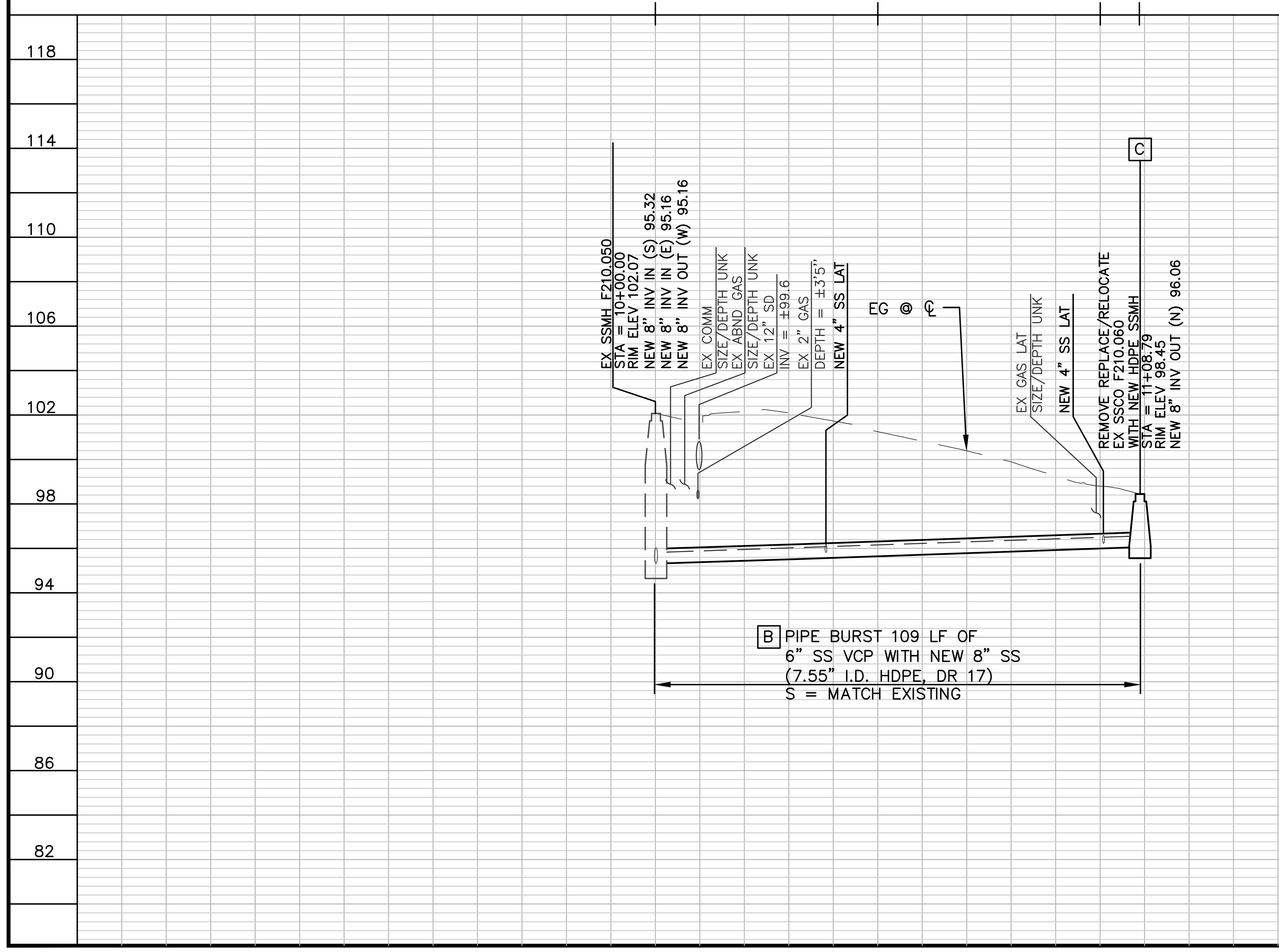

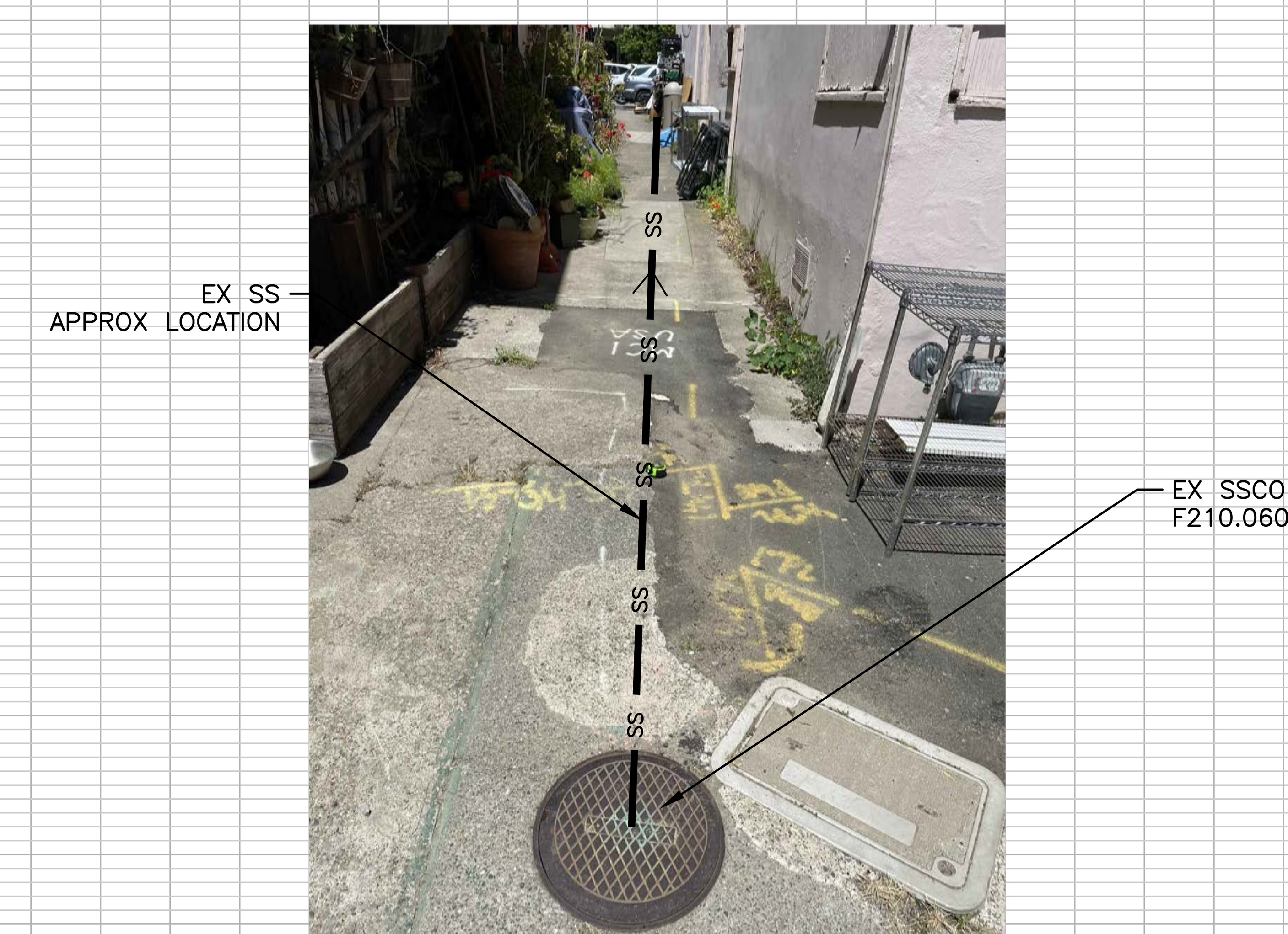

PHOTO 1 **EX SEWER**
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DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

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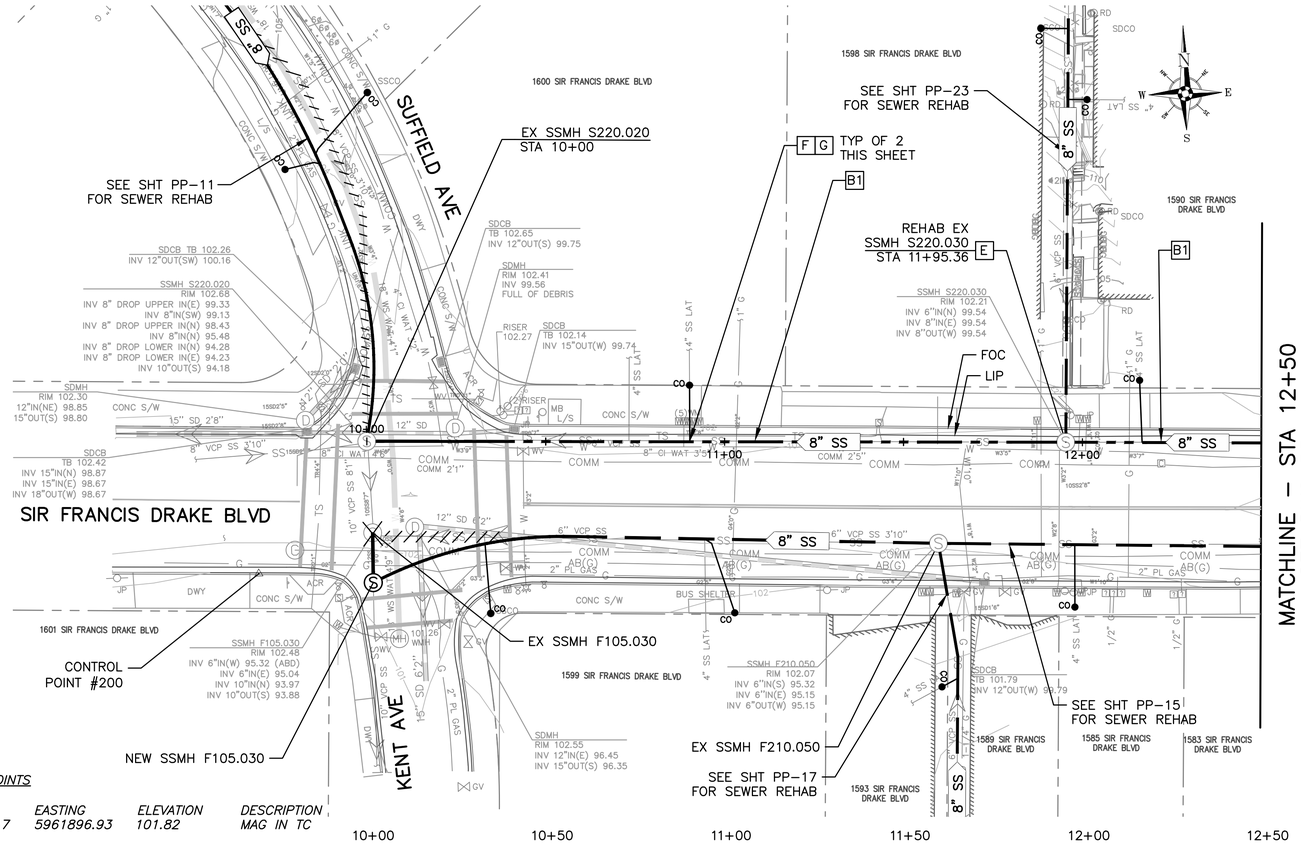
1589 SIR FRANCIS DRAKE BLVD EASEMENT
STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-17
SHT 21 OF 54

\\rvascon\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\8. Design\21 PP-17 - SA 1589 SFDB.dwg Save Date: 9/5/2024 3:29 PM Plot Date: 9/5/2024 3:29 PM JosephC



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
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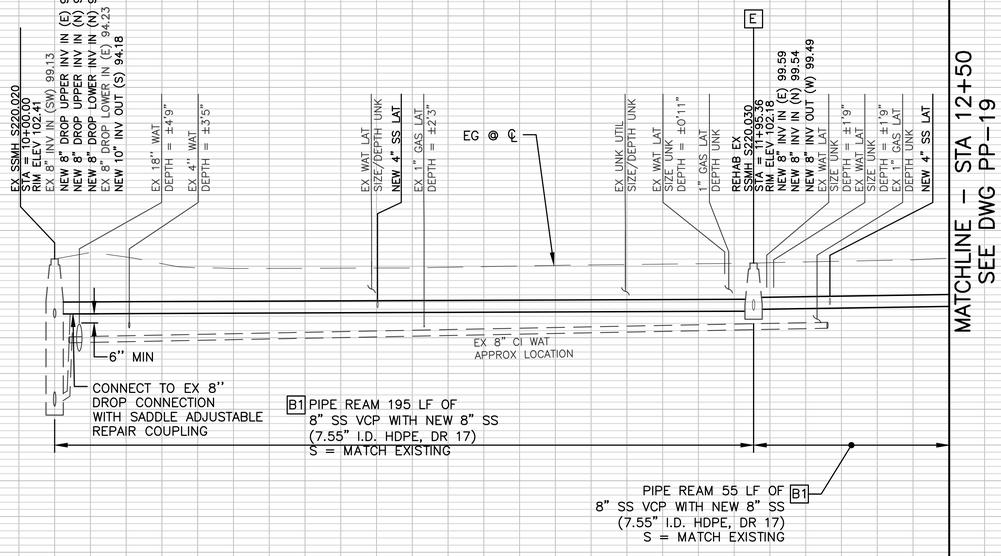

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

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REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

B1 REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.

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D REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.

E REHABILITATE EX SSMH PER RVSD STD DWG SD-13

F PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

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G CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
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GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

NO.	DATE	BY	DESCRIPTION

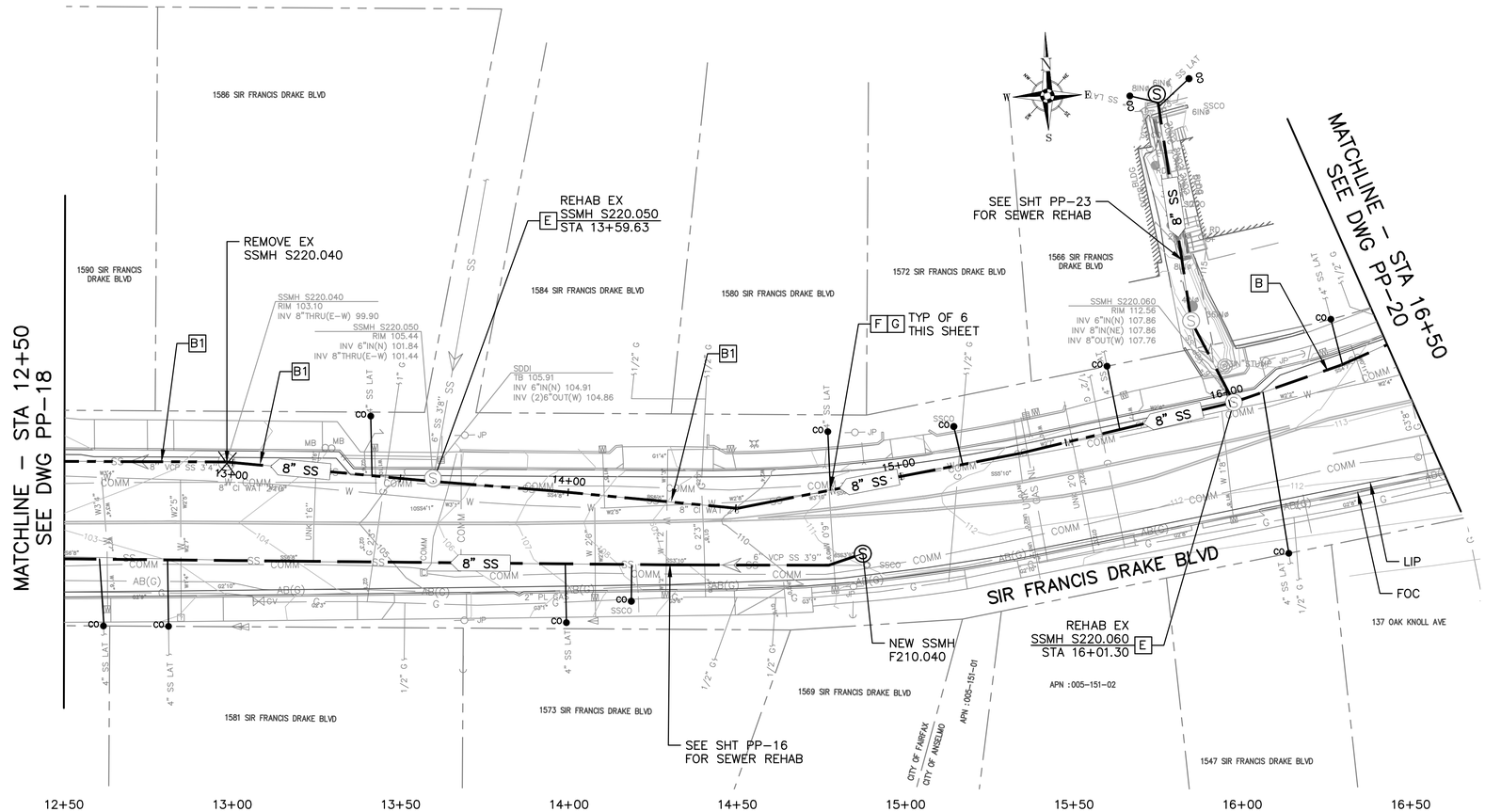
DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

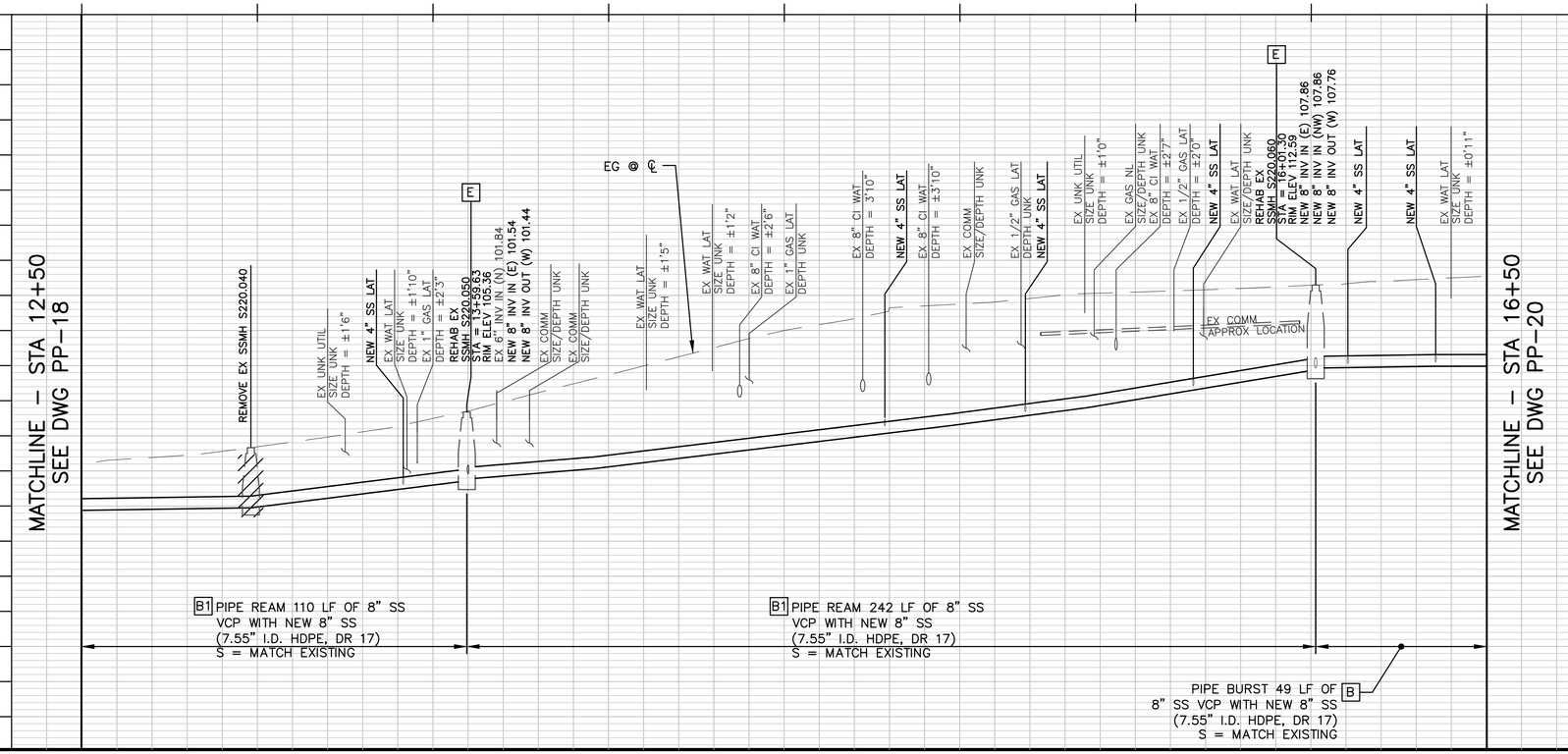
westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA. 94520
925-414-3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SIR FRANCIS DRAKE BLVD NORTH
STA 10+00 TO STA 12+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-18
SHT 22 OF 54

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA





B1 PIPE REAM 110 LF OF 8" SS VCP WITH NEW 8" SS (7.55" I.D. HDPE, DR 17) S = MATCH EXISTING

B1 PIPE REAM 242 LF OF 8" SS VCP WITH NEW 8" SS (7.55" I.D. HDPE, DR 17) S = MATCH EXISTING

PIPE BURST 49 LF OF B 8" SS VCP WITH NEW 8" SS (7.55" I.D. HDPE, DR 17) S = MATCH EXISTING

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NOTES:

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20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

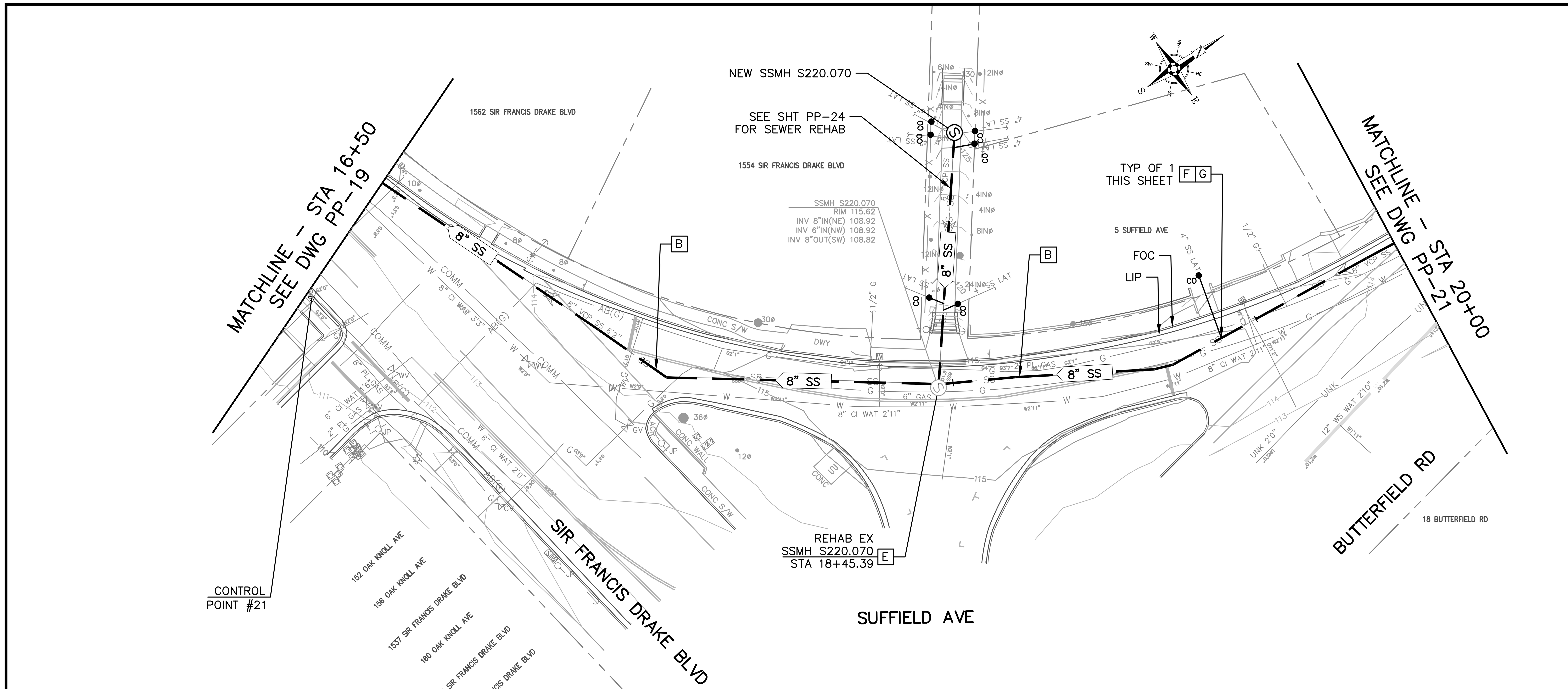
DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT · SINCE 1947

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA. 94520
925–414–3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SIR FRANCIS DRAKE BLVD NORTH
STA 12+50 TO STA 16+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP–19
SHT 23 OF 54



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
21	2188378.83	5962589.92	112.45	MAG IN CONC

LEGEND OF REHABILITATION METHODS

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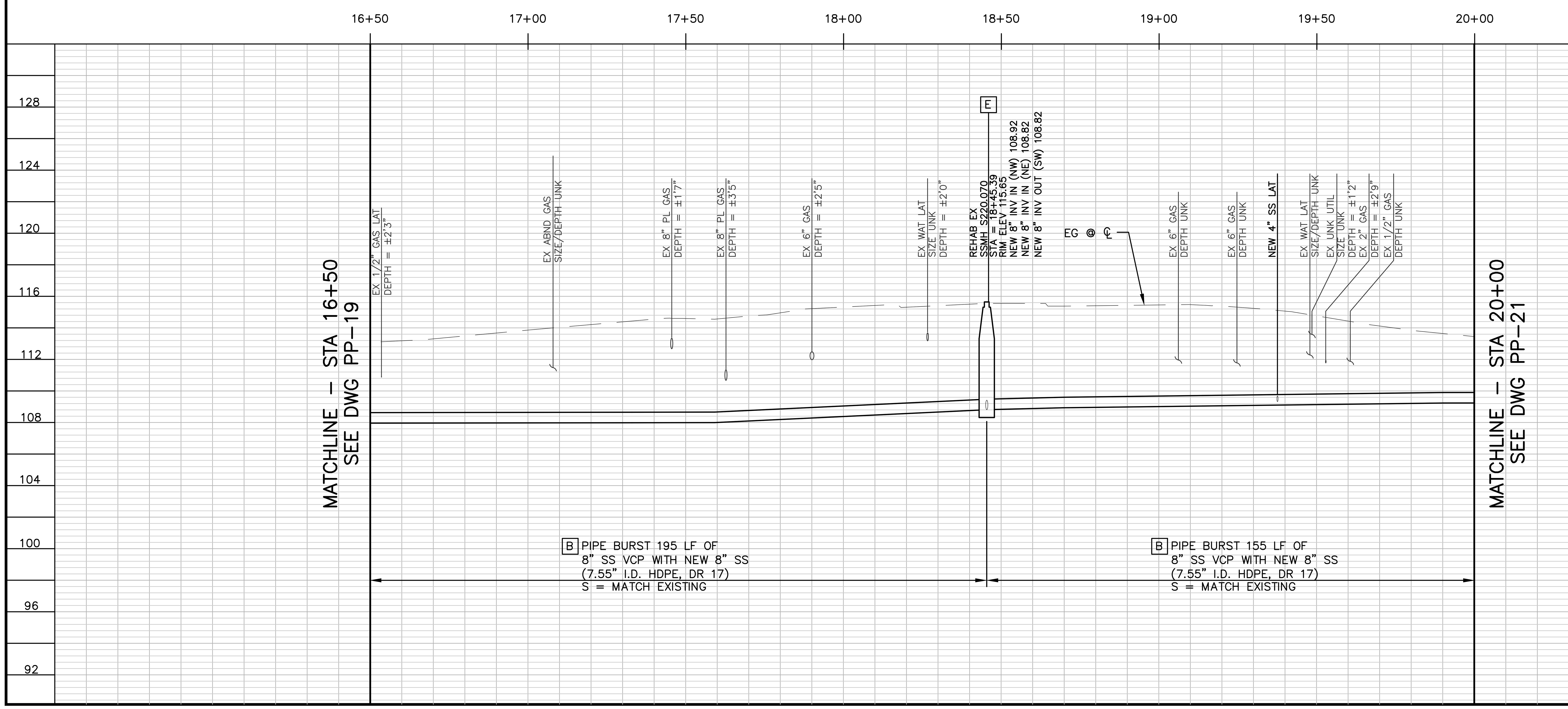

GRAPHIC SCALE:
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — DANIEL C. WILKINS — No. C83909 — Exp. 09/30/25 — CIVIL — STATE OF CALIFORNIA

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NO.	DATE	BY	DESCRIPTION

DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
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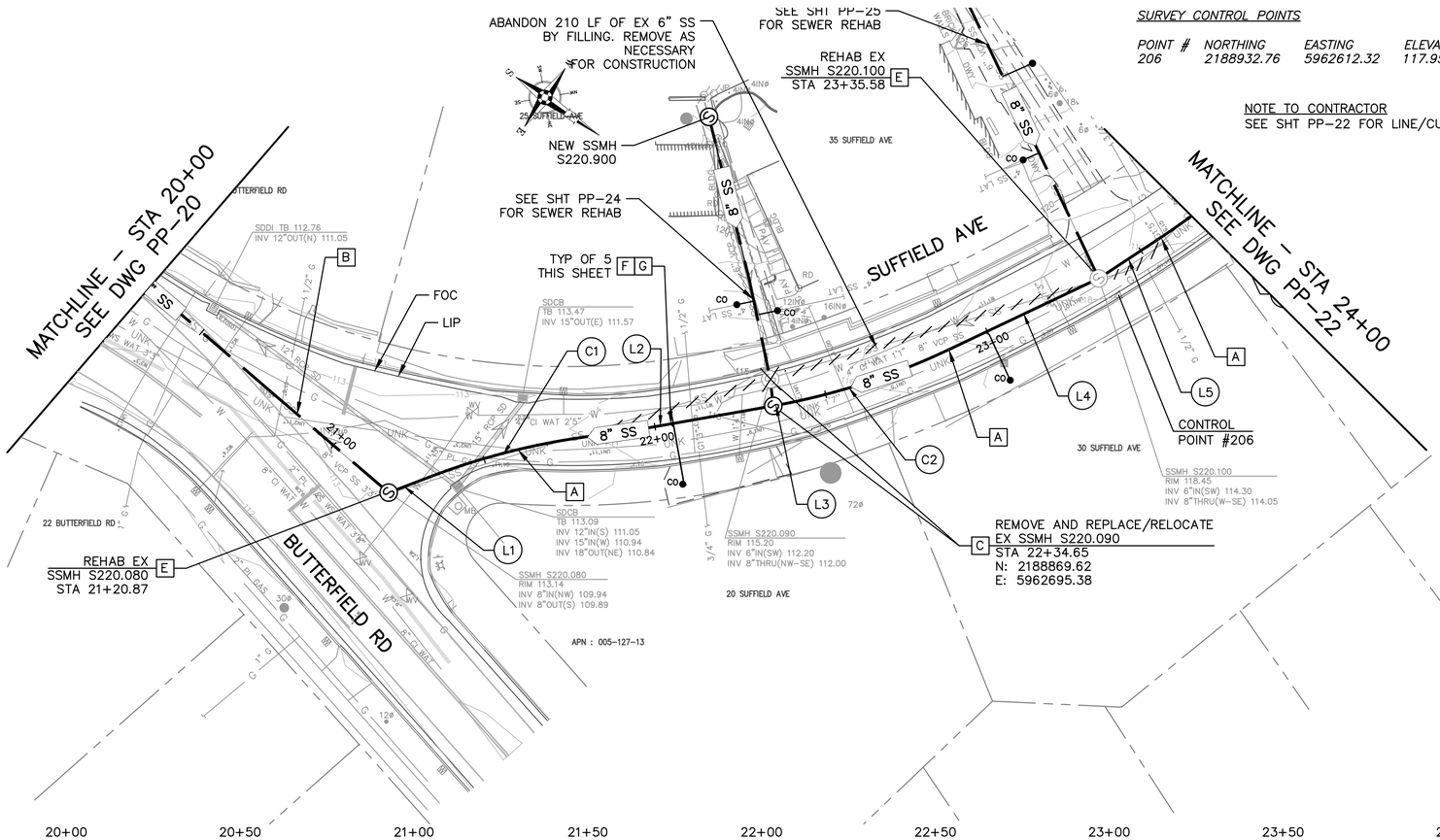
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SIR FRANCIS DRAKE BLVD
STA 16+50 TO STA 20+00

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-20
SHT 24 OF 54



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
206	2188932.76	5962612.32	117.95	FD MAG W WASHER IN GUTTER

NOTE TO CONTRACTOR
SEE SHT PP-22 FOR LINE/CURVE TABLE

LEGEND OF REHABILITATION METHODS

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REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: MPV
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ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SUFFIELD AVE
STA 20+00 TO STA 24+00

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-21
SHT 25 OF 54

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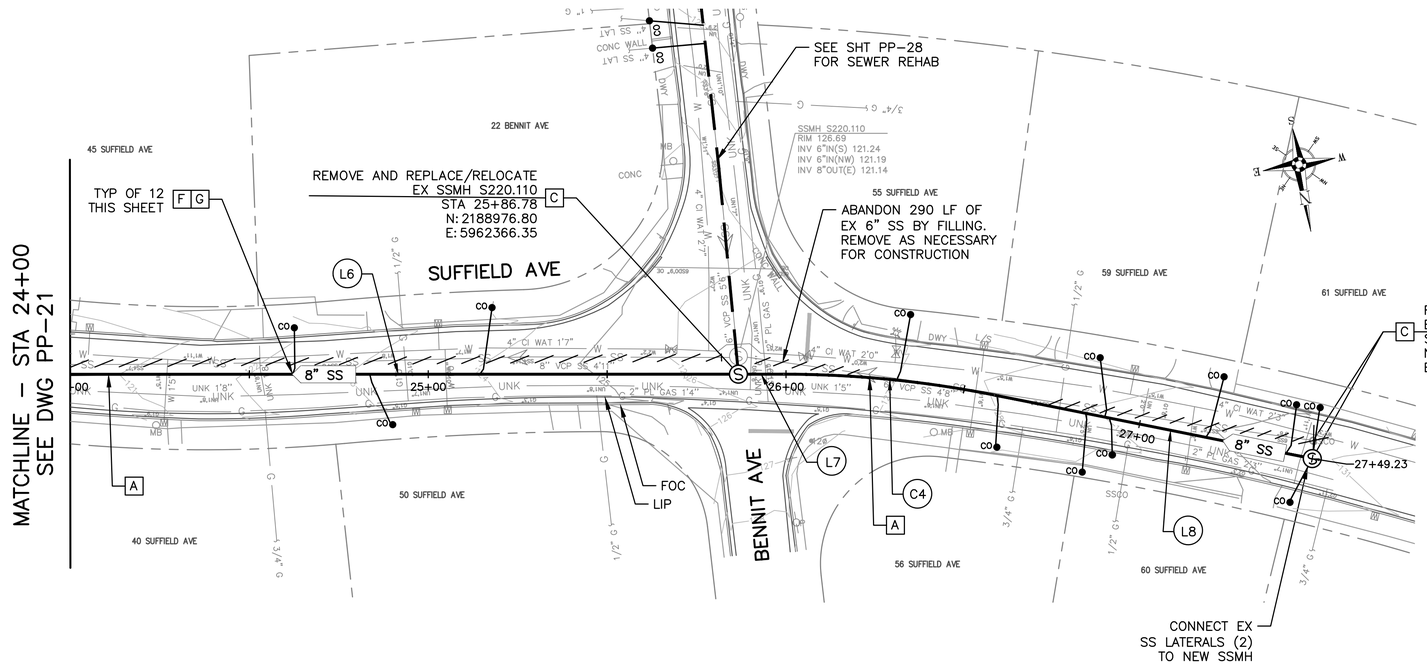

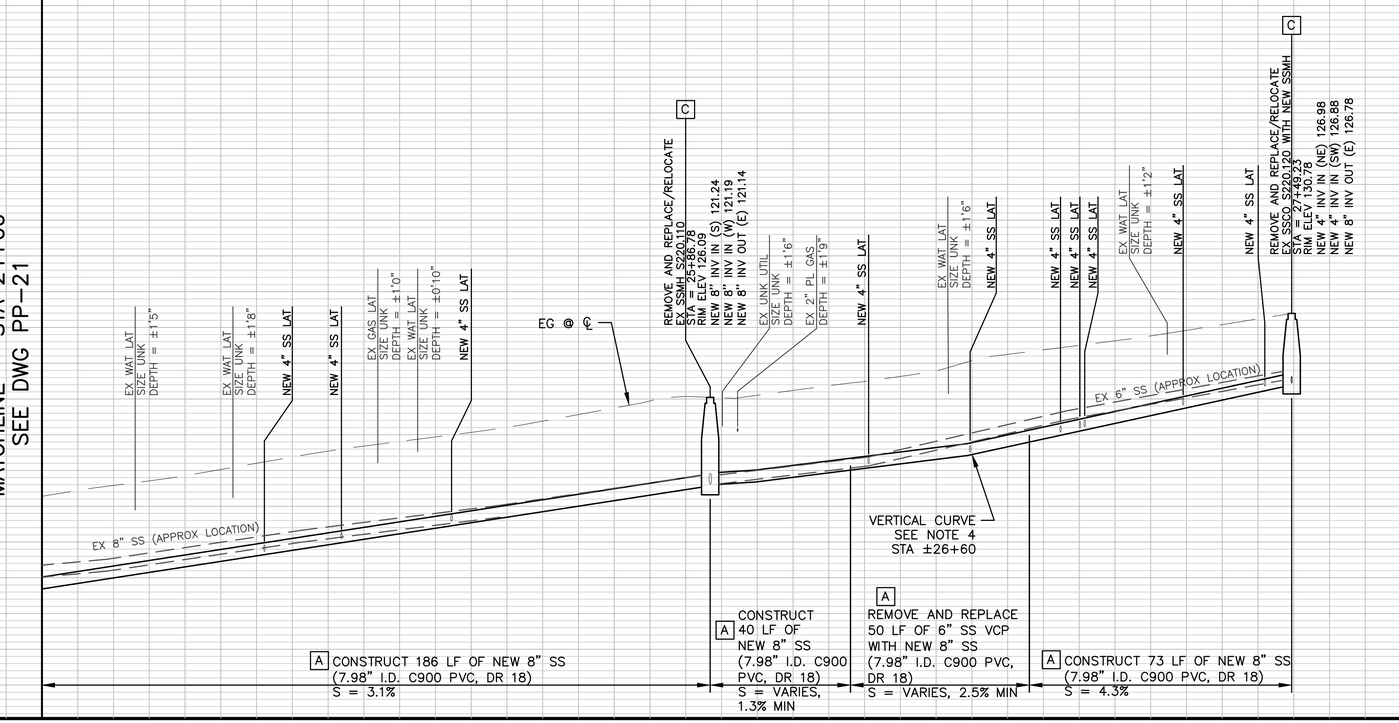

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SUFFIELD AVE NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	9.69'	N55°51'39"W				21+20.87	N = 2188793.29 E = 5962779.29	21+30.56	N = 2188798.73 E = 5962771.27
C1	38.04'		10°53'50"	200.00'	19.08'	21+30.56	N = 2188798.73 E = 5962771.27	21+68.60	N = 2188822.93 E = 5962742.00
L3	1.58'	N45°37'29"W				22+34.57	N = 2188869.62 E = 5962695.38	22+36.15	N = 2188870.72 E = 5962694.25
C2	51.62'		14°47'20"	200.00'	25.96'	22+36.15	N = 2188870.72 E = 5962694.25	22+87.77	N = 2188901.69 E = 5962653.13
L4	47.73'	N60°24'49"W				22+87.77	N = 2188901.69 E = 5962653.13	23+35.50	N = 2188925.25 E = 5962611.62
L5	20.48'	N68°23'22"W				23+35.50	N = 2188925.25 E = 5962611.62	23+55.99	N = 2188932.80 E = 5962592.58
C3	40.57'		11°37'18"	200.00'	20.35'	23+55.99	N = 2188932.80 E = 5962592.58	23+96.55	N = 2188943.82 E = 5962553.61
L6	190.15'	N80°00'41"W				23+96.55	N = 2188943.82 E = 5962553.61	25+86.70	N = 2188976.80 E = 5962366.35
L7	12.70'	N80°00'00"W				25+86.70	N = 2188976.80 E = 5962366.35	25+99.40	N = 2188979.01 E = 5962353.84
C4	59.25'		11°18'55"	300.00'	29.72'	25+99.40	N = 2188979.01 E = 5962353.84	26+58.65	N = 2188994.97 E = 5962296.88
L8	90.59'	N68°41'05"W				26+58.65	N = 2188994.97 E = 5962296.88	27+49.23	N = 2189027.90 E = 5962212.49

GRAPHIC SCALE:
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NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

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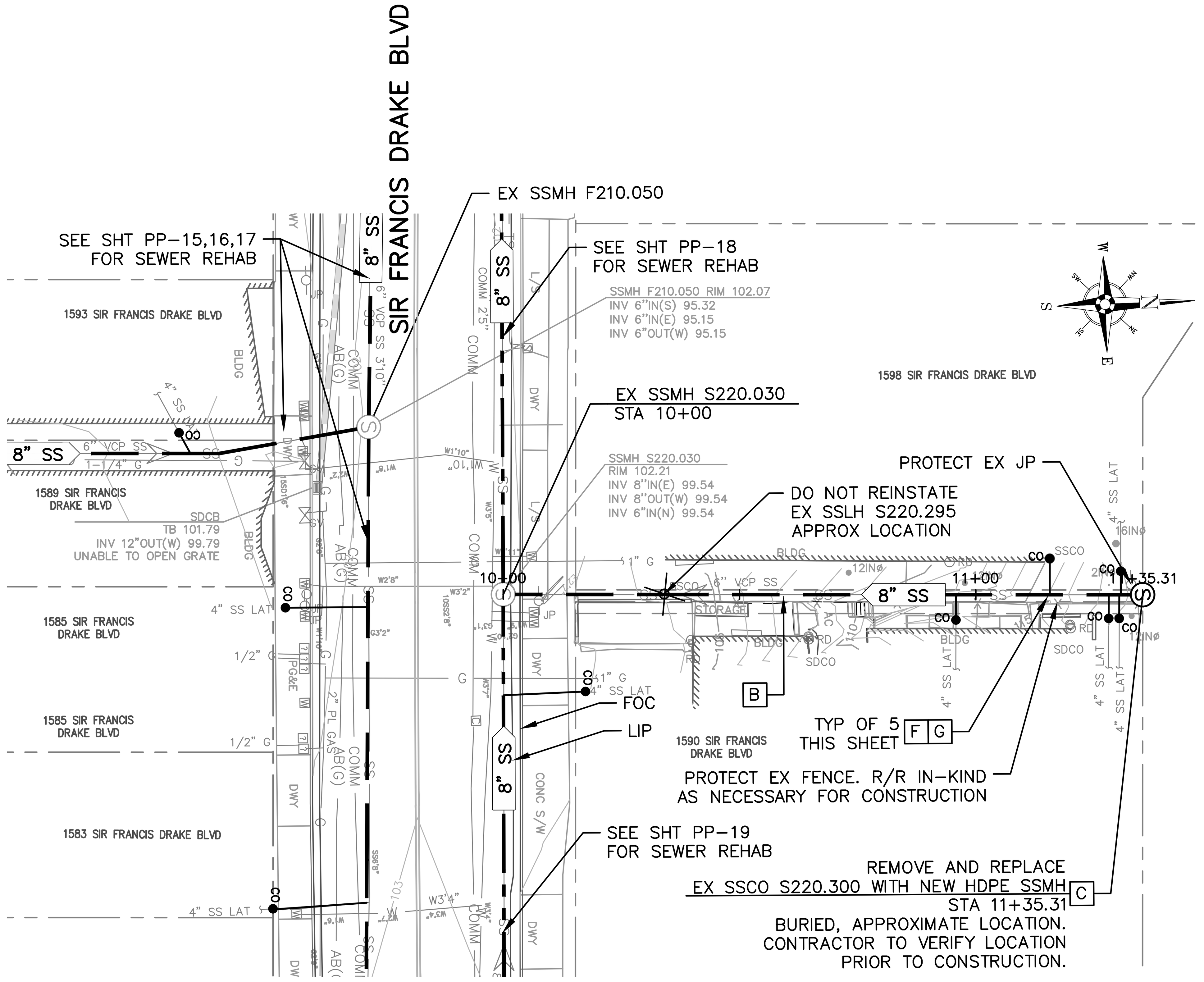
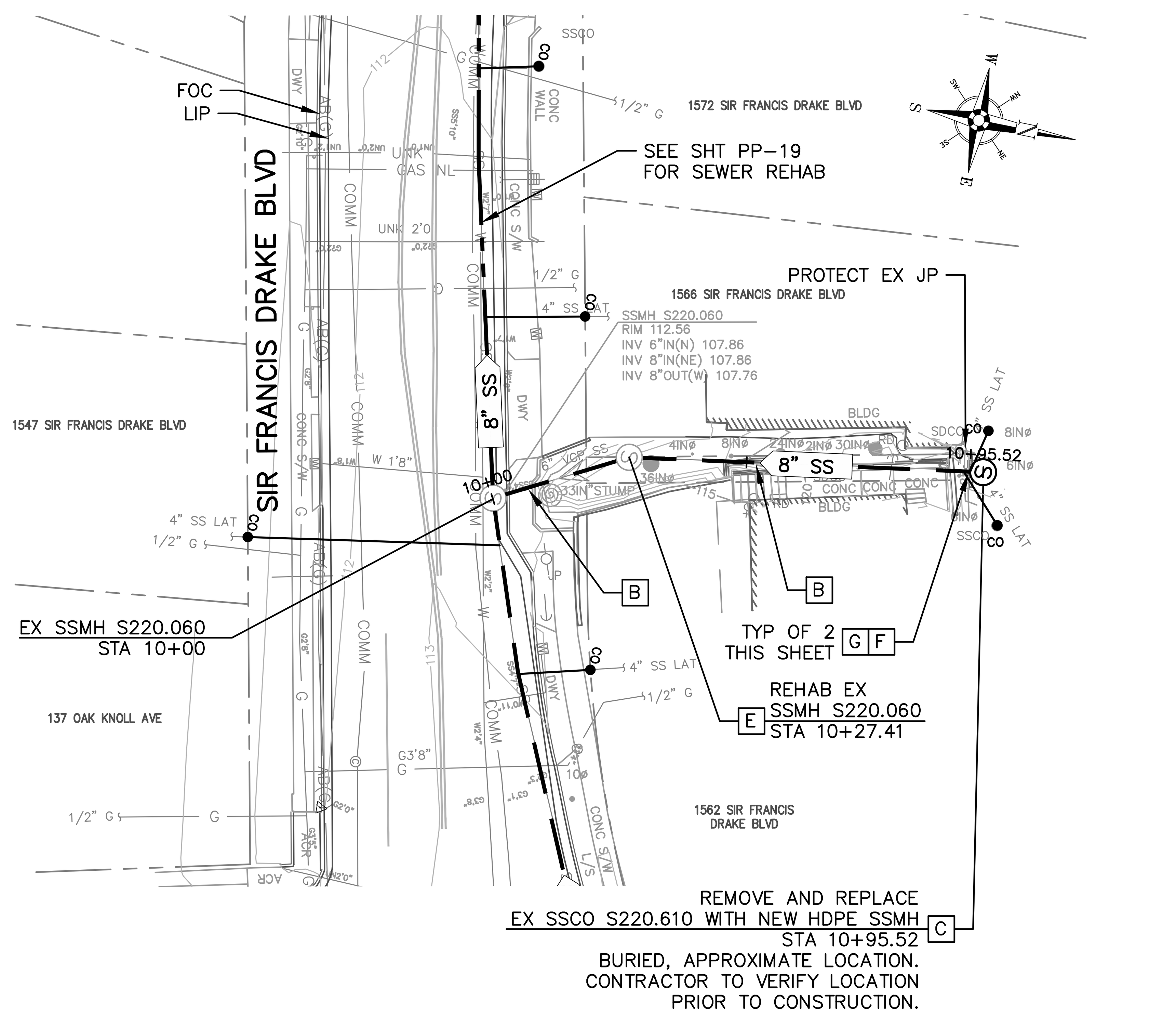
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
SUFFIELD AVE
STA 24+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-22
SHT 26 OF 54





LEGEND OF REHABILITATION METHODS

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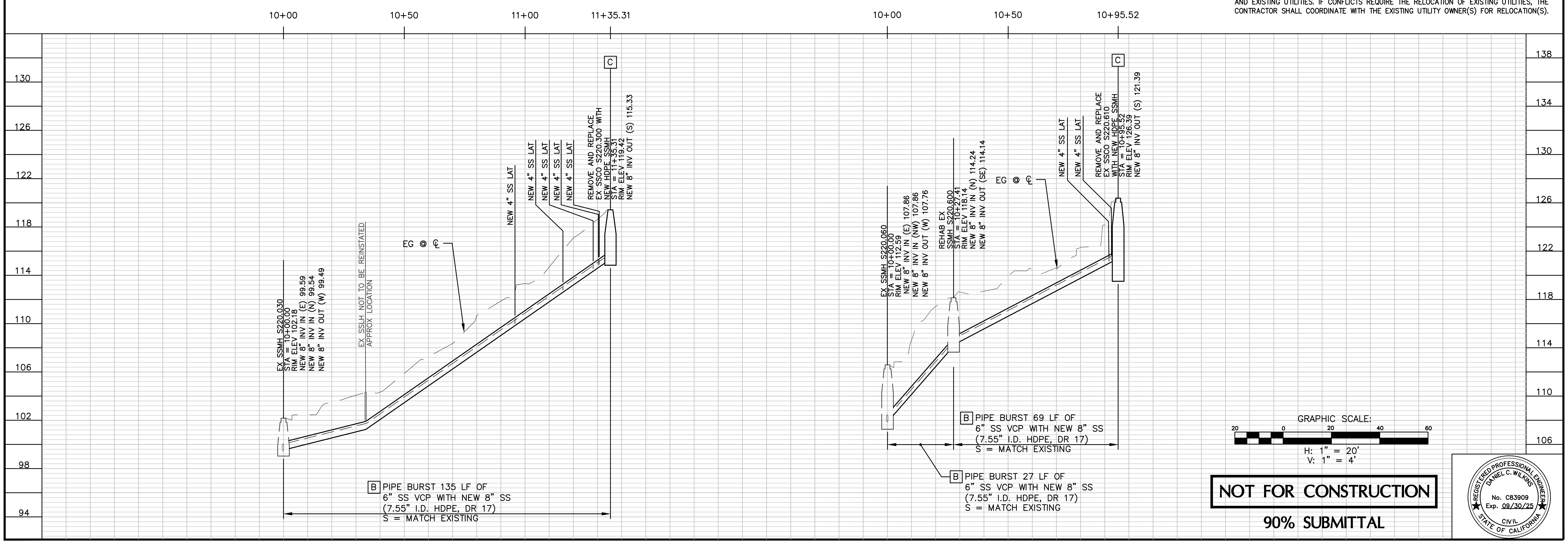

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REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

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ROSS VALLEY SANITARY DISTRICT

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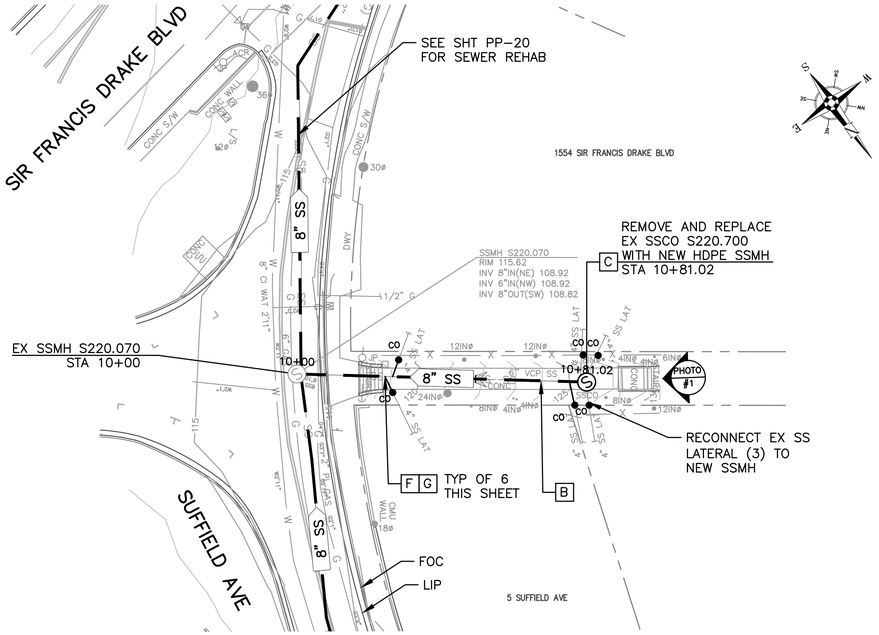
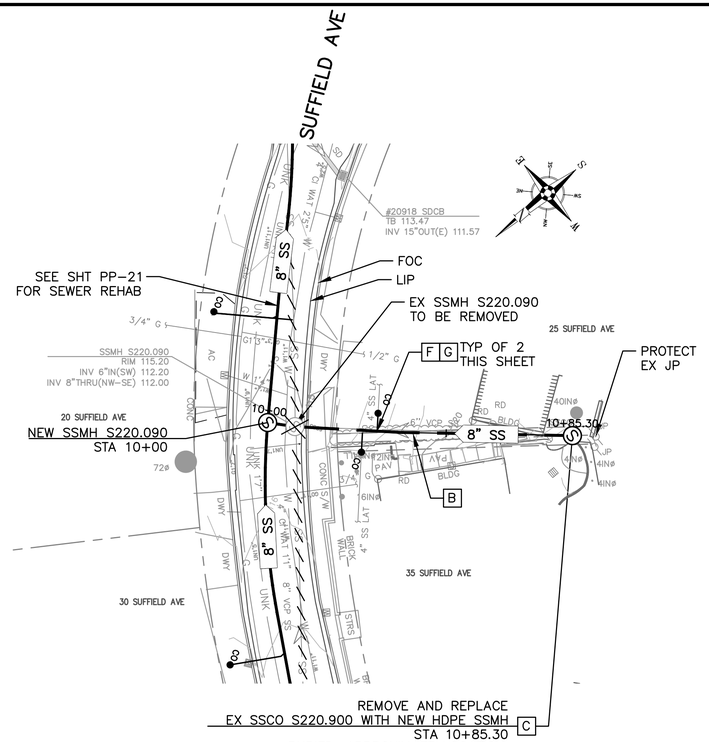
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
1590/1562 SIR FRANCIS DRAKE BLVD EASEMENT
STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-23
SHT 27 OF 54





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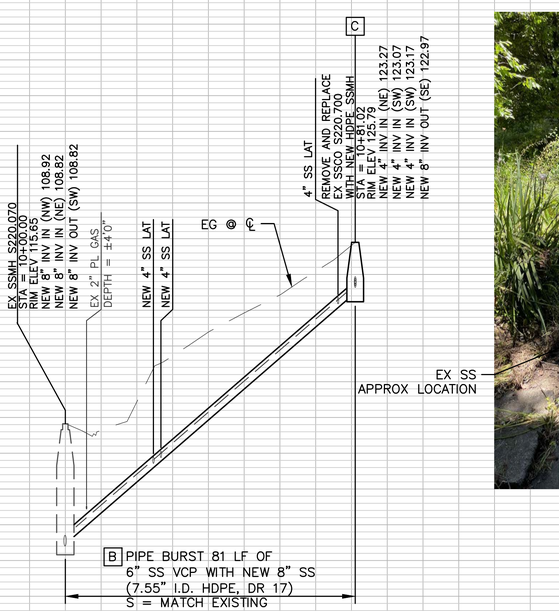
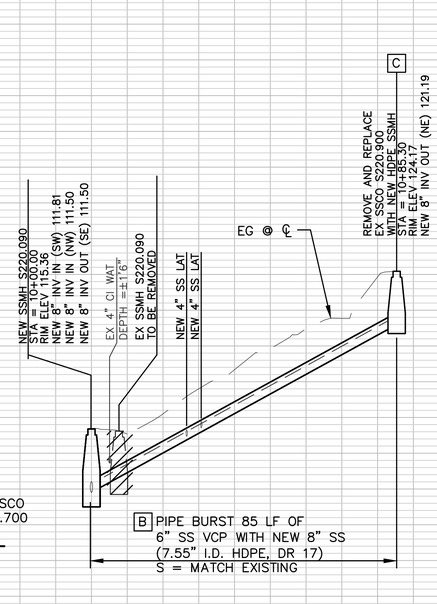


PHOTO 1 **EX SEWER**
NOT TO SCALE



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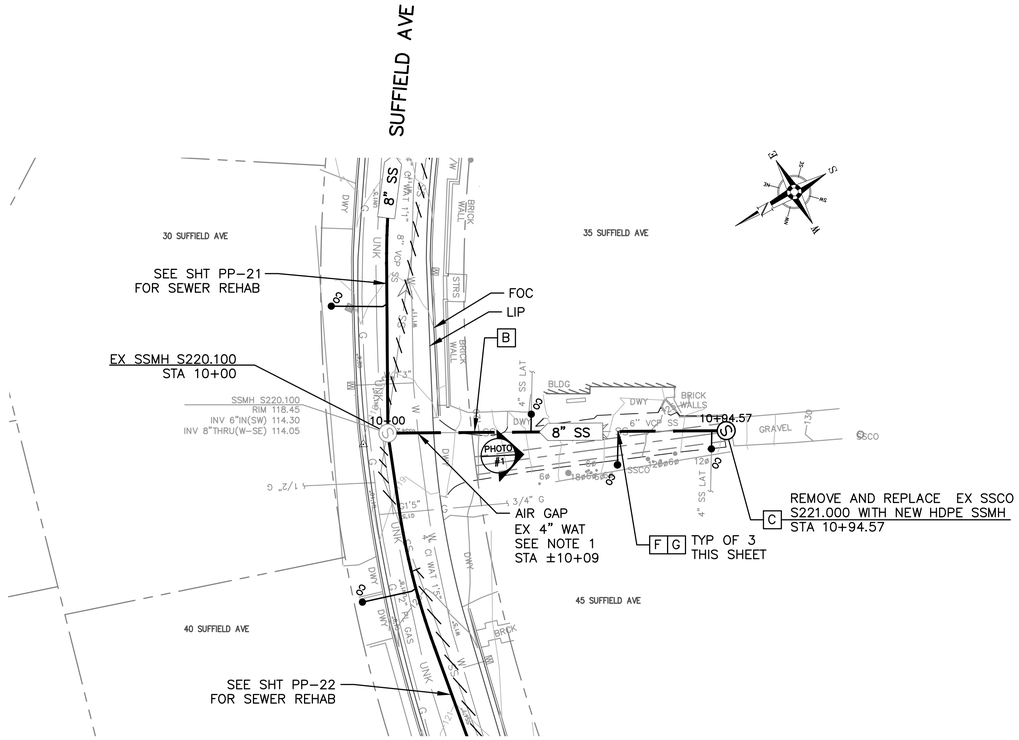
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
REHABILITATION PROJECT
5/25 SUFFIELD AVE
EASEMENT
STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-24
SHT 28 OF 54



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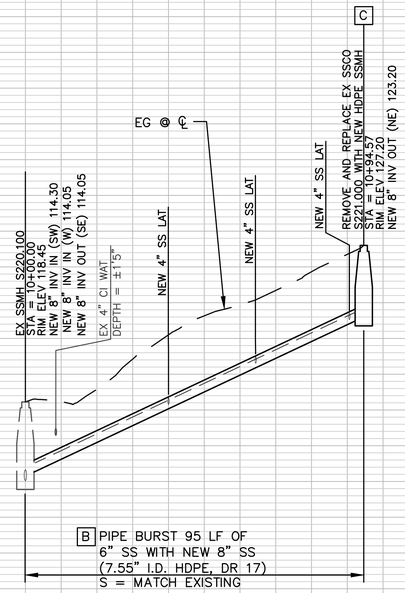

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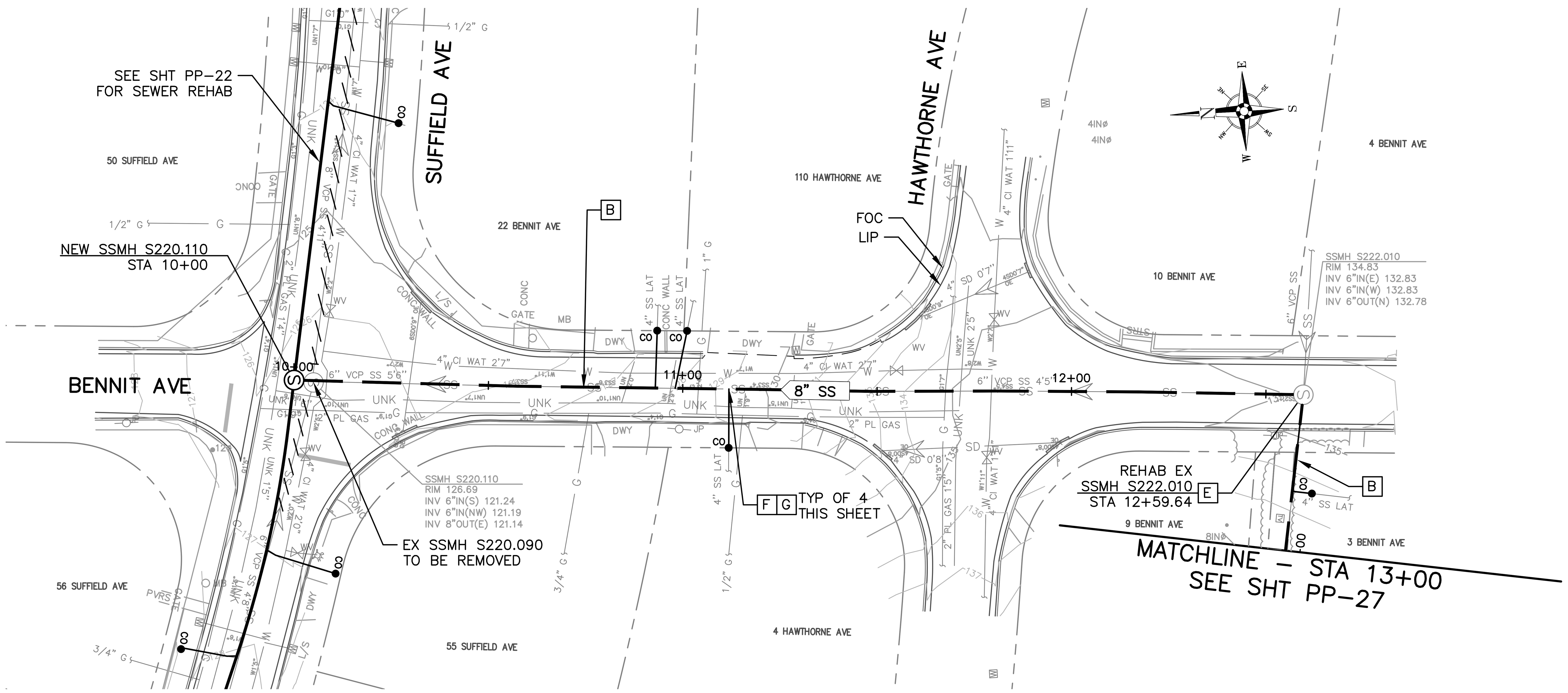

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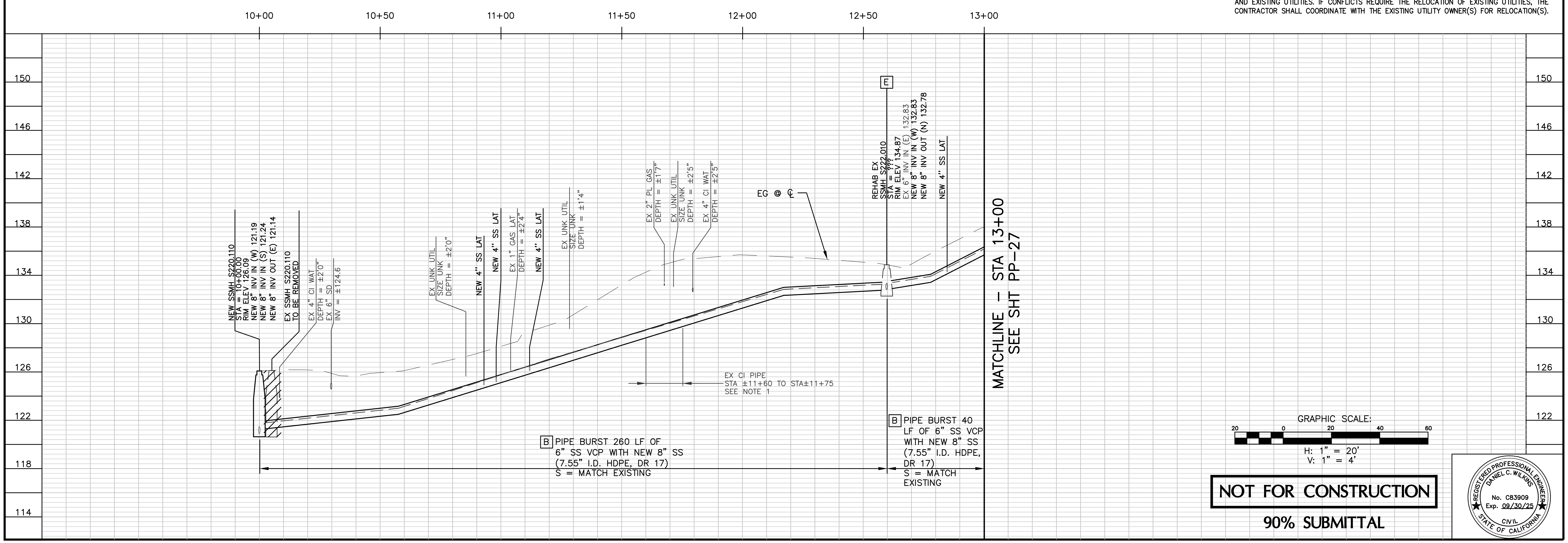

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

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DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

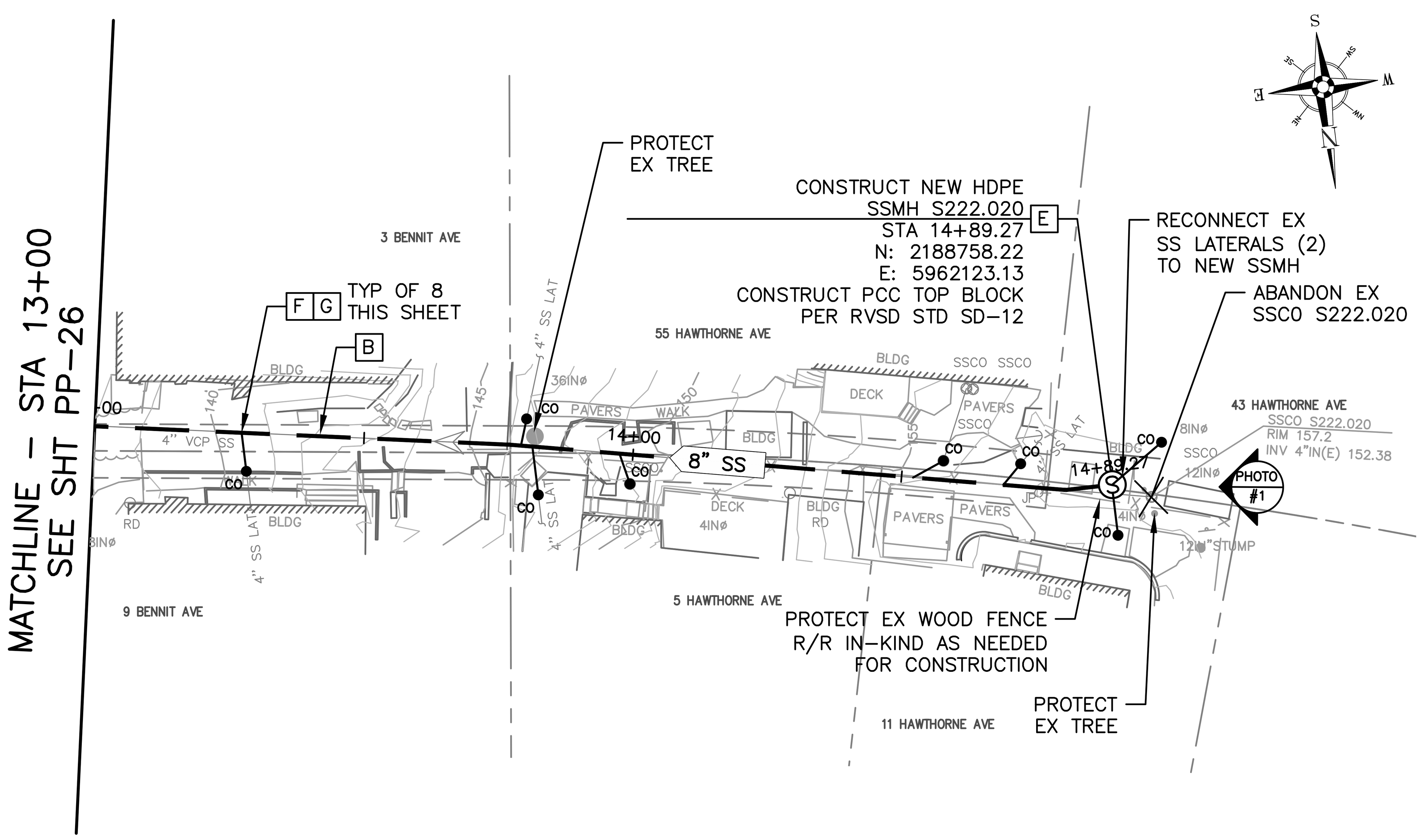
ROSS VALLEY SANITARY DISTRICT

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA 94520
925-414-3001
www.westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
BENNIT AVE
STA 10+00 TO STA 13+00

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-26
SHT 30 OF 54

\\nasoon\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\B. Design\30 PP-26 - SA BENNIT.dwg Save Date: 9/5/2024 3:36 PM Plot Date: 9/5/2024 3:36 PM JosephC



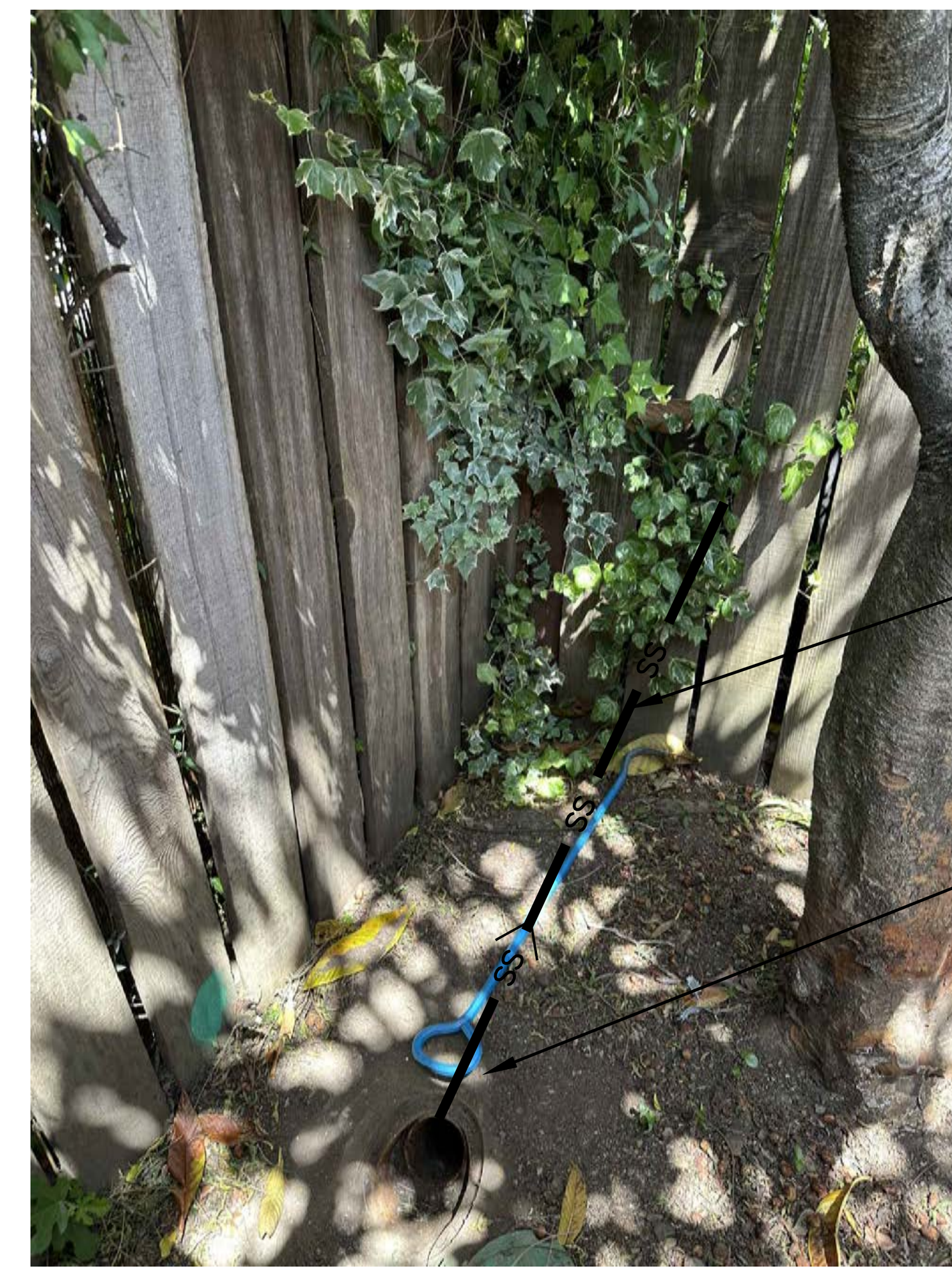


PHOTO 1 **EX SEWER**
NOT TO SCALE

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

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E REHABILITATE EX SSMH PER RVSD STD DWG SD-13

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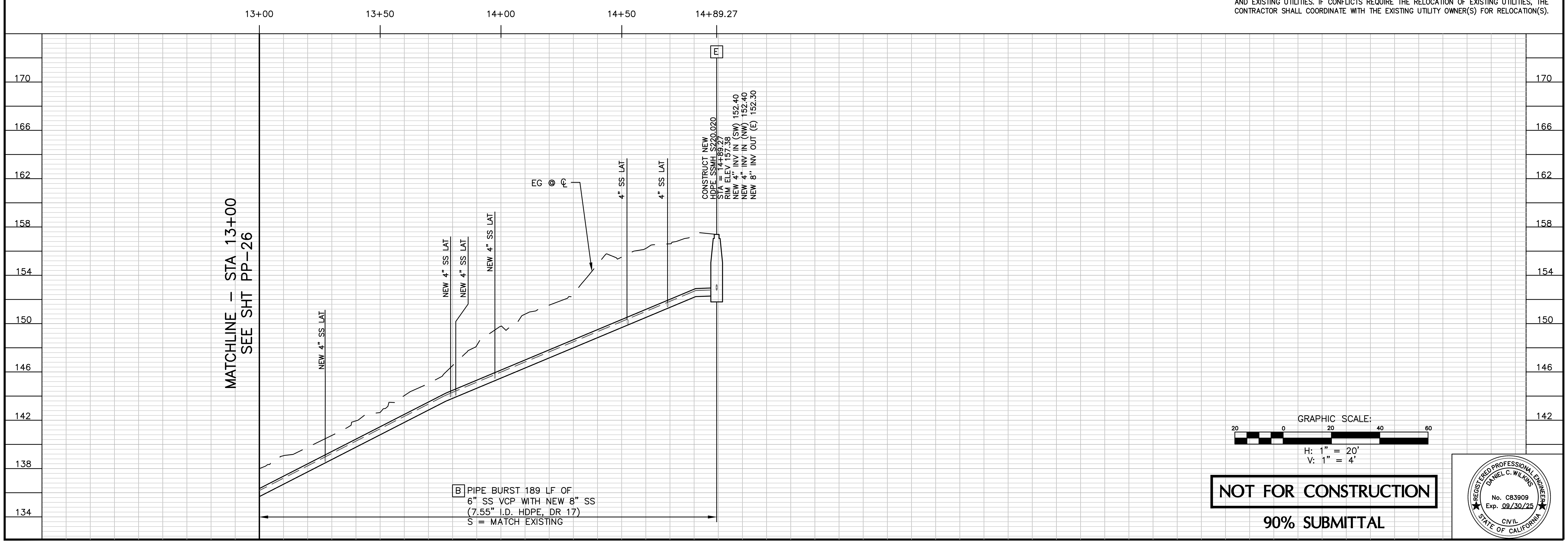

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
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CIVIL
STATE OF CALIFORNIA

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DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

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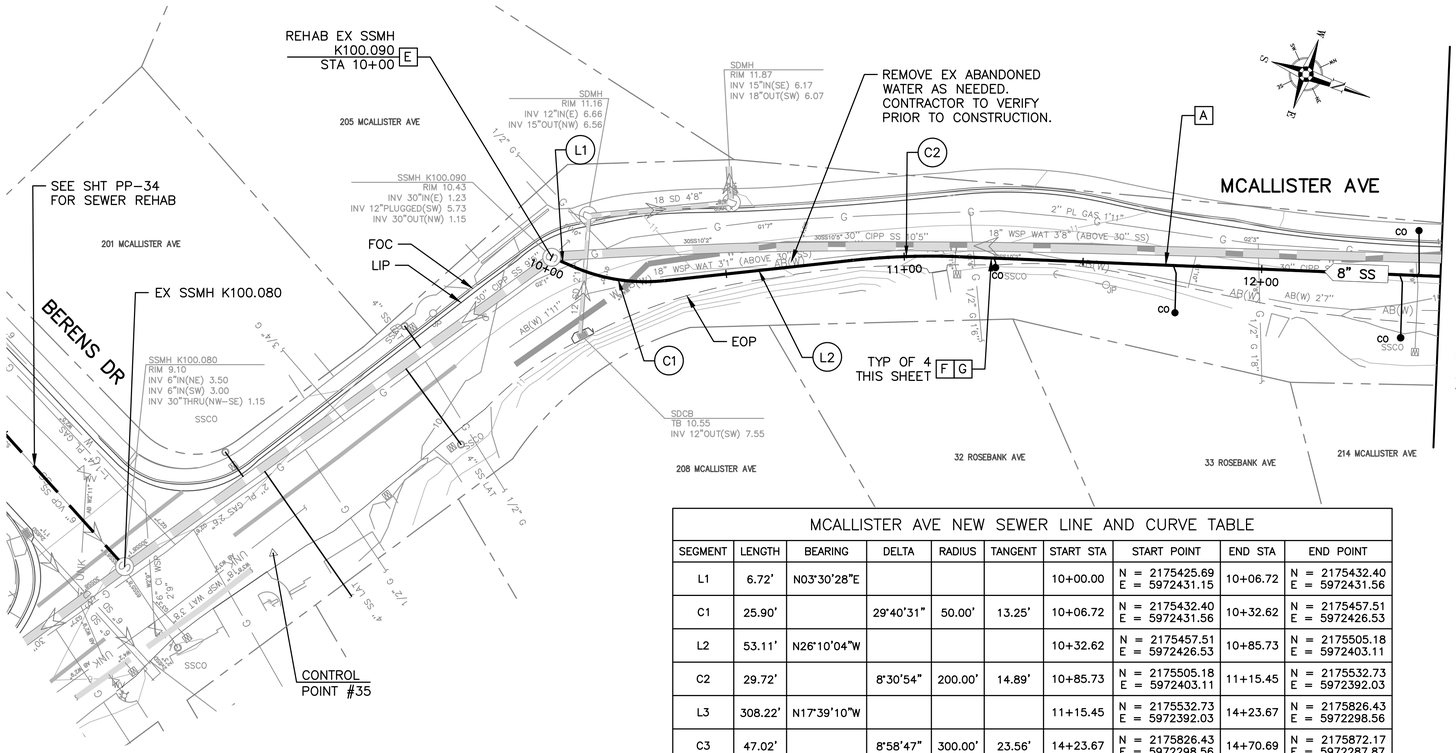
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
BENNIT AVE EASEMENT
STA 13+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-27
SHT 31 OF 54

\\rsascon\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\8. Design\31 PP-27- 5A BENNIT EASE.dwg Save Date: 9/5/2024 3:39 PM Plot Date: 9/5/2024 3:39 PM JosephC



MCALLISTER AVE NEW SEWER LINE AND CURVE TABLE										
SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	6.72'	N03°30'28"E				10+00.00	N = 2175425.69 E = 5972431.15	10+06.72	N = 2175432.40 E = 5972431.56
C1	25.90'		29°40'31"	50.00'	13.25'	10+06.72	N = 2175432.40 E = 5972431.56	10+32.62	N = 2175457.51 E = 5972426.53
L2	53.11'	N26°10'04"W				10+32.62	N = 2175457.51 E = 5972426.53	10+85.73	N = 2175505.18 E = 5972403.11
C2	29.72'		8°30'54"	200.00'	14.89'	10+85.73	N = 2175505.18 E = 5972403.11	11+15.45	N = 2175532.73 E = 5972392.03
L3	308.22'	N17°39'10"W				11+15.45	N = 2175532.73 E = 5972392.03	14+23.67	N = 2175826.43 E = 5972298.56
C3	47.02'		8°58'47"	300.00'	23.56'	14+23.67	N = 2175826.43 E = 5972298.56	14+70.69	N = 2175872.17 E = 5972287.87
L4	9.66'	N08°40'22"W				14+70.69	N = 2175872.17 E = 5972287.87	14+80.35	N = 2175881.72 E = 5972286.41

SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
35	2175380.83	5972535.54	9.19	MAG

LEGEND OF REHABILITATION METHODS

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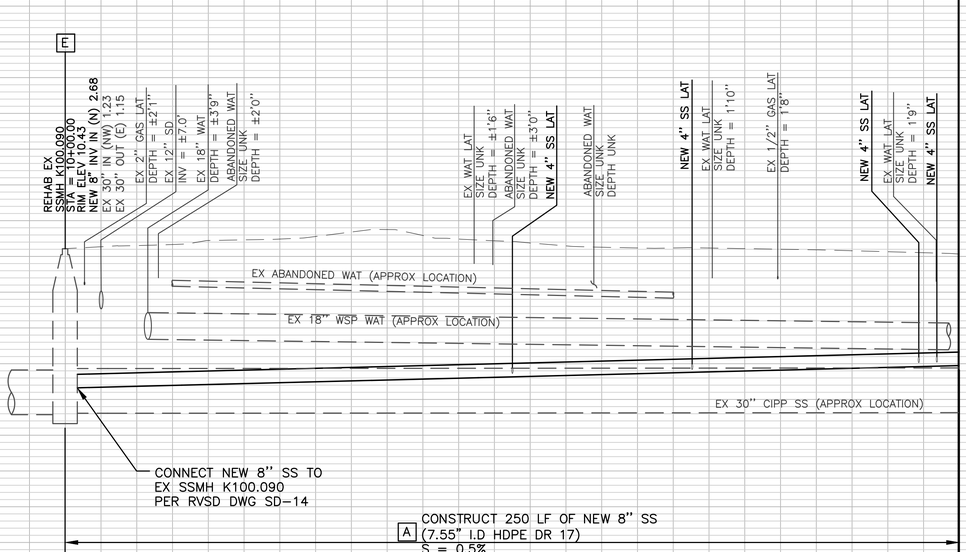

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT

westvalley CONSTRUCTION SINCE 1958
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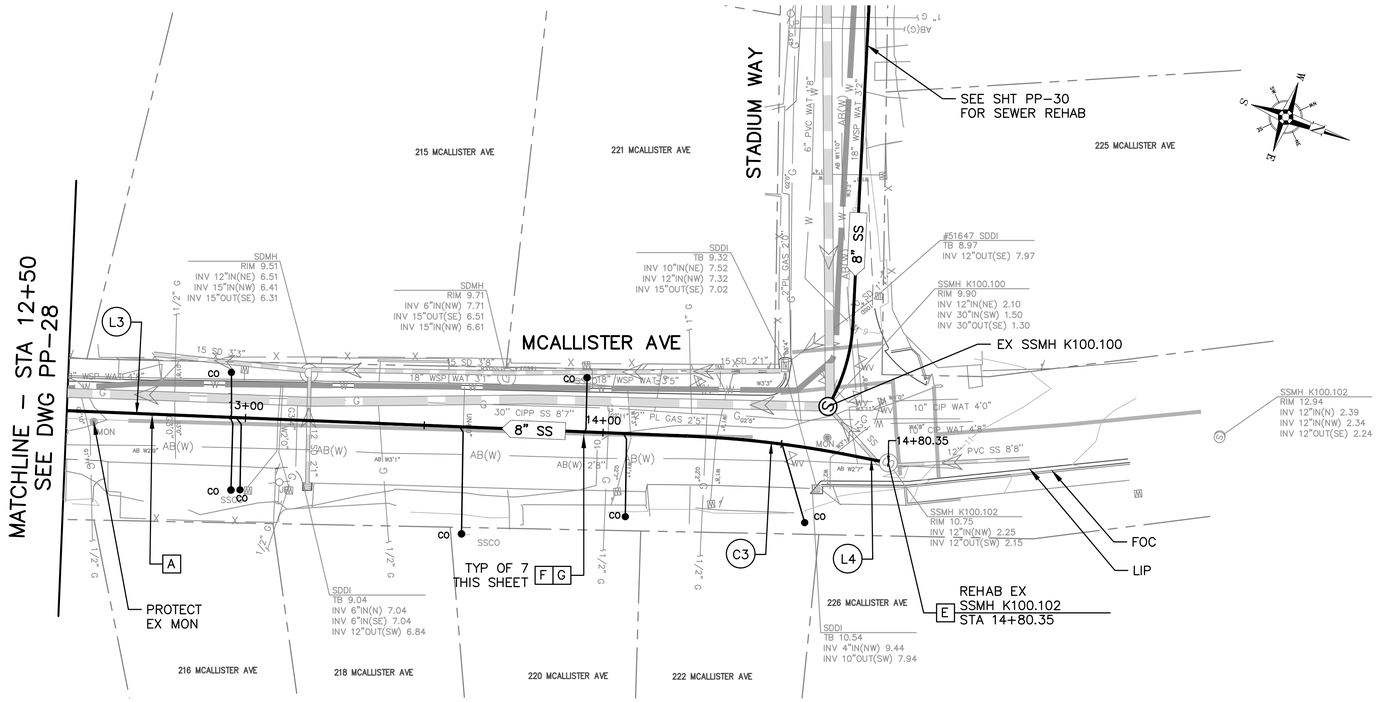
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
REHABILITATION PROJECT
MCALLISTER AVE
STA 10+00 TO STA 12+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-28
SHT 32 OF 54



NOTE TO CONTRACTOR
SEE SHT PP-28 FOR LINE/CURVE TABLE

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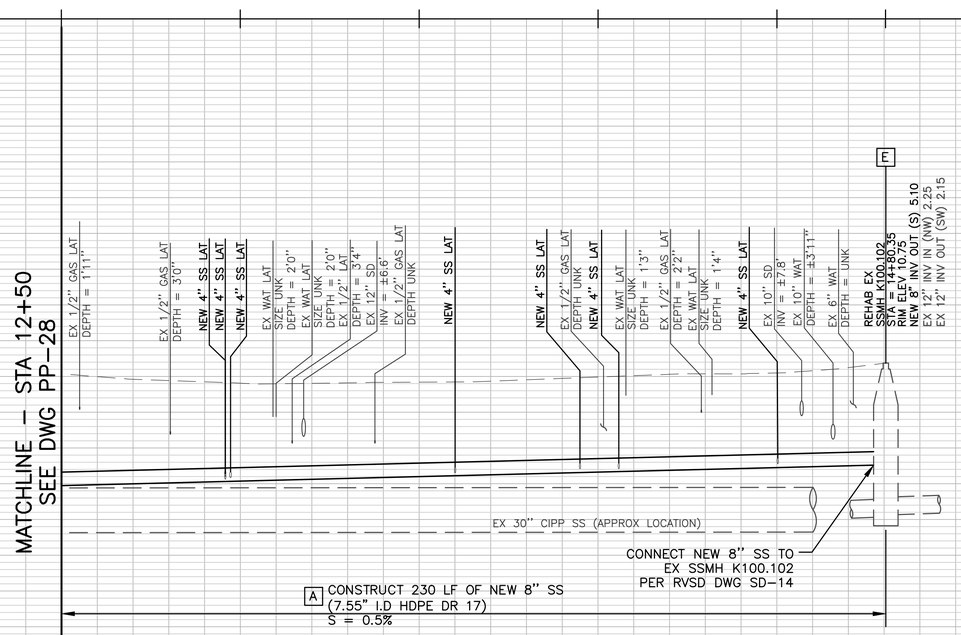

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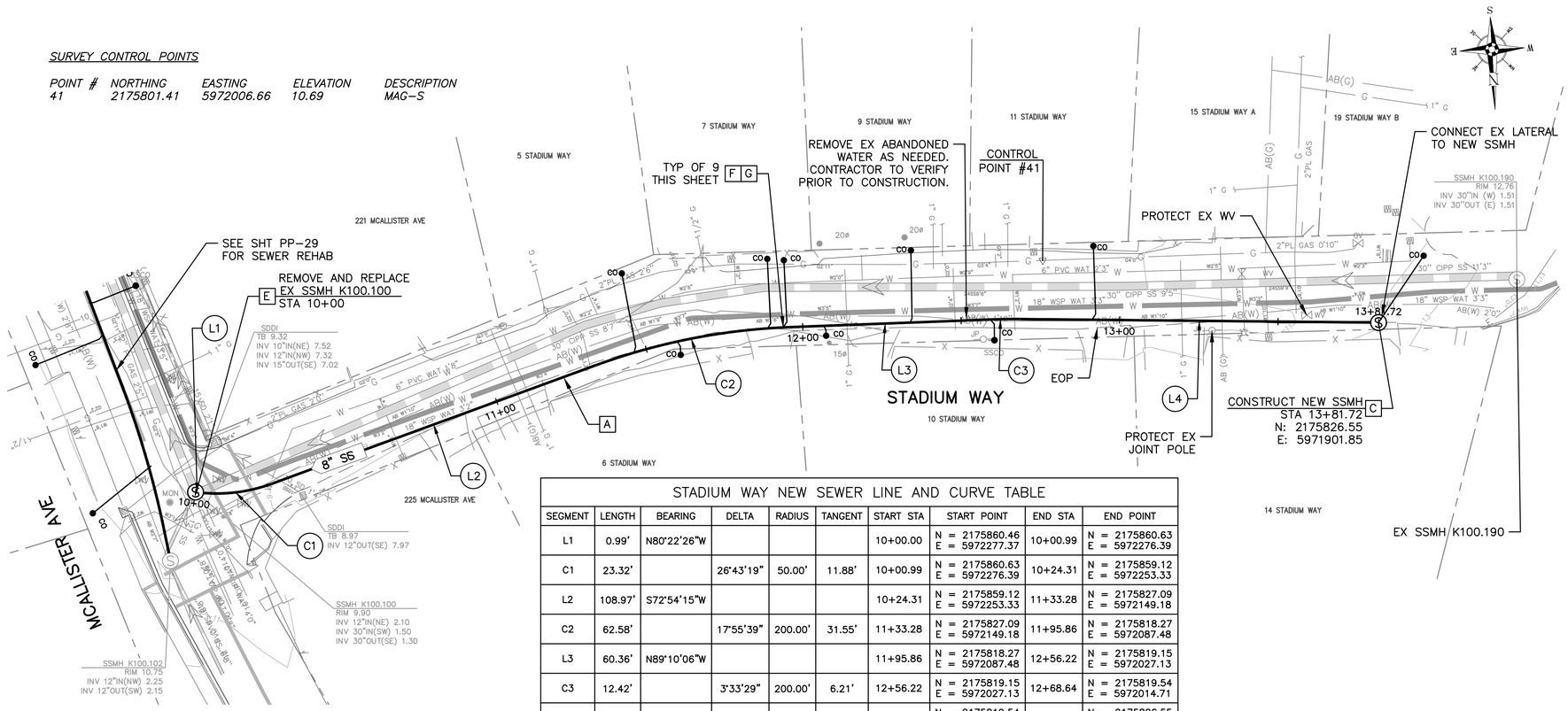
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
MCALLISTER AVE STA 12+50 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-29
SHT 33 OF 54

SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
41	2175801.41	5972006.66	10.69	MAG–S



STADIUM WAY NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	0.99'	N80°22'26"W				10+00.00	N = 2175860.46 E = 5972277.37	10+00.99	N = 2175860.63 E = 5972276.39
C1	23.32'		26°43'19"	50.00'	11.88'	10+00.99	N = 2175860.63 E = 5972276.39	10+24.31	N = 2175859.12 E = 5972253.33
L2	108.97'	S72°54'15"W				10+24.31	N = 2175859.12 E = 5972253.33	11+33.28	N = 2175827.09 E = 5972149.18
C2	62.58'		17°55'39"	200.00'	31.55'	11+33.28	N = 2175827.09 E = 5972149.18	11+95.86	N = 2175818.27 E = 5972087.48
L3	60.36'	N89°10'06"W				11+95.86	N = 2175818.27 E = 5972087.48	12+56.22	N = 2175819.15 E = 5972027.13
C3	12.42'		3°33'29"	200.00'	6.21'	12+56.22	N = 2175819.15 E = 5972027.13	12+68.64	N = 2175819.54 E = 5972014.71
L4	113.08'	N86°26'31"W				12+68.64	N = 2175819.54 E = 5972014.71	13+81.72	N = 2175826.55 E = 5971901.85

LEGEND OF REHABILITATION METHODS

- **A** REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 1/D–01. INSTALL TRENCH DAM PER RVSD STD DWG SD–17.
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- **D** REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD–10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD–01.
- **E** REHABILITATE EX SSMH PER RVSD STD DWG SD–13
- **F** PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–26 AND SD–27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D–01.

  CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON–TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT.
- **G** CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
2. WHERE PIPING IS REMOVED AND REPLACED BY OPEN TRENCH, NEW PIPE INVERT ELEVATIONS SHALL MATCH EX PIPE INVERT ELEVATIONS (UPSIZED 8" SS INVERTS SHALL MATCH EXISTING 6" SS INVERTS), UNLESS OTHERWISE NOTED.
3. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS. SEE GENERAL NOTE 23 AND 24 ON N–01 FOR HDPE SLEEVE REQUIREMENTS.
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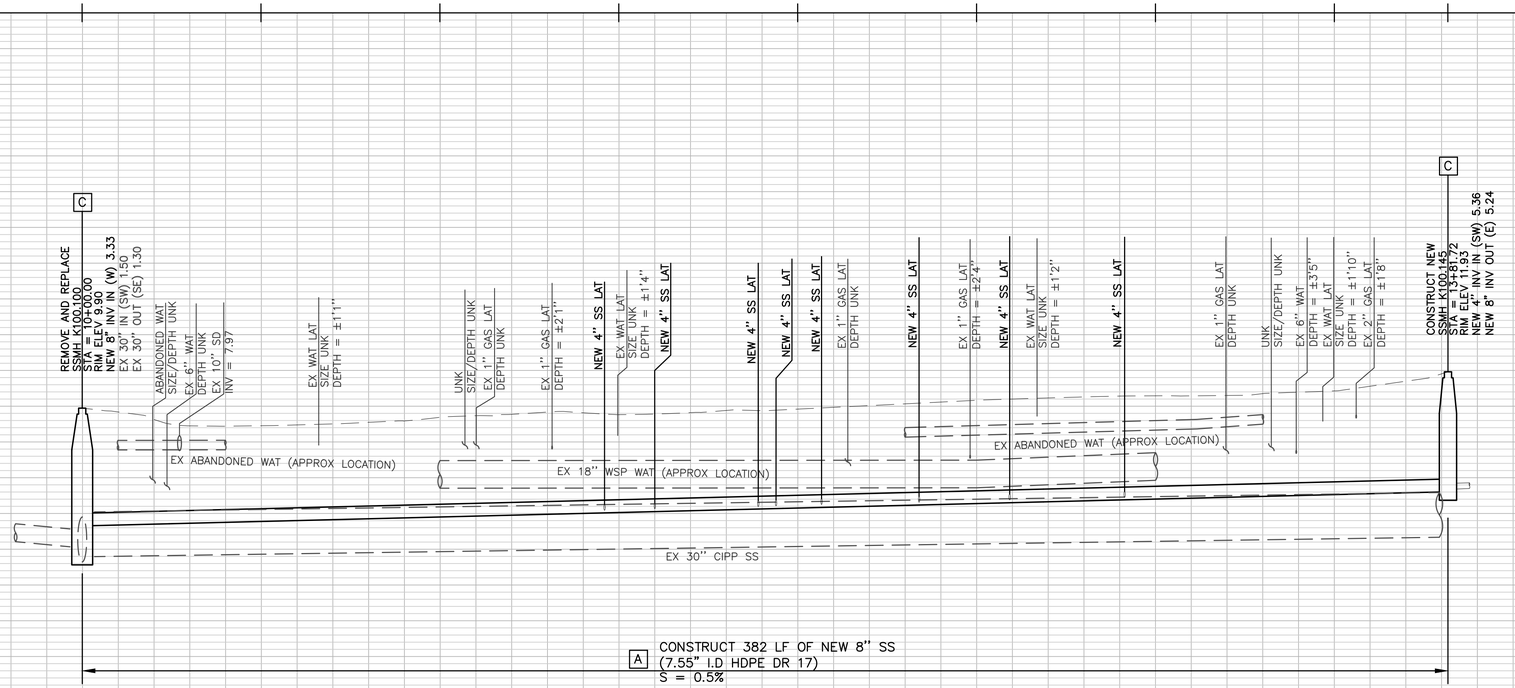


GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT · SINCE 1945 · SANITARY

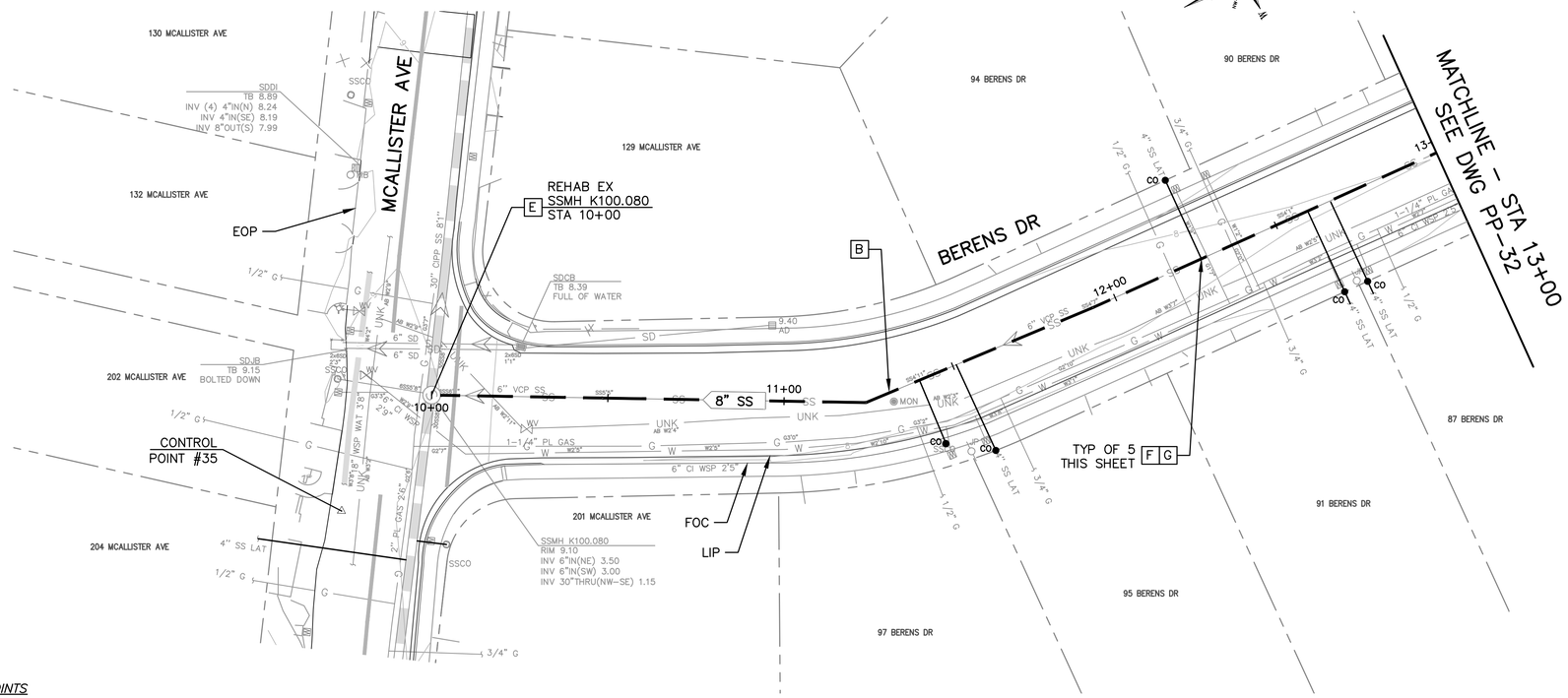
westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA 94520
925–414–3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
STADIUM WAY
STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP–30
SHT 34 OF 54

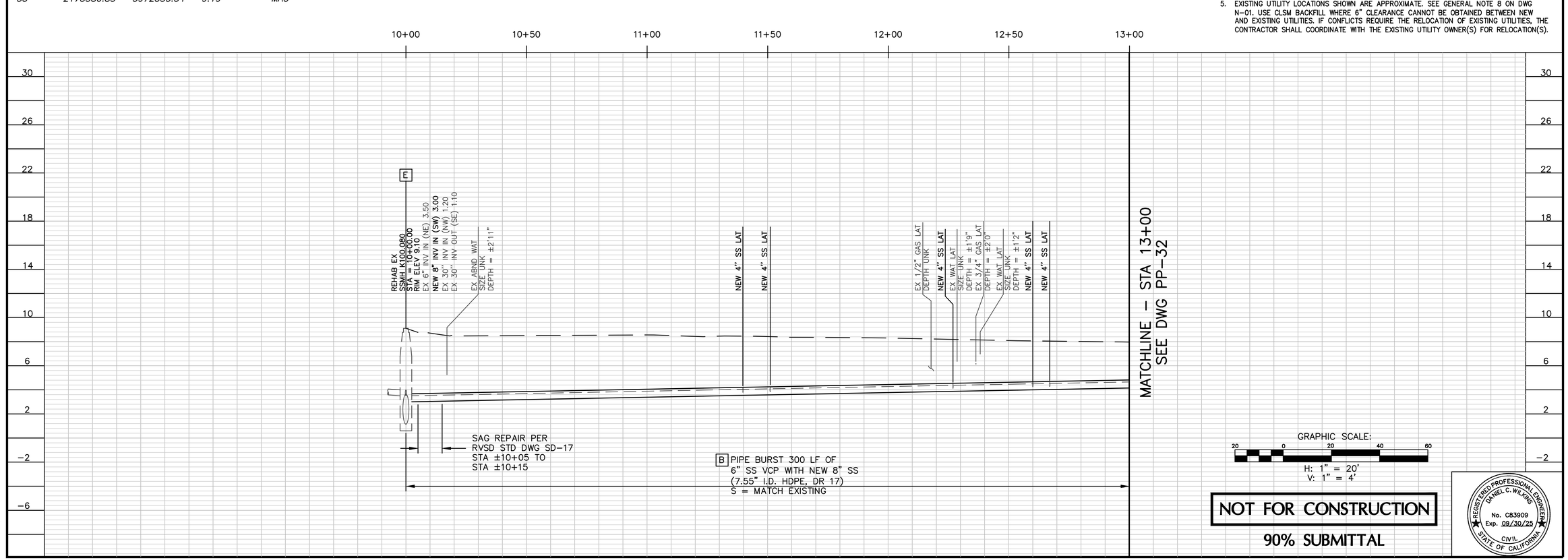
REGISTERED PROFESSIONAL ENGINEER · DANIEL C. WILKINS · No. C83909 · Exp. 09/30/25 · CIVIL · STATE OF CALIFORNIA

\\crosscon\Engineering Data\VIL_EXTERNAL PROJECTS_PROJECTS\371282 RVSD FY24–25 GSP\8.0 DESIGN\8. Design\34 PP–30 – KT STADIUM.dwg Save Date: 9/5/2024 12:00 PM Plot Date: 9/5/2024 12:00 PM JosephC



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
35	*2175380.83*	*5972535.54*	*9.19*	*MAG*



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

B1 REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.

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REGISTERED PROFESSIONAL ENGINEER
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No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

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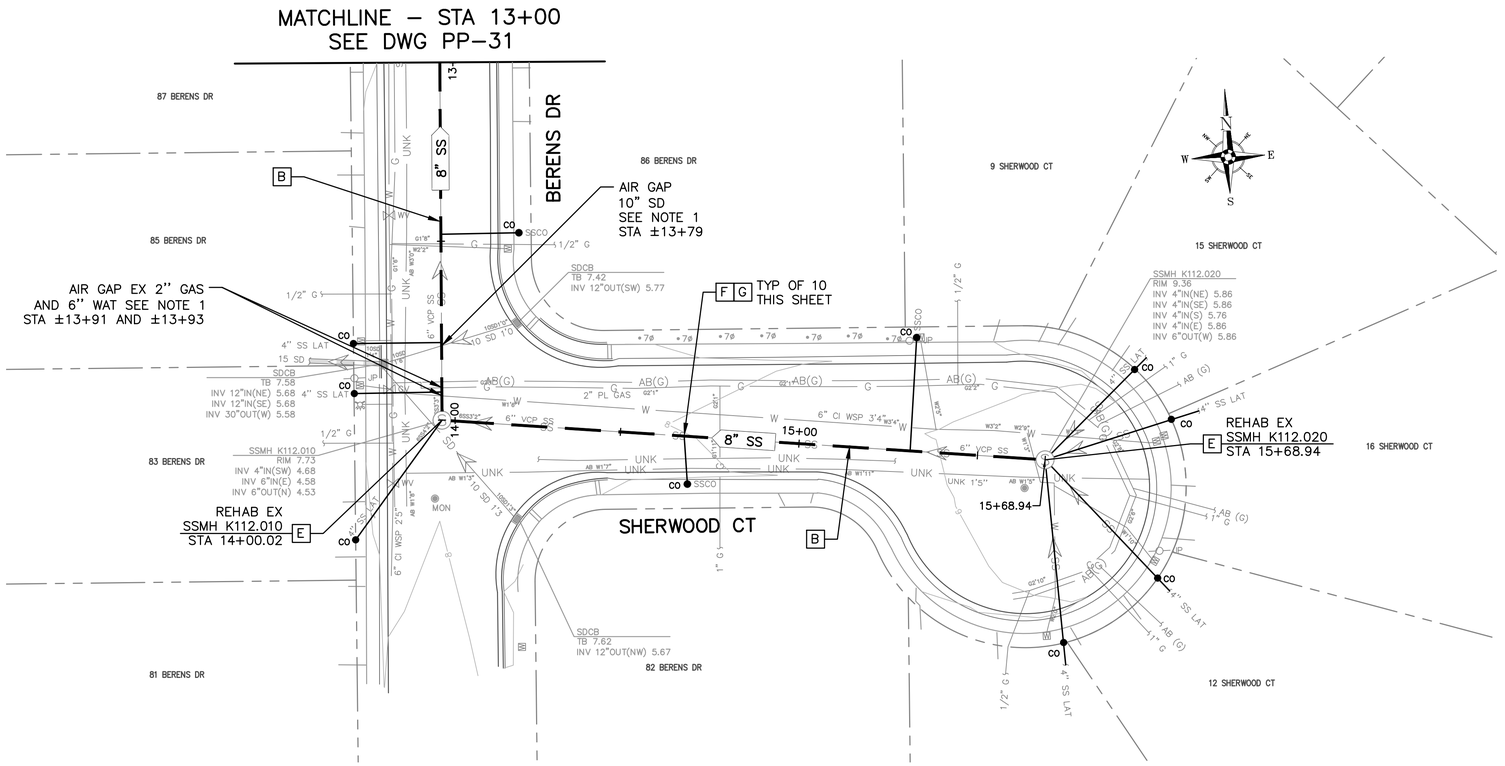
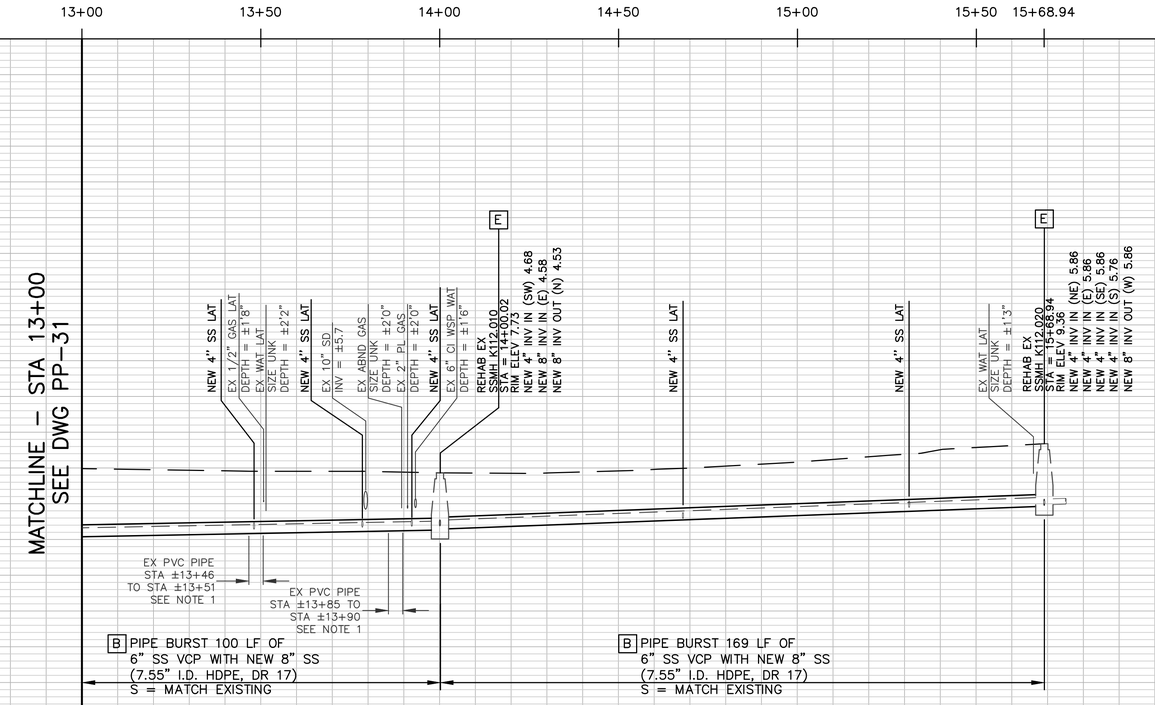
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
BERENS DR
STA 10+00 TO STA 13+00

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-31
SHT 35 OF 54





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90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT

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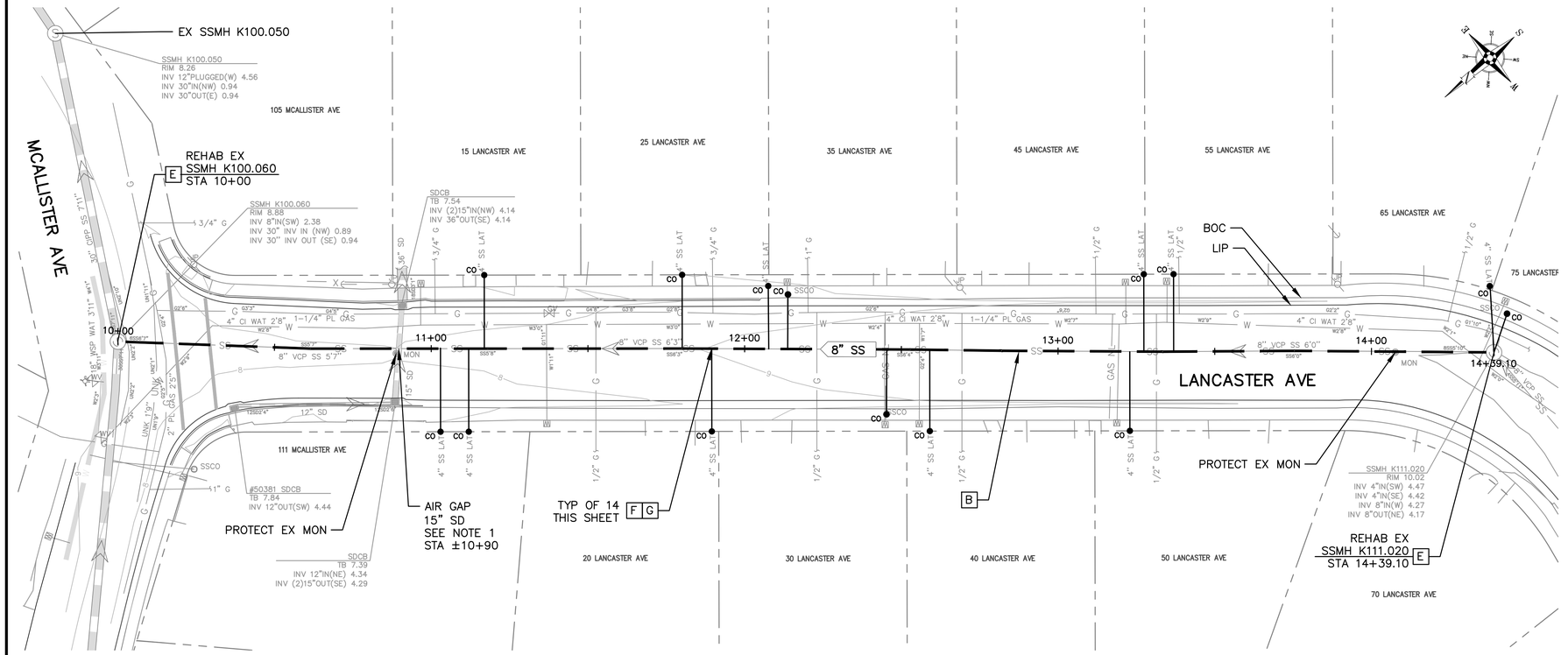
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
REHABILITATION PROJECT
BERENS DR
STA 13+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP–32
SHT 36 OF 54

\\rossvcn\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24–25 GSP\8.0 DESIGN\B. Design\35–36 PP–31 To PP–32 – KT MCALLISTER W.dwg Save Date: 9/5/2024 12:01 PM Plot Date: 9/5/2024 12:01 PM JosephC



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LANCASTER AVE
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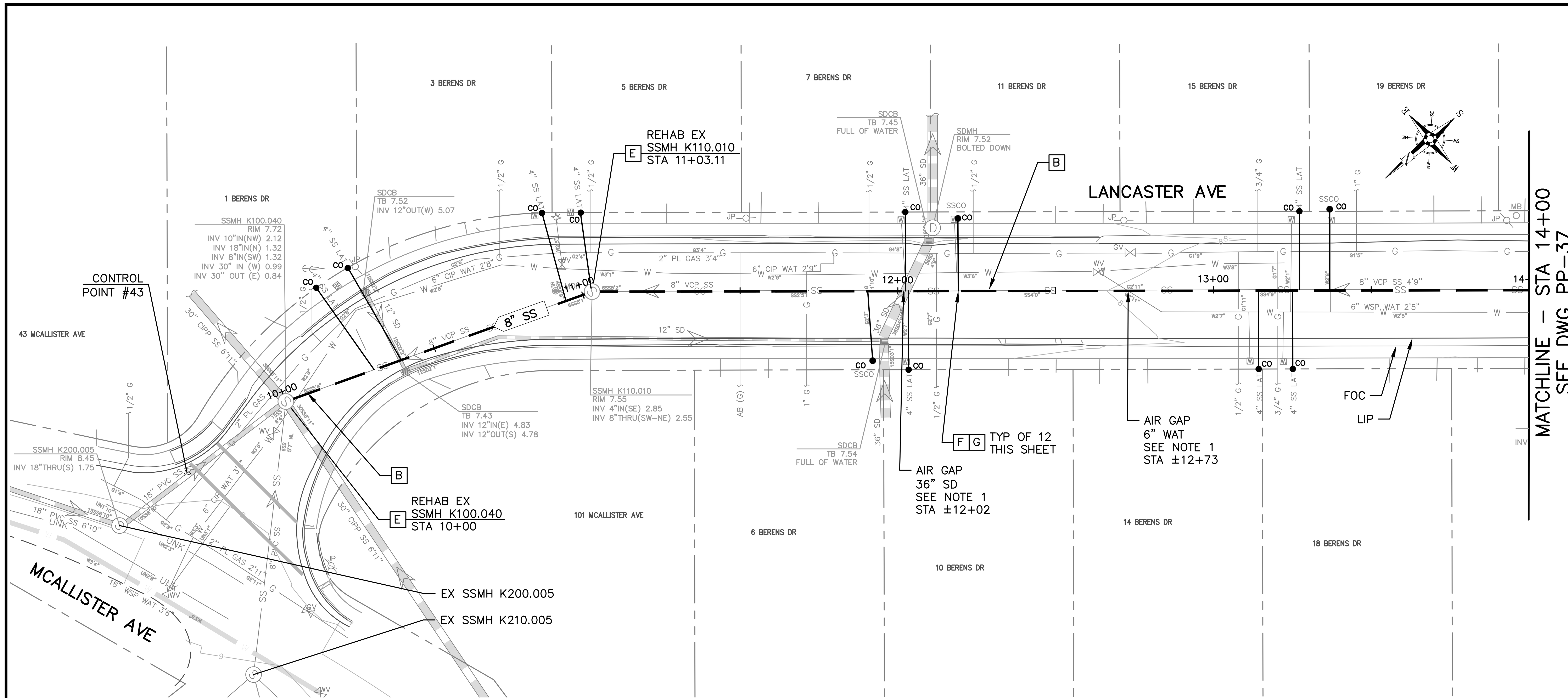
DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-33
SHT 37 OF 54



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
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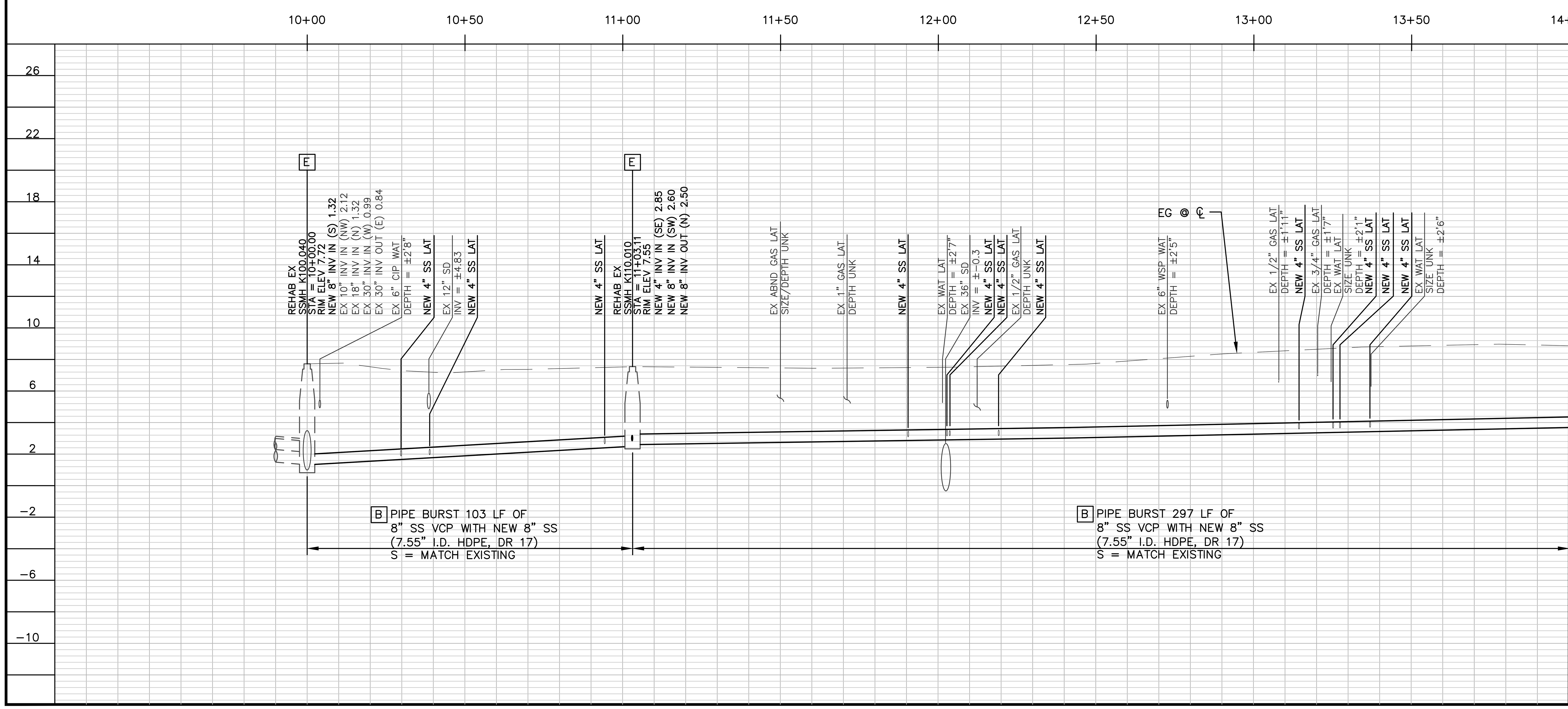

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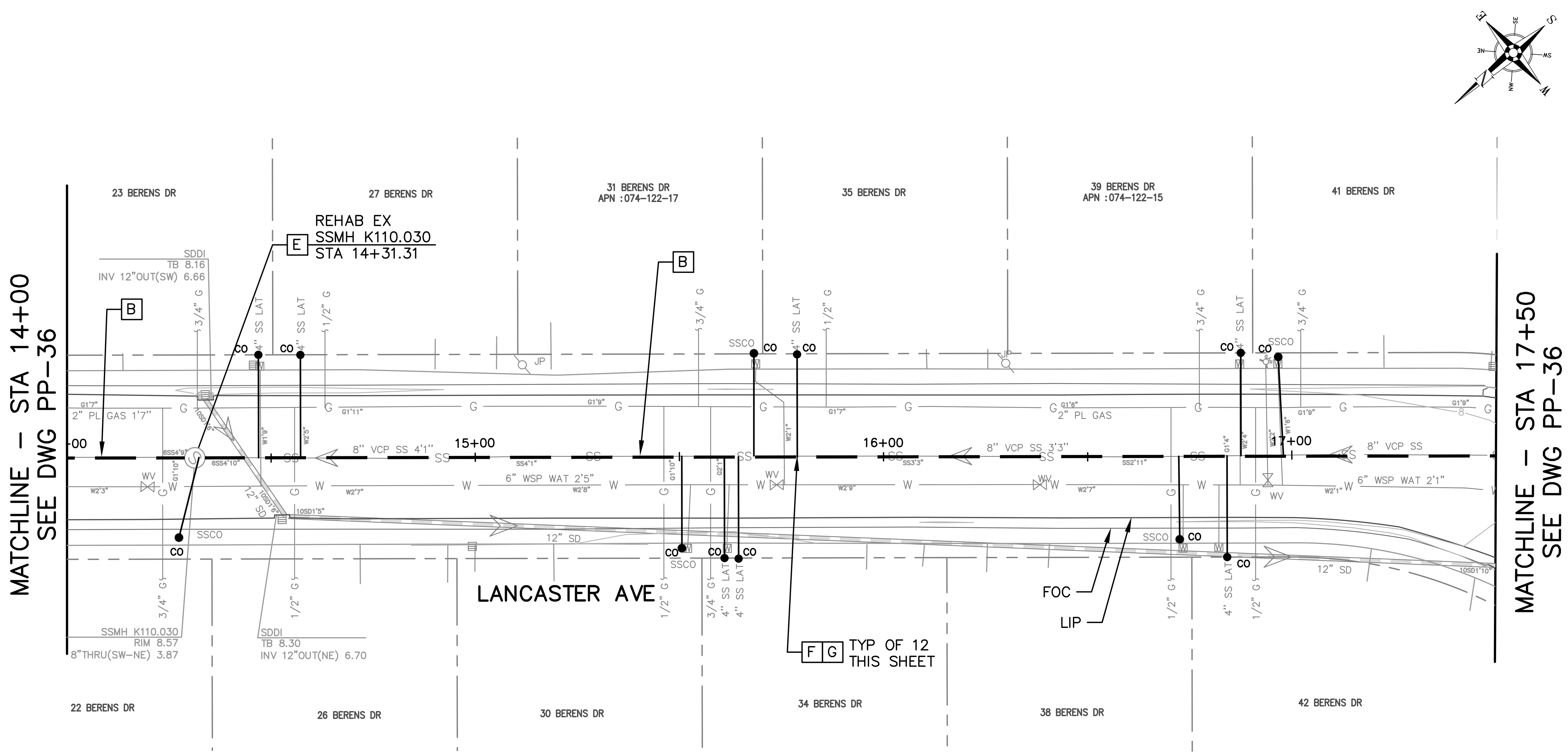
DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-34
SHT 38 OF 54



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

B1 REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.

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D REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.

E REHABILITATE EX SSMH PER RVSD STD DWG SD-13

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CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON-TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT.

G CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
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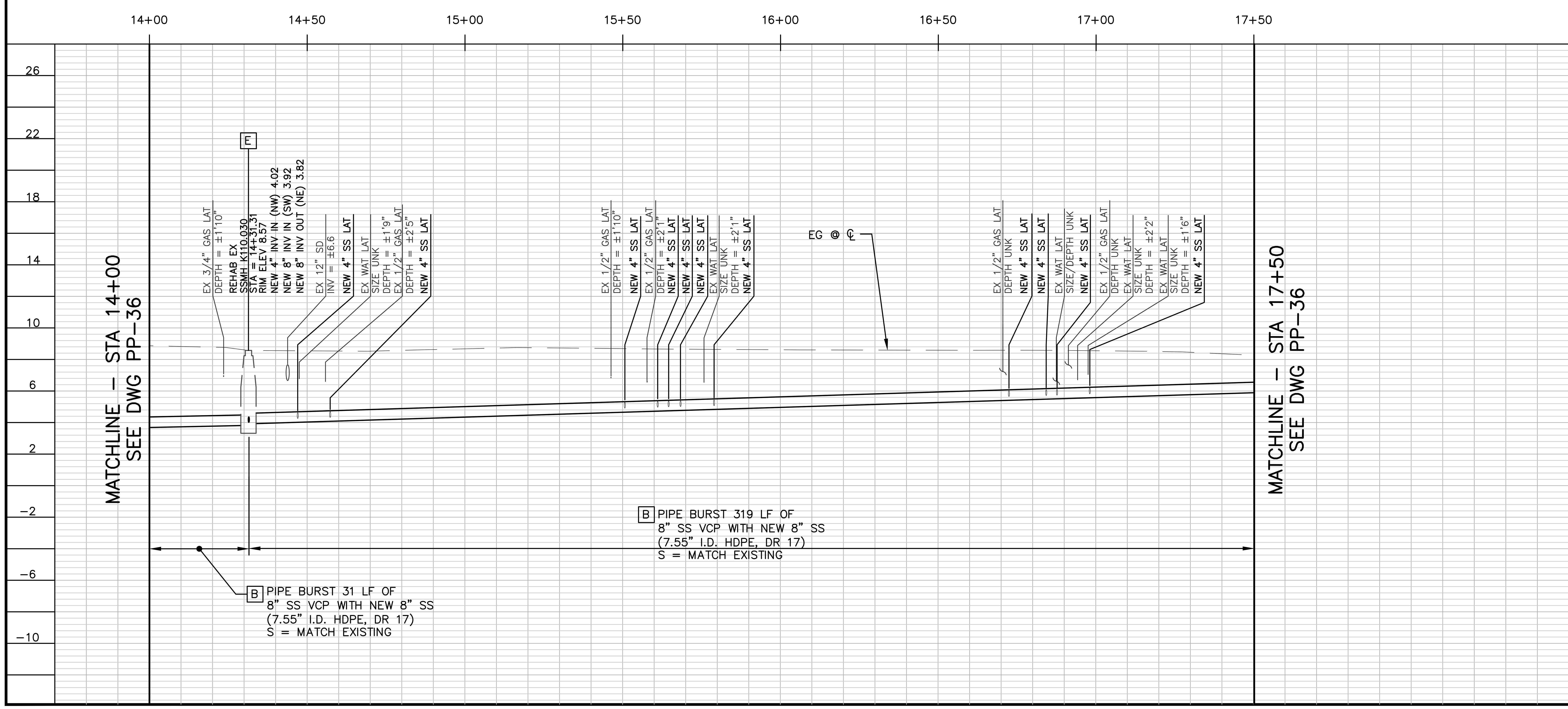

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

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DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT

westvalley CONSTRUCTION SINCE 1958
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1001 GALAXY WAY, SUITE 400
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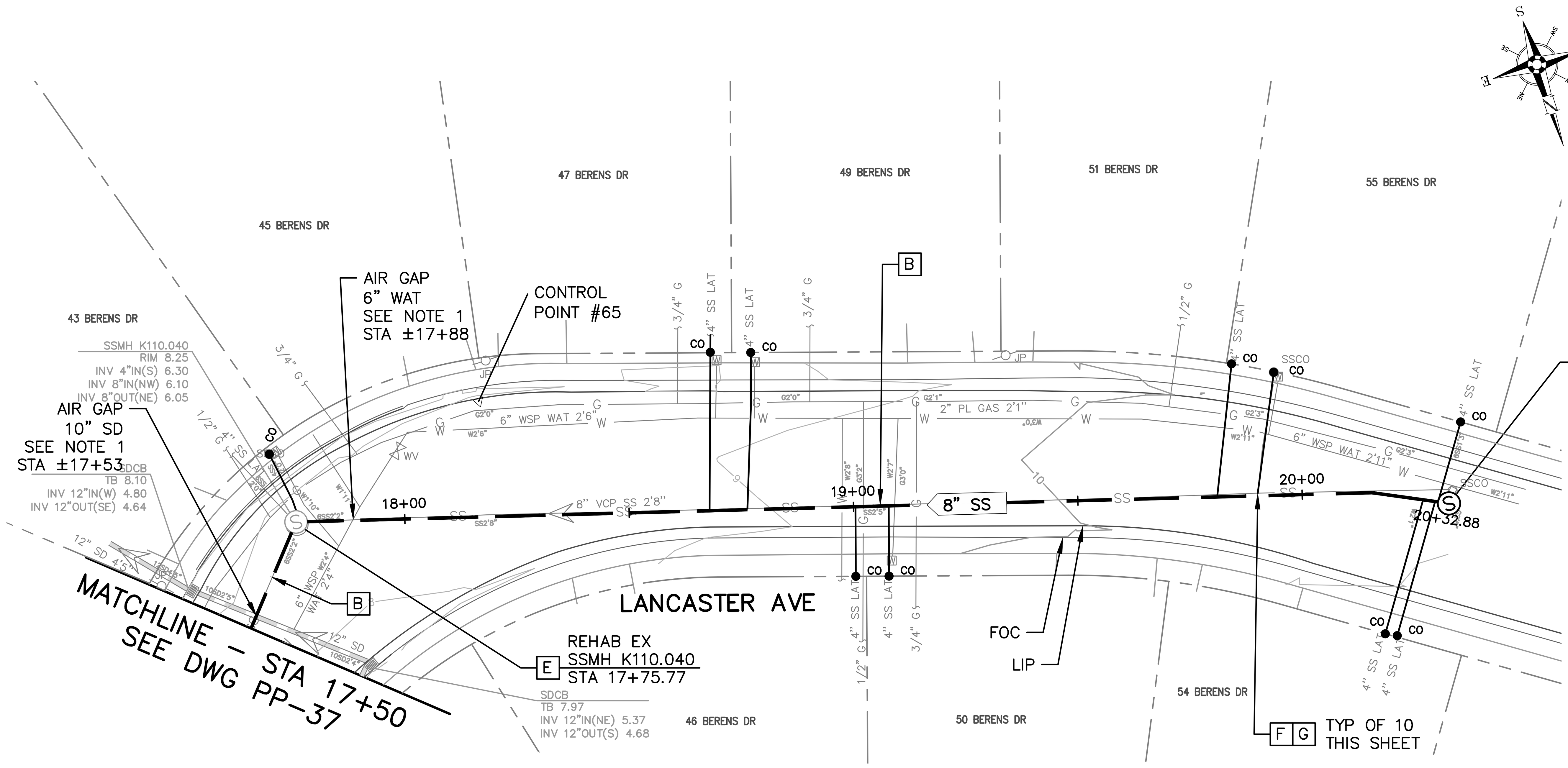
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
LANCASTER AVE
STA 14+00 17+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-35
SHT 39 OF 54

\\rvascon\Engineering Data\W_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\8. Design\38-40 PP-34 To PP-36 - KT BERENS.dwg Save Date: 9/5/2024 12:02 PM Plot Date: 9/5/2024 12:02 PM JosephC



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
65	2174243.39	5972731.47	30.40	FD 1IN IP OPEN

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

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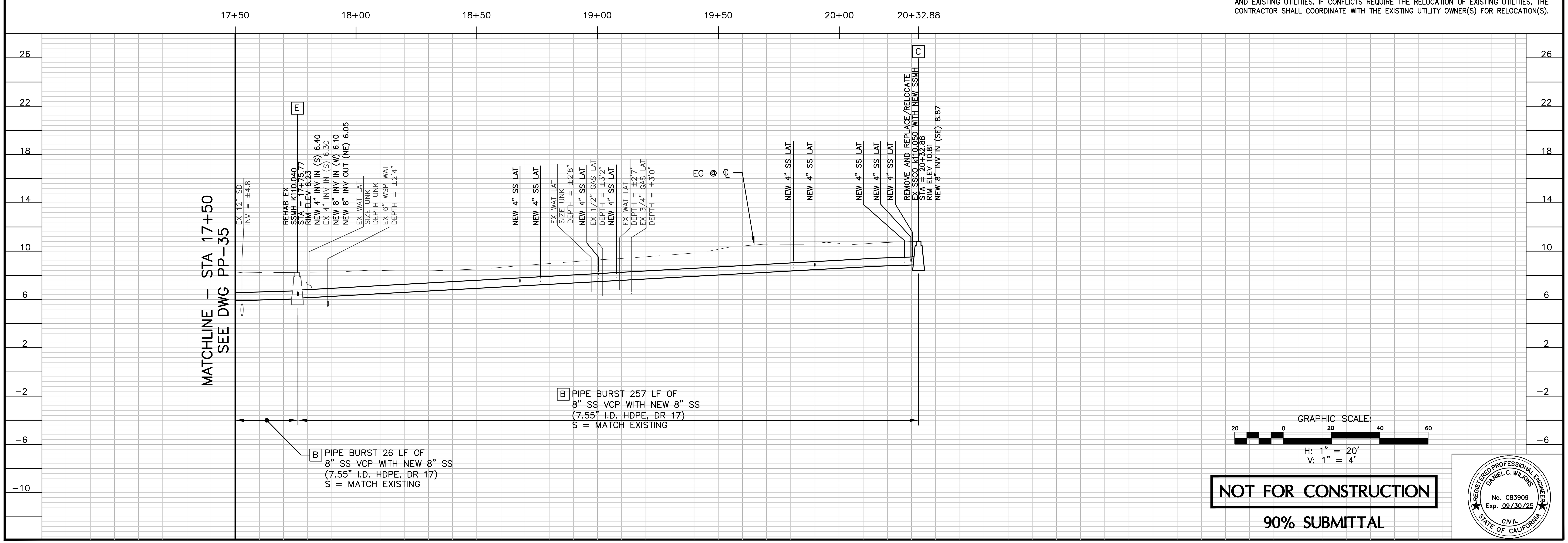

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REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
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NO.	DATE	BY	DESCRIPTION

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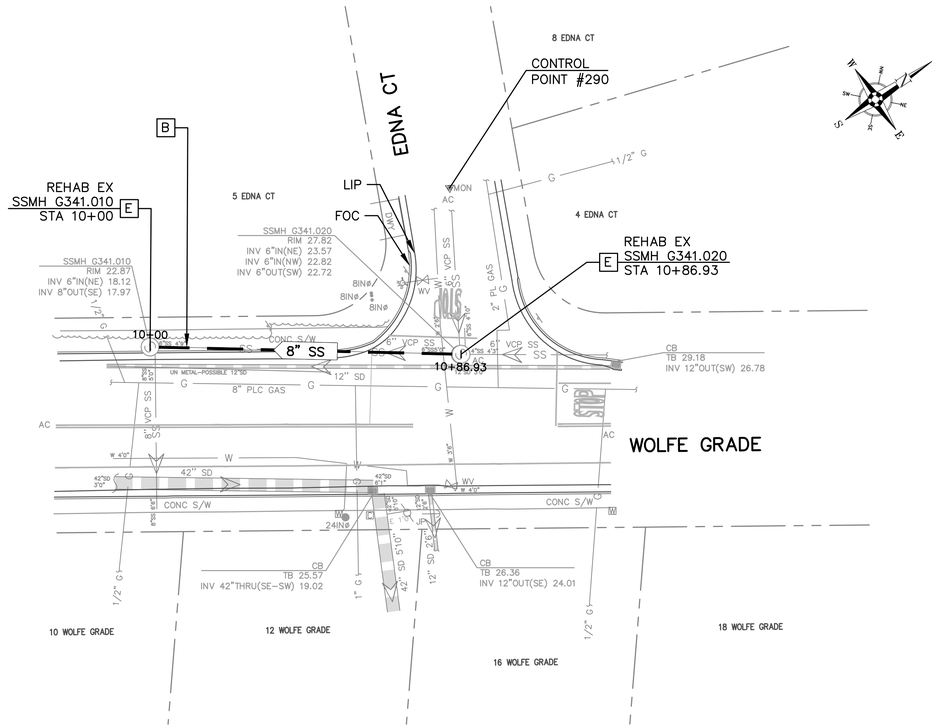
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
LANCASTER AVE
STA 17+50 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-36
SHT 40 OF 54

\\nascon\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\8. Design\38-40 PP-34 To PP-36 - KT BERENS.dwg Save Date: 9/5/2024 3:42 PM Plot Date: 9/5/2024 3:42 PM JosephC



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
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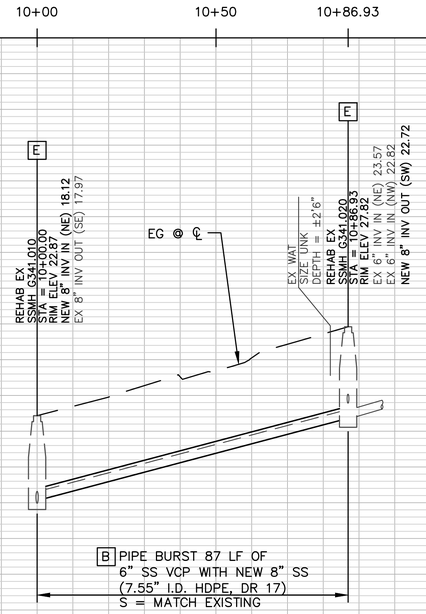

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REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
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NO.	DATE	BY	DESCRIPTION

DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT

west valley CONSTRUCTION SINCE 1958
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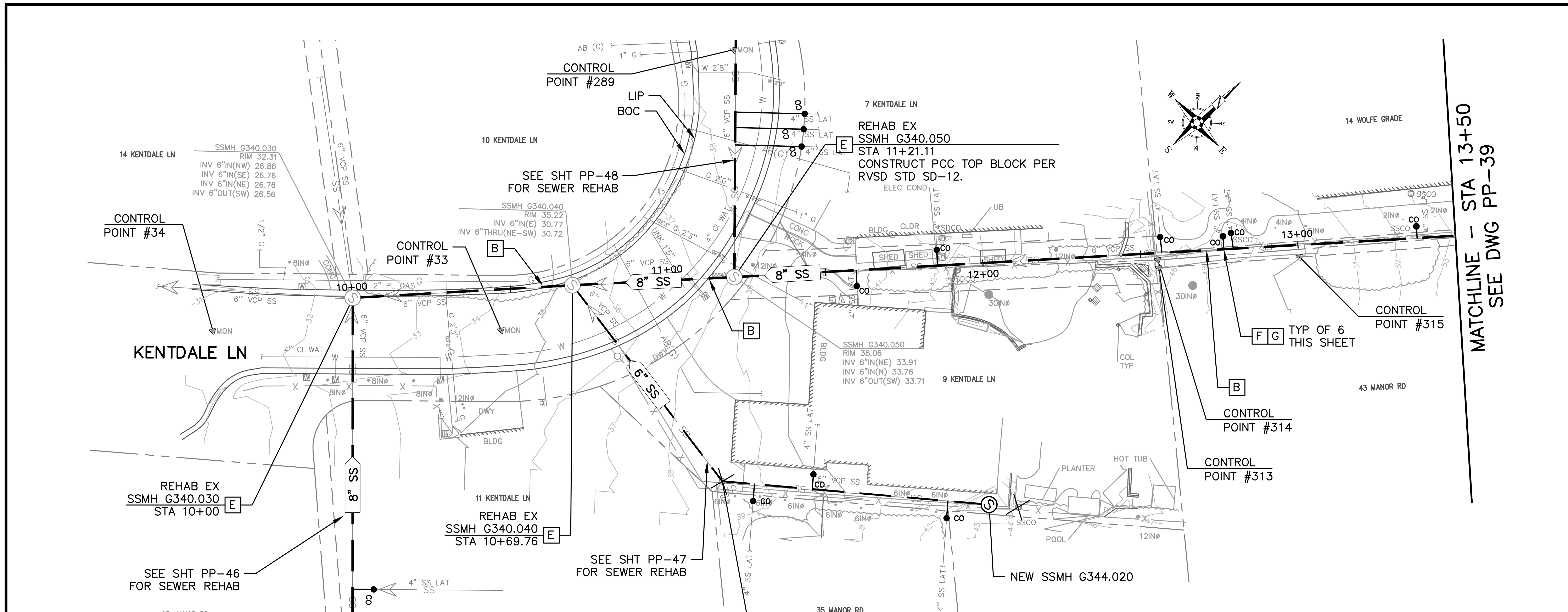
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
WOLFE GRADE
STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-37
SHT 41 OF 54



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
33	2176303.97	5974593.20	34.25	FD 1IN IP OPEN
34	2176236.99	5974531.06	31.23	FD 0.75IN IP W PIN
289	2176418.54	5974578.41	38.55	FD 1IN IP W PIN
313	2176469.87	5974720.88	48.05	0.5IN REBAR
314	2176471.33	5974718.83	48.03	0.5IN REBAR
315	2176504.83	5974748.75	50.15	0.5IN REBAR

LEGEND OF REHABILITATION METHODS

[A] REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

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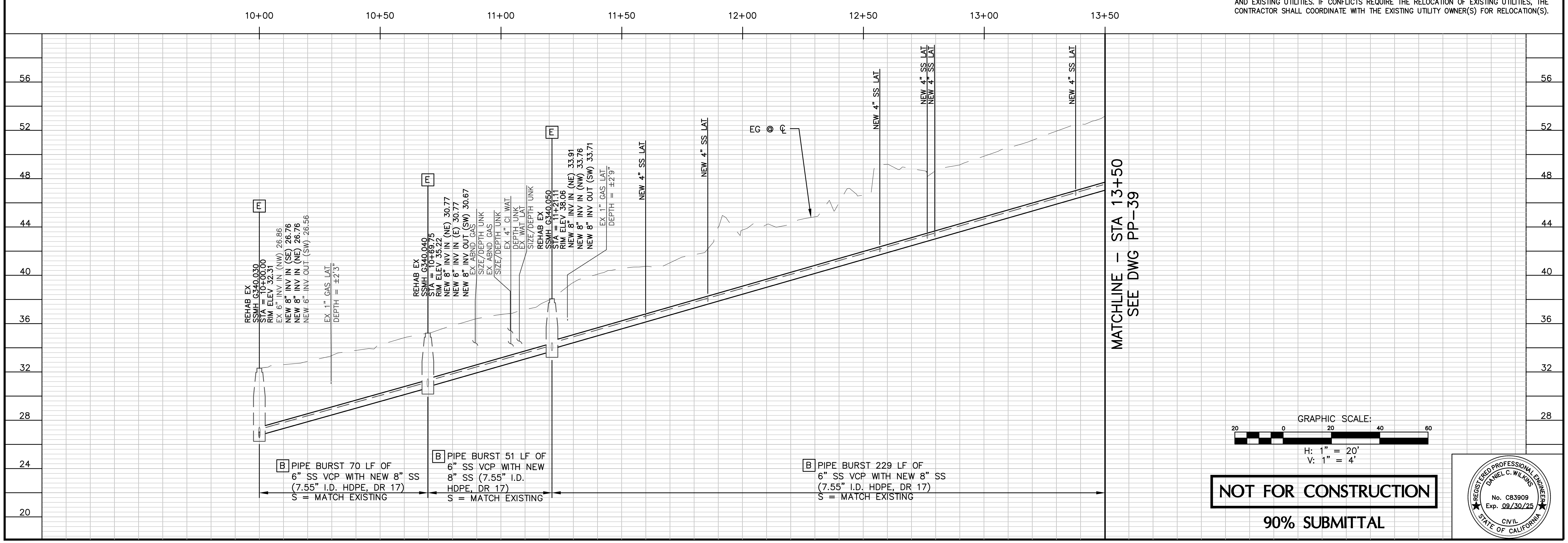

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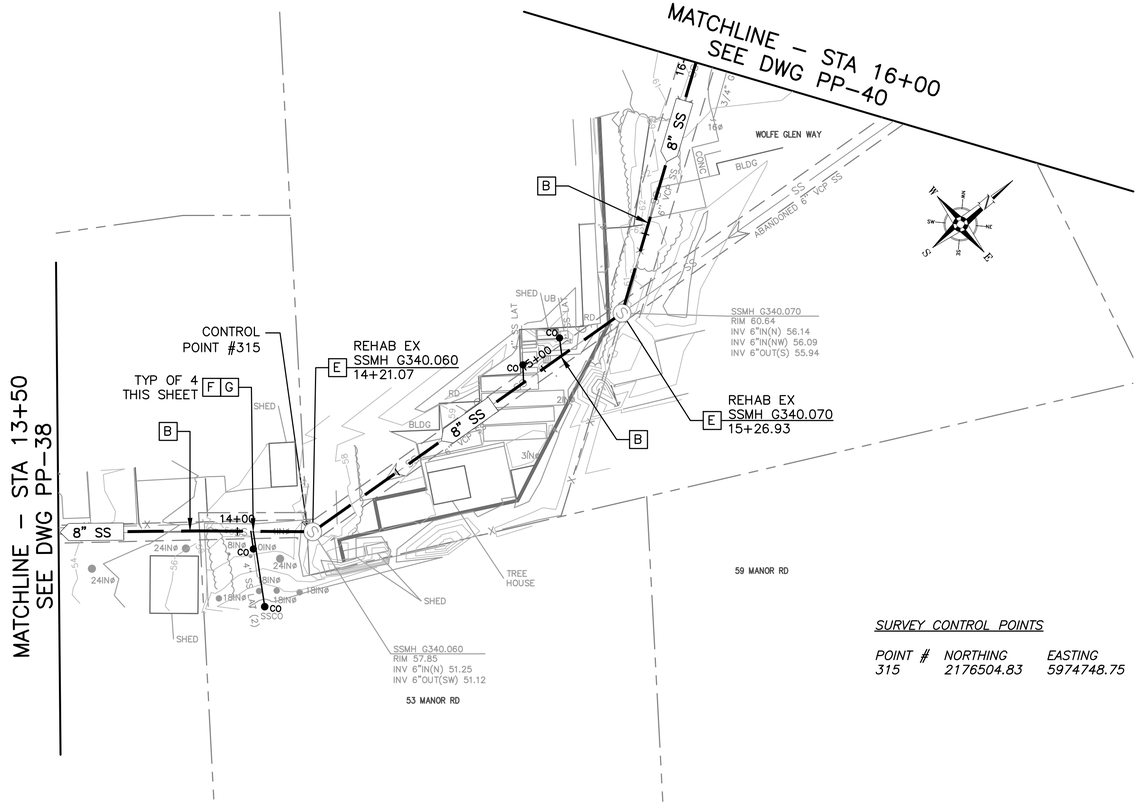
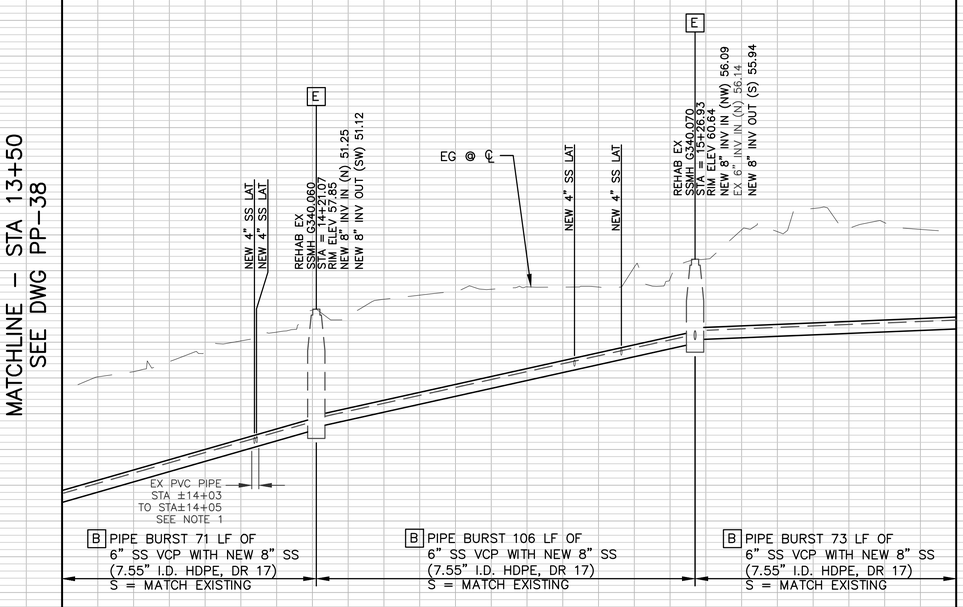
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
KENTDALE LN
STA 10+00 TO 13+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-38
SHT 42 OF 54



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
315	*2176504.83*	*5974748.75*	*50.15*	*0.5IN REBAR*



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E REHABILITATE EX SSMH PER RVSD STD DWG SD-13

F PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

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G CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
2. WHERE PIPING IS REMOVED AND REPLACED BY OPEN TRENCH, NEW PIPE INVERT ELEVATIONS SHALL MATCH EX PIPE INVERT ELEVATIONS (UPSIZED 8" SS INVERTS SHALL MATCH EXISTING 6" SS INVERTS), UNLESS OTHERWISE NOTED.
3. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS. SEE GENERAL NOTE 23 AND 24 ON N-01 FOR HDPE SLEEVE REQUIREMENTS.
4. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL NOTE 8 ON DWG N-01. USE CLSM BACKFILL WHERE 6" CLEARANCE CANNOT BE OBTAINED BETWEEN NEW AND EXISTING UTILITIES. IF CONFLICTS REQUIRE THE RELOCATION OF EXISTING UTILITIES, THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING UTILITY OWNER(S) FOR RELOCATION(S).

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

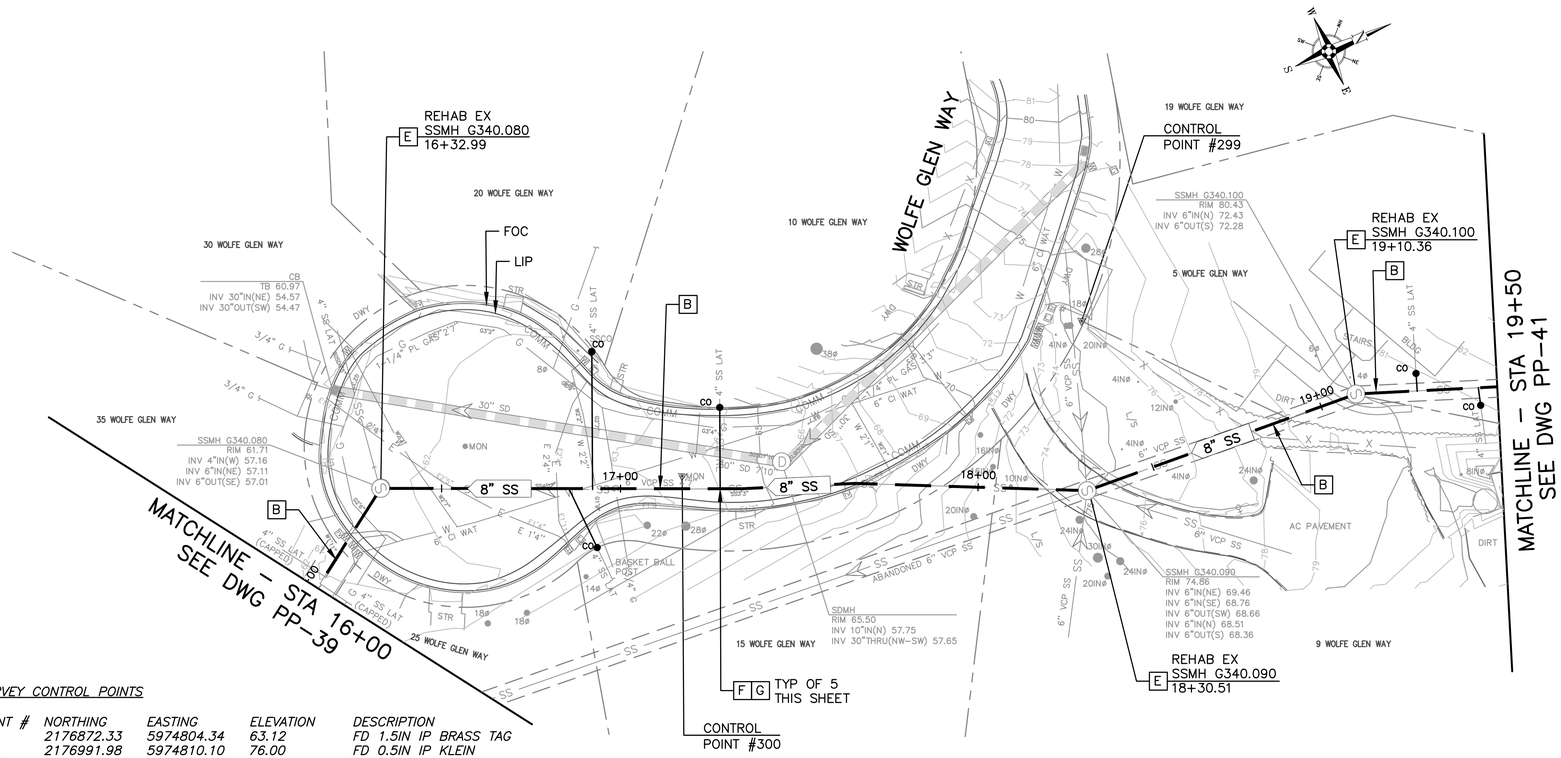
DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT

west valley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA. 94520
925-414-3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
REHABILITATION PROJECT
KENTDALE LN EASEMENT
STA 13+50 TO 16+00

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-39
SHT 43 OF 54



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	2176872.33	5974804.34	63.12	FD 1.5IN IP BRASS TAG
299	2176991.98	5974810.10	76.00	FD 0.5IN IP KLEIN

LEGEND OF REHABILITATION METHODS

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B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

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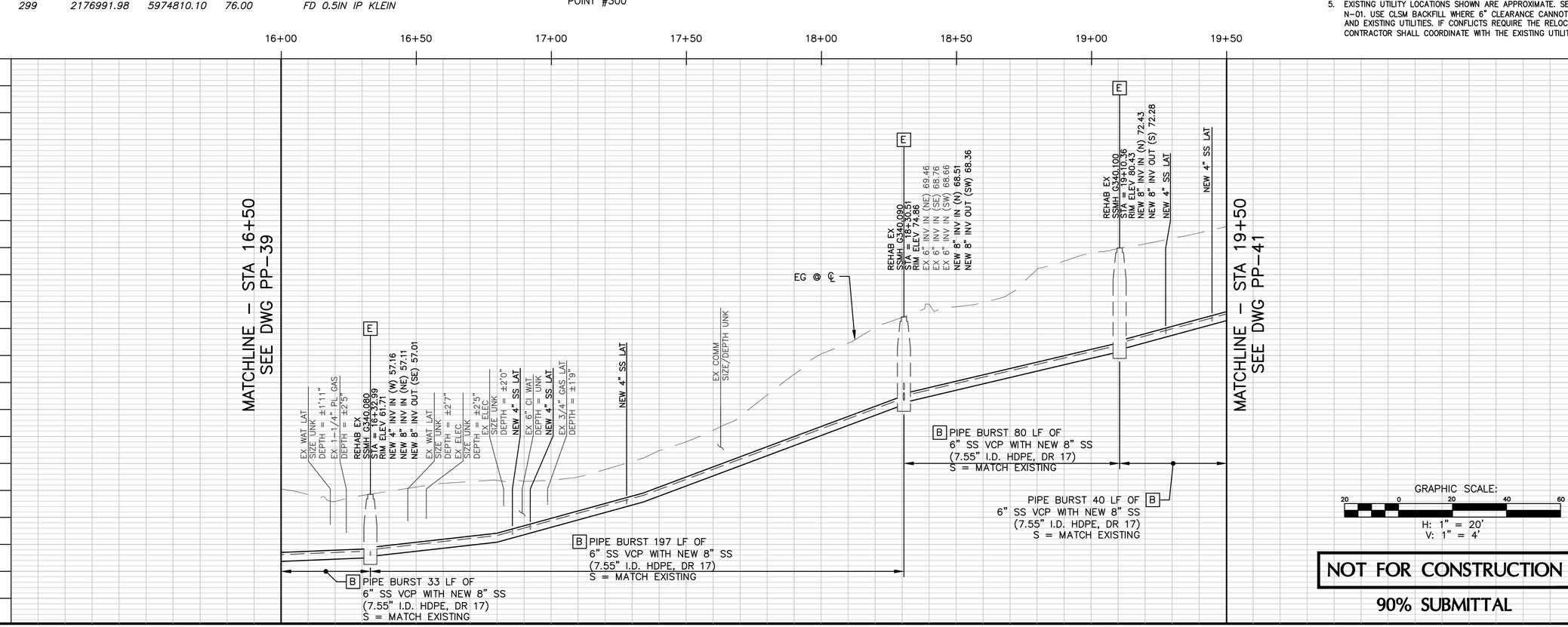

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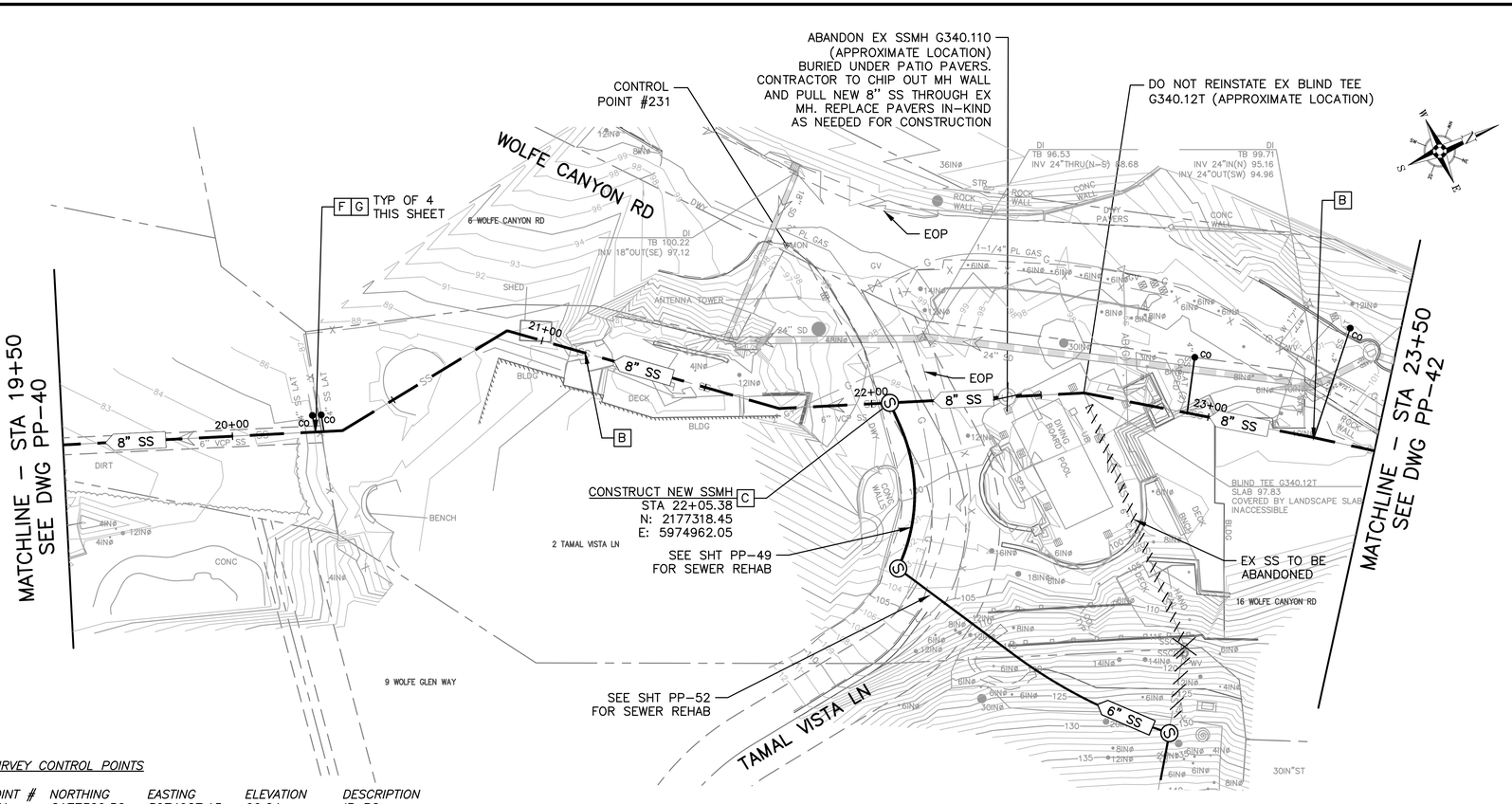
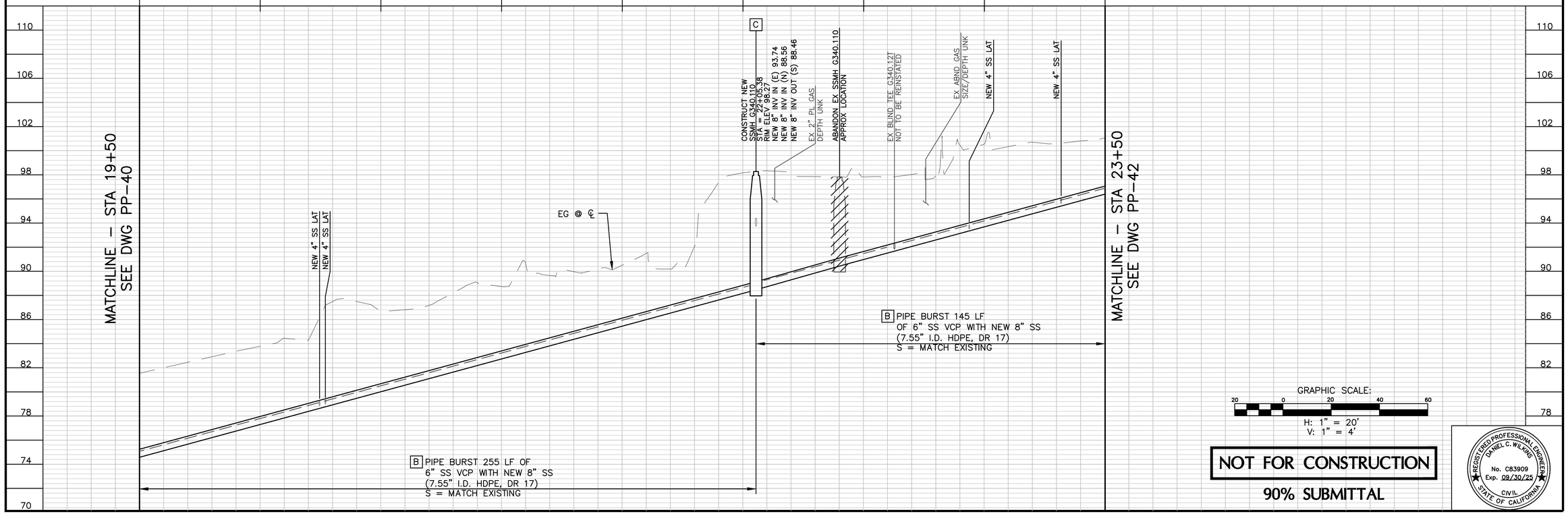
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
REHABILITATION PROJECT
WOLFE GLEN WAY
STA 16+00 TO 19+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-40
SHT 44 OF 54



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
231	*2177309.56*	*5974907.15*	*99.04*	*IP PC*



LEGEND OF REHABILITATION METHODS

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90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

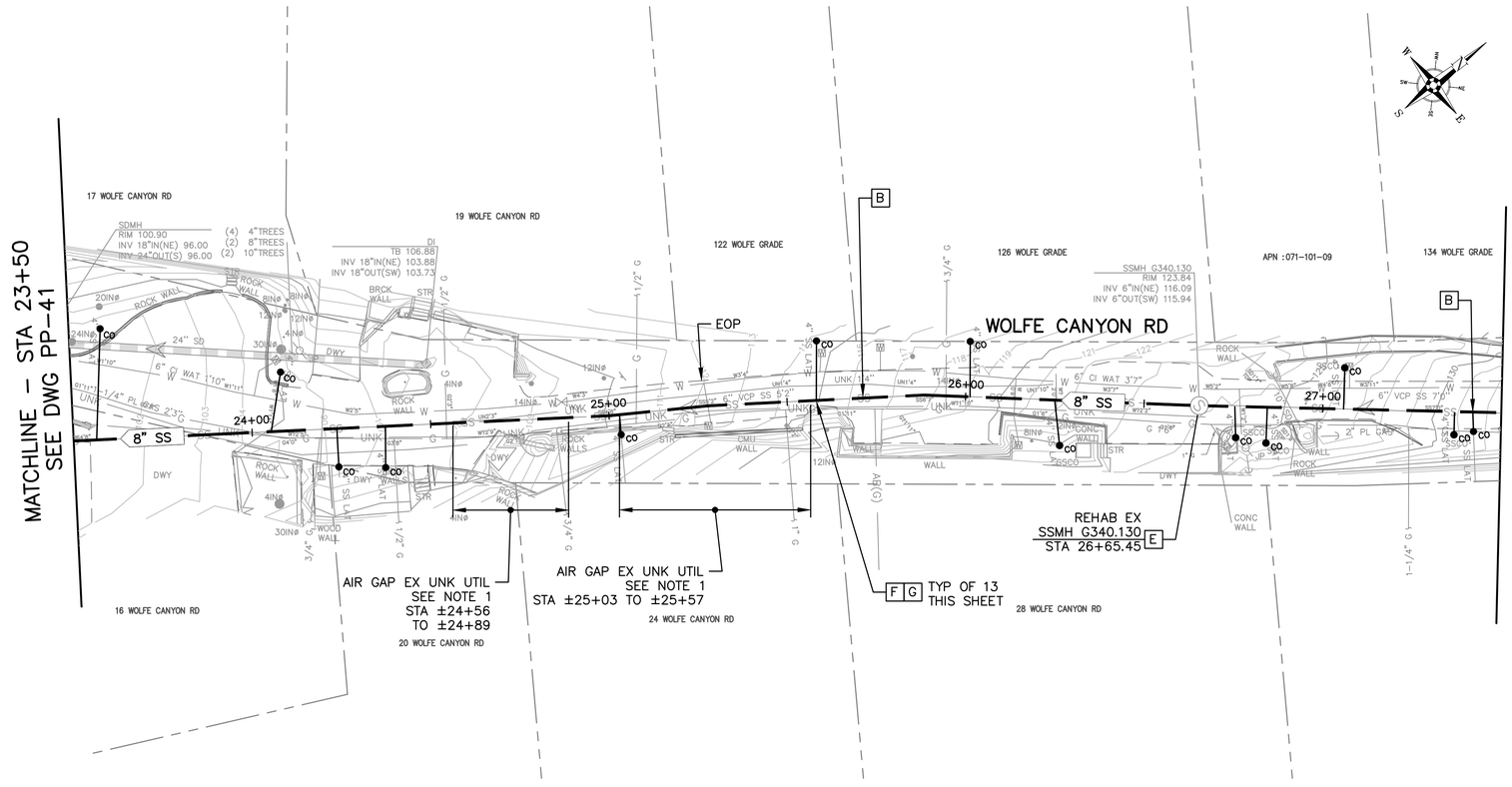
DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

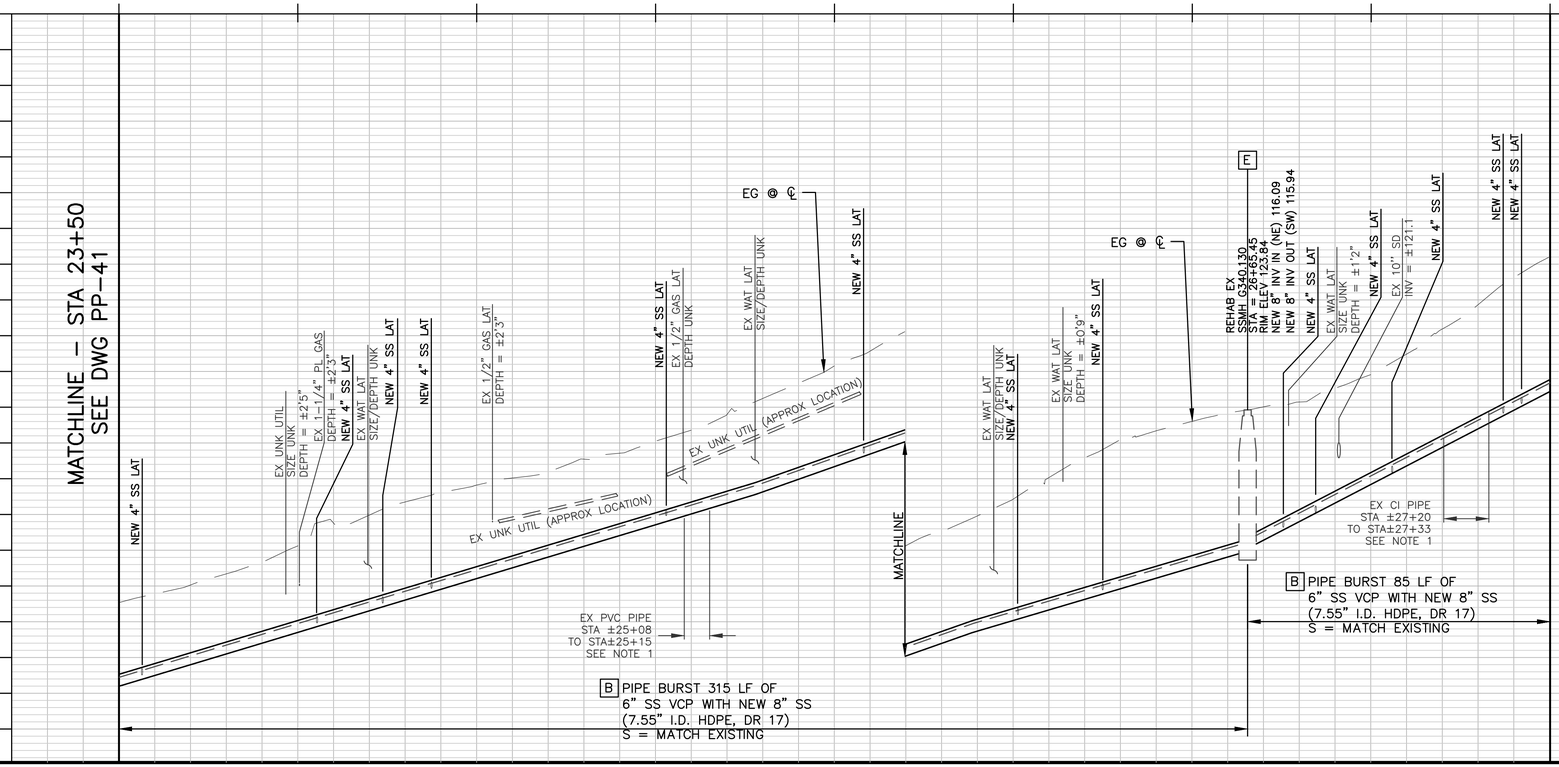
ROSS VALLEY SANITARY DISTRICT

west valley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA, 94520
925-414-3001
www.Westvalleyconstruction.com

FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
WOLFE GLEN WAY
STA 19+50 TO 23+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-41
SHT 45 OF 54





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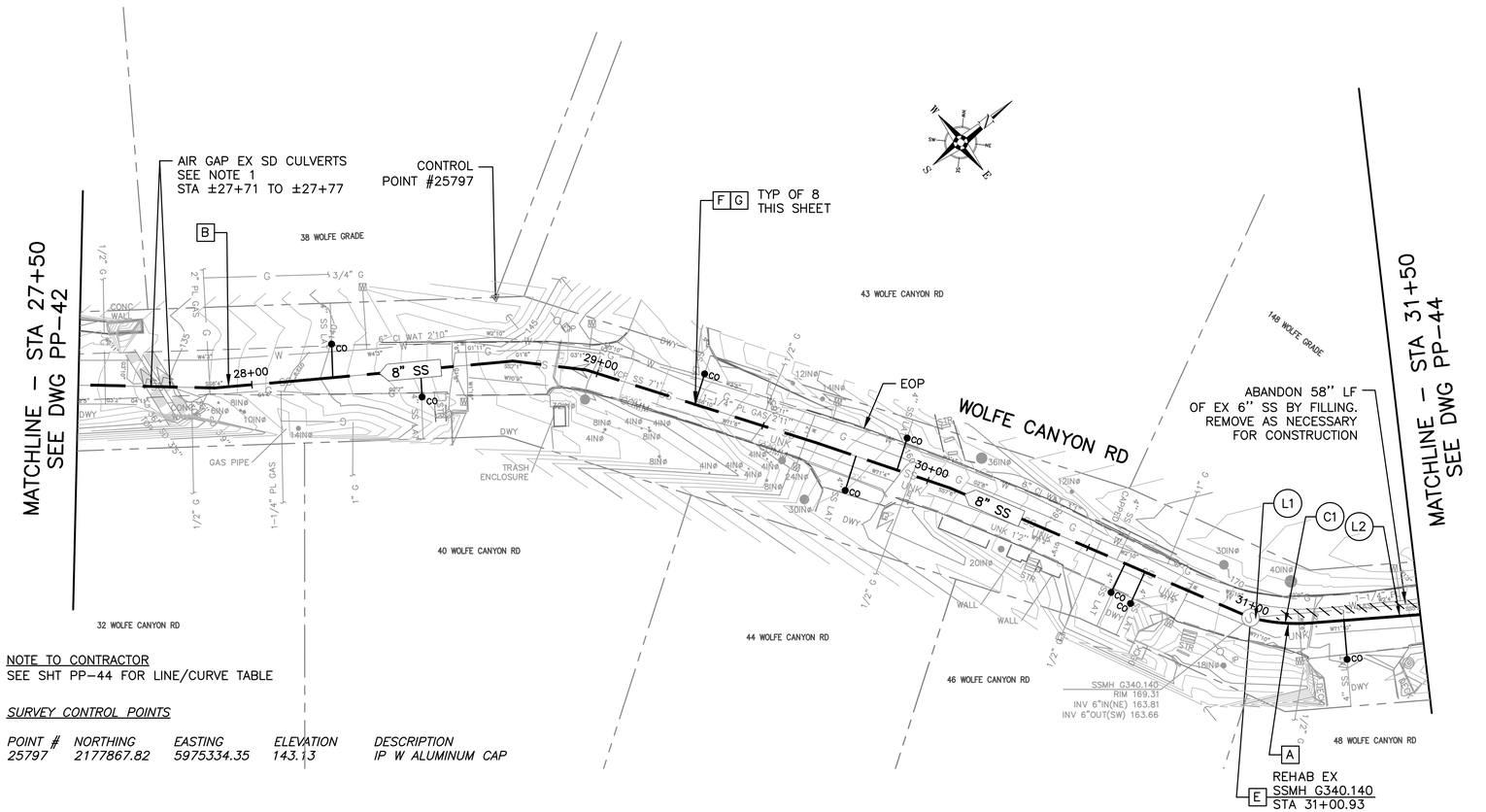
ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
REHABILITATION PROJECT
WOLFE CANYON RD
STA 23+50 TO 27+50

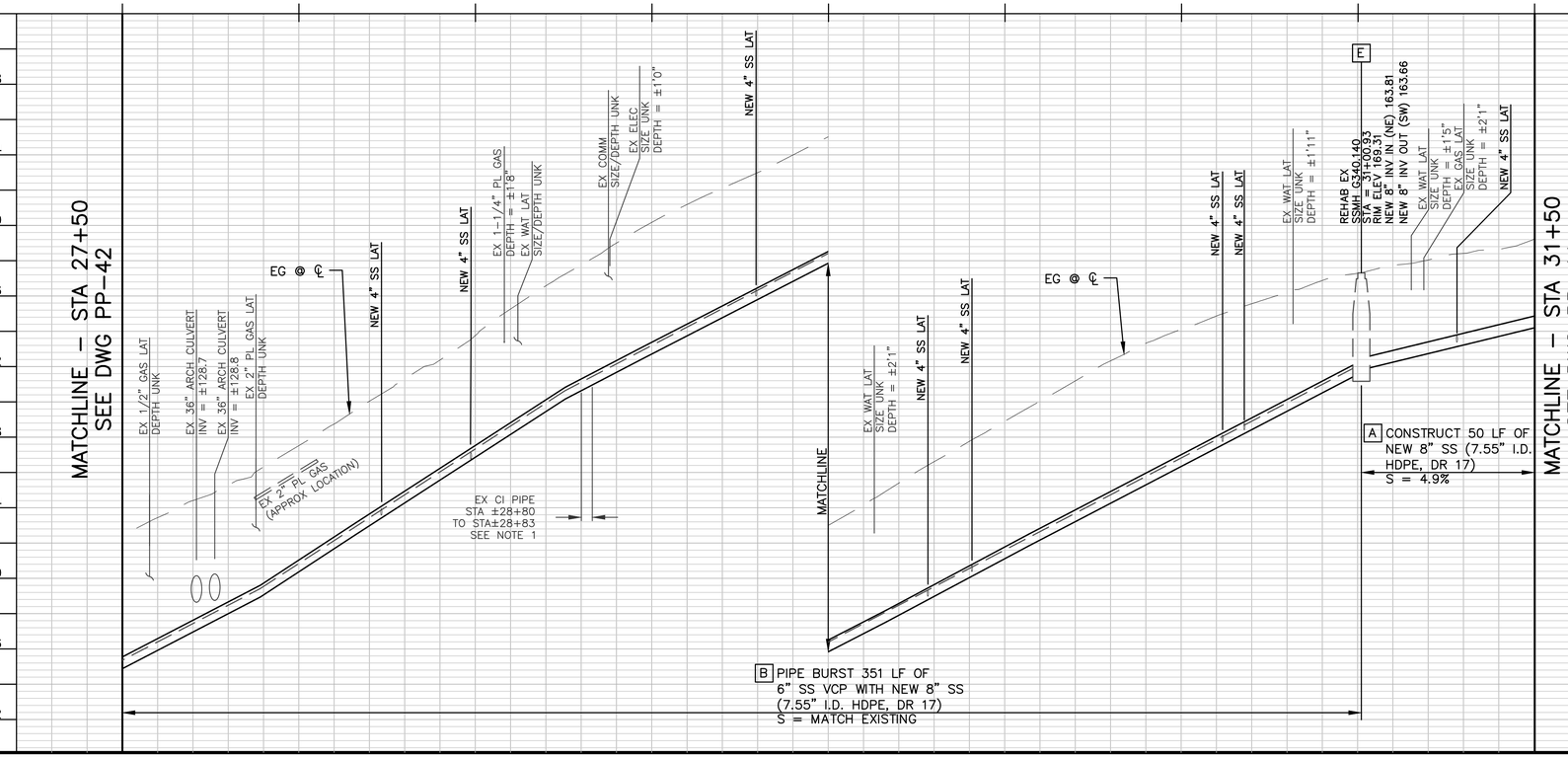
DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-42
SHT 46 OF 54



NOTE TO CONTRACTOR
SEE SHT PP–44 FOR LINE/CURVE TABLE

SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
25797	*2177867.82*	*5975334.35*	*143.13*	*IP W ALUMINUM CAP*



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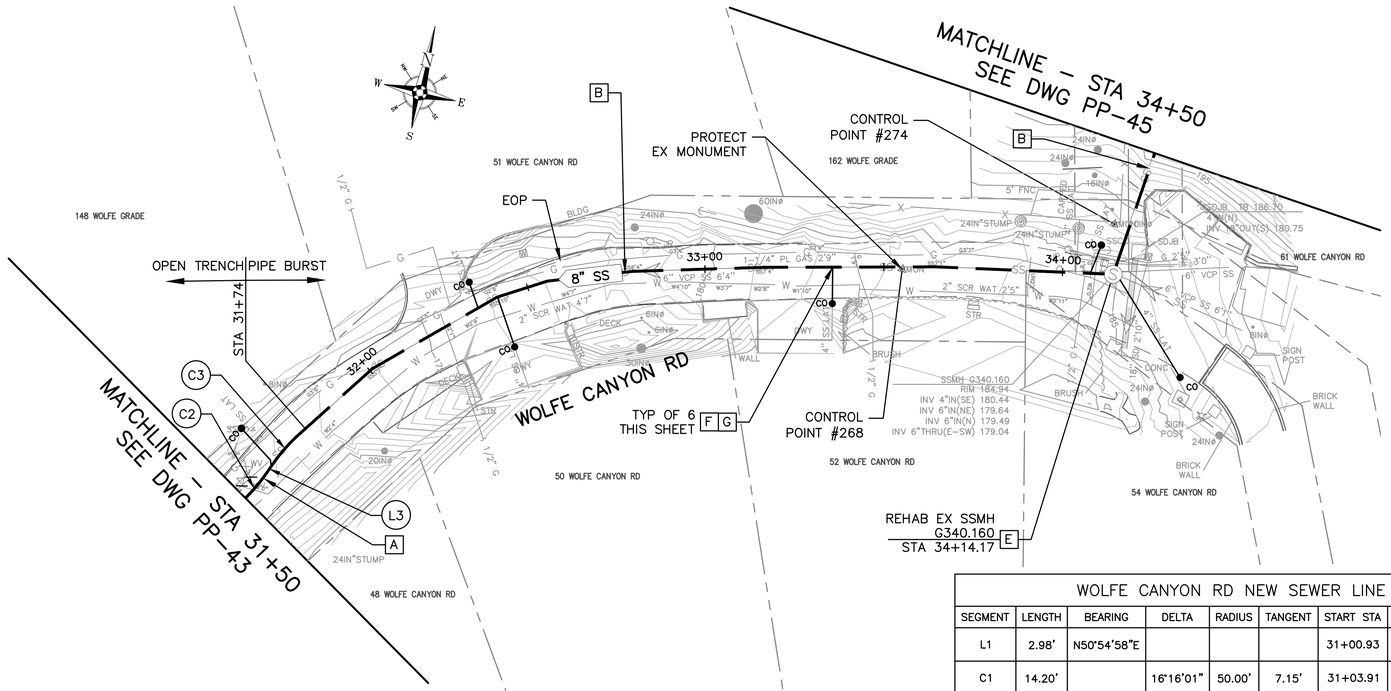
WOLFE CANYON RD
STA 27+50 TO 31+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP–43
SHT 47 OF 54



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
268	2178120.82	5975737.22	182.74	BRASS DISC 2IN
274	2178146.46	5975792.16	187.43	FD IP W ALUMINUM CAP

WOLFE CANYON RD NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	2.98'	N50°54'58"E				31+00.93	N = 2177978.66 E = 5975542.74	31+03.91	N = 2177980.54 E = 5975545.05
C1	14.20'		16°16'01"	50.00'	7.15'	31+03.91	N = 2177980.54 E = 5975545.05	31+18.11	N = 2177990.93 E = 5975554.66
L2	29.88'	N34°38'57"E				31+18.11	N = 2177990.93 E = 5975554.66	31+47.99	N = 2178015.51 E = 5975571.65
C2	11.29'		12°56'08"	50.00'	5.67'	31+47.99	N = 2178015.51 E = 5975571.65	31+59.28	N = 2178025.44 E = 5975576.97
L3	2.61'	N21°42'49"E				31+59.28	N = 2178025.44 E = 5975576.97	31+61.89	N = 2178027.86 E = 5975577.93
C3	11.75'		13°28'11"	50.00'	5.90'	31+61.89	N = 2178027.86 E = 5975577.93	31+73.64	N = 2178038.17 E = 5975583.52

LEGEND OF REHABILITATION METHODS

A — REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B — REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

B1 — REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.

C — REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03 AND SD-04. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

D — REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.

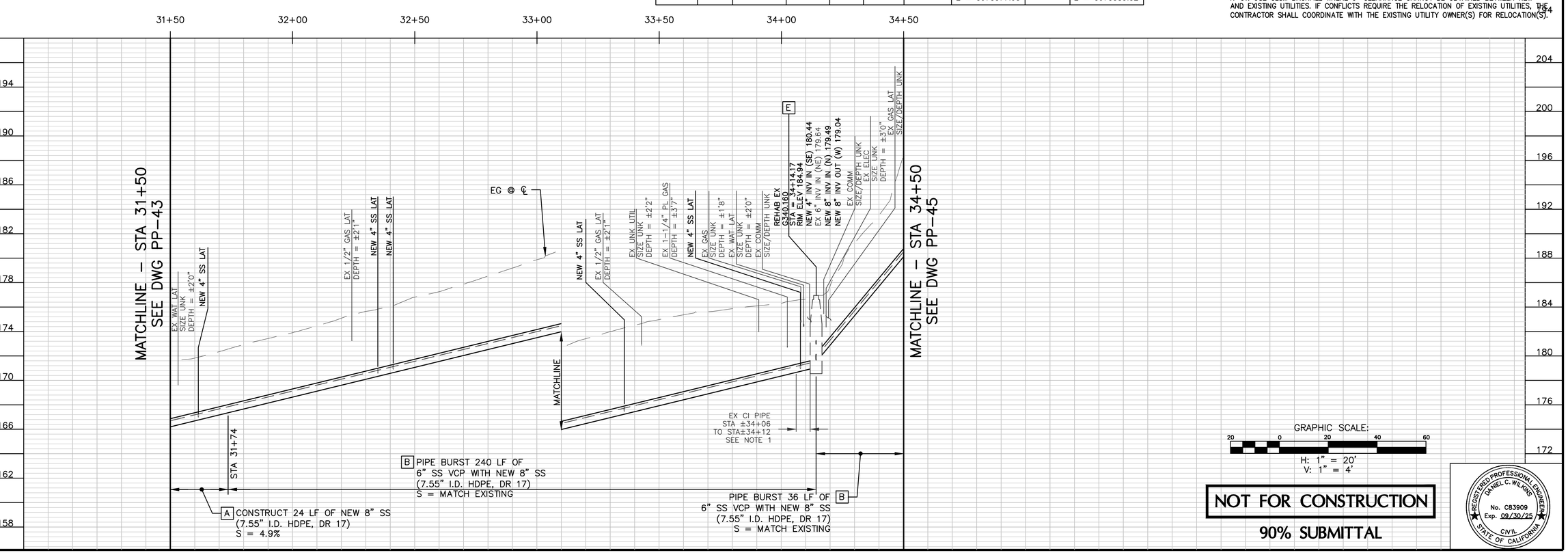
E — REHABILITATE EX SSMH PER RVSD STD DWG SD-13

F — PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON-TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT.

G — CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:
1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
2. WHERE PIPING IS REMOVED AND REPLACED BY OPEN TRENCH, NEW PIPE INVERT ELEVATIONS SHALL MATCH EX PIPE INVERT ELEVATIONS (UPSIZED 8" SS INVERTS SHALL MATCH EXISTING 6" SS INVERTS), UNLESS OTHERWISE NOTED.
3. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS. SEE GENERAL NOTE 23 AND 24 ON N-01 FOR HDPE SLEEVE REQUIREMENTS.
4. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL NOTE 8 ON DWG N-01. USE CLSM BACKFILL WHERE 6" CLEARANCE CANNOT BE OBTAINED BETWEEN NEW AND EXISTING UTILITIES. IF CONFLICTS REQUIRE THE RELOCATION OF EXISTING UTILITIES, THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING UTILITY OWNER(S) FOR RELOCATION(S).



GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER — DANIEL C. WILKINS — No. C83909 Exp. 09/30/25 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: MPV
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

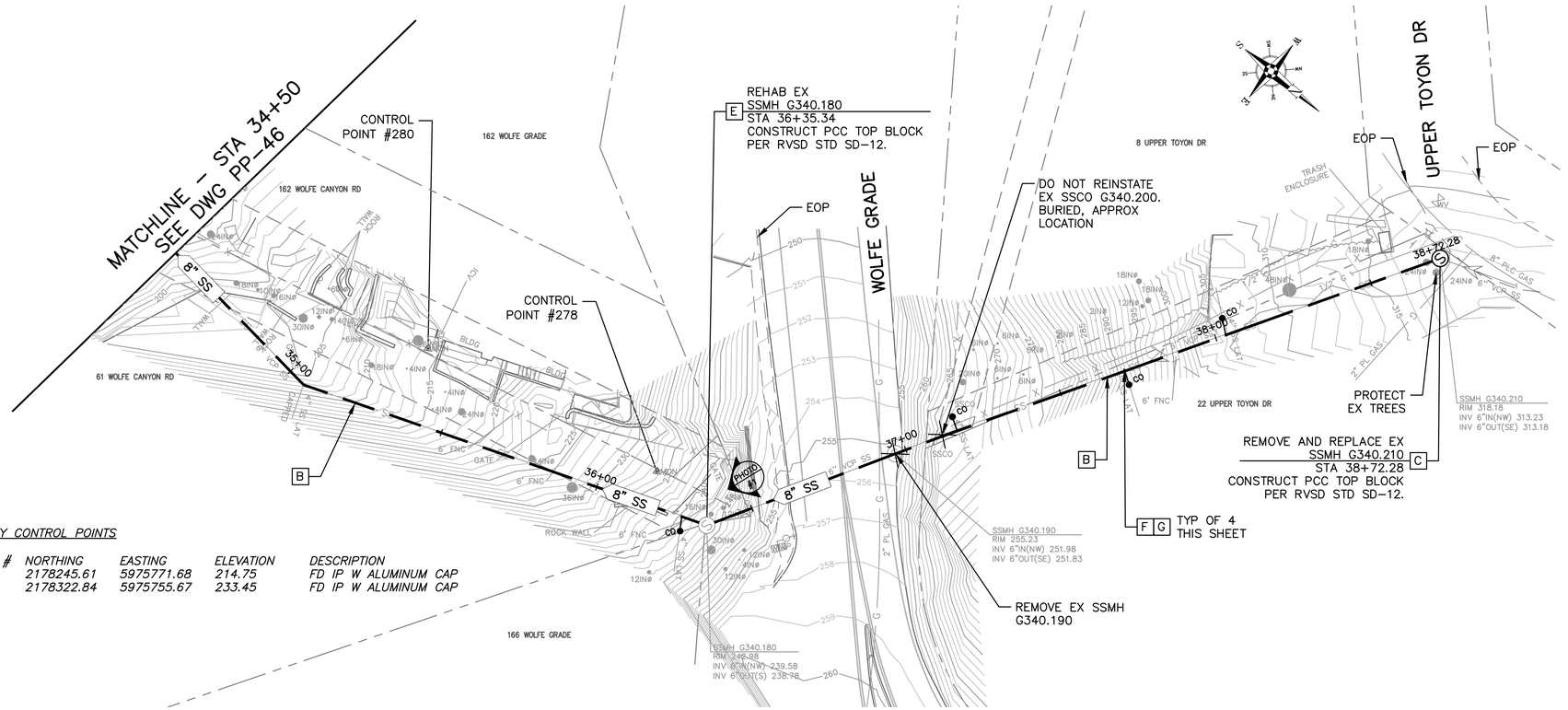
ROSS VALLEY SANITARY DISTRICT

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA. 94520
925-414-3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
WOLFE CANYON RD STA 31+50 TO 34+50

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-44
SHT 48 OF 54

\\rvsscn\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSP\8.0 DESIGN\8. Design\42-49 PP-38 To PP-45 - KTW WOLFE.dwg Save Date: 9/5/2024 4:21 PM Plot Date: 9/5/2024 4:21 PM JosephC



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
280	2178245.61	5975771.68	214.75	FD IP W ALUMINUM CAP
278	2178322.84	5975755.67	233.45	FD IP W ALUMINUM CAP

LEGEND OF REHABILITATION METHODS

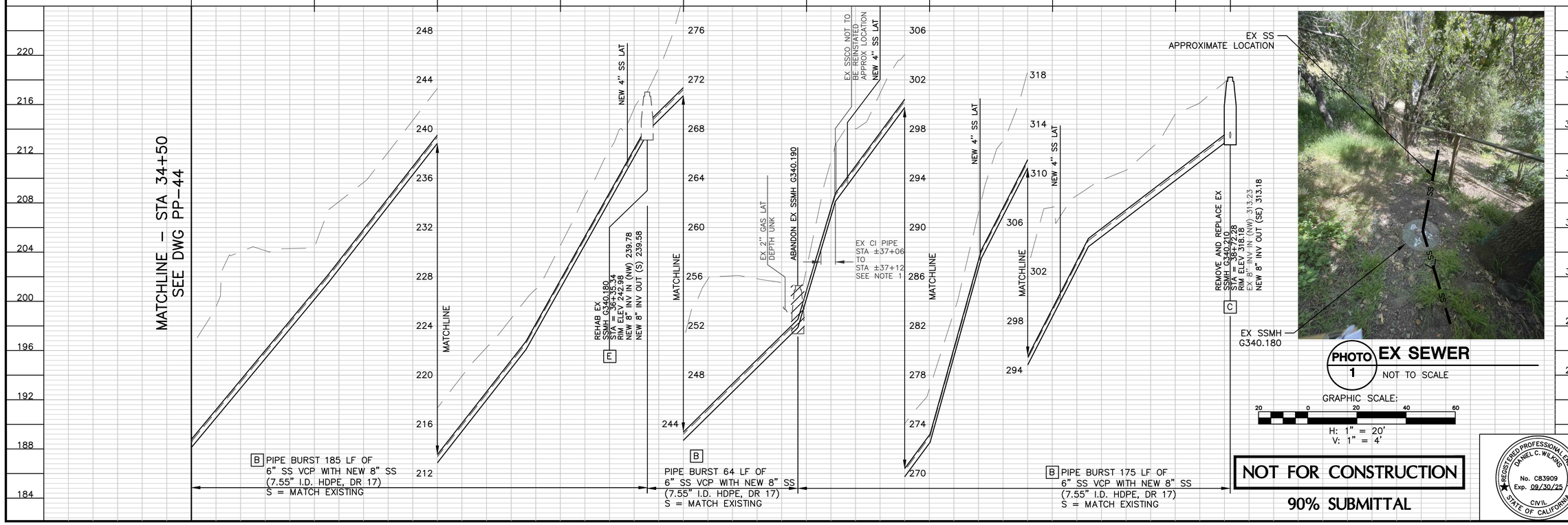
- **A** REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.
- **B** REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

  REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT
- **B1** REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.
- **C** REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03 AND SD-04. FINAL PAVING SHALL BE PER DETAIL 1/D-01.
- **D** REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.
- **E** REHABILITATE EX SSMH PER RVSD STD DWG SD-13
- **F** PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

  CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON-TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT.
- **G** CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
2. WHERE PIPING IS REMOVED AND REPLACED BY OPEN TRENCH, NEW PIPE INVERT ELEVATIONS SHALL MATCH EX PIPE INVERT ELEVATIONS (UPSIZED 8" SS INVERTS SHALL MATCH EXISTING 6" SS INVERTS), UNLESS OTHERWISE NOTED.
3. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS. SEE GENERAL NOTE 23 AND 24 ON N-01 FOR HDPE SLEEVE REQUIREMENTS.
4. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL NOTE 8 ON DWG N-01. USE CLSM BACKFILL WHERE 6" CLEARANCE CANNOT BE OBTAINED BETWEEN NEW AND EXISTING UTILITIES. IF CONFLICTS REQUIRE THE RELOCATION OF EXISTING UTILITIES, THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING UTILITY OWNER(S) FOR RELOCATION(S).



B PIPE BURST 185 LF OF 6" SS VCP WITH NEW 8" SS (7.55" I.D. HDPE, DR 17) S = MATCH EXISTING

B PIPE BURST 64 LF OF 6" SS VCP WITH NEW 8" SS (7.55" I.D. HDPE, DR 17) S = MATCH EXISTING

B PIPE BURST 175 LF OF 6" SS VCP WITH NEW 8" SS (7.55" I.D. HDPE, DR 17) S = MATCH EXISTING

PHOTO 1 EX SEWER NOT TO SCALE

GRAPHIC SCALE: 20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA

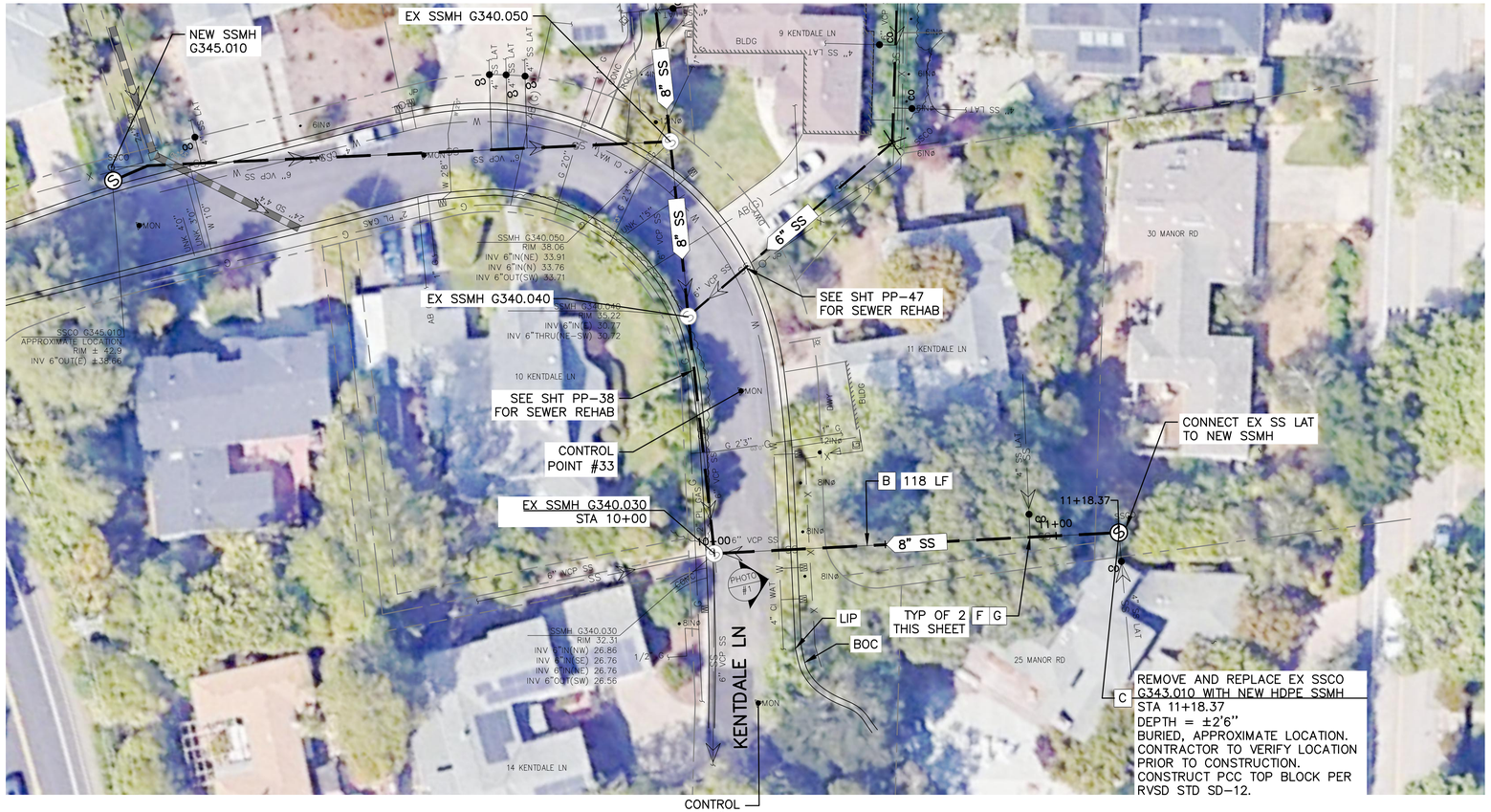
NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

west valley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA, 94520
925-414-3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
WOLFE GRADE
STA 34+50 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-45
SHT 49 OF 54



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
33	2176303.97	5974593.20	34.25	FD 1IN IP OPEN
34	2176236.99	5974531.06	31.23	FD 0.75IN IP W PIN

PHOTO 1 **EX SEWER**
NOT TO SCALE

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL X/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL X/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

B1 REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03 AND SD-04. FINAL PAVING SHALL BE PER DETAIL X/D-01.

D REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.

E REHABILITATE EX SSMH PER RVSD STD DWG SD-13

F PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL X/D-01.

CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUTS SHALL BE TWO-WAY, SCHEDULE 80 PVC WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON-TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE

G SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT.

CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

FOR PIPE BURSTING/PIPE REAMING SITES DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-33 AND SD-34.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
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NOT FOR CONSTRUCTION

90% SUBMITTAL

NO.	DATE	BY	DESCRIPTION

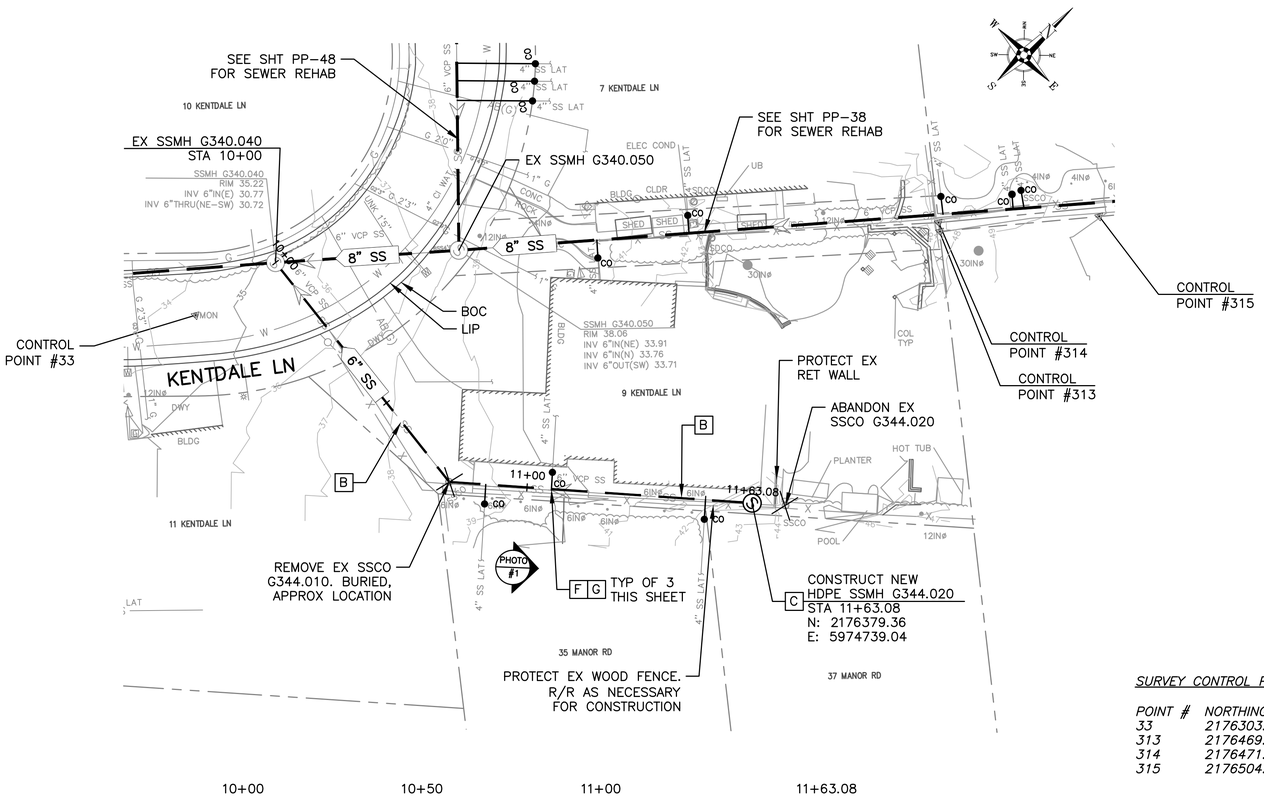
DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW DATE: 09/04/24

Design - Build Services
1001 GALAXY WAY, SUITE 400
CONCORD, CA. 94520
925-414-3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITARY DISTRICT
FY24/25 GRAVITY SEWER IMPROVEMENTS PROJECT
11 KENTDALE LN EASEMENT
STA 10+00 TO END

DATE: SEPT 5, 2024
PROJECT ID: 371282
SCALE: 1"=20'
DWG. NO PP-46
SHT 50 OF 54

REGISTERED PROFESSIONAL ENGINEER DANIEL C. WILKINS No. C83909 Exp. 09/30/25 CIVIL STATE OF CALIFORNIA



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

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REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

B1 REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03 AND SD-04. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

D REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.

E REHABILITATE EX SSMH PER RVSD STD DWG SD-13

F PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

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G CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
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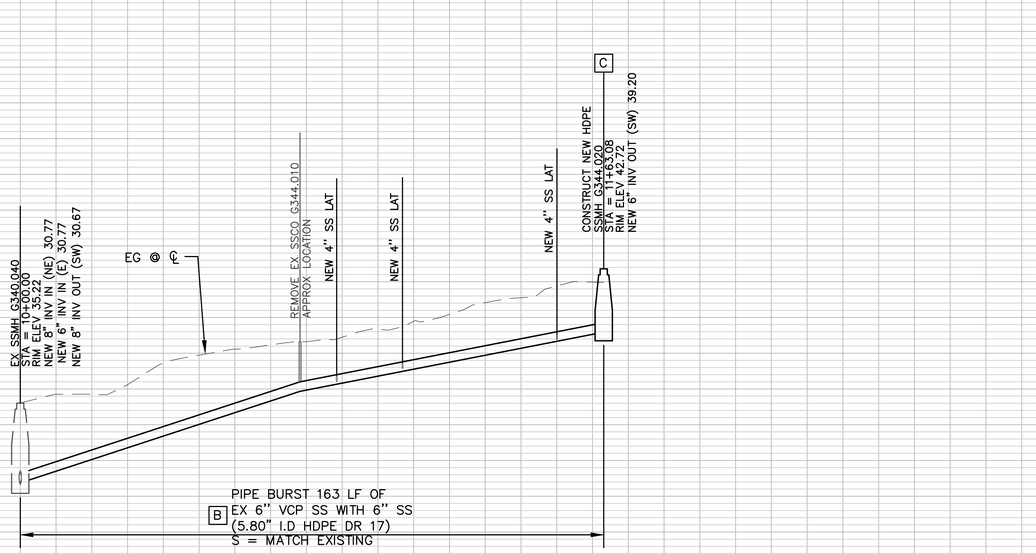
SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
33	*2176303.97*	*5974593.20*	*34.25*	*FD 1IN IP OPEN*
313	*2176469.87*	*5974720.88*	*48.05*	*0.5IN REBAR*
314	*2176471.33*	*5974718.83*	*48.03*	*0.5IN REBAR*
315	*2176504.83*	*5974748.75*	*50.15*	*0.5IN REBAR*



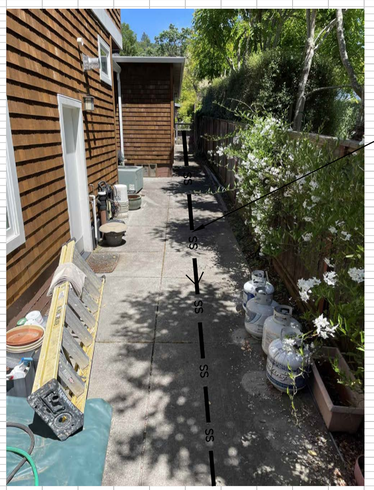


PHOTO 1 **EX SEWER**
NOT TO SCALE

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
REHABILITATION PROJECT
9 KENTDALE LN
EASEMENT
STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-47
SHT 51 OF 54

west valley CONSTRUCTION SINCE 1958
Design - Build Services
1001 GALAXY WAY, SUITE 400
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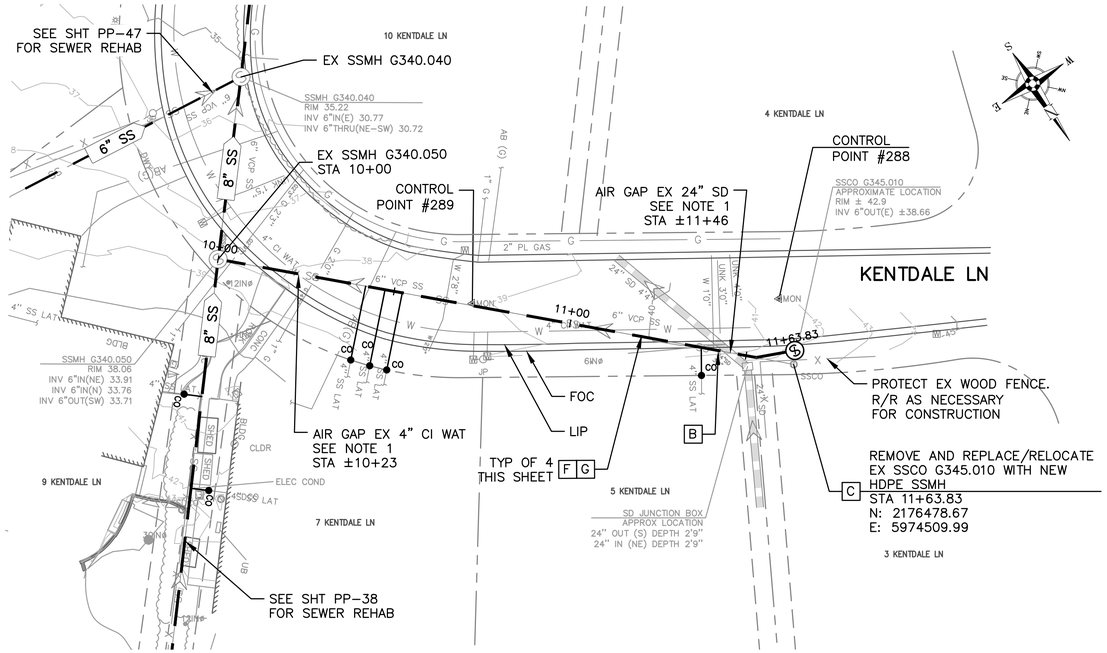
925-414-3001
www.Westvalleyconstruction.com



LEGEND OF REHABILITATION METHODS

A — REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B — REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 1/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL PER DETAIL X/D-01 AND SAG REPAIR PER RVSD STD DWG SD-22 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT

B1 — REPLACE EXISTING PIPE USING THE PIPE REAMING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-09.

C — REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03 AND SD-04. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

D — REMOVE AND REPLACE EX SSMH FRAME AND COVER PER RVSD STD DWG SD-10. INSTALL GRADE RINGS AND CONCRETE COLLAR PER RVSD STD DWG SD-01.

E — REHABILITATE EX SSMH PER RVSD STD DWG SD-13

F — PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-26 AND SD-27. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 1/D-01.

CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON-TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT.

G — CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
288	*2176464.11*	*5974505.79*	*41.52*	*FD 1IN IP W PIN*
289	*2176418.54*	*5974578.41*	*38.55*	*FD 1IN IP W PIN*

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
2. WHERE PIPING IS REMOVED AND REPLACED BY OPEN TRENCH, NEW PIPE INVERT ELEVATIONS SHALL MATCH EX PIPE INVERT ELEVATIONS (UPSIZED 8" SS INVERTS SHALL MATCH EXISTING 6" SS INVERTS), UNLESS OTHERWISE NOTED.
3. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS. SEE GENERAL NOTE 23 AND 24 ON N-01 FOR HDPE SLEEVE REQUIREMENTS.
4. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL NOTE 8 ON DWG N-01. USE CLSM BACKFILL WHERE 6" CLEARANCE CANNOT BE OBTAINED BETWEEN NEW AND EXISTING UTILITIES. IF CONFLICTS REQUIRE THE RELOCATION OF EXISTING UTILITIES, THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING UTILITY OWNER(S) FOR RELOCATION(S).

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

DANIEL C. WILKINS
No. C83909
Exp. 09/30/25

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

westvalley CONSTRUCTION SINCE 1958
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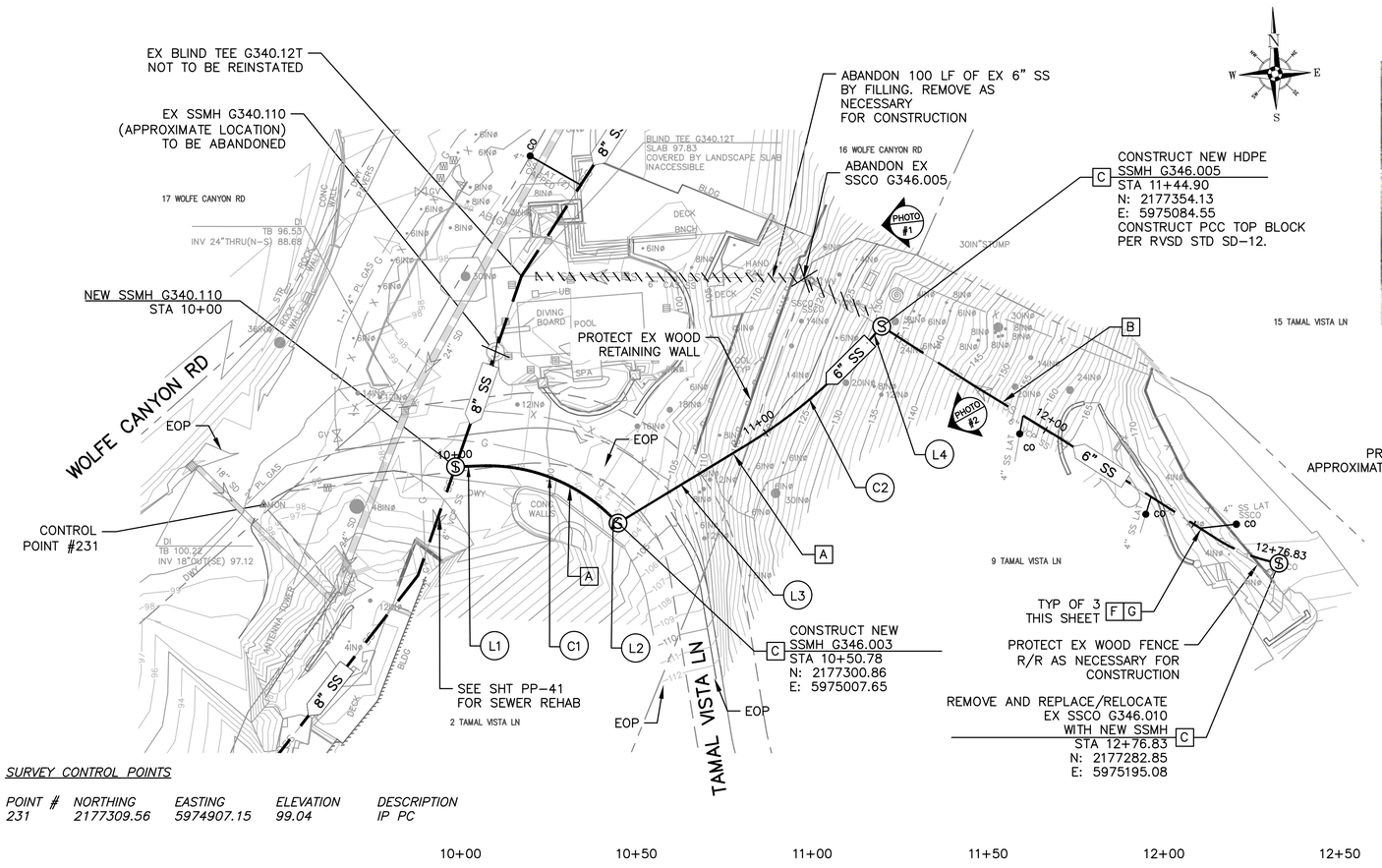
CONCORD, CA 94520
925-414-3001
www.Westvalleyconstruction.com

ROSS VALLEY SANITATION DISTRICT
FY2024/25 GRAVITY SEWER
REHABILITATION PROJECT
5 KENTDALE LN
STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-48
SHT 52 OF 54

\\rnascon\Engineering Data\VII_EXTERNAL PROJECTS\1_PROJECTS\371282 RVSD FY24-25 GSIP\8.0 DESIGN\B. Design\52 PP-48 – KTW KENDALE LN.dwg Save Date: 9/5/2024 3:57 PM Plot Date: 9/5/2024 3:57 PM JosephC



EX SS
APPROXIMATE LOCATION

PHOTO 1 **EX SEWER**
NOT TO SCALE

PROPOSED SS
APPROXIMATE LOCATION

PHOTO 2 **PROPOSED SEWER**
NOT TO SCALE

LEGEND OF REHABILITATION METHODS

- **A** REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 1/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.
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- **G** CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.

NOTES:

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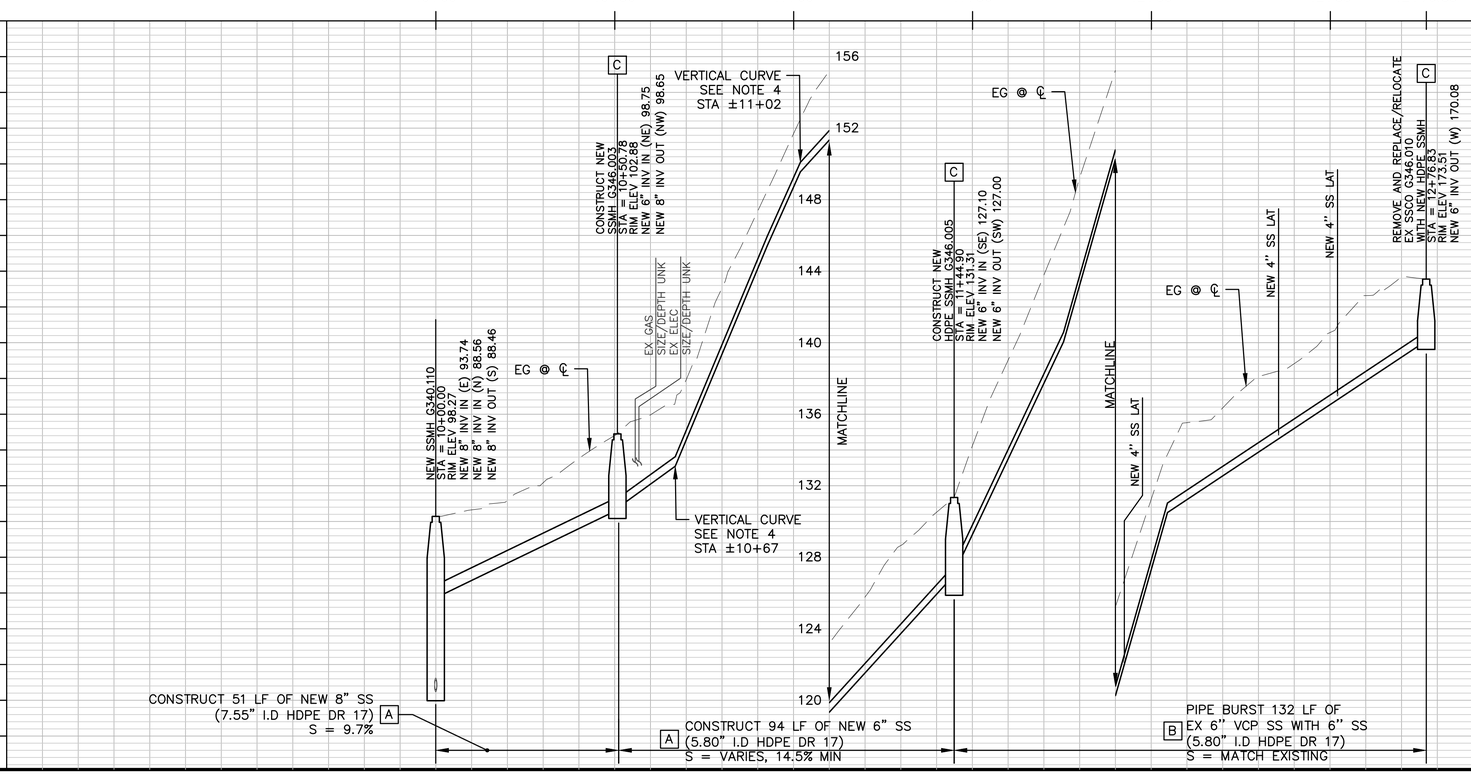
SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
231	2177309.56	5974907.15	99.04	IP PC



TAMAL VISTA LN NEW SEWER LINE AND CURVE TABLE									
SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	7.34'	N90°00'00"E				10+00.00	N = 2177318.45 E = 5974962.05	10+07.34	N = 2177318.45 E = 5974969.40
C1	39.64'		45°25'16"	50.00'	20.93'	10+07.34	N = 2177318.45 E = 5974969.40	10+46.98	N = 2177303.54 E = 5975005.01
L2	3.79'	S44°34'44"E				10+46.98	N = 2177303.54 E = 5975005.01	10+50.78	N = 2177300.84 E = 5975007.68
L3	41.91'	N60°42'45"E				10+50.78	N = 2177300.84 E = 5975007.68	10+92.69	N = 2177321.34 E = 5975044.23
C2	45.89'		17°31'47"	150.00'	23.13'	10+92.69	N = 2177321.34 E = 5975044.23	11+38.58	N = 2177349.52 E = 5975080.23
L4	6.32'	N43°10'58"E				11+38.58	N = 2177349.52 E = 5975080.23	11+44.90	N = 2177354.13 E = 5975084.55

GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC
DESIGNED BY: JAC
CHECKED BY: DCW 09/04/24

ROSS VALLEY SANITARY DISTRICT

westvalley CONSTRUCTION SINCE 1958
Design - Build Services
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CONCORD, CA. 94520
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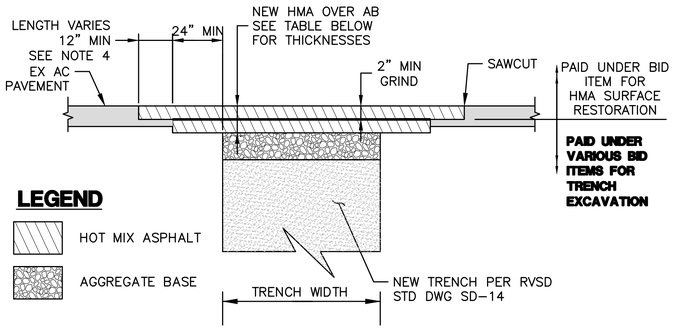
FY2024/25 GRAVITY SEWER REHABILITATION PROJECT
TAMAL VISTA LN
STA 10+00 TO END

DATE: SEPT 05, 2024
PROJECT ID: 371282
SCALE: 1" = 20'
DWG. NO PP-49
SHT 53 OF 54



FINAL PAVING		
ROAD TYPE (SEE NOTE 2)	PAVING REQUIREMENTS	ALTERNATE FULL DEPTH AC
LOCAL	MIN HMA: 4" MIN AB: 7"	7"
COLLECTOR	MIN HMA: 5" MIN AB: 11"	11"
ARTERIAL	MIN HMA: 6" (SEE NOTE 3) MIN AB: 14"	14"

NOTES

1. BORING LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. SEE APPENDICES IN THE SPECIFICATIONS FOR BORING LOGS SHOWING EXISTING PAVEMENT SECTIONS AND SOIL CONDITIONS. EXISTING PAVEMENT SECTIONS/SOIL CONDITIONS PROVIDED ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR TO NOTE PAVEMENT AND SOIL CONDITIONS VARY DEPENDING ON WHERE BORING WAS TAKEN. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR VARYING CONDITIONS.

2. SEE APENDDIX E IN THE SPECIFICATIONS FOR ROAD CLASSIFICATIONS FOR SITES IN SAN ANSELMO. ROAD CLASSIFICATIONS IN TOWN OF FAIRFAX, KENTFIELD AND GREENBRAE ARE AS DETERMINED BY LOCAL JURISDICTION.

3. SIR FRANCIS DRAKE BOULEVARD IN SAN ANSELMO SHALL REQUIRE A MINIMUM OF 10" HMA.

4. **SEE APPENDIX F FOR (1) SAMPLE ENCROACHMENT PERMITS AND (2) MARIN COUNTY STANDARDS 330, 350, 370 AND 380 (DATED JULY 2018) FOR ADDITIONAL PAVING REQUIREMENTS. NOTE THAT EACH JURISDICTION MAY HAVE THEIR OWN ADDITIONAL PAVING REQUIREMENTS ASIDE FROM THOSE SHOWN IN APPENDIX F.**

1 / - **FINAL PAVING REQUIREMENTS**

NOT TO SCALE

NOT FOR CONSTRUCTION

90% SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. WILKINS
No. C83909
Exp. 09/30/25
CIVIL
STATE OF CALIFORNIA

NO.	DATE	BY	DESCRIPTION

DRAWN BY: JAC

DESIGNED BY: JAC

CHECKED BY: DCW DATE: 09/04/24

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Design - Build Services
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CONCORD, CA. 94520
925.447.5001
www.Westvalleyconstruction.com

ROSS VALLEY SANITARY DISTRICT
FY24/25 GRAVITY SEWER IMPROVEMENTS PROJECT
CONSTRUCTION DETAILS

DATE: SEPT 5, 2024

PROJECT ID: 371282

SCALE: N.T.S.

DWG. NO D-01

SHT 54 OF 54

Attachment D

Overview of Control Measures

ATTACHMENT D
OVERVIEW OF CONTROL MEASURES

Numerous control measures would be incorporated into the Project's Contract Documents by the Ross Valley Sanitary District (RVSD) to address environmental and public health and safety issues. Control measures are procedures known to further reduce the potential for impacts based on regulatory agency requirements, standards in the industry, and construction/operating experiences of RVSD and the design engineer.

Site Management Practices

1. Remove rubbish and debris from job site daily with proper disposal in compliance with all federal, state, and local regulations. Removal and transport of rubbish and debris shall be in a manner that prevents spillage on pavements, streets, or adjacent areas. Clean up any spillage.
2. Store materials that cannot be removed daily in the Contractor's approved laydown and storage areas, following all requirements established by the property owner and associated permitting jurisdiction.
3. Stockpile materials, including portable equipment, vehicles, and supplies (e.g., chemicals), only in the designated construction staging areas, exclusive of any riparian and wetland areas; ensure refueling of any vehicles or equipment is done at least 100 ft away from creeks.
4. Remove all material excavated immediately and ensure it is transported offsite. No stockpiling of excavated materials will be allowed at any time in the public right-of-way except for limited stockpiling of soil or imported fill at the work site to help facilitate daily operations.
5. Provide temporary lighting that complies with California Occupational Safety and Health Administration (Cal/OSHA) standards.
6. Conduct operations in a manner that causes as little damage to hardscape and landscape areas as possible:
   - The Contractor shall exercise due diligence and implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping in the Project limits. Any required pruning of existing trees will be completed by a certified arborist. A specification for the protection of trees will be provided to the Contractor.
   - The Contractor shall protect all existing utilities, pavement, sidewalks, curbs, fences, landscaping, and other improvements that are not designated for removal from damage by its operations. Any such features that are damaged or temporarily relocated by the Contractor during construction shall be repaired or

restored by the Contractor to a condition equal to or better than they were prior to such damage or temporary relocation.

7. Upon completion of the work, and prior to final acceptance, the Contractor shall remove from the vicinity of the work all surplus material and equipment belonging to it or used under its direction during construction.
8. Restore pavement in all roadways, driveways, and sidewalks.
9. Upon completion of work, the Contractor shall restore road stripping on the roadway.

Dust Control

1. Water all exposed unpaved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) up to two times per day.
2. Cover all haul trucks transporting soil, sand, or other loose material offsite.
3. Sweep pavements as often as necessary to avoid the spread of debris. Remove all visible mud or dirt track-out from adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. Minimize idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
5. Maintain and properly tune all construction equipment in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
6. Post a publicly visible sign with the telephone number and person to contact at RVSD regarding dust complaints. This person shall respond and take corrective action within 48 hours.
7. Priority shall be given to obtaining power from Pacific Gas and Electric (PG&E) to reduce air pollutant emissions; if not practicable, then electrical generators and, if necessary, diesel generators shall be used subject to the noise attenuation measures under the "Noise" section of these Control Measures.
8. All excavations shall be adequately ventilated, and air in the shafts or pits will be monitored continuously, pursuant to the Contract Documents.
9. To minimize the dispersal of sewer odors above ground during sewage bypass pumping, the Contractor shall:
    a. Seal all open sanitary manholes or access openings in the sewers when operations have been suspended for a period of 2 hours or more.

b. During construction operations when open manholes or access openings cannot be sealed, vent and filter hydrogen sulfide gases upstream of the openings in the sewer.

Odor Control

1. Control odor related to construction through the use of filters, chemical addition to the wastewater, and masking agents as needed to limit the levels of hydrogen sulfide gas to 5 parts per million (by volume) 25 ft from the source or at the outside wall of any habitable structure.
2. If odor complaints are received, identify the source, evaluate and implement available abatement measures, and notify the complainant(s) of the results.

Permits

1. Trees and other landscaping removed during construction shall be replaced by the Contractor. If required, the Contractor shall obtain a permit from the County of Marin for the removal of any trees of regulated size and shall comply with relevant permit conditions:
   a. Marin County: Ordinance 3342, Chapter 22.75, Section 22.75.080
2. The Contractor will submit to RVSD, if applicable, a copy of its annual trench and/or excavation permit issued by Cal/OSHA.
3. Contractor shall obtain an encroachment permit from the County of Marin and comply with permit conditions.

Stormwater and Erosion Control

The Contractor shall prepare a Water Pollution Control Plan, Stormwater Pollution Prevention Plan, or an Erosion Sediment Control Plan for RVSD approval. The plan shall describe measures to be implemented to prevent the discharge of contaminated stormwater runoff from the job site. Erosion control measures shall be in accordance with the requirements of the Marin County Stormwater Pollution Prevention Program and RVSD's Field Management Practices for protection of water quality. The temporary construction site best management practices (BMPs) to be included in the plan shall address, but not be limited to, the following:

1. Providing all excavated areas with temporary erosion control measures where natural ground cover is disturbed, all temporary excavation stockpiles, including structures and trench excavations.
2. Preventing any construction debris from entering drainages in the Project vicinity.

3. Controlling equipment fueling and maintenance, concrete mixing and washout, and hauling and storage of materials.
4. Inspecting and maintaining protected areas regularly during the course of the work.
5. Placing all excavations, spills, and waste materials in areas not subject to washout, flooding, or natural drainage. No sand, mud, rocks, or other construction debris shall be disposed of in the sanitary sewers, storm sewers, or waterways. The Contractor shall comply with all water discharge requirements to local sanitary and storm sewers.
6. Placing filter fabric at local storm drains and using other appropriate BMPs.

Geotechnical

The Project components do not entail work that would require geotechnical engineer review. The following measures will be implemented on an as-needed basis.

1. Have a geotechnical engineer review the final Project plans and specifications prior to construction.
2. Have a geotechnical engineer review geotechnical-related Contractor submittals during construction (e.g., shoring, dewatering, ground improvement, backfill materials).
3. Have a geotechnical engineer perform periodic site inspections during the construction to observe and document subsurface conditions encountered by the Contractor with respect to the subsurface conditions.
4. In accordance with the provisions in Section 6705 of the Labor Code, the Contractor shall submit in advance of excavation of any trench or trenches 5 ft or more in depth, a detailed plan in conformance with the Project Geotechnical Studies showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. The use of watertight shoring in excavations or dewatering will be options available to the Contractor. All trenches in streets shall have vertical trench walls. If such plans vary from the shoring system standards set forth in the Construction Safety Orders of the Division of Industrial Safety in Title 8, Subchapter 4, Article 6, CCR, then the plans shall be prepared and signed by a California registered civil or structural engineer.

Hazardous Materials

1. Store and handle all hazardous materials in strict accordance with the Safety Data Sheets for the products. The storage and handling of potential pollution-causing

and hazardous materials, including but not necessarily limited to gasoline, oil, and paint, will be in accordance with all local, state, and federal requirements.

2. When sandblasting, spray painting, spraying insulation, or other activities inconveniencing or dangerous to property or the health of employees or the public are in progress, the area of activity shall be enclosed adequately to contain the dust, overspray, or other hazards. In the event there are no permanent enclosures at the area, or such enclosures are incomplete or inadequate, the Contractor shall provide suitable temporary enclosures.
3. If contaminated materials are encountered during excavation, then all work shall comply with the following codes:
    a. Code of Federal Regulations, Title 40—Protection of the Environment, Part 761 (40 CFR 761).
    b. California Code of Regulations, Title 22, Social Security, Division 4, Environmental Health, Chapter 30—Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes.
4. Pursuant to the Contract Documents, relative to contaminated materials, the Contractor shall submit the following to the RVSD for review:
    a. The Contractor shall prepare and submit to the RVSD or its appointed representative, for review, a detailed Job Plan describing the proposed methods and procedures for excavating, segregating, testing, and disposing of petroliferous soil or groundwater. The Job Plan shall be submitted to the RVSD or its appointed representative no less than 14 days prior to the start of any excavation work at locations where contaminated soils and groundwater are anticipated.
    b. The Job Plan shall include step-by-step procedures for the actions to be taken in identifying, handling, removing, and disposing of any contaminated soil or groundwater encountered during excavation.
    c. At least 14 days before the start of any excavation at locations where contaminated soils and groundwater are anticipated, the Contractor shall prepare and submit to the RVSD or its appointed representative, for review, a supplemental Health and Safety Plan. The supplemental Health and Safety Plan shall be prepared by an industrial hygienist certified by the American Board of Industrial Hygiene and shall include, but not be limited to, training of the Contractor's personnel, protective equipment, air monitoring, sampling, and emergency procedures.
    d. No excavation will be allowed to commence until the Health and Safety Plan has been returned by the RVSD to the Contractor with the notation: "Resubmittal not required."

e. The Contractor shall provide copies of hazardous waste transporter licenses, permits, or registrations for all states in which the shipment shall travel.

f. The Contractor shall obtain all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including certification of transport vehicles carrying hazardous material.

5. Pursuant to the Contract Documents relative to contaminated materials, the Contractor shall implement the following monitoring requirements:

   a. Contractor shall furnish a properly calibrated, fully functional organic vapor analyzer (OVA) for use at the site of every excavation or open trench to continually sample and monitor the ambient atmosphere.

   b. The preliminary mode of examination for petroliferous soil and/or groundwater shall be through visual and olfactory means. Upon the first observation of soil or water that may contain petroliferous products, the Contractor shall stop excavation work and immediately notify the RVSD or its appointed Representative. No excavation of petroliferous soil, nor pumping of petroliferous water, shall proceed without the approval of RVSD or its appointed representative.

   c. Following sensory observation of petroliferous products, the OVA equipment shall be brought to the excavation site and the atmosphere shall be tested. The Contractor's Job Plan and Health and Safety Plan shall be immediately placed into effect.

   d. Potentially contaminated soil or water shall be segregated and tested by the Contractor, at a certified laboratory approved by RVSD or its appointed representative, to determine the consistency and quantity of petroliferous products. The soil or water shall then be disposed of in accordance with applicable local, state, and federal laws, following the procedures described in the Contractor's Job Plan and Health and Safety Plan.

6. Pursuant to the Contract Documents, contaminated materials will be handled and disposed of in the following manner:

   a. The Contractor shall avoid or minimize excavation in contaminated areas whenever possible.

   b. Excavated trench material that, in the opinion of RVSD or its appointed representative, exhibits evidence of petroleum contamination shall be removed from the site and temporarily stockpiled by the Contractor. The location of the temporary stockpile area must be reviewed by RVSD. The contaminated trench materials shall be placed on a 10-mil polyethylene sheeting to prevent contamination of uncontaminated soils and shall be separated from all uncontaminated trench materials. The temporary stockpiles of contaminated

trench materials shall be covered securely with 10-mil polyethylene sheeting to limit emissions and prevent rainfall from entering the stockpile. Runoff or drainage from the temporary stockpile shall be prevented from leaving the area and all materials shall be surrounded with 6-ft-high temporary chain-link fence.

c. The temporary stockpiles of contaminated trench materials shall be sampled and analyzed by a certified testing laboratory, approved by RVSD or its appointed representative. Results of the laboratory analysis shall be provided by RVSD or its appointed representative within calendar days from the date that the material is stockpiled.

d. Disposal of the contaminated trench materials will depend on the results of the testing program. The Contractor shall dispose of the contaminated material with the approval of RVSD or its appointed representative, either at a licensed thermal remediation plant or by disposal at a Class II landfill, following required procedures.

e. All handling, storing, transporting, treatment, and disposal of contaminated soil and groundwater shall conform to the federal and state environmental regulations, including those of the Regional Water Board, Department of Toxic Substances Control (DTSC), Integrated Waste Management Board, California Air Resources Board (CARB), and Bay Area Air Quality Management District (BAAQMD). Transport of contaminated material and groundwater shall be performed by appropriately certified and/or licensed personnel.

7. Groundwater management shall conform to the federal and state environmental regulations, including those of the Regional Water Board, DTSC, Integrated Waste Management Board, CARB, and BAAQMD. Transport of contaminated material and groundwater shall be performed by appropriately certified and/or licensed personnel.

   a. Upon completion of excavation within the contaminated area and the hauling and disposal of contaminated materials, the Contractor shall clean up the site, including proper removal and disposal of all plastic sheeting, containers, and other materials used.

   b. Any groundwater from trenching activities within the contaminated soil area, as shown on the plan, shall be stored in temporary Baker-type storage tanks. The Contractor shall sample and analyze groundwater, and then dispose of the stored groundwater as directed by RVSD or its appointed representative. Depending on the quality of the groundwater, disposal may be to the sewer system or a suitable offsite disposal facility.

Safety

1. Employ safety provisions conforming to the U.S. Department of Labor Occupational Safety and Health Administration (OSHA), Cal/OSHA, and all other applicable federal, state, county, and local laws, ordinances, and codes. The completed work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items, required by the state and federal industrial authorities and applicable local and national codes.
2. Develop and submit to RVSD for approval a Health and Safety Plan that defines proposed site safety measures.
3. Appoint as safety supervisor an employee who is qualified and authorized to supervise and enforce compliance with the Safety Program. The Safety Program will include an operation plan with emergency contacts.
4. The Contractor shall construct appropriate safety barriers such as temporary fencing, berms, or similar facilities where required or directed by RVSD. To minimize disturbance of existing roads and facilities, safety barriers shall allow for normal maintenance and operation of existing facilities and roads as determined by RVSD or its appointed representative. The Contractor shall conduct its work so as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to ensure the protection of persons and property.
5. Establish, implement, and maintain a written injury prevention program as required by Labor Code Section 6401.7.
6. In case of an emergency, make all necessary repairs and promptly execute such work when required by the Construction Manager.
7. Manhole entry and/or entry to any excavation greater than 5 ft deep shall be in full compliance with the confined space entry requirements of OSHA, Cal/OSHA, and RVSD. RVSD shall have the authority to require the removal from the Project of the foreman and/or superintendent in responsible charge of the work where safety violations occur.
8. During non-working hours, all trenches in public streets shall either be backfilled and temporarily paved or shall be shored and covered with steel plates in compliance with the requirements of local jurisdictions. The maximum length of trench excavation in advance of the pipe laying operation and the maximum amount of trench remaining open without backfill during the course of the daily pipe installations shall be in accordance with local jurisdictional agencies encroachment and excavation permit requirements or a maximum of 200 ft, whichever is more restrictive.
9. Submit for RVSD review, in accordance with the provisions of Section 6705 of the Labor Code, in advance of excavation of any trench or trenches 5 ft or more in

depth, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of ground caving.

Notifications

1. Provide written notice to all private property owners along the alignment three times before work commences in the vicinity of said property. The notices will be provided 7 days before planned construction, 24 hours prior to start of work, and the day of construction, and will provide information on Project activities, the construction schedule, protocol for providing complaints related to hazardous conditions and noise, and vehicle access needs.
2. If complaints are received related to unsafe conditions, identify the source, evaluate and implement appropriate corrective measures, and notify the complainant(s) of the results.

Dewatering

1. Contractor shall submit a plan for all excavation dewatering procedures to RVSD for approval prior to performing dewatering operations as specified in the Contract Documents. The dewatering plan shall provide for:
    a. Use of appropriate equipment and means to accomplish dewatering and may include use of wells, well points, sump pumps, storage tanks, settling tanks, filters, temporary pipelines for water disposal, rock or gravel placement, standby pumps and/or generators, and other means.
    b. Compliance with any permitting requirements of RVSD, Central Marin Sanitation Agency, and Regional Water Board.
    c. A dry excavation and preservation of the final lines and grades of the bottoms of excavation with drawdown of groundwater level a minimum of 2 ft below the trench bottom and beyond excavation sidewalls where shoring is not designed to resist hydrostatic pressures.
    d. Control of the rate and effect of dewatering so as to avoid settlement, subsidence, or damage to the structures or facilities adjacent to areas of proposed dewatering with repair, restoration, or replacement of facilities or structures damaged. Contractor shall establish reference points daily to quickly detect any settlement, subsidence, or damage that may develop during or following dewatering operations.
    e. Demonstrated compliance with the Contractor-designed shoring and bracing method.
    f. Disposal of collected groundwater. Discharge options include the sanitary sewer system or the storm drain system. Pretreatment may be required.

g. Minimal interference with vehicle or pedestrian traffic.

2. Implement control measures listed above for handling and disposal of contaminated soil and groundwater, if encountered.
3. Comply with the requirements of the approved plan as detailed under "Stormwater and Erosion Control."

Noise Control

1. During the encroachment permit process, the Contractor will coordinate with the County of Marin and RVSD on allowable work hour limitations that are consistent with the County of Marin's noise ordinance. Working hour limitations included in the Project Contract Documents will be generally limited to 8:00 a.m. to 5:00 p.m. on weekdays. Work hours beyond these referenced limits must be approved by RVSD and the County of Marin. Avoid the use of loud sound signals in favor of light warnings except those required by safety laws for the protection of personnel.
2. Equip internal combustion engines with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated without said muffler.
3. To minimize noise levels, attempt to obtain electrical power from PG&E in lieu of providing power by portable generator. If use of utility power is not practicable, generator power may be provided by sound-attenuated and enclosed electric generators. Diesel generators shall not be utilized unless they are provided with sound enclosures, as necessary to comply with local ordinances.
4. Do not use of radio or other music amplification devices in the work area.
5. Implement a vibration monitoring and correction program to protect buildings, structures, and utilities from extensive vibration during construction.
6. If noise complaints are received, identify the source, and evaluate and implement available abatement.
7. Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active Project site.
8. Locate equipment staging in areas that would create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the active Project site during all Project construction.
9. Ensure temporary noise control blanket barriers are installed in a manner to shield adjacent land uses.
10. Designate a "disturbance coordinator" who will be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler) and

will determine and implement reasonable measures warranted to correct the problem.

11. Ensure noise generated from nightwork operations does not exceed 90 decibels measured at 50 ft from the source of the noise, or as stipulated in the encroachment permits.
12. Comply with all applicable provisions of Section 7-1.01I, "Sound Control Requirements," of the California Department of Transportation Standard Specifications and Contract Documents.
13. Comply with the County of Marin codes that regulate noise levels. The County of Marin Municipal Code, Title 6, Chapter 6.70, Section 6.70.030 (Enumerated Noises) states that:
    - Hours for construction activities and other work undertaken in connection with building, plumbing, electrical, and other permits issued by the community development agency shall be limited to the following:
      - Monday through Friday: 7:00 a.m. to 6:00 p.m.
      - Saturday: 9:00 a.m. to 5:00 p.m.
      - Prohibited on Sundays and Holidays (New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day).
    - Loud noise-generating construction-related equipment (e.g., backhoes, generators, jackhammers) can be maintained, operated, or serviced at a construction site for permits administered by the community development agency from 8:00 a.m. to 5:00 p.m. Monday through Friday only.
    - Special exceptions to these limitations may occur for:
      - Emergency work as defined in Section 22.130.030 of this code provided written notice is given to the community development director within 48 hours of commencing work
      - Construction projects of city, county, state, other public agency, or other public utility
      - When written permission of the community development director has been obtained, for showing of sufficient cause
      - Minor jobs (e.g., painting, hand sanding, sweeping) with minimal/no noise impacts on surrounding properties
      - Modifications required by the review authority as a discretionary permit condition of approval.

Traffic Management

1. Contractor will prepare a traffic control plan (TCP) and submit it to RVSD and the County of Marin for review and approval at least 3 weeks prior to start of construction. The TCP shall include, at a minimum, the following provisions:
    a. Limit construction work or as otherwise required by the County of Marin.
    b. Conduct operations to reduce obstruction and inconvenience to public traffic and have under construction no greater length or amount of work than can be properly undertaken with due regard to the rights of the public.
    c. Avoid blocking driveways or private roads without notifying the property owner, and access must be restored during all non-working hours.
    d. Maintain safe access for pedestrian and bicyclist traffic throughout the work area at all times.
    e. To the extent possible, maintain at least one lane of traffic in each direction open at all times. Traffic shall be permitted to use shoulders and the side of the roadbed opposite the one under construction. When sufficient width is available, a passageway wide enough to accommodate one lane of traffic shall be kept open at locations where construction operations are in active progress and it is safe to do so.
    f. The Contractor shall be responsible for notifying police and fire departments, the school district, ambulance services, and local transit districts as to the hours and dates of closure and routes of detour at least 48 hours in advance of the detour's occurrence, and shall notify them again when the detour is discontinued.
    g. The Contractor shall call local emergency services dispatcher(s) daily with the location of the work and road status.
    h. Avoid blocking or obstructing fire lanes at all times. Fire hydrants on or adjacent to the work will be kept accessible to firefighting equipment at all times.
    i. Utilize certified flagmen to direct vehicular traffic through the construction area and to guard all obstructions to traffic, and illuminate at night. Traffic control will include signs, warning lights, reflectors, barriers, and other necessary safety devices and measures. These measures shall conform to the requirements set forth in the current "Manual of Traffic Controls for Construction and Maintenance Work Zones," issued by the State Department of Transportation, latest edition.
    j. Install and maintain temporary bridges of approved construction (ADA compliant) across the trench at all crosswalks, intersections, and at such other points where traffic conditions make it advisable.

k. Repair excavated areas to the requirements of the County of Marin.

l. Use only approved haul routes for all construction traffic on the Project as may be stipulated by the County of Marin.

m. A maximum delay of 10 minutes shall be allowed on a roadway if it does not create a significant or dangerous area of traffic congestion away from the traffic control area. The County of Marin has the right to reduce the 10-minute traffic-related delay if traffic conditions require it in their opinion. The maximum delay for access to a residence or business is 10 minutes. The Contractor shall have materials onsite to provide safe passage across the work zone and shall install said material when a person in a vehicle requests access to the residence or business.

n. Avoid storing or parking material or equipment where it could interfere with the free and safe passage of public traffic, and at the end of each day's work, and at all times when construction operations are suspended for any reason.

o. Immediately remove any spillage on local roadways resulting from hauling operations.

p. The Contractor may organize parking and staging independently. However, no sidewalks or private property adjacent to the site shall be used for storage of equipment and supplies unless prior written approval is obtained from the legal owner and submitted to the Construction Manager a minimum of 14 days before use of the site. Offroad parking and staging may not occur along Wolfe Canyon Road, otherwise, parking and staging may be allowed only within the public right-of-way, if any, designated for such use by the Project Manager.

q. Minimize the removal of curb parking, but if necessary, removal shall be in accordance with the approved TCP.

r. Coordinate with the Central Marin Police Authority and the County of Marin's Public Works Department for the location of "No Stopping" and "No Parking" signs.

s. Where construction work will disrupt the traffic signal loops at an intersection, the Contractor shall install and have operational a temporary detection system that is compatible with the traffic signal controller at that location as approved by the County of Marin. The temporary detection system for the Project will be dependent on the Contractor's work sequence. The temporary detection system is a temporary traffic control device that shall not be removed/relocated until the permanent traffic signal loops are reinstalled and accepted by local jurisdictions.

t. In the event of a declared emergency by the Central Marin Police Authority Chief of Police, the local Captain of the Highway Patrol, or the Marin County Fire Department Fire Marshal, or their Representative, the Contractor shall

comply with verbal demands and immediately stop all work and reopen through traffic where work is occurring.

u. Provide, install, and maintain for the duration of the Project up to four Project signs pursuant to the requirements of local jurisdictions.

2. Contact the Marin Transit District, inform them of the construction schedule, and coordinate work in areas that may affect access to bus stops.

Ground Movement Monitoring

1. The Contractor shall provide all labor, materials, equipment, and incidentals required to install, operate, and maintain geotechnical instruments and survey monitoring points for the purpose of monitoring ground movement during construction. The Work shall include, but not be limited to, installing and monitoring crack gages and settlement markers, and determining ambient vibration levels.
2. The ground movement indicator points shall provide reference points for monitoring vertical and horizontal ground and structure movement and to establish a baseline record of such movement.
3. Measurements of ground and structure movement will provide the basis for the implementation of remedial measures to prevent possible damage to structures and utilities.
4. Remedial measures, if necessary, include modifications to construction procedures, repair or replacement of damaged facilities, and restoration to original conditions of any disturbed property, structure, or utility.
5. The Contractor shall keep the Construction Manager informed of the monitoring measurements; however, it shall be the Contractor's sole responsibility to protect onsite structures and utilities and all adjacent structures and utilities within 50 ft of any excavation, pipe bursting, jack and bore, shoring, and backfill operations. Any damage caused to any of these structures or utilities by the Contractor shall be repaired and restored by the Contractor immediately and at the Contractor's expense.

Air Quality

1. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
2. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California

airborne toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.

3. All construction equipment, diesel trucks, and generators shall be required to be equipped with Best Available Control Technology for emission reductions of oxides of nitrogen and particulate matter.
4. All Contractors shall be required to use equipment that meets CARB's most recent certification standard for off-road, heavy-duty diesel engines.

Biological Resources

1. Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure wildlife species do not get trapped. Plastic monofilament netting (erosion control matting), rolled erosion control products, or similar material shall not be used.
2. Modified or disturbed portions of the woodland habitat will be restored as nearly as possible to natural and stable contours (elevations, profile, and gradient). Project methodology within the undisturbed woodland habitat shall include scraping and stockpiling the upper 4 in. of soil prior to commencing excavation activities. These soils shall be replaced after backfilling excavated pits/trenches to ensure the seedbank present onsite remains intact.
3. Environmental training will be provided to all persons working in the Project areas prior to the initiation of Project-related activities and training materials and briefings will include all biological resources that may be found on or in the vicinity of the Project site, the laws and regulations that protect those resources, the consequences of non-compliance with those laws and regulations, and a contact person in the event that protected biological resources are discovered on the Project site.
4. Work along McAllister Avenue occurs adjacent to the Corte Madera Creek spur and suitable nesting habitat for Ridgway's rail. Work will not occur within this portion of the Project site during the Ridgway's rail nesting season (February 1 through August 31).

Attachment E

CalEEMod Input Tables and Output Report

Table 1. CalEEMod Project Description

Inputs	Total Project Quantity	Total Project Unit	Daily Rate Quantity	Daily Rate Unit	Note
Duration					
Construction	360	days	--	--	--
	12.0	months	--	--	--
Working days	265	days	--	--	22 working days per month
Area					
Total Project Area	26,728	sq feet	74	sq feet/day	Maximum area disturbed
	0.61	acres	0.002	acres/day	
Project Length	14,904	feet	--	--	Sum of pipelines in project scope
	3	mile	--	--	
Workers					
Workers onsite each day	8	workers	--	--	6 to 8 workers on site per day (8 workers to be conservative)
Worker roundtrips each day	16	roundtrips	--	--	Two roundtrips to/from site per worker each day
Material					
Volume Import	2,710	CY			Volume of soil/material imported over the total project.
Volume Emport	2,900	CY			Volume of soil/material exported over the total project.

Notes

Inputs were recevied from RVSD (October 2024).

sq feet = square feet

Table 2. CalEEMod Project Inputs

Phase		Equipment					Hauling Trucks (Average trucks/day)[1]				
Activity	**Working Days**	**Type**	**HP**	**Number/ day**	**Operating hours/day**	**Fuel Type**	**Material Import**	**Material Export**	**Equipment/ Delivery**	**Cement/ Asphalt**	**Onsite Truck[2]**
Site Preparation	15	Excavator	70	1	2	Diesel	0	0	0	0	1
Construction (New Pipe Locations and Open Cut Excavation)	40	Bypass pump	11	1	8	Diesel	1	1	1	0	1
		Concrete Saw	10	1	1	Gasoline					
		Dumper/Tender	16	1	2	Diesel					
		Excavator	70	1	2	Diesel					
Construction (Manhole Rehab)	45	Bypass pump	11	1	8	Diesel	1	1	1	1	1
		Concrete Saw	10	1	1	Gasoline					
		Dumper/Tender	16	1	2	Diesel					
		Excavator	70	1	2	Diesel					
Pipe Bursting	110	Bypass pump	11	1	8	Diesel	1	1	2	0	1
		Concrete Saw	10	1	1	Gasoline					
		Excavator	70	1	2	Diesel					
Paving	55	Paving Equipment	89	1	2	Diesel	1	1	1	1	1
		Rollers	36	1	1	Diesel					
		Sweepers	36	1	1	Diesel					
		Skid Steer	71	1	2	Diesel					

Notes

Inputs were recevied from RVSD (October 2024).

HP = horsepower

[1] = CalEEMod assumes haul truck capacity is 16 cublic yards.

[2] = Onsite truck includes water truck.

RVSD 24-25 GSIP Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	RVSD 24-25 GSIP
Construction Start Date	3/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	24.0
Location	37.988381596814506, -122.5798686775218
County	Marin
City	San Anselmo
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	918
EDFZ	2
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Linear	2.82	Mile	0.61	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	8.71	3.67	12.8	0.01	0.73	0.31	1,646
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	4.50	3.43	8.46	0.01	0.66	0.25	1,634
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	2.34	1.13	3.57	< 0.005	0.22	0.09	503
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.43	0.21	0.65	< 0.005	0.04	0.02	83.3

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—
2025	8.71	3.67	12.8	0.01	0.73	0.31	1,646
Daily - Winter (Max)	—	—	—	—	—	—	—
2025	4.50	3.43	8.46	0.01	0.66	0.25	1,634
2026	0.14	1.49	2.08	< 0.005	0.29	0.09	788
Average Daily	—	—	—	—	—	—	—
2025	2.34	1.13	3.57	< 0.005	0.22	0.09	503
2026	0.01	0.11	0.15	< 0.005	0.02	0.01	58.6

Annual	—	—	—	—	—	—	—
2025	0.43	0.21	0.65	< 0.005	0.04	0.02	83.3
2026	< 0.005	0.02	0.03	< 0.005	< 0.005	< 0.005	9.71

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.29	0.39	< 0.005	0.02	0.01	62.0
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	0.11	0.06	< 0.005	0.02	< 0.005	64.5
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	2.55
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.65
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.42
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.44
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—

Worker	0.06	0.05	0.56	0.00	0.13	0.03	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.01	< 0.005	5.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.89
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Construction (new pipe, open cut) (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	4.29	1.12	5.37	< 0.005	0.10	0.08	167
Dust From Material Movement	—	—	—	—	0.01	< 0.005	—
Onsite truck	< 0.005	0.10	0.06	< 0.005	0.02	< 0.005	64.6
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	4.29	1.12	5.37	< 0.005	0.10	0.08	167
Dust From Material Movement	—	—	—	—	0.01	< 0.005	—
Onsite truck	< 0.005	0.11	0.06	< 0.005	0.02	< 0.005	64.5
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.12	0.59	< 0.005	0.01	0.01	18.3

Dust From Material Movement	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	7.07
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.02	0.11	< 0.005	< 0.005	< 0.005	3.03
Dust From Material Movement	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.17
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.06	0.04	0.62	0.00	0.13	0.03	140
Vendor	< 0.005	0.08	0.05	< 0.005	0.02	< 0.005	58.9
Hauling	0.01	0.43	0.25	< 0.005	0.08	0.02	312
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.06	0.05	0.56	0.00	0.13	0.03	130
Vendor	< 0.005	0.08	0.05	< 0.005	0.02	< 0.005	58.8
Hauling	0.01	0.46	0.25	< 0.005	0.08	0.02	312
Average Daily	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.06	0.00	0.01	< 0.005	14.4
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	6.44
Hauling	< 0.005	0.05	0.03	< 0.005	0.01	< 0.005	34.2
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	2.38
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.07
Hauling	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	5.66

3.5. Construction (manhole rehab)) (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	4.29	1.12	5.37	< 0.005	0.10	0.08	167
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	0.10	0.06	< 0.005	0.02	< 0.005	64.6
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.14	0.66	< 0.005	0.01	0.01	20.6
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	7.95
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.03	0.12	< 0.005	< 0.005	< 0.005	3.40
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.32
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.06	0.04	0.62	0.00	0.13	0.03	140
Vendor	< 0.005	0.16	0.09	< 0.005	0.03	0.01	118
Hauling	0.01	0.43	0.25	< 0.005	0.08	0.02	312
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	0.01	0.01	0.07	0.00	0.02	< 0.005	16.2
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	14.5
Hauling	< 0.005	0.06	0.03	< 0.005	0.01	< 0.005	38.5
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	2.68

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.40
Hauling	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	6.37

3.7. Pipe bursting and reaming (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	4.27	1.00	5.31	< 0.005	0.10	0.08	151
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	0.10	0.06	< 0.005	0.02	< 0.005	64.6
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	4.27	1.00	5.31	< 0.005	0.10	0.08	151
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	0.11	0.06	< 0.005	0.02	< 0.005	64.5
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	1.29	0.30	1.60	< 0.005	0.03	0.02	45.6
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	19.4
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.05	0.29	< 0.005	0.01	< 0.005	7.55
Dust From Material Movement	—	—	—	—	0.00	0.00	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	3.22
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—

Worker	0.06	0.04	0.62	0.00	0.13	0.03	140
Vendor	0.01	0.24	0.14	< 0.005	0.05	0.01	177
Hauling	0.01	0.43	0.25	< 0.005	0.08	0.02	312
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.06	0.05	0.56	0.00	0.13	0.03	130
Vendor	0.01	0.25	0.14	< 0.005	0.05	0.01	176
Hauling	0.01	0.46	0.25	< 0.005	0.08	0.02	312
Average Daily	—	—	—	—	—	—	—
Worker	0.02	0.01	0.16	0.00	0.04	0.01	39.5
Vendor	< 0.005	0.07	0.04	< 0.005	0.01	< 0.005	53.2
Hauling	< 0.005	0.14	0.08	< 0.005	0.02	0.01	94.0
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	6.54
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	8.80
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	15.6

3.9. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.78	1.16	< 0.005	0.03	0.03	175
Onsite truck	< 0.005	0.11	0.06	< 0.005	0.02	< 0.005	64.5
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.09	< 0.005	< 0.005	< 0.005	13.7
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	5.05
Annual	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	2.27
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.84
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.06	0.05	0.56	0.00	0.13	0.03	130
Vendor	< 0.005	0.17	0.09	< 0.005	0.03	0.01	118
Hauling	0.01	0.46	0.25	< 0.005	0.08	0.02	312
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.01	< 0.005	10.3
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	9.20
Hauling	< 0.005	0.04	0.02	< 0.005	0.01	< 0.005	24.4
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.70
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.52
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	4.04

3.11. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.75	1.15	< 0.005	0.03	0.03	176
Onsite truck	< 0.005	0.11	0.06	< 0.005	0.02	< 0.005	63.2
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.09	< 0.005	< 0.005	< 0.005	13.1
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	4.70

Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	2.16
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.78
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.05	0.05	0.52	0.00	0.13	0.03	128
Vendor	< 0.005	0.16	0.09	< 0.005	0.03	0.01	115
Hauling	0.01	0.44	0.25	< 0.005	0.08	0.02	306
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.01	< 0.005	9.57
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	8.59
Hauling	< 0.005	0.03	0.02	< 0.005	0.01	< 0.005	22.7
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.58
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.42
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	3.76

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Linear, Grubbing & Land Clearing	2/1/2025	2/22/2025	5.00	15.0	—
Construction (new pipe, open cut)	Linear, Grading & Excavation	2/22/2025	4/19/2025	5.00	40.0	—
Construction (manhole rehab))	Linear, Grading & Excavation	4/19/2025	6/21/2025	5.00	45.0	—
Pipe bursting and reaming	Linear, Drainage, Utilities, & Sub-Grade	6/21/2025	11/22/2025	5.00	110	—
Paving	Linear, Paving	11/22/2025	2/7/2026	5.00	55.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Excavators	Diesel	Average	1.00	2.00	70.0	0.38
Construction (new pipe, open cut)	Excavators	Diesel	Average	1.00	2.00	70.0	0.38
Construction (new pipe, open cut)	Dumpers/Tenders	Diesel	Average	1.00	2.00	16.0	0.38
Construction (new pipe, open cut)	Concrete/Industrial Saws	Gasoline	Average	1.00	1.00	10.0	0.78
Construction (new pipe, open cut)	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Construction (manhole rehab))	Excavators	Diesel	Average	1.00	2.00	70.0	0.38
Construction (manhole rehab))	Dumpers/Tenders	Diesel	Average	1.00	2.00	16.0	0.38
Construction (manhole rehab))	Concrete/Industrial Saws	Gasoline	Average	1.00	1.00	10.0	0.78
Construction (manhole rehab))	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Pipe bursting and reaming	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Pipe bursting and reaming	Concrete/Industrial Saws	Gasoline	Average	1.00	1.00	10.0	0.78
Pipe bursting and reaming	Excavators	Diesel	Average	1.00	2.00	70.0	0.38
Paving	Paving Equipment	Diesel	Average	1.00	2.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	1.00	36.0	0.38
Paving	Sweepers/Scrubbers	Diesel	Average	1.00	1.00	36.0	0.46
Paving	Skid Steer Loaders	Diesel	Average	1.00	2.00	71.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	16.0	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	0.00	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	2.00	8.00	HHDT
Pipe bursting and reaming	—	—	—	—
Pipe bursting and reaming	Worker	16.0	11.7	LDA,LDT1,LDT2
Pipe bursting and reaming	Vendor	6.00	8.40	HHDT,MHDT
Pipe bursting and reaming	Hauling	4.00	20.0	HHDT
Pipe bursting and reaming	Onsite truck	2.00	8.00	HHDT
Construction (new pipe, open cut)	—	—	—	—
Construction (new pipe, open cut)	Worker	16.0	11.7	LDA,LDT1,LDT2
Construction (new pipe, open cut)	Vendor	2.00	8.40	HHDT,MHDT
Construction (new pipe, open cut)	Hauling	4.00	20.0	HHDT
Construction (new pipe, open cut)	Onsite truck	2.00	8.00	HHDT
Construction (manhole rehab))	—	—	—	—
Construction (manhole rehab))	Worker	16.0	11.7	LDA,LDT1,LDT2
Construction (manhole rehab))	Vendor	4.00	8.40	HHDT,MHDT
Construction (manhole rehab))	Hauling	4.00	20.0	HHDT
Construction (manhole rehab))	Onsite truck	2.00	8.00	HHDT
Paving	—	—	—	—
Paving	Worker	16.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	4.00	8.40	HHDT,MHDT
Paving	Hauling	4.00	20.0	HHDT
Paving	Onsite truck	2.00	8.00	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	0.61	0.00	—
Construction (new pipe, open cut)	2,710	2,900	0.61	0.00	—
Construction (manhole rehab))	0.00	0.00	0.61	0.00	—
Pipe bursting and reaming	0.00	0.00	0.61	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O

2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.66	annual days of extreme heat
Extreme Precipitation	18.8	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth

Wildfire	7.65	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	10.6
AQ-PM	16.3
AQ-DPM	5.71
Drinking Water	7.43
Lead Risk Housing	49.2
Pesticides	6.72
Toxic Releases	35.6
Traffic	67.8
Effect Indicators	—
CleanUp Sites	68.9

Groundwater	0.00
Haz Waste Facilities/Generators	1.80
Impaired Water Bodies	12.5
Solid Waste	52.9
Sensitive Population	—
Asthma	2.43
Cardio-vascular	2.08
Low Birth Weights	0.60
Socioeconomic Factor Indicators	—
Education	22.8
Housing	17.9
Linguistic	8.49
Poverty	11.3
Unemployment	17.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	94.85435647
Employed	83.80597973
Median HI	94.07160272
Education	—
Bachelor's or higher	94.35390735
High school enrollment	25.6255614
Preschool enrollment	64.57076864
Transportation	—
Auto Access	70.20402926

Active commuting	86.33388939
Social	—
2-parent households	76.82535609
Voting	99.38406262
Neighborhood	—
Alcohol availability	62.85127679
Park access	81.35506224
Retail density	22.10958553
Supermarket access	27.43487745
Tree canopy	97.36943411
Housing	—
Homeownership	93.98177852
Housing habitability	85.10201463
Low-inc homeowner severe housing cost burden	84.60156551
Low-inc renter severe housing cost burden	33.31194662
Uncrowded housing	90.74810728
Health Outcomes	—
Insured adults	90.15783395
Arthritis	0.0
Asthma ER Admissions	95.8
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	88.8
Cognitively Disabled	94.6

Physically Disabled	86.7
Heart Attack ER Admissions	96.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	40.9
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	90.9
Elderly	20.7
English Speaking	82.8
Foreign-born	14.6
Outdoor Workers	57.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	91.9
Traffic Density	78.8
Traffic Access	55.8
Other Indices	—
Hardship	7.6
Other Decision Support	—
2016 Voting	99.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	1.00
Healthy Places Index Score for Project Location (b)	98.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Project specific inputs.
Construction: Off-Road Equipment	Project specific inputs
Construction: Trips and VMT	Project specific inputs.
Construction: On-Road Fugitive Dust	Project specific inputs.

Attachment F

Protected Natural Resources Tables

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

Query Summary:
Quad IS (San Rafael (3712285))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Acipenser medirostris pop. 1	green sturgeon - southern DPS	Fish	AFCAA01031	14	1	Threatened	None	G2T1	S1	null	AFS_VU-Vulnerable, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered	Aquatic, Estuary, Marine bay, Sacramento/ San Joaquin flowing waters
Actinemys marmorata	northwestern pond turtle	Reptiles	ARAAD02031	1102	3	Proposed Threatened	None	G2	SNR	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	null
Adela oplerella	Opler's longhorn moth	Insects	IILEE0G040	14	1	None	None	G2	S2	null	null	Ultramafic, Valley & foothill grassland
Amorpha californica var. napensis	Napa false indigo	Dicots	PDFAB08012	123	24	None	None	G4T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Cismontane woodland
Amsinckia lunaris	bent-flowered fiddleneck	Dicots	PDBOR01070	93	1	None	None	G3	S3	1B.2	BLM_S-Sensitive, SB_UCBG-UC Botanical Garden at Berkeley, SB_UCSC-UC Santa Cruz	Cismontane woodland, Coastal bluff scrub, Valley & foothill grassland
Antrozous pallidus	pallid bat	Mammals	AMACC10010	424	2	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
Arctostaphylos montana ssp. montana	Mt. Tamalpais manzanita	Dicots	PDERI040J5	15	9	None	None	G3T3	S3	1B.3	SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, Ultramafic, Valley & foothill grassland
Arctostaphylos virgata	Marin manzanita	Dicots	PDERI041K0	32	8	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture	Broadleaved upland forest, Chaparral, Closed-cone coniferous forest, North coast coniferous forest
Ardea herodias	great blue heron	Birds	ABNGA04010	156	2	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
Bombus caliginosus	obscure bumble bee	Insects	IIHYM24380	181	5	None	None	G2G3	S1S2	null	IUCN_VU-Vulnerable	null

Bombus occidentalis	western bumble bee	Insects	IIHYM24252	306	5	None	Candidate Endangered	G3	S1	null	IUCN_VU-Vulnerable, USFS_S-Sensitive	null
Calamagrostis crassiglumis	Thurber's reed grass	Monocots	PMPOA17070	15	1	None	None	G5Q	S2	2B.1	null	Coastal scrub, Freshwater marsh, Marsh & swamp, Wetland
Callophrys mossii marinensis	Marin elfin butterfly	Insects	IILEPE2207	4	1	None	None	G4T1	S2	null	null	Redwood
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	Dicots	PDSCR0J0C3	80	7	None	None	G4?T2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Marsh & swamp, Salt marsh, Wetland
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Dicots	PDPGN04081	17	1	None	None	G2T1	S1	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub
Cirsium hydrophilum var. vaseyi	Mt. Tamalpais thistle	Dicots	PDAST2E1G2	14	7	None	None	G2T1	S1	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Meadow & seep, Ultramafic, Wetland
Coastal Brackish Marsh	Coastal Brackish Marsh	Marsh	CTT52200CA	30	1	None	None	G2	S2.1	null	null	Marsh & swamp, Wetland
Coastal Terrace Prairie	Coastal Terrace Prairie	Herbaceous	CTT41100CA	8	1	None	None	G2	S2.1	null	null	Coastal prairie
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	2	None	None	G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley & foothill grassland
Dermatocarpon meiophyllizum	silverskin lichen	Lichens	NLTEST91L0	20	3	None	None	G3G5	S3	2B.3	null	Coastal prairie, Lower montane coniferous forest, North coast coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest
Dicamptodon ensatus	California giant salamander	Amphibians	AAAAH01020	233	9	None	None	G2G3	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Aquatic, Meadow & seep, North coast coniferous forest, Riparian forest
Dirca occidentalis	western leatherwood	Dicots	PDTHY03010	90	1	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, North coast coniferous forest, Riparian forest, Riparian woodland
Eriogonum luteolum var. caninum	Tiburon buckwheat	Dicots	PDPGN083S1	26	10	None	None	G5T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal prairie, Ultramafic, Valley & foothill grassland
Eucyclogobius newberryi	tidewater goby	Fish	AFCQN04010	127	1	Endangered	None	G3	S3	null	AFS_EN-Endangered, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters
Fissidens pauperculus	minute pocket moss	Bryophytes	NBMUS2W0U0	22	2	None	None	G3?	S2	1B.2	USFS_S-Sensitive	North coast coniferous forest, Redwood
Fritillaria lanceolata var. tristulis	Marin checker lily	Monocots	PMLIL0V0P1	32	1	None	None	G5T2	S2	1B.1	SB_UCSC-UC Santa Cruz	Coastal bluff scrub, Coastal prairie, Coastal scrub, Ultramafic

Gilia millefoliata	dark-eyed gilia	Dicots	PDPLM04130	54	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal dunes
Helianthella castanea	Diablo helianthella	Dicots	PDAST4M020	107	1	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Dicots	PDAST4R0W1	52	2	None	None	G5T2	S2	1B.2	SB_UCBG-UC Botanical Garden at Berkeley	Valley & foothill grassland
Hesperolinon congestum	Marin western flax	Dicots	PDLIN01060	27	2	Threatened	Threatened	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, Ultramafic, Valley & foothill grassland
Holocarpha macradenia	Santa Cruz tarplant	Dicots	PDAST4X020	37	2	Threatened	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Coastal prairie, Coastal scrub, Valley & foothill grassland
Horkelia tenuiloba	thin-lobed horkelia	Dicots	PDROS0W0E0	27	4	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Valley & foothill grassland
Kopsiopsis hookeri	small groundcone	Dicots	PDORO01010	21	4	None	None	G4?	S1S2	2B.3	null	North coast coniferous forest
Lasiurus cinereus	hoary bat	Mammals	AMACC05032	238	1	None	None	G3G4	S4	null	IUCN_LC-Least Concern	Broadleaved upland forest, Cismontane woodland, Lower montane coniferous forest, North coast coniferous forest
Laterallus jamaicensis coturniculus	California black rail	Birds	ABNME03041	304	4	None	Threatened	G3T1	S2	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_EN-Endangered	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland
Lessingia micradenia var. micradenia	Tamalpais lessingia	Dicots	PDAST5S063	9	6	None	None	G2T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture	Chaparral, Ultramafic, Valley & foothill grassland
Melospiza melodia samuelis	San Pablo song sparrow	Birds	ABPBXA301W	41	3	None	None	G5T2	S2	null	CDFW_SSC-Species of Special Concern, USFWS_BCC-Birds of Conservation Concern	Salt marsh
Microseris paludosa	marsh microseris	Dicots	PDAST6E0D0	38	2	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden, SB_UCSC-UC Santa Cruz	Cismontane woodland, Closed-cone coniferous forest, Coastal scrub, Valley & foothill grassland
Navarretia rosulata	Marin County navarretia	Dicots	PDPLM0C0Z0	15	7	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Closed-cone coniferous forest, Ultramafic
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	Marsh	CTT52110CA	53	2	None	None	G3	S3.2	null	null	Marsh & swamp, Wetland

Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU	Fish	AFCHA02034	23	1	Endangered	Endangered	G5T2Q	S2	null	AFS_EN-Endangered	Aquatic
Pentachaeta bellidiflora	white-rayed pentachaeta	Dicots	PDAST6X030	14	6	Endangered	Endangered	G1	S1	1B.1	SB_UCBG-UC Botanical Garden at Berkeley	Ultramafic, Valley & foothill grassland
Plagiobothrys glaber	hairless popcornflower	Dicots	PDBOR0V0B0	9	1	None	None	GX	SX	1A	null	Marsh & swamp, Salt marsh, Vernal pool, Wetland
Pleuropogon hooverianus	North Coast semaphore grass	Monocots	PMPOA4Y070	34	1	None	Threatened	G2	S2	1B.1	SB_BerrySB-Berry Seed Bank, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Meadow & seep, North coast coniferous forest, Wetland
Polygonum marinense	Marin knotweed	Dicots	PDPGN0L1C0	32	2	None	None	G2Q	S2	3.1	null	Brackish marsh, Marsh & swamp, Salt marsh, Wetland
Pomatiopsis binneyi	robust walker	Mollusks	IMGASJ9010	2	1	None	None	G1	S1	null	null	null
Quercus parvula var. tamalpaisensis	Tamalpais oak	Dicots	PDFAG051Q3	19	15	None	None	G4T2	S2	1B.3	null	Cismontane woodland, Lower montane coniferous forest
Rallus obsoletus obsoletus	California Ridgway's rail	Birds	ABNME05011	99	4	Endangered	Endangered	G3T1	S2	null	CDFW_FP-Fully Protected	Brackish marsh, Marsh & swamp, Salt marsh, Wetland
Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	Amphibians	AAABH01051	1610	11	None	None	G3T4	S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, Klamath/North coast flowing waters, Riparian forest, Riparian scrub, Riparian woodland
Reithrodontomys raviventris	salt-marsh harvest mouse	Mammals	AMAFF02040	151	4	Endangered	Endangered	G1G2	S3	null	CDFW_FP-Fully Protected, IUCN_EN-Endangered	Marsh & swamp, Wetland
Serpentine Bunchgrass	Serpentine Bunchgrass	Herbaceous	CTT42130CA	22	1	None	None	G2	S2.2	null	null	Valley & foothill grassland
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	Dicots	PDMAL11012	34	1	None	None	G5T2	S2	1B.2	null	Freshwater marsh, Marsh & swamp, Wetland
Spirinchus thaleichthys pop. 2	longfin smelt - San Francisco Bay-Delta DPS	Fish	AFCHB03040	35	1	Endangered	None	G5TNRQ	S1	null	null	Aquatic, Estuary, Marine bay, Sacramento/San Joaquin flowing waters
Stebbinsoseris decipiens	Santa Cruz microseris	Dicots	PDAST6E050	19	3	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCSC-UC Santa Cruz	Broadleaved upland forest, Chaparral, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Ultramafic, Valley & foothill grassland
Streptanthus batrachopus	Tamalpais jewelflower	Dicots	PDBRA2G050	8	5	None	None	G2	S2	1B.3	SB_UCSC-UC Santa Cruz	Chaparral, Closed-cone coniferous forest, Ultramafic
Streptanthus glandulosus ssp. pulchellus	Mt. Tamalpais bristly jewelflower	Dicots	PDBRA2G0J2	24	8	None	None	G4T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Ultramafic, Valley & foothill grassland
Trachusa gummifera	San Francisco Bay Area leaf-cutter bee	Insects	IIHYM80010	3	1	None	None	G1	S1	null	null	null
Trifolium amoenum	two-fork clover	Dicots	PDFAB40040	26	1	Endangered	None	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley, SB_USDA-US Dept of	Coastal bluff scrub, Ultramafic, Valley & foothill grassland

											Agriculture	
Tryonia imitator	mimic tryonia (=California brackishwater snail)	Mollusks	IMGASJ7040	39	1	None	None	G2	S2	null	IUCN_DD-Data Deficient	Aquatic, Brackish marsh, Estuary, Lagoon, Marsh & swamp, Salt marsh, Wetland
Vespericola marinensis	Marin hesperian	Mollusks	IMGASA4140	23	3	None	None	G2	S2	null	null	Chaparral, Meadow & seep, North coast coniferous forest, Riparian woodland

CNPS Rare Plant Inventory

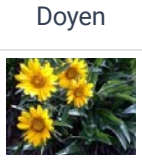
Search Results

57 matches found. Click on scientific name for details

Search Criteria: County or Island is one of [**MRN**], Quad is one of [**3712285**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Amorpha californica var. *napensis*	Napa false indigo	Fabaceae	perennial deciduous shrub	Apr-Jul	None	None	G4T2	S2	1B.2	Yes	2001-01-01	 © 2016 John Doyen
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	None	None	G3	S3	1B.2	Yes	1974-01-01	 © 2011 Neal Kramer
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	Feb-May	None	None	G4	S4	4.3	Yes	1974-01-01	 © 2011 Neal Kramer
Arctostaphylos montana ssp. *montana*	Mt. Tamalpais manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr	None	None	G3T3	S3	1B.3	Yes	1974-01-01	 © 2018 John Doyen
Arctostaphylos virgata	Marin manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Aspidotis carlotta-halliae	Carlotta Hall's lace fern	Pteridaceae	perennial rhizomatous herb	Jan-Dec	None	None	G3	S3	4.2	Yes	1994-01-01	No Photo Available
Astragalus breweri	Brewer's milk-vetch	Fabaceae	annual herb	Apr-Jun	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
Calamagrostis crassiglumis	Thurber's reed grass	Poaceae	perennial rhizomatous herb	May-Aug	None	None	G5Q	S2	2B.1		1980-01-01	No Photo Available
Calamagrostis ophitidis	serpentine reed grass	Poaceae	perennial herb	Apr-Jul	None	None	G3	S3	4.3	Yes	1974-01-01	No Photo Available

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	None	None	G4	S4	4.2		1994-01-01	No Photo Available
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	Mar-May	None	None	G3?	S3?	4.2	Yes	1980-01-01	No Photo Available
Calochortus uniflorus	pink star-tulip	Liliaceae	perennial bulbiferous herb	Apr-Jun	None	None	G4	S4	4.2		2010-03-04	 © 2021 Scot Loring
Calystegia collina ssp. *oxyphylla*	Mt. Saint Helena morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jun	None	None	G4T3	S3	4.2	Yes	1984-01-01	No Photo Available
Castilleja ambigua var. *ambigua*	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	None	None	G5T4	S3S4	4.2		2009-02-04	 ©2011 Dylan Neubauer
Ceanothus gloriosus var. *exaltatus*	glory brush	Rhamnaceae	perennial evergreen shrub	Mar-Jun(Aug)	None	None	G4T4	S4	4.3	Yes	2001-01-01	 ©2018 John Doyen
Ceanothus pinetorum	Kern ceanothus	Rhamnaceae	perennial evergreen shrub	May-Jul	None	None	G3	S3	4.3	Yes	1974-01-01	 ©2017 Aaron Schusteff
Chloropyron maritimum ssp. *palustre*	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	None	None	G4?T2	S2	1B.2		1974-01-01	 ©2017 John Doyen
Chorizanthe cuspidata var. *cuspidata*	San Francisco Bay spineflower	Polygonaceae	annual herb	Apr-Jul(Aug)	None	None	G2T1	S1	1B.2	Yes	1994-01-01	No Photo Available
Cirsium hydrophilum var. *vaseyi*	Mt. Tamalpais thistle	Asteraceae	perennial herb	May-Aug	None	None	G2T1	S1	1B.2	Yes	1974-01-01	No Photo Available
Cistanthe maritima	seaside cistanthe	Montiaceae	annual herb	(Feb)Mar-Jun(Aug)	None	None	G3G4	S3	4.2		1980-01-01	No Photo Available
Cypripedium californicum	California lady's-slipper	Orchidaceae	perennial rhizomatous herb	Apr-Aug(Sep)	None	None	G3	S4	4.2		1980-01-01	 © 2012 Barry Rice

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Dermatocarpon meiophyllizum	silverskin lichen	Verrucariaceae	foliose lichen (aquatic)		None	None	G3G5	S3	2B.3		2022-07-14	No Photo Available
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2017 Steve Matson
Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	May-Aug(Nov)	None	None	G4	S4	4.3	Yes	1974-01-01	No Photo Available
Eriogonum luteolum var. *caninum*	Tiburon buckwheat	Polygonaceae	annual herb	May-Sep	None	None	G5T2	S2	1B.2	Yes	1974-01-01	No Photo Available
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss		None	None	G3?	S2	1B.2		2001-01-01	 ©2021 Scot Loring
Fritillaria lanceolata var. *tristulis*	Marin checker lily	Liliaceae	perennial bulbiferous herb	Feb-May	None	None	G5T2	S2	1B.1	Yes	1994-01-01	 © 2020 Barry Rice
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2		2001-01-01	 © 2017 John Doyen
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2013 Christopher Bronny
Hemizonia congesta ssp. *congesta*	congested-headed hayfield tarplant	Asteraceae	annual herb	Apr-Nov	None	None	G5T2	S2	1B.2	Yes	1988-01-01	 © 2015 Vernon Smith
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	FT	CT	G1	S1	1B.1	Yes	1974-01-01	 © 2009 Neal Kramer

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	FT	CE	G1	S1	1B.1	Yes	1974-01-01	 © 2011 Dylan Neubauer
Horkelia tenuiloba	thin-lobed horkelia	Rosaceae	perennial herb	May-Jul(Aug)	None	None	G2	S2	1B.2	Yes	1988-01-01	 © 1994 Doreen L. Smith
Hosackia gracilis	harlequin lotus	Fabaceae	perennial rhizomatous herb	Mar-Jul	None	None	G3G4	S3	4.2		2004-01-01	 © 2015 John Doyen
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May(Jun)	None	None	G3	S3	4.2	Yes	2006-10-12	 © 2014 Aaron Schusteff
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	Juncaceae	perennial rhizomatous herb	(Mar)May-Jun	None	None	G5T5	S4	4.2		1988-01-01	 © 2019 Belinda Lo
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	Apr-Aug	None	None	G4?	S1S2	2B.3		1994-01-01	 ©2016 Vernon Smith
Leptosiphon aureus	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	G4?	S4?	4.2	Yes	1994-01-01	 © 2007 Len Blumin
Leptosiphon grandiflorus	large-flowered leptosiphon	Polemoniaceae	annual herb	Apr-Aug	None	None	G3G4	S3S4	4.2	Yes	1994-01-01	 © 2003 Doreen L. Smith
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	G2G3	S2S3	3	Yes	1994-01-01	 © 2015 Aaron Schusteff

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Lessingia micradenia var. *micradenia*	Tamalpais lessingia	Asteraceae	annual herb	(Jun)Jul-Oct	None	None	G2T2	S2	1B.2	Yes	1994-01-01	 © 2015 Vernon Smith
Microseris paludosa	marsh microseris	Asteraceae	perennial herb	Apr-Jun(Jul)	None	None	G2	S2	1B.2	Yes	2001-01-01	No Photo Available
Navarretia rosulata	Marin County navarretia	Polemoniaceae	annual herb	May-Jul	None	None	G2	S2	1B.2	Yes	1980-01-01	No Photo Available
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Perideridia gairdneri ssp. *gairdneri*	Gairdner's yampah	Apiaceae	perennial herb	Jun-Oct	None	None	G5T3T4	S3S4	4.2	Yes	1974-01-01	 ©2007 Neal Kramer
Plagiobothrys glaber	hairless popcornflower	Boraginaceae	annual herb	Mar-May	None	None	GX	SX	1A	Yes	1974-01-01	No Photo Available
Pleuropogon hooverianus	North Coast semaphore grass	Poaceae	perennial rhizomatous herb	Apr-Jun	None	CT	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Polygonum marinense	Marin knotweed	Polygonaceae	annual herb	(Apr)May-Aug(Oct)	None	None	G2Q	S2	3.1	Yes	1974-01-01	No Photo Available
Quercus parvula var. *tamalpaisensis*	Tamalpais oak	Fagaceae	perennial evergreen shrub	Mar-Apr	None	None	G4T2	S2	1B.3	Yes	2001-01-01	No Photo Available
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	None	None	G4	S3	4.2		1974-01-01	No Photo Available
Sidalcea calycosa ssp. *rhizomata*	Point Reyes checkerbloom	Malvaceae	perennial rhizomatous herb	Apr-Sep	None	None	G5T2	S2	1B.2	Yes	1994-01-01	No Photo Available
Stebbinsoseris decipiens	Santa Cruz microseris	Asteraceae	annual herb	Apr-May	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Streptanthus batrachopus	Tamalpais jewelflower	Brassicaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.3	Yes	1974-01-01	 © 2012 Aaron Schusteff

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Streptanthus glandulosus ssp. *pulchellus*	Mt. Tamalpais bristly jewelflower	Brassicaceae	annual herb	May-Jul(Aug)	None	None	G4T2	S2	1B.2	Yes	1980-01-01	No Photo Available
Toxicoscordion fontanum	marsh zigadenus	Melanthiaceae	perennial bulbiferous herb	Apr-Jul	None	None	G3	S3	4.2	Yes	2001-01-01	No Photo Available
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	FE	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

Showing 1 to 57 of 57 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 18 November 2024].

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Marin County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600

(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an

office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse Reithrodontomys raviventris Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Least Tern Sternula antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
California Ridgway''s Rail Rallus obsoletus obsoletus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS

Marin Dwarf-flax Hesperolinon congestum — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5363

Santa Cruz Tarplant Holocarpha macradenia — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/6832

Showy Indian Clover Trifolium amoenum — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6459

White-rayed Pentachaeta Pentachaeta bellidiflora — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7782

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and

consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure

you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

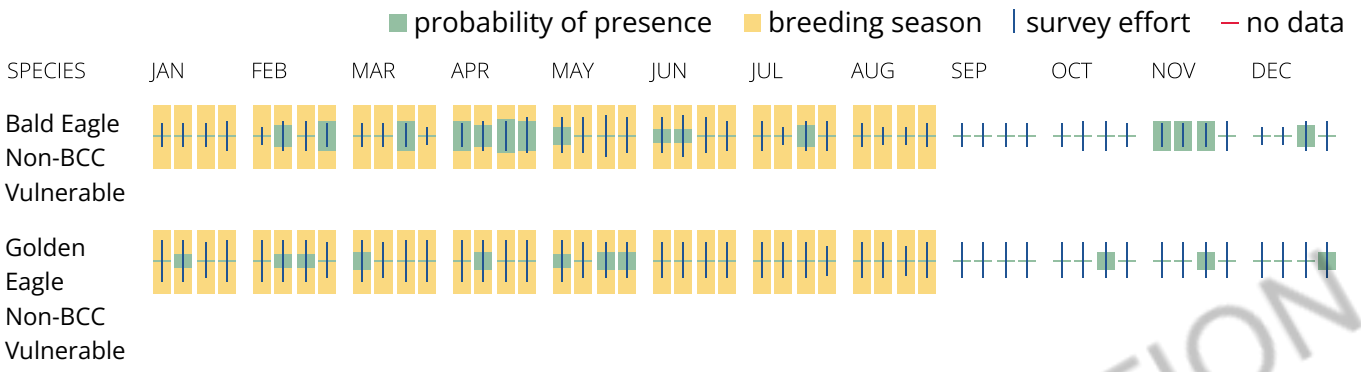
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

Allen's Hummingbird Selasphorus sasin — Breeds Feb 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9637

Bald Eagle Haliaeetus leucocephalus — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Belding's Savannah Sparrow Passerculus sandwichensis beldingi — Breeds Apr 1 to Aug 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Black Swift Cypseloides niger — Breeds Jun 15 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8878

Black-chinned Sparrow Spizella atrogularis — Breeds Apr 15 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9447

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus — Breeds Mar 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Spotted Owl Strix occidentalis occidentalis — Breeds Mar 10 to Jun 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/7266

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Santa Barbara Song Sparrow Melospiza melodia graminea — Breeds Mar 1 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5513

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Western Gull Larus occidentalis — Breeds Apr 21 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Western Screech-owl Megascops kennicottii cardonensis — Breeds Mar 1 to Jun 30
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and

schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

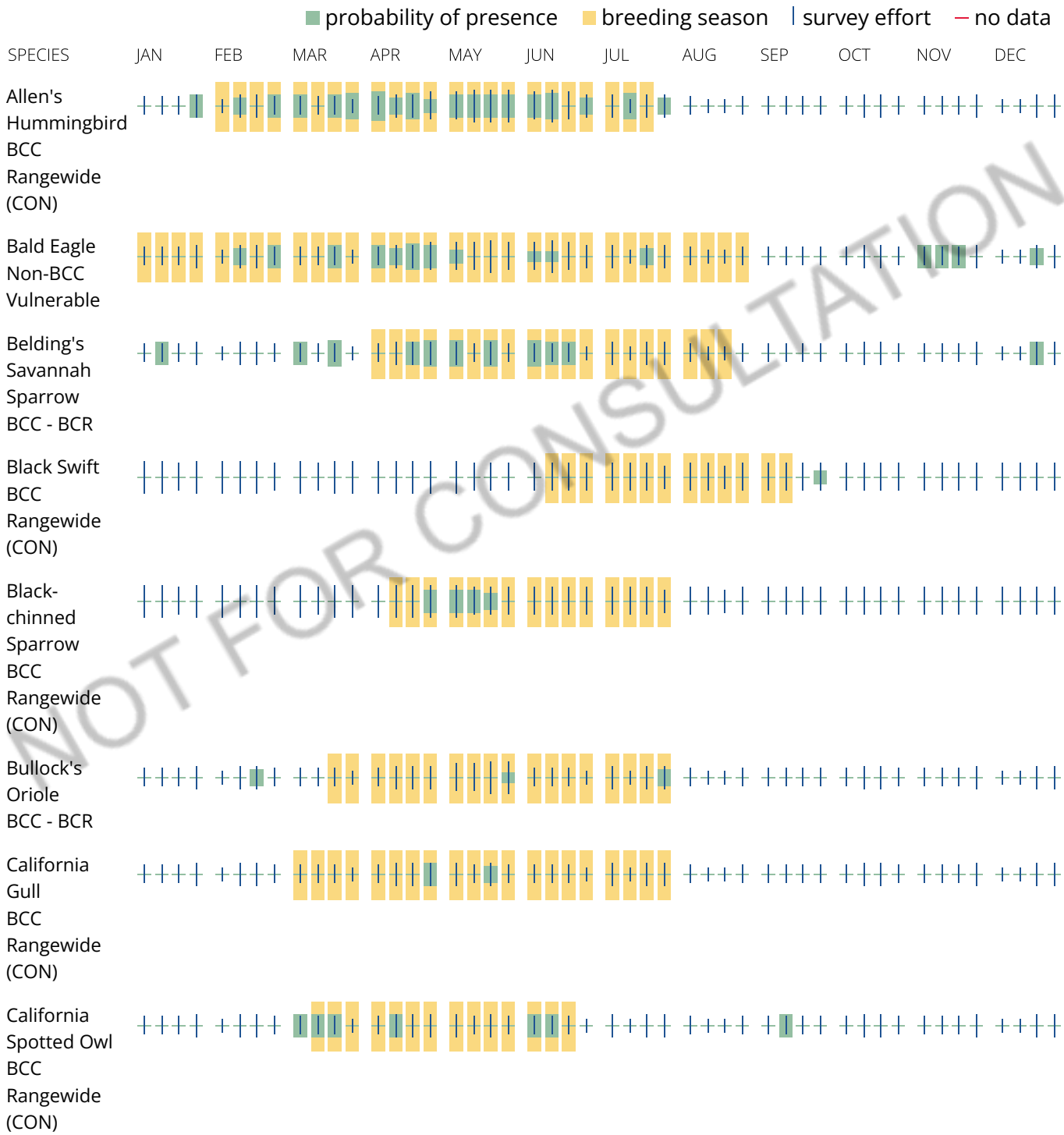
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

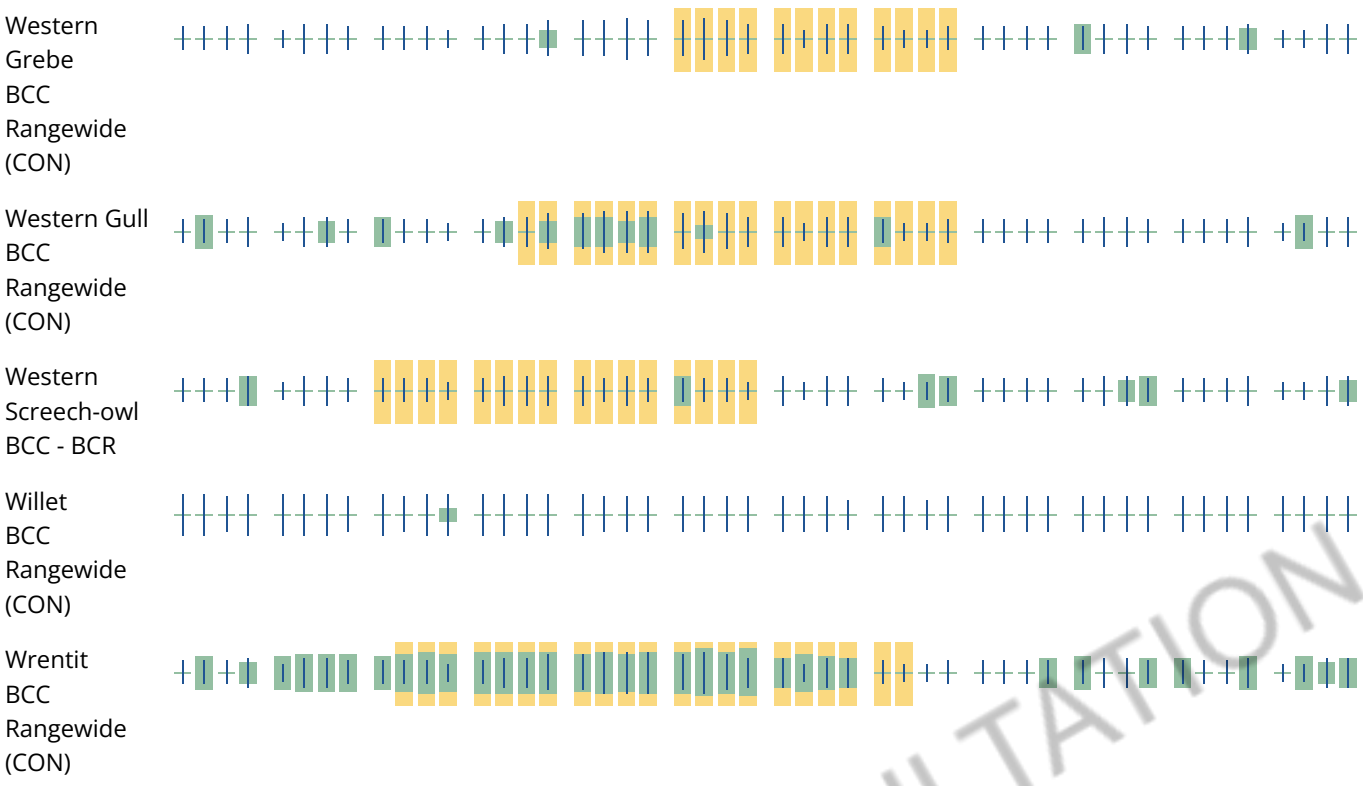
No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Marin County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600

(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an

office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse Reithrodontomys raviventris Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Least Tern Sternula antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
California Ridgway''s Rail Rallus obsoletus obsoletus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS

Marin Dwarf-flax Hesperolinon congestum — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5363

Santa Cruz Tarplant Holocarpha macradenia — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/6832

Showy Indian Clover Trifolium amoenum — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6459

White-rayed Pentachaeta Pentachaeta bellidiflora — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7782

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and

consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure

you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

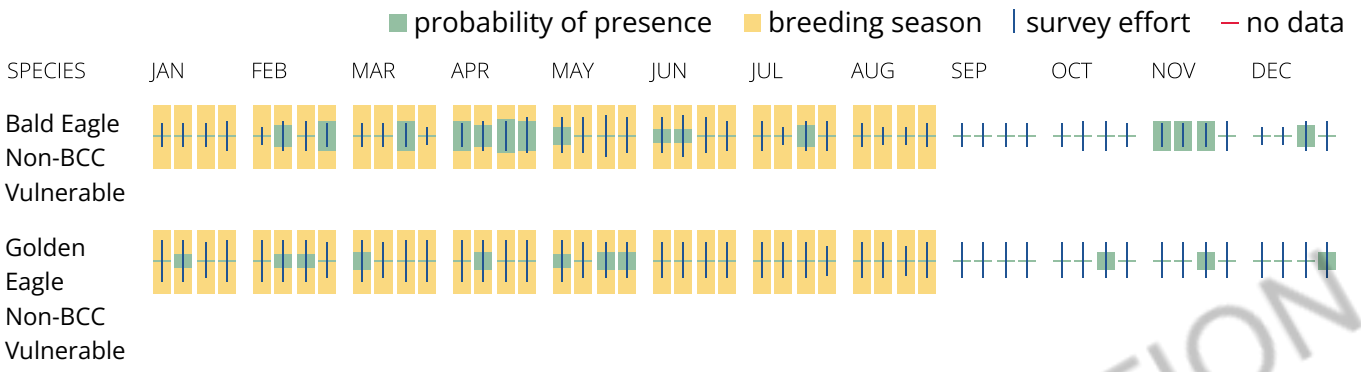
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

Allen's Hummingbird Selasphorus sasin — Breeds Feb 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9637

Bald Eagle Haliaeetus leucocephalus — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Belding's Savannah Sparrow Passerculus sandwichensis beldingi — Breeds Apr 1 to Aug 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Black Swift Cypseloides niger — Breeds Jun 15 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8878

Black-chinned Sparrow Spizella atrogularis — Breeds Apr 15 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9447

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus — Breeds Mar 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Spotted Owl Strix occidentalis occidentalis — Breeds Mar 10 to Jun 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/7266

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Santa Barbara Song Sparrow Melospiza melodia graminea — Breeds Mar 1 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5513

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Western Gull Larus occidentalis — Breeds Apr 21 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Western Screech-owl Megascops kennicottii cardonensis — Breeds Mar 1 to Jun 30
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and

schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

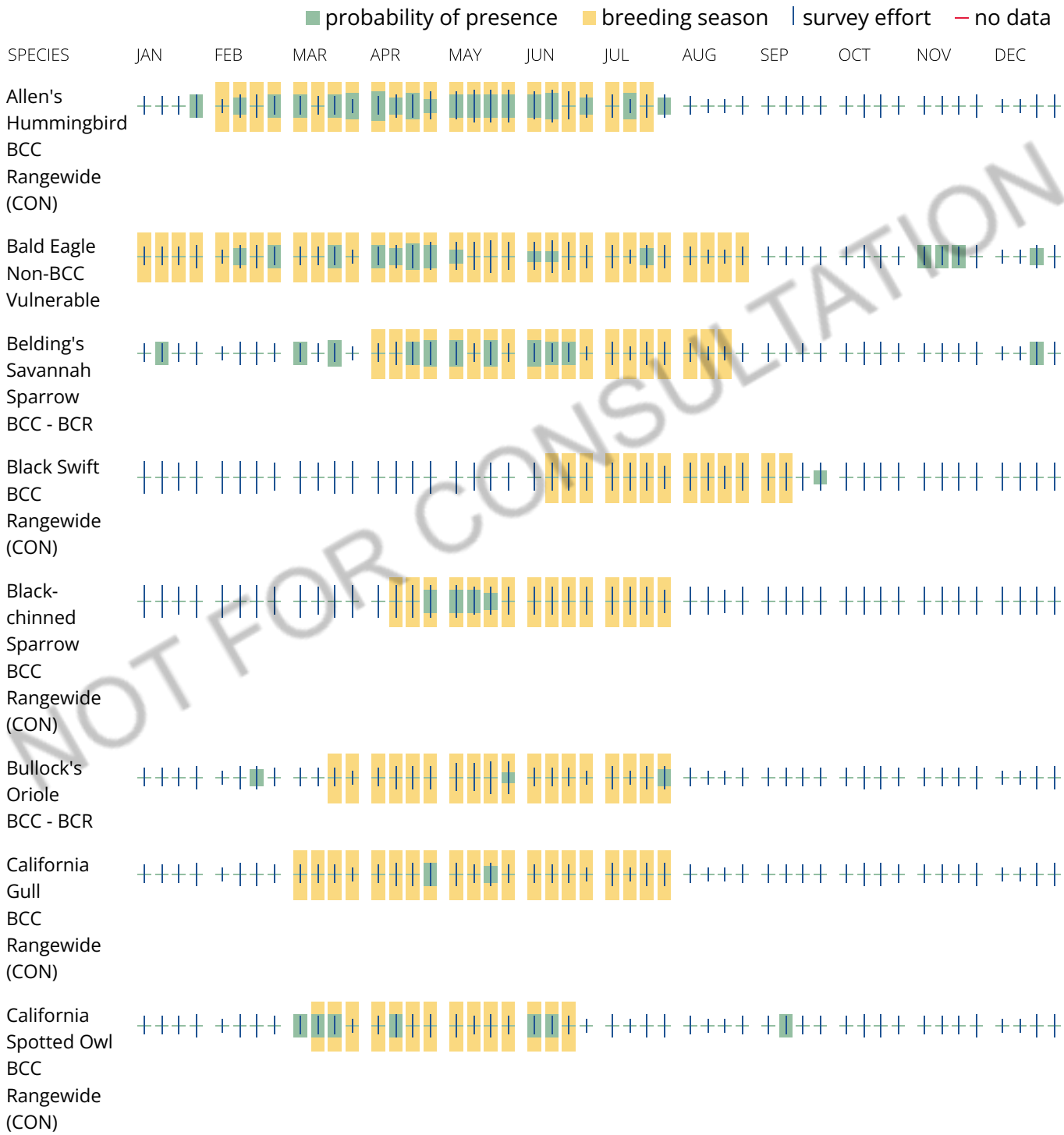
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

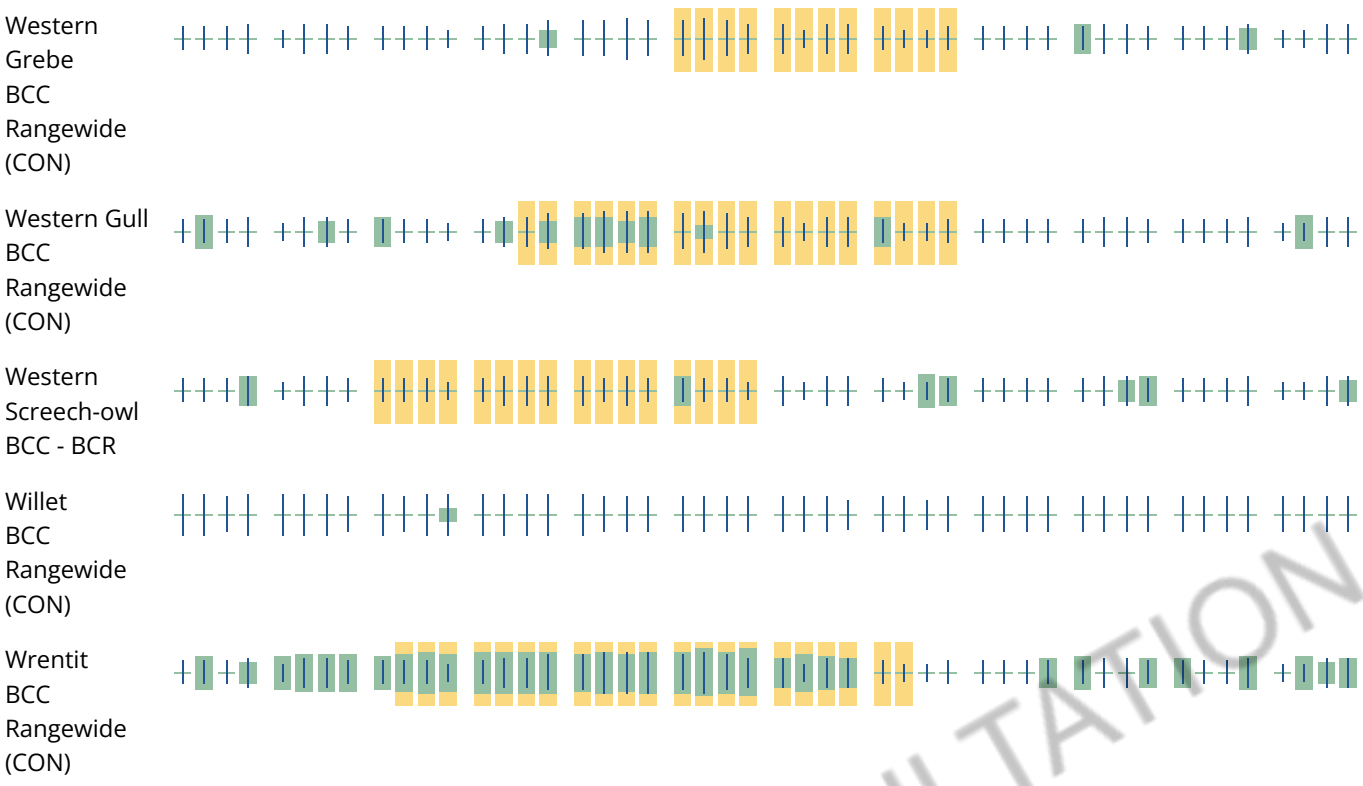
No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or

submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC **U.S. Fish & Wildlife Service**

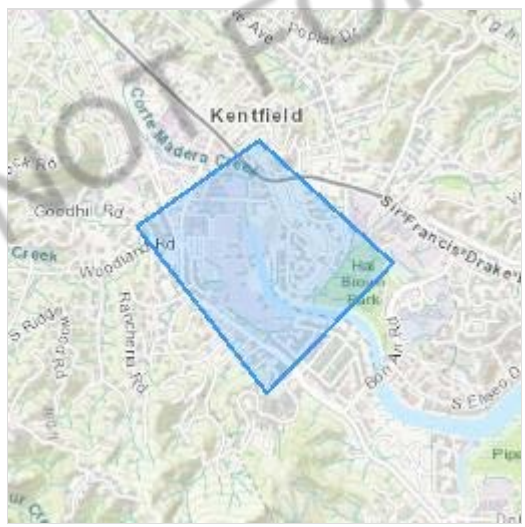
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Marin County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600

(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an

office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse Reithrodontomys raviventris Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Least Tern Sternula antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
California Ridgway''s Rail Rallus obsoletus obsoletus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS

California Seablite Suaeda californica — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6310

Marin Dwarf-flax Hesperolinon congestum — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5363

Santa Cruz Tarplant Holocarpha macradenia — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/6832

Showy Indian Clover Trifolium amoenum — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6459

White-rayed Pentachaeta Pentachaeta bellidiflora — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7782

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1]

and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

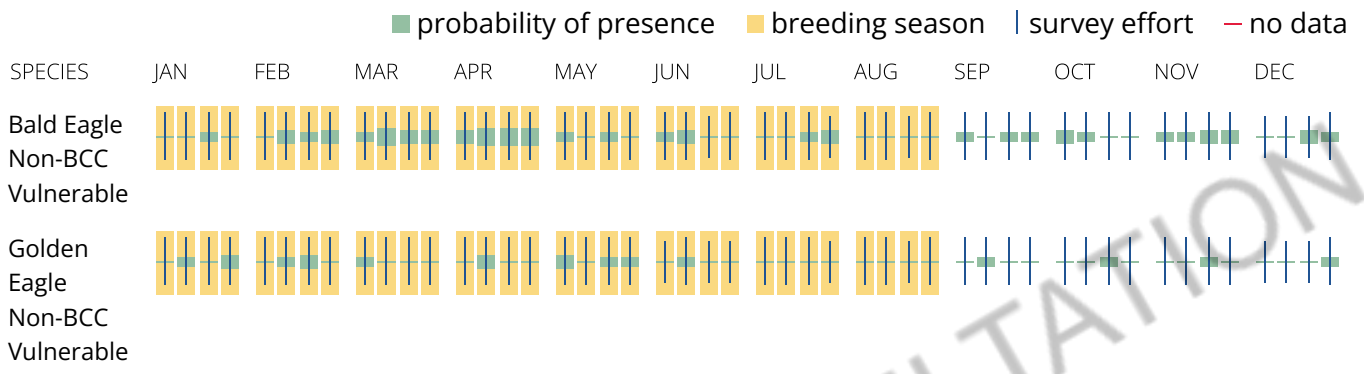
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Black Oystercatcher Haematopus bachmani This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Swift Cypseloides niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Tern Chlidonias niger surinamenisis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black Turnstone Arenaria melanocephala This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere

Black-chinned Sparrow Spizella atrogularis — Breeds Apr 15 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9447

Brandt's Cormorant Urile penicillatus — Breeds Apr 15 to Sep 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus — Breeds Mar 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Spotted Owl Strix occidentalis occidentalis — Breeds Mar 10 to Jun 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/7266

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Elegant Tern Thalasseus elegans — Breeds Apr 5 to Aug 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8561

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Heermann's Gull Larus heermanni — Breeds Mar 15 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Red Knot Calidris canutus roselaari — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8880

Santa Barbara Song Sparrow Melospiza melodia graminea — Breeds Mar 1 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5513

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Western Gull Larus occidentalis — Breeds Apr 21 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Western Screech-owl Megascops kennicottii cardonensis — Breeds Mar 1 to Jun 30
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Willet Tringa semipalmata

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Wrentit Chamaea fasciata

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Mar 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The

number of surveys is expressed as a range, for example, 33 to 64 surveys.

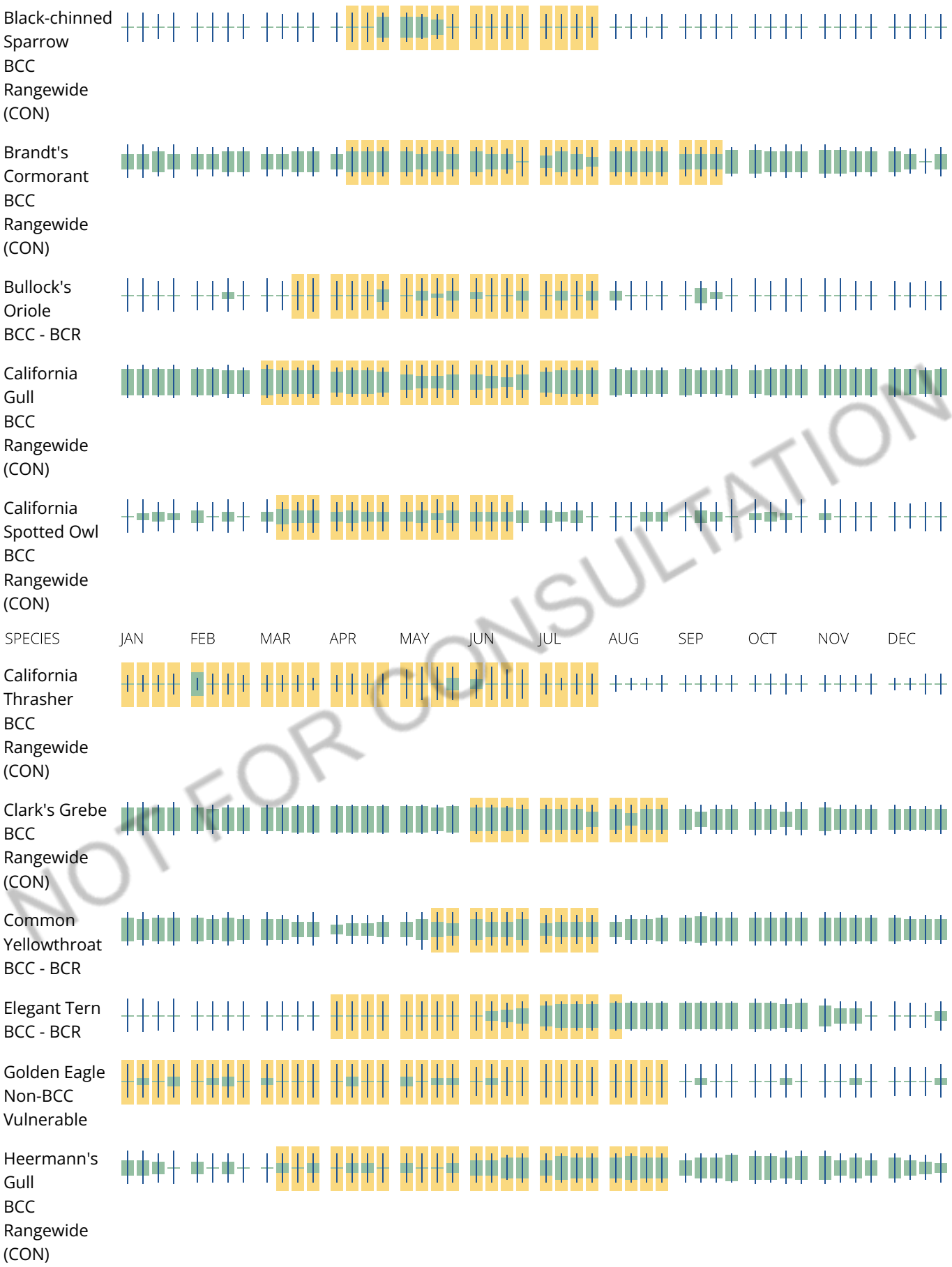
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

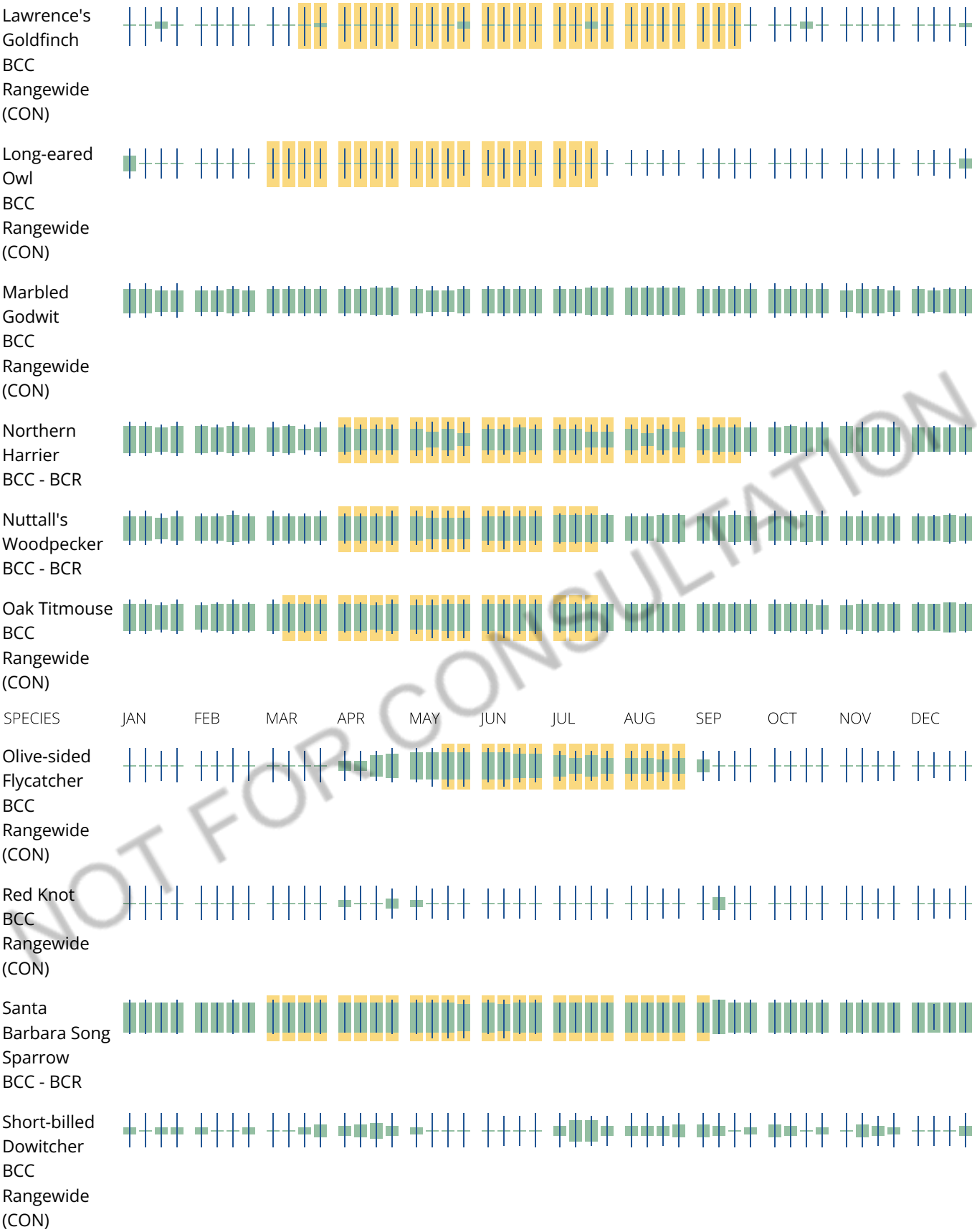
No Data (–)

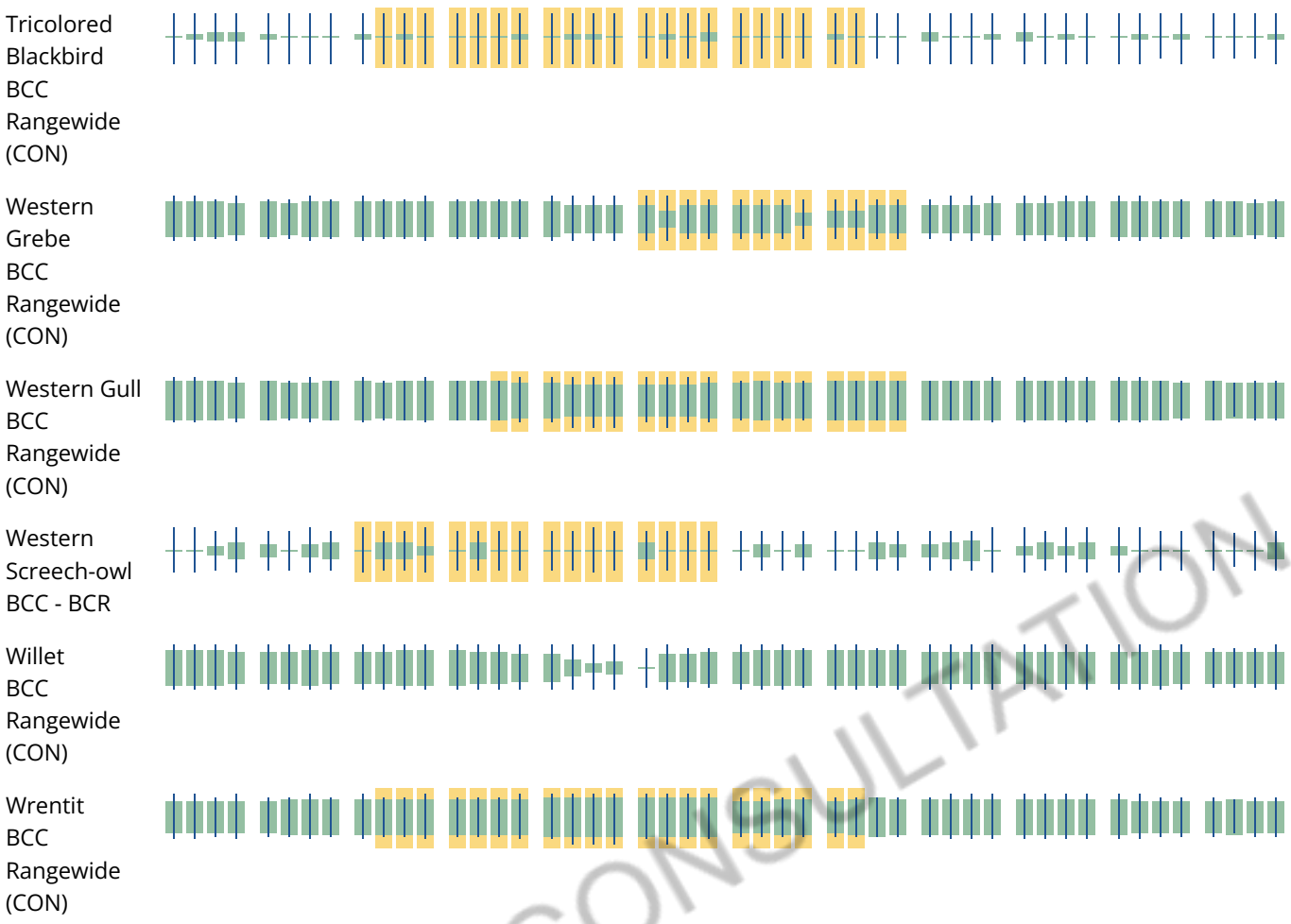
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.







Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species

that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean

Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE DEEPWATER

- E1UBL

ESTUARINE AND MARINE WETLAND

- E2EM1N
- E2SBNh
- E2SBN
- E2USM
- E2SBNx

RIVERINE

- R4SBA
- R4SBCx

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Marin County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600

(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an

office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse Reithrodontomys raviventris Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Least Tern Sternula antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
California Ridgway''s Rail Rallus obsoletus obsoletus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS

California Seablite Suaeda californica — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6310

Marin Dwarf-flax Hesperolinon congestum — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5363

Santa Cruz Tarplant Holocarpha macradenia — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/6832

Showy Indian Clover Trifolium amoenum — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6459

White-rayed Pentachaeta Pentachaeta bellidiflora — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7782

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1]

and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

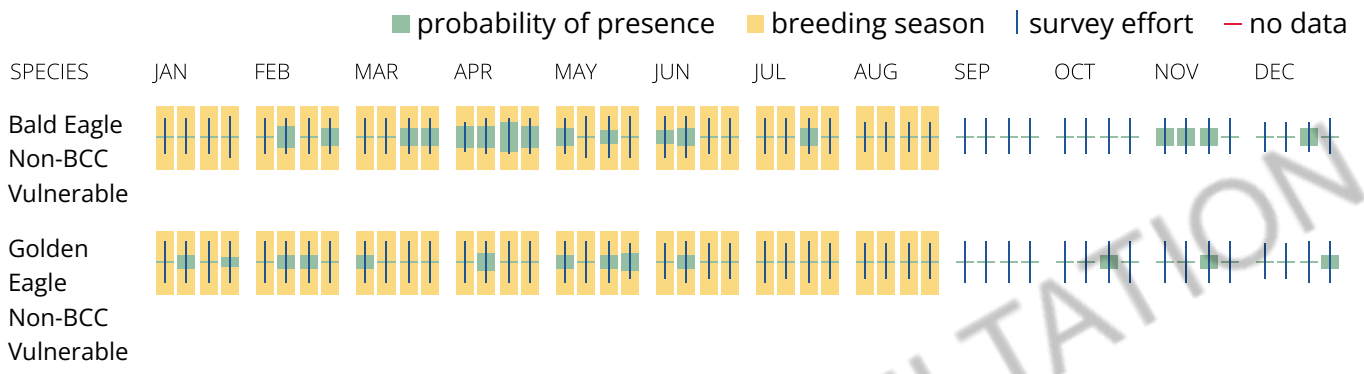
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Black Oystercatcher Haematopus bachmani This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Swift Cypseloides niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Tern Chlidonias niger surinamenisis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black Turnstone Arenaria melanocephala This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere

Black-chinned Sparrow *Spizella atrogularis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Brandt's Cormorant *Urile penicillatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 15 to Sep 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
California Spotted Owl *Strix occidentalis occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7266	Breeds Mar 10 to Jun 15
California Thrasher *Toxostoma redivivum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Common Yellowthroat *Geothlypis trichas sinuosa* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Elegant Tern *Thalasseus elegans* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8561	Breeds Apr 5 to Aug 5

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Heermann's Gull Larus heermanni — Breeds Mar 15 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Red Knot Calidris canutus roselaari This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8880	Breeds elsewhere
Santa Barbara Song Sparrow Melospiza melodia graminea This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5513	Breeds Mar 1 to Sep 5
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Western Grebe aechmophorus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Western Gull Larus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 21 to Aug 25
Western Screech-owl Megascops kennicottii cardonensis This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jun 30

Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The

number of surveys is expressed as a range, for example, 33 to 64 surveys.

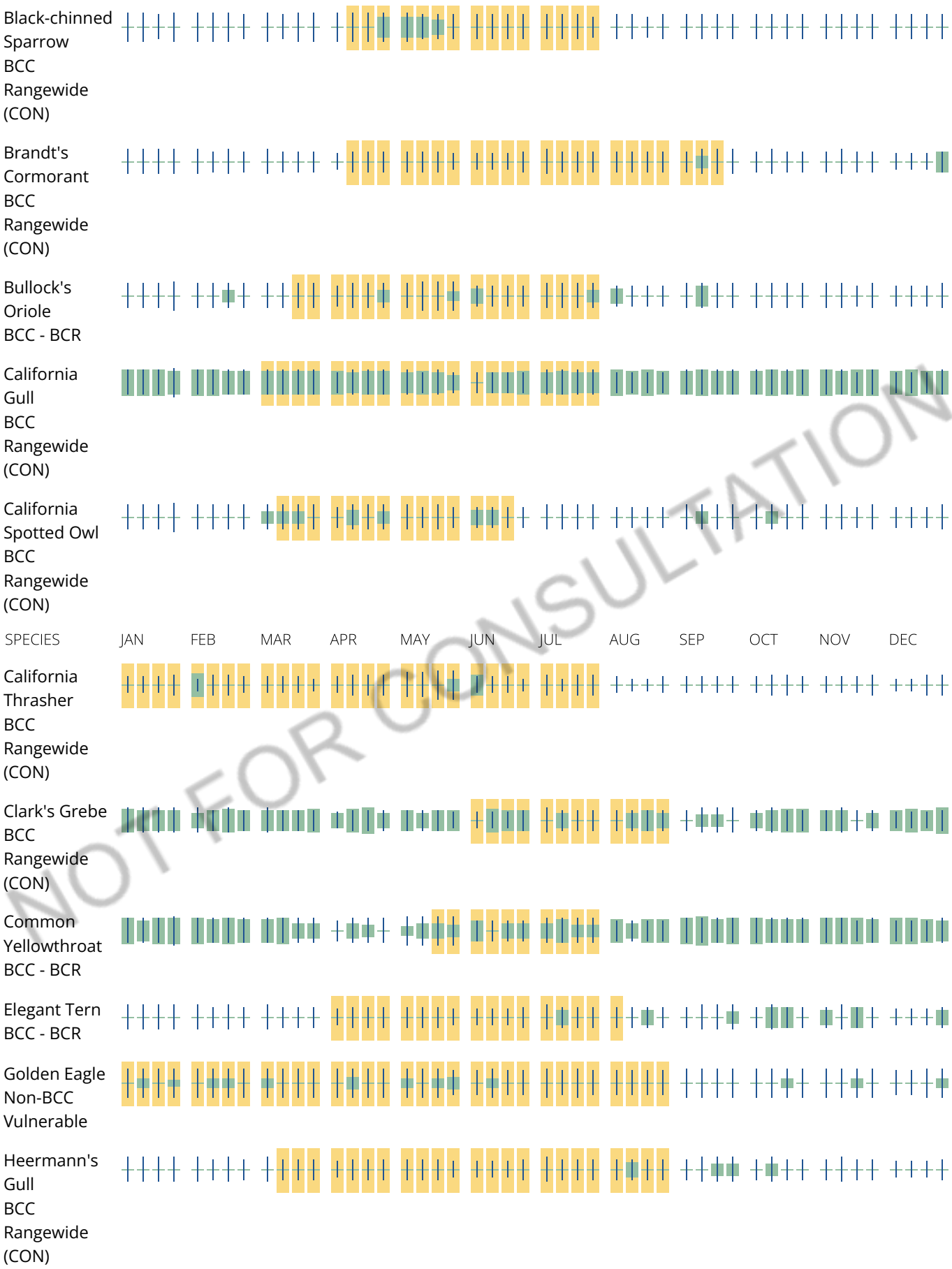
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

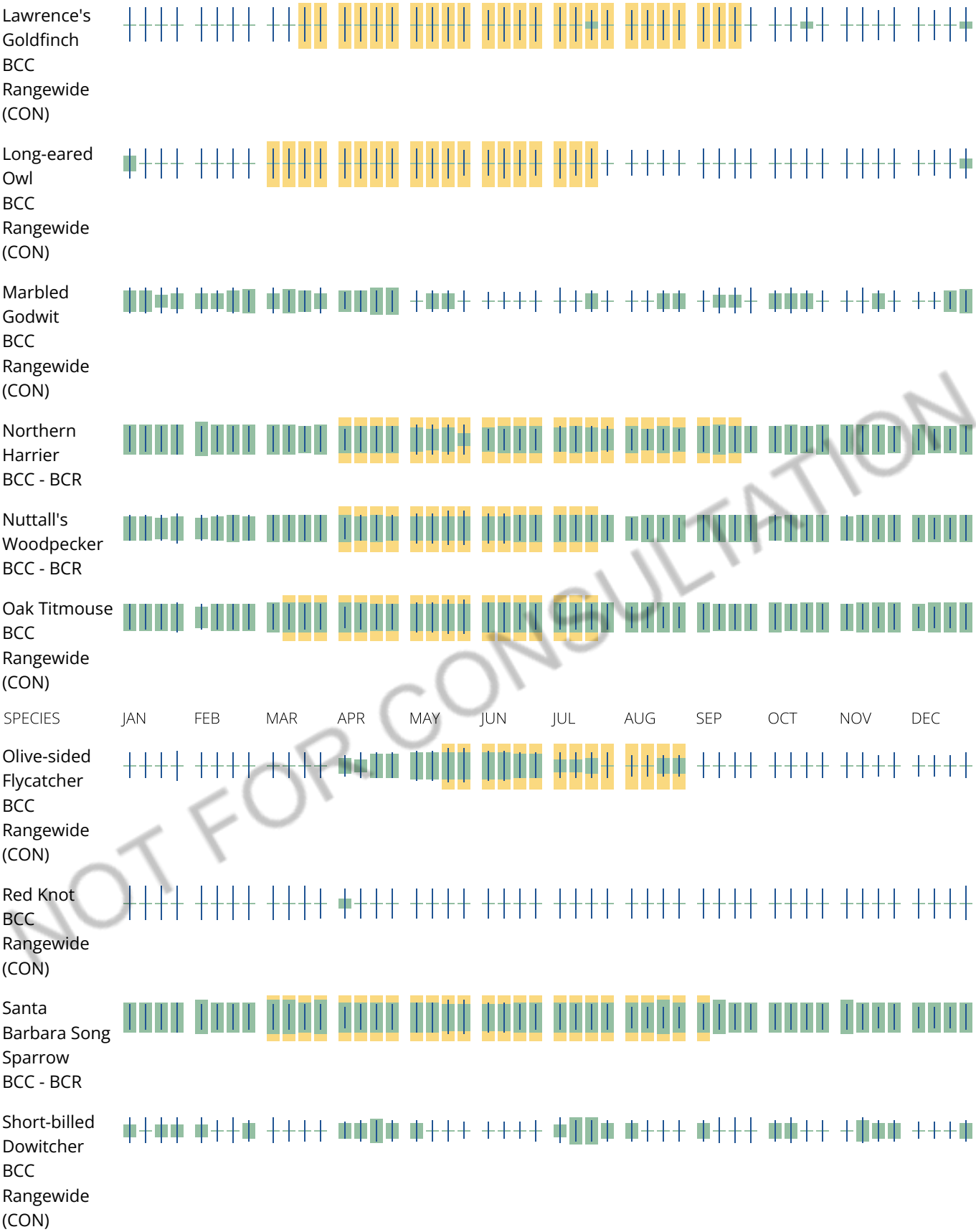
No Data (–)

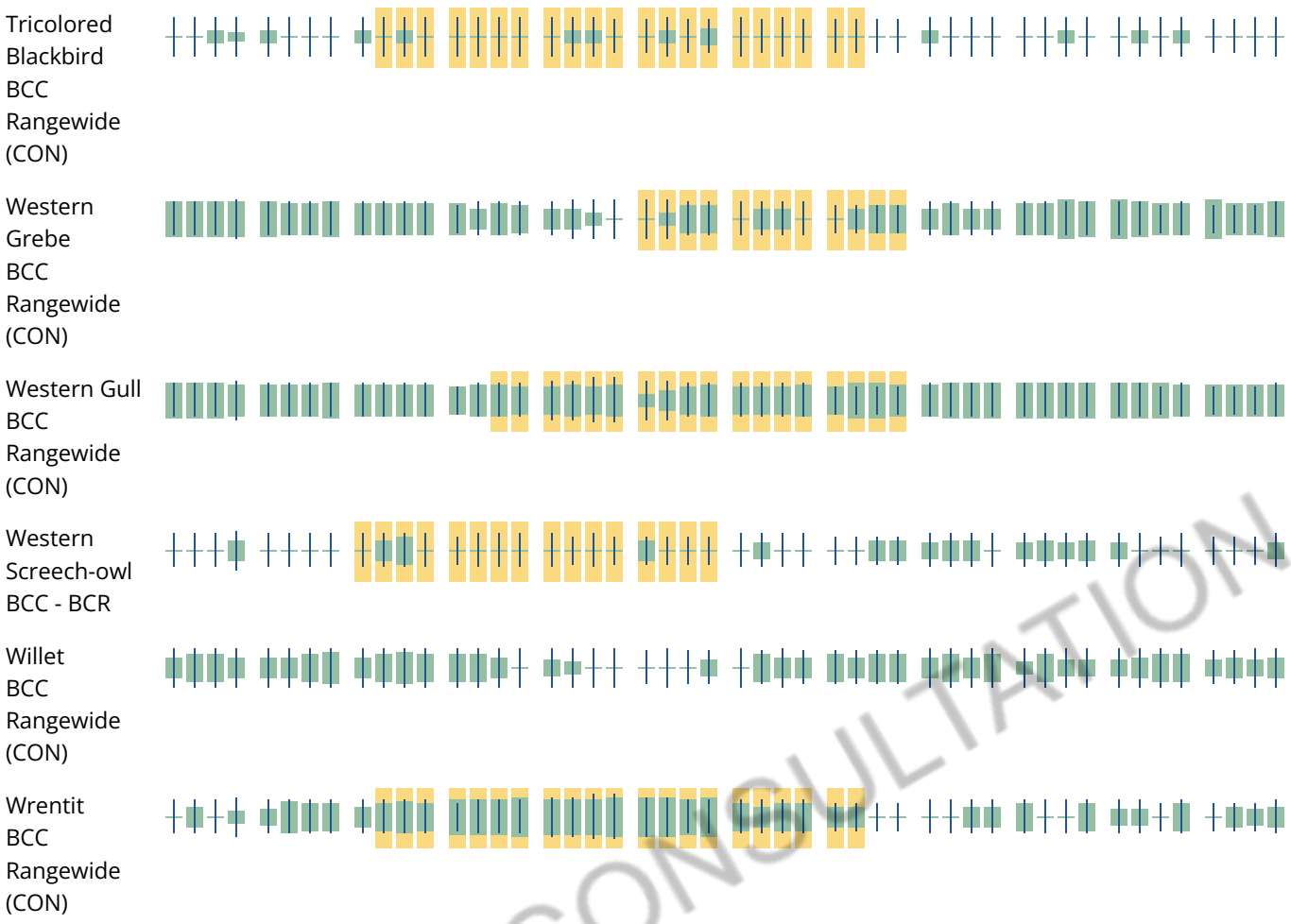
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.







Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species

that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean

Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE WETLAND

E2SBN

RIVERINE

R4SBA

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any

particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.